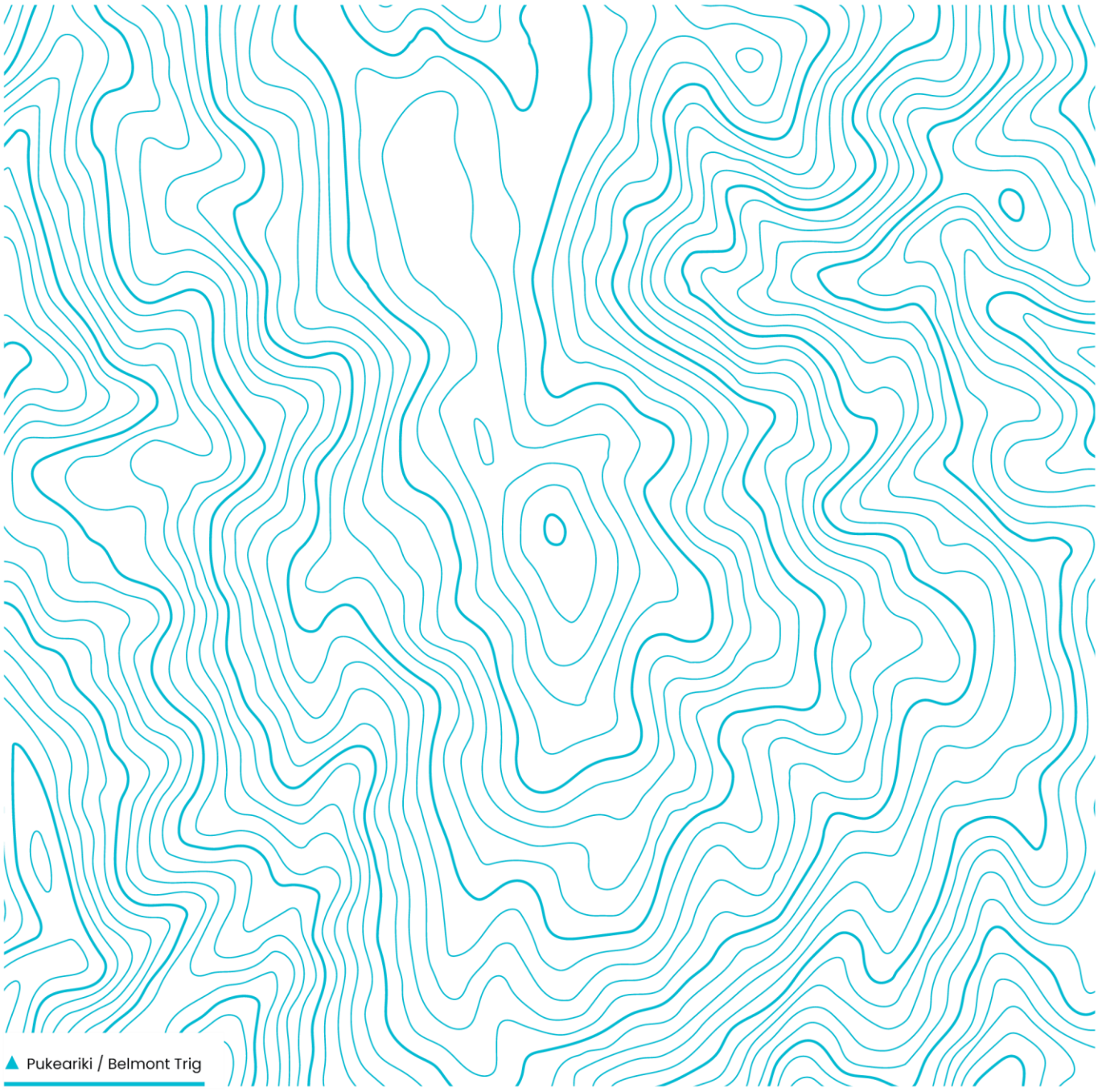
Hutt City Council Indigenous Biodiversity Discussion Document



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Biodiversity is often called the "web of life" because it shows how all the species work together to support life and ecological balance on Earth.

Indigenous Biodiversity – The diverse flora and fauna that is from and belongs within Hutt City – biodiversity that is 'local'.

An indigenous biodiversity strategy vision should be ambitious, holistic, and grounded in a deep understanding of the interconnectedness of all living things and the importance of biodiversity to the health and well-being of the planet and its inhabitants. Te Taiao is the environment that contains and surrounds us, and we all have a role to play in nurturing Te Taiao back to the life sustaining force that existed before human habitation.

Biophilic Cities (an organisation that facilitates a network of cities to improve their biodiversity) describe it this way: "We need nature in our lives more than ever today, and as more of us are living in cities it must be urban nature. Biophilic Cities (spaces and places) are cities that contain abundant nature; they are cities that care about, seek to protect, restore, and grow this nature, and that strive to foster deep connections and daily contact with the natural world. Nature is not something optional, but essential to living a happy, healthy, and meaningful life."

Imagine Hutt City as a Biodiverse-City (a BiodiverCity) where we are positively acting beyond protection and targeted enhancement to ensure all ecosystem functions are restored, maintained, and managed. Imagine developing and embedding partnership approaches with iwi, community groups, and other

organisations to manage and enhance biodiversity and to provide greater connection and access opportunities to the natural environment and our waterways.

Keeping nature healthy, greening our cities, local communities and maintaining the enormous diversity of life on our planet and in our neighbourhoods are essential for our future. By valuing nature, we can understand the full implications of the choices we make as individuals. As a community we should deliberately monitor and protect natural characteristics and health, enhance the health of urban ecological cycles (water, nutrient, energy), and to develop locally relevant reserves and an open space network.

Ka mu – ka muri: to understand what healthy indigenous biodiversity is, we need to understand what healthy indigenous biodiversity was (what did it contain, what did it look like, how did it sound and how did it create healthy ecosystems). Mana Whenua are central to this understanding, through oral history and through generational lived experience and this is why this discussion document in partnership with Mana Whenua is important.

About this discussion document:

Council endorse the reality that healthy and abundant Indigenous Biodiversity is crucial to the very survival of life and environment (te taiao) and that environmental health is crucial to human health.

This discussion document has been developed through conversations with Mana Whenua, key stakeholders and the broader community and we are now checking back in to ensure we are on the right track, ahead of the development of the draft Indigenous Biodiversity Strategy.

The discussion document outlines a draft strategic framework for Hutt City Council's Indigenous Biodiversity Strategy including a draft vision, goals and focus areas. The Strategy will be a high-level 'signal of intent' which will be followed by an Action and Implementation Plan.

Hutt City Council takes its role of facilitator, coordinator, supporter, and guardian of public lands seriously and is committed to collaborative development of the Indigenous Biodiversity Strategy.

Hutt City Council invites you to submit your feedback on this preliminary discussion paper and thoughts on indigenous biodiversity at '**Have your say - Hutt City Council**'.

For further questions, please email **biodiversity@huttcity.govt.nz**

Draft Strategic Framework

<table>
<tr><th colspan="4">Draft Vision</th></tr>
<tr><td colspan="4">Ko te hiahia kia piripono kia Papatūānuku.
Nature as part of everyday lives.

