

Memorandum

To: Napier City Council

From: Gerry Kessels, Principal ecologist, Bluewattle Ecology

Date: 13 November 2024

Subject: **Notification of Amendments to the Ecosystems and Indigenous Biodiversity (ECO) Chapter in light of the Resource Management (Freshwater and Other Matters) Amendment Act 2024**

On 25 October 2024, the Resource Management (Freshwater and Other Matters) Amendment Act 2024 came into force (Amendment Act). The Amendment Act suspends for three years the requirements under the National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB), for councils to identify new Significant Natural Areas (SNAs) meeting the criteria in Appendix 1 and include them in district plans. I understand that the Amendment Act does not affect the Council's other obligations, including under section 6(c) of the Resource Management Act 1991 (RMA) to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna, and does not prevent the Council from using the criteria in the NPS-IB to identify areas which contain significant indigenous vegetation and significant habitats of indigenous fauna.

I consider that the NPS-IB criteria are suitable to allow identification of areas in terms of meeting the threshold of s6(c) of the RMA, and therefore I continue to support their use for identifying areas that contain significant indigenous vegetation and significant habitats of indigenous fauna worthy of protection.

My position regarding "City SNAs" also remains unchanged. While I have revised the mapping of City SNA areas so that they now represent a lower threshold of ecological significance to SNAs, they still have been assessed to ensure consistency with NPS-IB standards. I therefore recommend that Council recognise the importance of City SNAs and that alternative measures (with a greater focus on non-regulatory approaches), are used to encourage restoration and protection of these areas. This report was written before the Amendment Act came into force so I note that where I refer to "SNAs" these are now referred to as "SIVH" (Significant Indigenous Vegetation or Habitat) and where I refer to "City SNAs" these are now referred to as "Restoration Areas" in the ECO Chapter to avoid confusion with the changes to the NPSIB. The same criteria still apply.

In summary, I consider that the recommendations outlined in the attached Biodiversity Assessment Review report, including the table of identified areas, remain valid and unchanged in light of the Amendment Act. I continue to support the inclusion of mapping and protection measures for identified areas and associated ecological values in the Proposed District Plan, as recommended in the report.

Should new evidence arise regarding the applicability of NPS-IB criteria or the report's findings, I reserve the option to revisit these recommendations and offer updated guidance if necessary.



Gerry Kessels
Principal Ecologist

Kessels & Associates Ltd trading as Bluewattle Ecology

***Napier District Plan
Review of significant natural
areas and biodiversity policy***

Final Report



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EXECUTIVE SUMMARY

Napier City Council has commissioned Bluewattle Ecology to undertake a review of the Significant Natural Areas (SNAs) within the city boundaries in preparation of the Proposed District Plan revisions. Napier City Council Notified its Proposed District Plan (PDP) on the 21st of Sept 2023 without the Ecosystems and Biodiversity Chapter because it did not align with the requirements of the National Policy Statement for Indigenous Biodiversity (NPS-IB). Napier City Council is now reviewing the provisions in the chapter and the sites identified as SNAs. The scope of this report is thus to:

1. Conduct a review of the current sites identified in Napier Significant Natural Areas Assessment (NSNA report) ;
2. Compare and identify discrepancies between the methodology prescribed in the NPS-IB against the methodology used in the assessment;
3. Include the identification of non-SNA biodiversity and high mobile fauna;
4. Propose necessary amendments, additions, or modifications to ensure alignment with the national policy statement; and
5. Consider requirements to engage with mana whenua and landowners in the identification of sites.

The NSNA report is a comprehensive inventory of the natural indigenous values of Napier city which is a robust foundation for Council to base its biodiversity objectives, policies and rules on in the preparation of the Proposed District Plan. The NSNA report identified 5.94% of Napier City Council land area as SNAs. It is particularly concerning that of the total area covered by SNAs (cf. 629 hectares), the average size of an SNA is 1.53 hectares. This is a very small size for an SNA, and as an average, a sizable number of sites are smaller. This means that given this small size of SNAs on average, along with fragmentation and separation from other sites, the majority of SNAs in Napier City are unlikely to be viable and functional representations of indigenous ecosystems into the future without ongoing management, restoration and enhancement measures.

The NSNA report uses significance criteria based on long-standing best practice and supported by case law, although these are not explicitly defined in the report. Nonetheless, we consider that the criteria used for determining the SNA for Napier in the NSNA report are suitable, and if the NPS-IB criteria were applied to these SNA (excluding the City SNA) they would still be able to be supported as such.

There are a number of SNA sites that required mapping amendments and review. In addition, there were areas of significant habitat for indigenous fauna currently not mapped as SNAs in the NSNA inventory, particularly along the braided river and coastal areas. These areas have been added and/or amended.

If Napier City wishes to enhance biodiversity values and protect the long-term viability of its existing SNAs, working towards a goal of achieving this 10% indigenous biodiversity cover, with ecological connectivity between them, the following ecological restoration targets are suggested:

- a) Increasing extent/percentage cover of indigenous vegetation across Napier City:
 - Increasing total indigenous vegetation cover towards the 10% target;
 - Increasing cover (the proportion) of threatened ecosystem types.
- b) Restoring health and condition of Significant Natural Areas/ key sites in the city.

- c) Restoring habitats and creating viable populations of threatened and iconic indigenous species in the city.
- d) Restoring coastal margins/wetlands/streams – increasing riparian planting (ensuring effective maintenance of planting), which will restore connectivity, and habitat for iconic species.

The three key recommendations of this report which should be included in the relevant biodiversity objectives, policies and implementation methods of the PDP are:

- A. Management resources be directed towards the legal protection of existing SNAs, the restoration and reconstruction of missing and poorly represented local ecosystems, and the linking of SNAs across Napier to ensure ecosystem buffering and ecological connectivity.
- B. Protection and restoration priorities should be focused on the sites that are significant at an ecological district scale, but it is also important to protect and restore those that are significant at a city scale, even though these areas do not meet the assessment criteria of the NPS-IB.
- C. The development of a Napier City biodiversity strategy is likely the best way to ensure that biodiversity goals are planned for.

1 INTRODUCTION

1.1 BACKGROUND

Napier City Council (NCC or ‘Council’) has commissioned Bluewattle Ecology to undertake a review of the Significant Natural Areas (SNAs) within the city boundaries in preparation of the Proposed District Plan (PDP) revisions. Section 6(c) of the Resource Management Act 1991 (RMA) requires Council to protect significant indigenous vegetation and significant habitats of indigenous fauna. The identification and mapping of SNAs has been undertaken for three decades as the primary (but not universal) method to give effect to section 6(c) through scheduling/mapping of SNAs and associated policies and rules in District Plans throughout New Zealand.

The National Policy Statement for Indigenous Biodiversity (NPS-IB), which was published in 2023 with the objective of maintaining indigenous biodiversity across Aotearoa New Zealand so that there is ‘at least no overall loss in indigenous biodiversity after the commencement date’. The NPS-IB describes the process by which SNAs are identified in district plans¹. The NPS-IB applies to the terrestrial environment only: policy direction for biodiversity in the coastal marine area and freshwater is provided by the NZ Coastal Policy Statement 2010 (NZCPS) and National Policy Statement on Freshwater Management 2020 (NPS-FM), respectively. Under the NPS-FM, Regional Councils must identify and protect outstanding water bodies (Policy 8) and habitats of indigenous freshwater species (Policy 9). They also must ensure that there is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted (Policy 6).

In 2019, NCC engaged the University of Waikato’s Environmental Research Institute to identify areas of significant indigenous vegetation, habitats of indigenous fauna and/or ecologically significant wetlands within Napier City boundaries. These Napier Significant Natural Areas (‘NSNA’) were initially identified through a desktop exercise using satellite imagery, spatial databases, literature review and consultation with Napier City Council, Hawke’s Bay Regional Council and Department of Conservation staff (Cornes et al. 2019)². They were then assessed based on the then draft NPS-IB assessment criteria and the assessments were carried out at both the Ecological District scale and at a city scale³.