Ko te noho mārie me te taiao, ā, ka matakiteatia hei te tau 2030 kua wāriutia, kua whāomotia te kanorau koiora taketake, ā, kua whakarauora anō te toitūtanga hapori kia pai ai te whāngai rawa ki ngā tāngata katoa, ahakoa ko wai, ahakoa nō hea.

Living in harmony with nature where, by 2030, indigenous biodiversity is valued, conserved, and restored sustaining communities and delivering benefits for all.</td></tr>
<tr><th colspan="4">Draft Goals</th></tr>
<tr><td>Indigenous species and their habitats in Te Awa Kairangi ki Tai (Hutt City) are protected and restored so they can thrive.</td><td>Mana Whenua's role as Rangatira and Kaitiaki is recognised, mātauranga Māori is acknowledged and customary practices supported.</td><td>Our community is connected with all of nature, values it and actively contributes to its protection and restoration.</td><td>Knowledge, awareness, and management of indigenous biodiversity are improved through effective monitoring systems.</td></tr>
<tr><th colspan="4">Draft Focus areas</th></tr>
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Safeguarding ecosystems, species, and diversity.	Managing pest plants and animals and disease.	Maintaining and improving Water and Air quality and adapting land use.	Improving public health through sustainable biodiversity.

Draft Vision and Goals

Draft Vision:

Our draft collaborative vision speaks for the return of health to the natural world in a way that we can measure, manage, protect, and restore to encourage interconnectedness with nature. Central to this vision is the recognition that people are a part of nature, and that we can only thrive when nature thrives. Good human health is a result of good environmental health and abundant biodiversity in the right ecosystem or climate envelope.

Living in harmony with nature where, by 2030, indigenous biodiversity is valued, conserved, and restored sustaining communities and delivering benefits for all people.

Draft Goals:

The draft goals outlined above align with both the Department of Conservation (DOC) and Greater Wellington Regional Council's biodiversity principles and the United Nations Sustainable Development Goals. As a country, Aotearoa New Zealand has made a commitment to take ownership and establish a framework to achieve these goals[1]. Hutt City Council support these national and regional goals when defining our indigenous biodiversity goals and principles at a

[1] Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020

community level and the proposed indigenous biodiversity strategy gives volume to Council's intent[2].

Focus Areas

Partnership with Mana Whenua:

- Give effect to shared Māori viewpoints of sustainability in Council decision-making to facilitate broad biodiversity benefits across environmental, cultural, spiritual, and economic domains.
- Enable Mana Whenua to establish priorities and lead action plans and programmes under the umbrella of the Indigenous Biodiversity Strategy.
- Undertake actions to restore māhinga kai and customary practices such as gathering kaimoana and edible plants and harvesting harakeke (flax).
- To enable and support the vitality of Te Awa Kairangi and its tributaries, as recommended in Te Mahere Wai, a Mana Whenua Whaitua Implementation Programme for Te Whanganui-a-Tara and its companion document, Whaitua Te Whanganui-a-Tara Implementation Programme (WIP).
- Through the District Plan, create contemporary rules and policies to reflect Mana Whenua priorities for protecting, conserving, and enhancing indigenous biodiversity.

Enabling Community to connect and participate:

- Work with community and other key stakeholders to achieve the greatest collective impact to create, support and maintain healthy environments.

[2] International science advisors state, "there is compelling evidence that global biodiversity is rapidly declining." At the December 2022 U.N. Biodiversity Conference in Montreal, Canada (COP15), governments across the globe (190 countries) reached an historic agreement to collectively commit to conserving at least 30 percent of lands and waters by 2030. A global commitment to halt and reverse biodiversity loss by 2030 and to protect 30% of land and oceans by the same date.

- Continue to support existing community partnerships and proactively foster new relationships to enable people to contribute to the protection and restoration of healthy biodiversity.
- Establish easily accessible ways for people to connect with nature.
- Promote the value and importance of biodiversity through community connections and participation.
- Through the District Plan, increase the ability of the community to deal with change, through resilient practices and innovative techniques.

Responding to the impact of Climate Change:

- Continue to prioritise nature-based solutions to adapt to the impacts of climate change with a priority focus on flood risk management and water quality.
- Protect, expand, and manage vegetation in the city to both address the impact of climate change and support community wellbeing.
- Through the District Plan address implications of significant global issues like climate change resilience (particularly flood risk management) species loss, declining water quality and ecological connection.

Safeguarding ecosystems, species, and genetic diversity:

- As guardians of significant landscapes, demonstrate management approaches that value, protect, and restore indigenous biodiversity.
- Identify high native biodiversity valued areas, endemic species, and the condition of indigenous forests, for protection, management, restoration, or other intervention.
- Prevent decline and further loss of species and habitats by improving fragmented landscapes and removing threats.
- Stronger biosecurity management, including the monitoring of species that compromise the integrity of significant natural ecosystems or threaten native species (including utilisation of new tools or techniques (e.g.: eDNA sampling)

- Identify or develop effective monitoring systems to support the mahi mentioned above.

Invasive pests, plants, disease, and animals

- In collaboration with other agencies, communities and landowners/managers develop and implement pest plant and animal control programmes that effectively reduce threats.
- Strive to enable shifting from a 'control' to 'elimination' programme for the most threatening pests on a landscape scale.
- Enrol broader community in efforts to remove pests through education and provision of resources.

Water and Air quality and adapting Land Use

- Acknowledge and promote the mauri of waterbodies (awa) and the Mana Whenua concept of putting water first – te Mana o te Wai and adopting mechanisms to reduce human and industrial waste contaminating local waterways.
- Improve the quality of water by planting, protecting, and maintaining native plants to reduce erosion and sedimentation.
- Protect wetlands so they can purify water and help prevent flooding and drought.
- Plant and protect vegetation which enables gaseous exchange and plant-based carbon sequestration.
- Understand how and where land use has changed in the city to better understand the complexities of environmental degradation.
- Through the District Plan, protect areas of significant indigenous vegetation and significant habitats and indigenous species.
- Protect and maintain indigenous ecosystems through resource consenting process and associated compliance.

Improving public health through healthy biodiversity

- Support a diverse, resilient, and healthy ecosystem that contributes to the health and wellbeing of our community.
- Support and advocate for the application of mātauranga Māori and healthy built environment principles throughout all stages of urban and rural planning and development.
- Embed in all Council policies and plans the principle that healthy built environments are places that support equity, and where the wellbeing of people, land, water, air and living species are at the forefront of decisions.

As part of the discussive nature of this document, we invite thoughts on whether there needs to be a priority list attached to the Focus Areas or whether they are treated with equal eminence.

The draft focus areas are a response to community feedback. This collaborative spirit is already part of several initiatives, including Predator Free 2050, an ambitious predator management programme. It has the goal to rid Aotearoa New Zealand of major introduced predators, the most significant of which are rats, stoats, and possums, by 2050. Other major initiatives include the War on Weeds, an initiative aiming to rid Aotearoa New Zealand of wilding conifers and twelve other problem weeds, and the Battle for our Birds, Aotearoa New Zealand's largest predator control operations to date in 2014 and 2016, in response to heavy beech tree seeding.

The process

The intention of this discussion document on the future Indigenous Biodiversity Strategy is to address Council, Mana Whenua, and stakeholder aspirations, planning and decision-making at a strategic level. The strategy will influence the District Plan (DP) and influence Council's Spatial Planning and Carbon Reduction and Climate Resilience Plans as they are renewed. The Indigenous Biodiversity Strategy will be a companion document to the Urban Forest Plan.

This discussion document sets a framework to guide, protect, identify, measure, and manage biodiversity. It is the product of a collaborative process, developed with information, ideas and advice provided by Mana Whenua, local environmental groups, several stakeholders, partners, interest groups and the broader community. Once adopted the Hutt City Council Indigenous Biodiversity Strategy will provide a foundation for other Council work and influence the reserves and assets which are managed by Parks and Reserves. The Indigenous Biodiversity Strategy will also provide a foundation for other landowners.

To date there has been a three-stage consultation process that informed the content of this discussion document. A full day wānanga was held on 7 November 2022. Forty-two people attended, and 284 responses were collated from the participants. The wānanga was followed by a mail-out of the collated feedback, to ensure what we heard was a true indication of the attendees' priorities and vision. This feedback provides both the scope and direction for the strategy. Figure 1 shows a photo of guest speaker, Kaumātua Te Rira (Teri) Puketapu sharing his knowledge.

Figure 1: Wānanga guest speaker, Kaumātua Te Rira (Teri) Puketapu sharing his knowledge.

Four public presentations were scheduled during February and March to provide an opportunity for all interested parties - volunteer groups, individuals, and businesses - to attend and ask questions.

The process for creating this discussion document and then the draft Indigenous Biodiversity Strategy is outlined below.

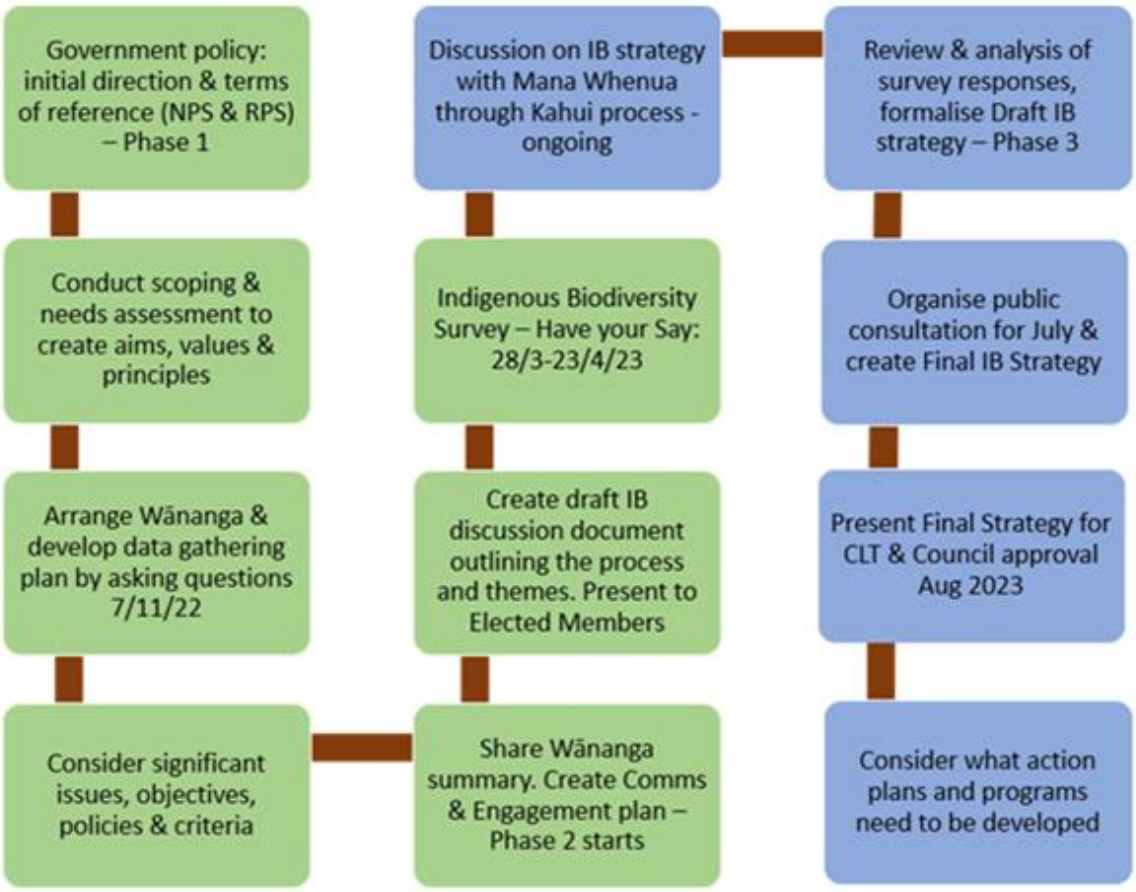

Figure 2: Proposed process to develop the strategy (Note, green squares have been completed and blue squares are future tasks).

The proposed Indigenous Biodiversity Strategy will be developed in partnership with Mana Whenua and other community groups. Mana Whenua have a significant interest in biodiversity and contributing to a thriving 'te taiao' that serves generations to come[3]. Council's role may vary from regulator to

[3] https://www.doc.govt.nz/nature/biodiversity/aotearoa-new-zealand-biodiversity-strategy/te-Mana-o-te-taiao-summary/

deliverer, facilitator to supporter and in some instances the best role Council can play is ‘to get out of the way’, enabling others to innovate and lead action.

Background

Indigenous Biodiversity – what is it?

Biodiversity is a term used to describe the range of species in a place, and the range of communities or 'ecosystems' in which they live i.e., the diversity among and within plant and animal species in an environment[4]. Indigenous Biodiversity attempts to describe as closely as possible, the ‘local’ flora and fauna that exist in a catchment area.

Aotearoa New Zealand’s biodiversity is characterised by the high percentage of endemic species (those found nowhere else on Earth), including the dominance of unique birds, epitomised by the iconic flightless kiwi. Biodiversity is often used as an indicator to measure health of biological systems. While biodiversity itself is not a function of an ecosystem, it does affect the resilience and function of these ecosystem services. Ecosystems provide many of the basic services that make life possible for people. Plants clean air and filter water, bacteria decompose wastes, insects pollinate flowers, and tree roots hold soil in place to prevent erosion.

Indigenous biodiversity is of greatest concern due to increased threats and risks to these species. For eighty million years Aotearoa New Zealand evolved in relative isolation, resulting in biodiversity hotspots. Aotearoa New Zealand is the last remaining landmass of Gondwana (an ancient supercontinent), making the long white cloud a special place. On land, more than 80% of Aotearoa’s vascular plants and 90% of our insects are endemic, including the presence of gigantism

[4] 1916 – The term biological diversity was used first by J. Arthur Harris in "The Variable Desert," Scientific American: "The bare statement that the region contains a flora rich in genera and species and of diverse geographic origin or affinity is entirely inadequate as a description of its real biological diversity."

in many of these species, such as the Giant weta and Kauri snails. We have unique reptiles such as the tuatara, and our only native terrestrial mammals are several species of bats/Pekapeka.

But what is 'indigenous' to Te Awa Kairangi ki Tai, what plants, insects, fungi and other are local to where we live here at the bottom of Te Ika-a-Māui, what was our water quality like and how did the ecosystems work?

Why do we need to protect our biodiversity?

First, and as recognised by all parties – it is the right and necessary thing to do.