Napier City Council Notified its Proposed District Plan on the 21st of Sept 2023 without the Ecosystems and Biodiversity Chapter because it did not align with the requirements of the NPS-IB. Napier City Council is now reviewing the provisions in the chapter and the sites identified as SNAs. The NPS-IB states that the review of these sites needs to be completed by an ecologist.

1.2 REPORT PURPOSE AND SCOPE

This report details a review of the Napier city SNAs identified by Cornes et al (2019). These SNAs are reassessed here to determine whether they have been identified in accordance with the guidelines, principles, and requirements stipulated in the NPS-IB.

The scope of this report is as follows:

¹ NPS-IB Appendix 1: Criteria for identifying significant natural areas in accordance with Policy 4.

² Cornes, TS; Kirby CL; Johnson, RL; Clarkson, BD. 2019. Napier Significant Natural Areas Assessment. ERI Report number: 124 Prepared for Napier City Council. Environmental Research Institute, University of Waikato

³ As per the ruling of Judge R. J. Bollard, NZRMA Decision No. A71/2001.

1. Conduct a review of the current sites identified in Napier Significant Natural Areas Assessment;
2. Compare and identify discrepancies between the methodology prescribed in the NPS-IB against the methodology used in the assessment;
3. Include the identification of non-SNA biodiversity and high mobile fauna;
4. Propose necessary amendments, additions, or modifications to ensure alignment with the national policy statement; and
5. Consider requirements to engage with mana whenua and landowners in the identification of sites.

The key deliverables are:

1. Analysis report highlighting the gaps between the current draft and the NPSIB including the inclusion of non-SNA biodiversity and highly mobile fauna, taonga species and cross boundary matters.
2. A revised assessment, as necessary, compliant with the NPSIB.
3. Recommendations for policy amendments or additions to ensure alignment. These recommendations are included within this report.

Mātauranga Māori matters (including mana whenua engagement and the identification of taonga species) have not been addressed as the authors are not qualified in this matter. It is noted that the relationship of mana whenua and their traditions associated with indigenous vegetation and fauna is recognised and provided for in Sections 6(e) and 7(a) of the RMA and the Hutia Te Rito approach⁴ which underpins decision making in the National Policy Statement on Indigenous Biodiversity (NPS-IB).

2 METHODOLOGY

2.1 DESKTOP REVIEW

A review of Threatened and At Risk flora and fauna in Napier City was conducted using available literature and electronic databases. In the context of this report, ‘threatened’ and ‘at risk’ species were defined as taxa that are listed as such on the New Zealand Threat Classification System website⁵.

Literature sources reviewed included:

- Department of Conservation’s Bioweb database⁶
- iNaturalist⁷
- Atlas of amphibians and reptiles of New Zealand⁸
- eBird⁹
- New Zealand Freshwater Fish Database (NZFFDB)¹⁰

⁴ Hutia te Rito is established as a fundamental concept, aimed at achieving an integrated/holistic approach to maintaining indigenous biodiversity. The concept of Hutia te Rito “recognises that the health and wellbeing of our environment – its ecosystems and unique indigenous plants and animals – has intrinsic value”

⁵ nztcs.org.nz, accessed 2 July 2024.

⁶ Version dated February 2023

⁷ Accessed 2 July 2024

⁸ <https://www.doc.govt.nz/our-work/reptiles-and-frogs-distribution/atlas/>. Accessed 2 July 2024

⁹ ebird.org. Accessed 2 July 2024

¹⁰ <https://niwa.co.nz/freshwater/nz-freshwater-fish-database>. Version dated July 2023.

- Hawkes Bay Regional Council: Outstanding Water Bodies webpage¹¹
- Various publications cited in the references and bibliography of this report.

Due to the citizen science nature of iNaturalist and eBird, observations that were considered likely to be misidentifications were excluded. iNaturalist obscures the location of most threatened species so the location of many iNaturalist observations cannot be considered accurate.