Secondly, Aotearoa New Zealand 's first National Adaptation Plan[5] 2022 (NAP) for the natural environment requires that all Councils address significant risks from climate change. A healthy, diverse, and functioning biodiverse network will help to withstand climate change impacts and continue to provision the cleaning of our air and quality of our waterways.

We can protect and conserve biodiversity by reducing human-induced pressures, habitat loss, predator, and browser activities, and restoring ecosystems and retaining vegetation to minimise erosion. Our economic, social, and cultural well-being can be boosted through healthy ecosystems.

In addition, the Resource Management Act 1991 (RMA) and National Policy Statements (NPS) provide national direction and objectives for sustainable management purposes to protect our environment. The NPS for Indigenous Biodiversity (NPS-IB) is the primary document driving biodiversity protection under central legislation.

An ecosystem describes the interrelationships between living organisms and the non-living environment. A lack of biodiversity may act as an indicator to the health of an ecosystem, including the lack of ecosystem services that occur naturally. A healthy ecosystem contains a variety of native species, that would

[5] https://environment.govt.nz/publications/aotearoa-new-zealands-first-national-adaptation-plan/natural-environment/

occur naturally that setting (e.g., river, forest, wetland, dunes). Healthy forests need healthy soil, with robust pest plant and animal management.

As societies emerge from the Covid-19 crisis, increasing urban resilience and improving the lives and well-being of urban dwellers will be critical to boosting economic and resident confidence. According to the World Economic Forum's Future of Nature and Business Report, a nature-positive pathway in the infrastructure and built environment could create over $3 trillion in business opportunities and create 117 million jobs by 2030[6].

Long-term studies have shown that people thrive both physically and psychologically when engaged with nature and a healthy environment. Biodiversity has an impact on our survival and quality of life. Our commitment to Indigenous Biodiversity will have a knock-on effect (positive and negative) for future generations of human and non-human species.

What are the benefits of a healthy indigenous biodiversity?

Biodiversity provides the life supporting systems that enable all organisms, including humans, to survive[2]. [7]. Indigenous forests provide carbon sinks and purify the air we breathe. They also provide recreation opportunities and amenity values[2]. Alongside reducing carbon, cleaning our air and water, indigenous ecosystems also provide:

- Protection for our taonga and strengthening our cultural values.
- Climate regulation.
- Nutrient storage and recycling.
- Soil formation and sediment control.
- Proliferation of native species e.g., more birds in urban areas.

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[6] https://environment.govt.nz/publications/aotearoa-new-zealands-first-national-adaptation-plan/natural-environment/
[7] https://environment.govt.nz/facts-and-science/biodiversity/why-biodiversity-matters/

- Healthy and sustainable food.

Māori values

"Recognising the importance of the Te Tiriti o Waitangi to ensure Māori values and perspectives are reflected in Council processes. Governance in partnership with Mana Whenua promotes leadership and inclusivity and ensures that the environment is at the forefront of decision-making."[8]

The very nature of this discussion document is to put on paper what Council understand and have learnt from mahi to date, including the November wananga, subsequent korero, feedback and local research.

'Kaupapa Māori' is a term that can be used to explain the key concepts of te ao Māori (the Māori worldview) which extends to the natural environment. Māori belief dictates that both people and the environment (including all flora and fauna) are descended from atua Māori (supernatural personifications of environmental domains) with the primordial parents being Ranginui and Papatūānuku. Therefore, the relationship between people and the environment is one of whakapapa (genealogical connection) and this is enacted in the everyday ways we connect to te taiao (our natural environment). Whakapapa binds he tāngata (the people) and te taiao together making them united, and with this unity is a sense of duty to look after the environment.

Māori have developed tikanga (guiding principles) over generations with regards to the health of the environment, and these are premised on maintaining a sense of balance. Kaitiakitanga (stewardship and protection), challenges the western concept that people are ascendant over Papatūānuku, and instead that we are descended from her. It promotes a relationship of reciprocity, whereby people do not 'own' the earth's resources but instead have 'user rights' and a duty of care to not extract natural resources beyond the point where they are no longer able to regenerate themselves.

For tāngata whenua the wellness of te taiao is of additional importance in being able to practice Manaakitanga (caring for others). For example, the growing and harvesting of local foods from the forest and other traditional māhinga kai sites

facilitates being a good host and enables traditional raranga (textiles) and rongoā (medicinal) practices.

To restore the vitality of Te Awa Kairangi and its tributaries, as recommended in Te Mahere Wai, a Mana Whenua Whaitua Implementation Programme for Te Whanganui-a-Tara and its companion document, Whaitua Te Whanganui-a-Tara Implementation Programme (WIP), these two programmes will form part of the draft Indigenous Biodiversity Strategy.

(a) Māhinga kai – Mana Whenua are supported and resourced to develop and implement a measurement framework for māhinga kai (a compulsory value in the National Policy Statement for Freshwater Management 2020) by 2025 and Mana Whenua work with territorial authorities to identify (also by 2025) and restore (by 2035) the spawning habitats of indigenous fish and māhinga kai species (e.g., inanga) in their rohe.

(b) Mana Whenua as decision makers – projects provide for the establishment of (with appropriate operational funding provisions) a Mana Whenua endorsed kaitiaki monitoring and management programme like Ngā Māngai Waiora (ambassadors for water).

In Hutt City, Mana Whenua will hold these relationships with several agencies to deliver these two programmes.

Community Involvement

The proposed Indigenous Biodiversity Strategy provides an opportunity to create a new and innovative approach to co-operatively manage indigenous biodiversity throughout the district. It's a big picture framework delivering collective impact across groups such as Mana Whenua, community groups, environmental organisations, private individuals, community conservation and recreation groups, and landowners, developers, and managers. This provides a promising prospect to connect with others, working cumulatively and investigating tools to achieve common indigenous biodiversity goals.

Individuals make a significant contribution to protecting Aotearoa New Zealand 's biodiversity through trapping introduced predators in their own backyards, contributing to citizen science projects, planting indigenous species, and removing invasive plants. Other examples of good mahi from community and conservation groups include monitoring waterways, sharing knowledge and best practice, and maintaining riparian buffers. It is important to involve and engage the community and volunteer groups to enable them to influence decisions about the environment.

Ecological restoration is needed to address significant indigenous biodiversity and habitat loss within our city caused by anthropogenic deforestation, pest introduction, changing land use and urban intensification.

Improving biodiversity on highly productive land (land suitable for growing food or livestock) and in catchment areas (basin shaped land that catches surface water) can have benefits for both indigenous species, horticulture and the growing science and business of aquaculture. For example, planting indigenous trees as a shelterbelt provides habitat and food for indigenous birds and insects, while also providing shade or warmth for livestock and preventing soil erosion.

Both the Resource Management Act Section 6 and the NPS-IB requires that areas of significant biodiversity value to be protected. Authorities are guided by a variety of means (e.g., ecological guidance, scientific expertise, legislation, and case law), and implement their responsibilities to varying degrees and with inconsistent success. The protection of indigenous biodiversity on private land has been a challenging and contentious issue locally.

How do we identify, manage, and monitor our biodiversity?

Currently Hutt City Council carries out the following activities to help identify, monitor, and reduce impacts on biodiversity:

- The management of 349 reserves, with a total of over 2,871 hectares. The Regional Council and Department of Conservation (DOC) manage 16,000 hectares within Lower Hutt.
- Utilisation of Reserves Act 1977 to aid in protection of green space.
- Purchase of private land for recreational or ecological connectivity.
- Working closely with Regional Council, neighbouring Councils, and other relevant stakeholders to share sustainable processes.
- Actively engage with community activities and encouraging community connection with the environment.
- Reserve land management, including the fit for purpose, use, disposal and acquisition in accordance HCC strategies and policies.
- Developing strategic plans and policies that focus on the protection and conservation of land.
- The Urban Forest Plan sets out strategies for trees in natural areas, parks, and reserves and in our streets.
- Provide a Biodiversity Fund (2020-2023) to assist Lower Hutt landowners who want to protect, enhance, and manage indigenous biodiversity on their properties.
- Revegetation and riparian planting projects.
- Pest plant control, including the anthropomorphic distribution of invasive plants (e.g., green waste dumping and/or selling of invasive plants).
- Pest animal control.
- Water quality monitoring, fish surveys and fish barrier identification.
- Identifying wetlands and other key native ecosystems.
- Dune restoration.
- School educational field trips.

This discussion document highlights the role that those other than Council can and do play in a healthy biodiverse city – it may be that Council's best role is to provide the local regulatory environment that actively aids the wider community to develop and activate the solutions.

Where are our biodiversity hotspots?

To understand where biodiversity is, we need to continue to carry out work to identify and verify anecdotal evidence and citizen science findings. We need to answer the previously posed question “what was the indigenous biodiversity, where was it and how did the interconnections of that ecosystem work”. Robust monitoring and the establishment of a Biodiversity Index will increase our knowledge of hotspots. A Biodiversity Index would naturally need to be aligned with an Environmental Health Index – where have we been, what is the current state of our biodiversity and how will we know if we are making any difference?

Hotspots are locations with an abundance of biodiversity. Through historical document reviews, GIS mapping, eBird database, Lizard monitoring and iNaturalist observations we can gather actionable information that can help determine where our biodiversity hotspots are. According to the eBird and iNaturalist databases which record public observations and in the two deeds of treaty settlement: The Port Nicholson Block (Taranaki Whānui ki Te Upoko o Te Ika) Claims Settlement Act 2009 and the Ngāti Toa Rangatira Claims Settlement Act 2014 (e.g., As statutory acknowledgement sites), hotspots may include these areas.

1. Wellington Harbour
2. Matiu/Somes Island
3. Lakes Kohangapiripiri and Kohangatera
4. Wainuiomata Coast
5. Hutt River estuary (near Petone)

In addition, Percy Scenic Reserve is recognised for the intensive collection of Aotearoa New Zealand native plant species. Percy Scenic Reserve is involved in the propagation and recovery of threatened plant species in collaboration with Ōtari-Wilton's, Department of Conservation Te Papa, and Landcare, locally and nationwide.

Key Native Ecosystem (KNE) sites are recognised as High Biodiversity Valued Hotspots by GWRC criteria:

- The number of total species (species richness).

- The number of unique species (endemism).
- The number of species at risk (threat of extinction).

The map below shows the Key Native Ecosystems within the HCC Territorial Local Authority boundary. Note, HCC provides some funding for the ecological weed control of the KNE sites (in red) as part of the Biodiversity Memorandum of Understanding (MOU)between GWRC and HCC. Without collaborative management of KNE sites, many of our native species would not survive in them. By protecting these areas, we are investing in the future of the region's unique and vulnerable ecosystems.

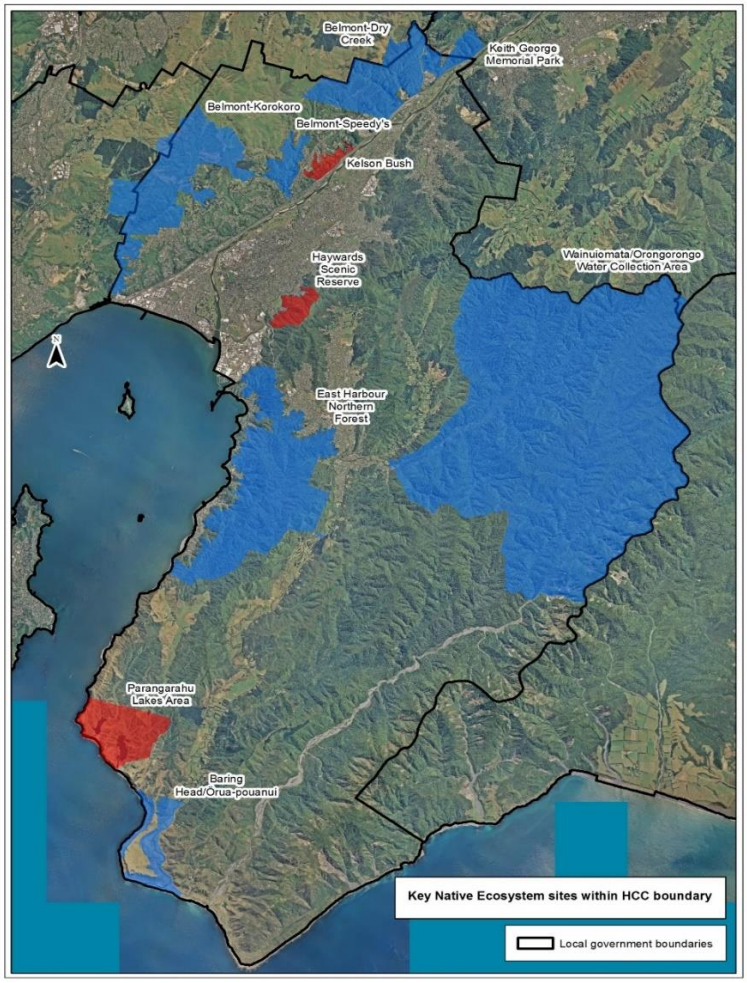


Figure 3: Key Native Ecosystems within HCC boundary

Why is soil biodiversity so important?

One of the greatest impacts we can have on the planet is to restore healthy, biodiverse soil. Soil biodiversity represents the variety of life below ground and

plays a vital role in mitigating climate change, storing and purifying water, nutrient flow and preventing erosion. The well-being of all plants and land-based animals depends on the complex processes that take place in our soil. Table 1 shows the opportunities and obstacles of soil biodiversity.

Table 1: Positives and negatives of soil biodiversity

Opportunities	**Obstacles**
Soil provides vital habitats for micro-organisms such as bacteria, fungi, as well as insects and other organisms.	Without a vibrant soil community, the soil becomes poor in structure and water run-off increases, leading to erosion and flooding.
They contain at least one quarter to one-third of all living organisms on the planet, yet little is known about them.	If the soil's ability to absorb, cleanse and store water is compromised, groundwater will be impaired, and more water treatment facilities will be required.
Soil biodiversity can reduce threats to ecosystem services e.g., soils without earthworms can be 90% less effective at soaking up water.	Maintaining the soil's ability to process and cleanse water will save money and safeguard health and well-being.
Only 1% of soil micro-organism species have been identified.	There may be a lack of resourcing to continue to identify vital soil micro-organisms

Figure 4 (below) shows the current Lower Hutt soil classifications. This soil classification diagram outlines the soil types influencing the range of species that will grow in these locations. This is important when we consider planting large- leafed species for carbon sequestration benefits. We need the right species, in the right place, with the right soil condition. It should be kept in mind to investigate and consider:

- light availability, intensity, and duration (full sun to deep shade).
- water availability, both quantity and quality.
- exposure to wind, salt, and temperature extremes.
- soil type, drainage, compaction.
- hardiness zone.
- competition from existing vegetation.

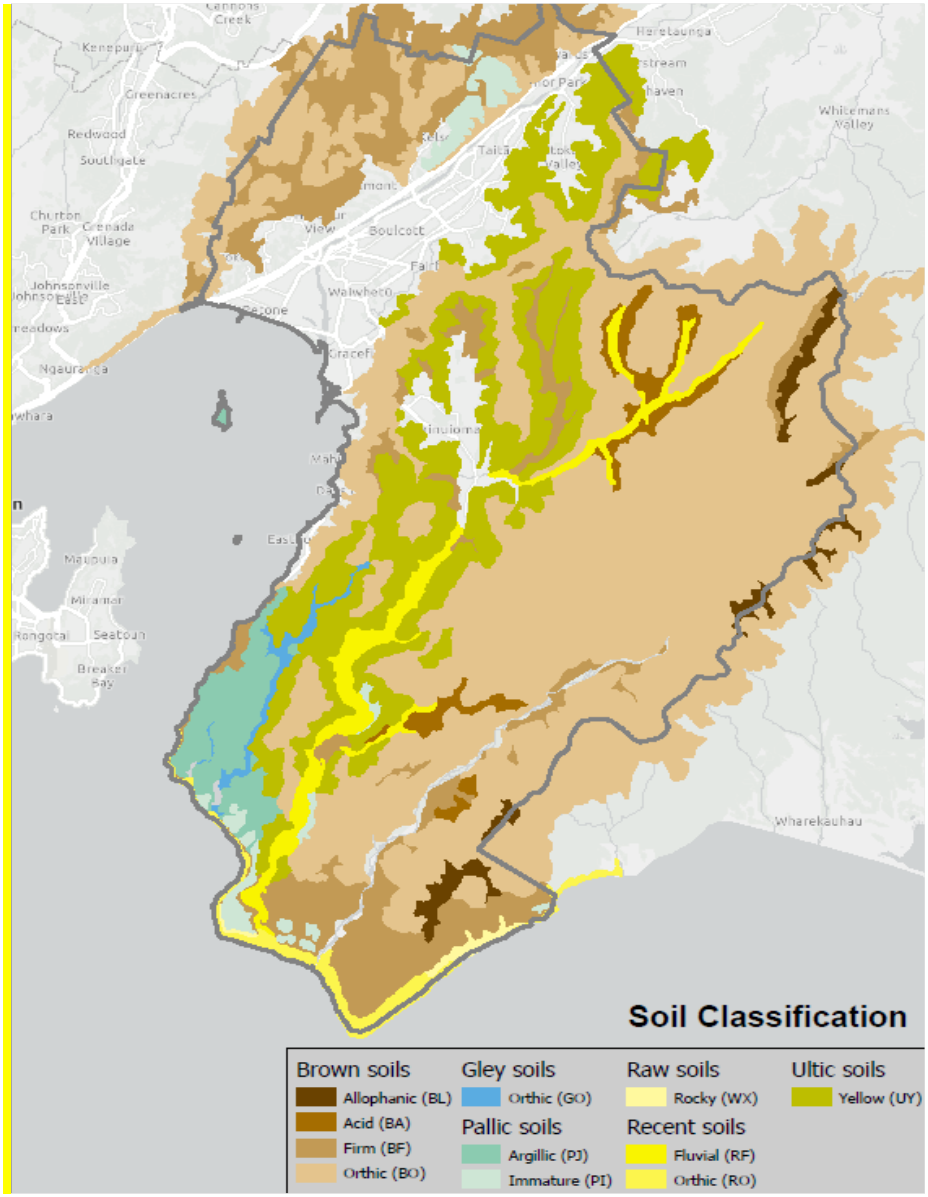


Figure 4: Lower Hutt Soil Classifications (data from Landcare Research, October 2020).

What are the pressures and their impacts on Biodiversity?

In Aotearoa New Zealand, biodiversity has continued to decline despite the protection of large areas of vegetation and habitat. This progressive loss of native fauna is primarily caused by increased numbers of introduced predators, some of which (stoats and cats for example) thrive in habitats, killing native creatures or browsing on native plant seedlings and saplings. 32 per cent of land and freshwater bird species, 18 per cent of sea bird species, and a range of frog, invertebrate, fish, bat, reptile, and plant species are now extinct from historical records. Tracking losses and declines in biodiversity at local levels helps us understand risk better, however data collection processes are insufficient to provide a comprehensive scope.

Both DOC and Ministry of Primary Industries (MPI) state, 'invasive alien species remain an important threat to Aotearoa New Zealand's biodiversity'. Examples included Kauri dieback (a disease that kills Kauri trees of all ages), and Myrtle rust (fungal disease that affects plants in the myrtle family such as kanuka and manuka).

According to the Environment Foundation (Green and Clarkson (2005) the primary threats to indigenous biodiversity are from impacts of degraded water and habitat, land use change, mismanagement or lack or response to climate change. The Department of Conservation have identified five similar main threats:

- Invasive pest plants, disease, and animals.
- Climate change.
- Water Quality.
- Change in land use.
- Waste Pollution.
-

The Mana Whenua concept is to put water first – te Mana o te Wai.

- Ka ora te wai – If the water is cared for.
- Ka ora te Whenua – The land will be nourished.

- Ka ora te Whenua – If the land is nourished.
- Ka ora te tāngata – The people will prosper.

Upholding these values will guide the mahi to restore and protect our waters, which in turn protect human, plant and animal life. The tables below outline the impact of some of the key pressures:

Pest plants	Out-compete native plant species and alter the composition of habitats and in turn the ecology. Greater Wellington data shows we are not winning the fight to control and reduce our pest plants in the district. We partner with GWRC and the Ministry for Primary Industries) to manage targeted pest plants in specific areas and report back on new incursions or the sales of prohibited species. These pest plants cause serious harm to our environment and threaten species and forest ecosystems. New threats are also on the horizon, like, aquatic weeds, and a growing number of terrestrial weed species. Stronger biosecurity and alignment with the National Pest Plant Accord (NPPA), National Interest Pest Responses (NIPR), and the Plant Pass and the Plant Buyers' Accord will need to be utilised more, including the monitoring of physical and online sales of invasive exotic plants. Sharing biosecurity information with adjacent councils will also be critical to improve knowledge and local data.
Diseases	Can bring in unwanted organisms (UO) such as pathogens that need controlling, managing or eradicating should they arrive in the country[8]. Biodiversity conservation is integral in the fight against wildlife and plant life disease spread. The biosecurity system prevents mitigates and manages risks from harmful organisms to help protect Aotearoa New Zealand's

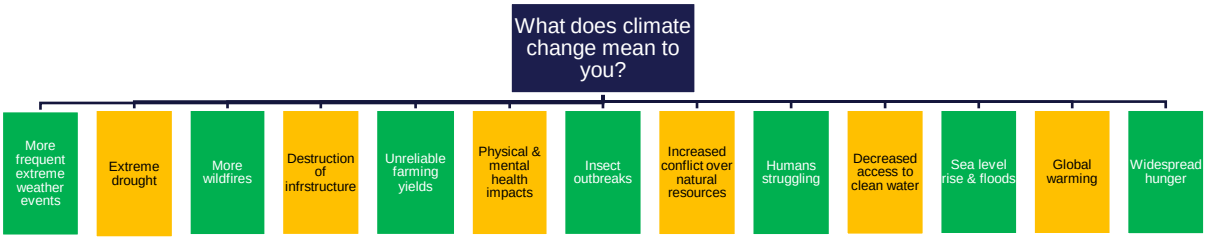
[8] https://www.mpi.govt.nz/biosecurity/about-biosecurity-in-new-zealand/biosecurity-2025/

	economy, environment, human health, and a range of social and cultural values (Biodiversity Act 1993).
Pest animals	Introduced animals, like ungulates (hooved animals) can cause damage by eating saplings and young trees), barking mature trees, damaging tracks, and causing erosion. These species harm native forest regeneration, compete for food resources and prey on native birds, lizards, and invertebrates. Possums, stoats, and rats are the main predators of our indigenous plants and animals. Progressive loss of native fauna is caused by development (like land clearance and conversion to forestry etc) introduced predators, some of which thrive in habitats killing native species and preying on bird eggs or eating neonate (baby) lizards from nesting sites.
Climate change	Effect is widespread, from the distribution of species to disease, wildfires, and storm/flood events[9]. This causes harm to habitat and species survival. Climate change is a primary driver of biodiversity loss and depends on indigenous biodiversity as part of the solution (UN Secretary 2022). Many of the impacts of climate change[10] are interlinked and create compounding problems. For example, Geoffroy Lamarche Chief Science Advisor for the Parliamentary Commissioner states, "sea level rise impacts coastal communities, sites of cultural and ecological significance, and marine life, including sedimentation and pollution affecting water quality, which can threaten biodiversity and public health."

[9] https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf

[10] https://hccpublicdocs.azurewebsites.net/api/download/f8028985e98f4a5691a005cbc897fea7/_CM9-WE/426f5c51376fddd4507ba656b90fac85822

Participants at the November wānanga answered the question 'what does climate change mean' in the following ways:



Poor water quality	Can have negative impacts on humans and natural ecosystems. Recreational water spots in Lower Hutt city are only suitable for swimming between 30% and 50% of the time due to contamination. Water is considered taonga and is of huge importance to iwi. Water is linked to whakapapa (identity), used for recreation, gathering food and other natural substances. Poor water quality can also lead to eutrophication, where a water body has an excess of nutrients which leads to harmful algae blooms, killing both plant and animal life.

Land use change	Reduces forests, streams, wetlands, shrublands and indigenous grasslands. Historical clearing of forests was carried out by Māori followed by European colonists. The further clearance of indigenous forests remained legal on public land up until 1987. Stricter controls on forest clearance on private land were imposed in 1991 through the Resource Management Act. Levels of erosion, sedimentation and eutrophication have increased because of land use changes, each of which affects the quality of water and the health of the species that live in aquatic environments.

	Changes in the hydrological regimes of freshwater ecosystems is a pervasive issue. The allocation of surface and groundwater for irrigation has the most widespread influence on seasonal flows and water levels, while engineering works, such as flood protection works and gravel extraction, can alter or destroy habitats.
Waste	Is polluting the air, land, lakes, rivers, coasts, and oceans, and contributes 5% of Aotearoa New Zealand's greenhouse gas emissions. Despite increased awareness of the negative impacts of waste on our environment, our disposal to municipal landfills increased by 48% in the last decade (Mfe 2019, reducing waste). DOC has identified forms of pollution that affect Aotearoa New Zealand's biodiversity, such as liquid and solid wastes, light and noise pollution, chemicals, and sediment[11]. Sediment and run-off from intensive agricultural and urban activities can damage the quality of freshwater and marine habitats (including estuaries). The 2019 Colmar Brunton survey found that the build-up of plastic in our environment is the biggest concern for Aotearoa New Zealanders (72%).

The factors outlined above show how fragile and interlinked these impacts are on biodiversity in our city. To address these, we will need to continue to partner with Mana Whenua, communities, groups, and individuals to find nature-based solutions as a collective to create resilient, and sustainable communities which may require a multi-generational effort.

[11] https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf

How does the regulatory framework manage biodiversity?

Legal protection on public conservation land and marine reserves is an important tool for managing some of the pressures on biodiversity.

A NPS can require regional, local, district or unitary Councils (territorial authorities) across the country to add or change their required District Plans to meet this national direction and must be given effect to, as soon as reasonably practicable.

The purpose of district plans is to assist territorial authorities in conducting their functions to achieve the sustainable management purpose of the Resource Management Act. District Plans must give effect to national policy statements and regional policy statements and must not be inconsistent with regional plans and any applicable water conservation orders.

Council is waiting on the release of the second draft of the National Policy Statement for Indigenous Biodiversity (NPS-IB) from Central Government which is due for adoption in early 2023. The NPS-IB will provide guidelines which influence the District Plan rules and policies relating to indigenous biodiversity.

The NPS-FW and GWRC require HCC to identify fish passage barriers, and to remediate and manage them. Many of Aotearoa New Zealand's freshwater fish species need to move between habitats to support their different life stages and ecological needs (e.g., for spawning, rearing young, feeding, and finding refuge). Some species, like inanga (whitebait-juvenile species of native *galaxiidae*) and tuna (eels) also move between fresh and salt water. Fish need physical connections between and within waterways during various life stages to reproduce, feed, and contribute to their ecosystems by recycling the nutrients they take in.

Summary

Hutt City Council takes the role of facilitator, coordinator, supporter, and guardian of public lands seriously and is committed to a collaborative development of an Indigenous Biodiversity Strategy, of which this preliminary paper is a start. Indigenous Biodiversity is crucial to the survival of life and the fundamentals of te taiao and environmental health is crucial to human health.

The content of this strategy signals that we have a collective responsibility for identifying, protecting, managing, and enhancing biodiversity is something that needs many players. We have an obligation and a responsibility to act on behalf of the environment.

This discussion document is 'deliberately' brief, as we are asking our partners if we are on the right track as we approach development of the strategy. Council can only do so much, and similar to a Health in All Policies (HiAP) approach[12], biodiversity restoration sits with all of us, and not just those with regulatory platforms.

Hutt City Council invites you to submit your feedback on this preliminary paper and thoughts on indigenous biodiversity at **Have your say - Hutt City Council**. Public consultation will run in July 2023.

For further questions, please email **biodiversity@huttcity.govt.nz**.

[12] https://www.cph.co.nz/your-health/health-in-all-policies/

Glossary of terms – English technical terms

IB strategy	Indigenous Biodiversity Strategy
Anthropogenic deforestation	Is one of the great crises of our time. To better understand the dimensions of this problem, several studies have sought to quantify the extent and rate of tropical forest loss.
Biodiversity	Is the range and status of species and ecological systems in a place.
Biophilic Cities	Biophilia refers to the idea that humans are inextricably bound and drawn to nature; that we need that connection to other living things to function properly. A biophilic city is one that integrates natural features into its designs. https://www.biophiliccities.org/our-vision
Citizen science	Citizen scientists are volunteers who contribute to scientific projects, usually by collecting or analysing data.
Conserve biodiversity	The practice of protecting and preserving the wealth and variety of species, habitats, ecosystems, and genetic diversity on the planet.
District Plan (DP)	District Plan, a document that sets the framework for Managing land use and development within our city. It contains objectives, policies, and rules to address

	resource management issues such as the effects of land use and subdivision, noise, and traffic
Ecology	The study between the relationships of living organisms, including humans, and their physical environment.
Ecological integrity	The ability of an ecological system to support and maintain a community of organisms that has species composition, diversity, and functional organization comparable to those of natural habitats within a region.
Ecosystem Services (ES)	Ecosystems provide many of the basic services that make life possible for people. Plants clean air and filter water, bacteria decompose wastes, bees pollinate flowers, and tree roots hold soil in place to prevent erosion.
Flora	The plants of a particular region, habitat, or geological period.
Fauna	An animal or animals of a species indigenous to Aotearoa New Zealand.
Habitat	The natural home or environment of an animal, plant, or other organism.
HCC	Hutt City Council or 'Council'.
Hotspot	An area that is exceptionally rich in species, and priority targets for nature conservation, allowing unique flora and fauna to develop.

Indigenous	Originating or occurring naturally in a particular place; native.
Land use	Simply describes human use of land.
Multi-generational	Consisting of or relating to more than one generation
New Zealand Biodiversity Strategy (2000)	The New Zealand Biodiversity Strategy (NZBS) reflects Aotearoa New Zealand 's commitment to the United Nations Convention on Biological Diversity. It sets out national goals and principles for Managing Aotearoa New Zealand 's biodiversity.
NPS or NPS-IB	National Policy Statements (NPS) are issued under the Resource Management Act to provide national direction for the management of matters of national significance.
Proliferating	Can be a species that, in each area, becomes abundant, whether indigenous or non-native.
Riparian zone/buffer/area	The strip of land beside a waterway is a called the riparian zone and it is a crucial buffer between land and water.
River fragmentation	Is defined as the interruption of a river's natural flow by dams, culverts, weirs, or water withdrawal.
RMA – Resource Management Act 1991	Section 2 of the RMA provides a definition of 'biological diversity' - The 'maintenance' of indigenous biological diversity by Councils is to be undertaken in the context of ss5 to 8 of the RMA.

	These sections use the terms 'safeguarding the life supporting capacity' (of ecosystems); 'preservation' (of natural character of the coastal environment, wetlands, rivers, lakes, and their margins); and 'protection' (of significant indigenous vegetation and significant habitats of indigenous fauna). These s5, 6 and 7 matters contribute to the interpretation of the term 'maintenance of indigenous biological diversity'. Maintenance can include protection, enhancement, and restoration. Section 8 requires Councils to take account of the principles of the Treaty of Waitangi when making plans and any other RMA decisions.
Regional Policy Statement (RPS)	The Regional Policy Statement (RPS) for the Wellington Region provides an overview of the resource management issues of the Region and sets out the policies and methods to achieve integrated resource management of the natural and physical resources of the whole region[14].
Strategy	A plan or scheme.
Subdivision	Subdivision is largely a process of dividing a parcel of land or a building into one or more further parcels or changing an existing boundary location.
The Singers Forest Classification	Was derived from a combination of the pre-settlement, distribution, and extents of forestry ecosystems. This layer delineates the potential forest ecosystems for the Wellington region as mapped by Nick Singers using the national ecosystem classification system that he and Geoff Rogers developed as detailed in the link attached[15].

Territorial authorities	Classified as a city (local), district, regional or unitary Councils.
Urban heat island effect	"Urban heat islands" occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat.

Glossary of terms - Te Reo Māori definitions

Ahua	The character of Te Ara Tupua is seen, the beauty, the mystique, the wonder, the wild and rawness – the identity of Te Ara Tupua endures beyond the present through capturing and captivating the hearts and minds of the few and the many.
iwi	A Māori community or people.
kaitiaki	A guardian or trustee, typically of an environmental area or resource.
Kaitiakitanga	Is the obligation to nurture and care for the mauri of a taonga, or the ethic of guardianship or protection.
Kaupapa	Means principles and ideas which act as a base or foundation for action. A kaupapa is a set of values, principles, and plans which people have agreed on as a foundation for their actions.
Mana Whenua	Te Ara Tupua is seen as a living piece of the identity of Mana Whenua who take pride in this space, taking on the obligation of care, responsibility and giving life to its history and story.
Mātauranga Māori	Is the body of knowledge originating from Māori ancestors. This includes the Māori world view and perspectives, Māori creativity, and cultural practices.

Mouri	The mouri of Te Ara Tupua, the living relationship between the ngahere, the cliffs, the water ways, hinemoana and everything that lives within that environment have their own individual and interdependent vitality.
Papatūānuku	The mountains, the cliffs, the landforms, the geology, ngahere, trees, birds – they all need each other to exist.
Ranginui	The connection to the various spiritual realms of the great and vast heavens, the source of light and understanding, growth and ultimate link to the celestial family.
Taonga	Refers to a treasure or something that is prized. The term can be applied to anything that is of value, including socially or culturally valuable objects, resources, phenomena, ideas, and techniques.
Tātai Whakapapa	The history, the connections, the relationships, and friendships – they shape the land and the people.
Te awa Kairangi ki tai	Māori names describe their location within the valley. Lower Hutt is Te Awa Kairangi ki Tai (next to the sea) Upper Hutt is Te Awa Kairangi ki Uta (inland)
Te Mana o te Taiao	Is the Mana of the living environment.
Te Taiao	Is the environment that contains and surrounds us.
Tikanga	Customs and traditional values, especially in a Maori context.
Wānanga	A wananga is characterised by teaching and research that maintains, advances, and disseminates knowledge and develops direction.

Wāhi tapu	A place sacred to Māori in the traditional, spiritual, religious, ritual, or mythological sense.
Wai Tai, Wai Māori	The connection between the springs, streams, aquifers, rivers, and all waterways that bring with them their life, mouri and Mana which eventually mingles together with Hinemoana.
Whānau	The care of manuhiri and people is embedded in the identity of Te Ara Tupua seeking to ensure a strong sense of connection imbuing a strong sense of responsibility towards Te Ara Tupua.

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[1] Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020

[2] International science advisors state, "there is compelling evidence that global biodiversity is rapidly declining." At the December 2022 U.N. Biodiversity Conference in Montreal, Canada (COP15), governments across the globe (190 countries) reached an historic agreement to collectively commit to conserving at least 30 percent of lands and waters by 2030. A global commitment to halt and reverse biodiversity loss by 2030 and to protect 30% of land and oceans by the same date.

[3] https://www.doc.govt.nz/nature/biodiversity/aotearoa-new-zealand-biodiversity-strategy/te-Mana-o-te-taiao-summary/

[4] 1916 – The term biological diversity was used first by J. Arthur Harris in "The Variable Desert," Scientific American: "The bare statement that the region contains a flora rich in genera and species and of diverse geographic origin or affinity is entirely inadequate as a description of its real biological diversity."

[5] https://environment.govt.nz/publications/aotearoa-new-zealands-first-national-adaptation-plan/natural-environment/

[6] https://www.weforum.org/communities/biodivercities-by-2030

[7] https://environment.govt.nz/facts-and-science/biodiversity/why-biodiversity-matters/

[8] Te Mana o te Wai

[9] https://www.mpi.govt.nz/biosecurity/about-biosecurity-in-new-zealand/biosecurity-2025/

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[12] https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf

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