Additional literature sources reviewed are detailed in the References and Bibliography section of this report.

2.2 SPATIAL MAPPING

GIS shapefile data of SNA sites (created by Cornes et al. (2019)) were provided by Council, with supporting files provided by Cornes et al. Methods detailing how these polygons were created are described in Cornes et al. (2019). 2021 – 2022 aerial imagery of the District was accessed using ArcGISPro¹². Historic imagery was accessed via Retrolens¹³ and Google Earth¹⁴ to review site changes over time.

Additional datasets were added to provide an ecological context and a basis for individual site assessments. Databases used included the New Zealand Freshwater Fish Database (NZFFDB), BioWeb (administered by DOC) and eBird.

Retrolens imagery was georeferenced using ArcGIS Pro. The accuracy of mapped locations and features may be affected by factors such as image resolution, georeferencing errors, and terrain variations. For this reason, Retrolens imagery should be considered an approximate representation and not definitive for surveying purposes.

2.3 FIELD INVESTIGATIONS

Field surveys and brief ecological assessments were undertaken on 16 and 18 May 2024. Key habitat types and vegetation compositions were observed and amendments noted on field maps.

3 NAPIER SIGNIFICANT NATURAL AREAS ASSESSMENT

3.1 TERRESTRIAL AND WETLAND VEGETATION

As described in Cornes et al (2019), the terrestrial vegetation of Napier has been almost completely modified for agricultural and urban development and by uplift from the 1931 earthquake. As a result, historic vegetation types must be inferred based on the wider landscape (detailed in Cornes et al (2019)).

The vegetation considered to be ecologically significant by Cornes et al. (2019) assessment comprises:

- Early successional forests of kānuka and broadleaved species (e.g. Esk Hills).

¹¹ <https://www.hbrc.govt.nz/hawkes-bay/projects/outstanding-water-bodies/>

¹² Esri 2024

¹³ Retrolens.co.nz, accessed 4 July 2024

¹⁴ Google Earth Pro 7.3.6.9796 (2024). Available from: <https://earth.google.com/>. Accessed 4 July 2024.

- Areas of planted native species with or without some natural regeneration. Most, if not all areas of plantings contain a mixture of naturally occurring species and indigenous species that are native to the country but not native to the region (e.g. Kaiangaroa (see Appendix I), Bluff Hill¹⁵, Halliwell Reserve, SH50 planting, Friend’s Bush, Dolbel Reserve¹⁶, Otatara Park¹⁷).
- Saline wetlands (e.g. Ahuriri Estuary and plains, Embankment Road wetland).
- Peat wetland (e.g. Lake Rotokaramu).
- Coastal herb field (e.g. NC32: “Esplanade herbfield”).
- Native freshwater wetland vegetation within an urban “drain waterway” (e.g. Harakeke Reserve)¹⁸.

Early successional forest types identified by Cornes et al. may be representative of early successional types historically present in Napier; however, mixed plantings that contain species not historically present in Napier are not typical of historic vegetation and do not contain the expected range of diversity and pattern of historic vegetation. Unless they provide habitat for or contain rare or threatened species, or are significant due to their ecological context, then they do not meet SNA criteria.

The saline wetlands of Ahuriri and Bayview are representative of historic vegetation, have high diversity and pattern and rarity and distinctiveness. Likewise, Lake Rotokaramu meets multiple assessment criteria. The coastal herb field at Westshore is the only coastal herbfield site left in Napier City and contains species typical of coastal margins.

3.2 PLANT SPECIES

Many of the Threatened and At Risk plant species identified in Cornes et al. (2019) are planted species, or Myrtaceae species that have been assigned an elevated threat risk due to the presence of myrtle rust in New Zealand¹⁹. This leaves three plant species that occur naturally in Napier that are currently Threatened or At Risk and that occur within one or more NSNAs: *Ricciocarpos natans* (Lake Rotokaramu), *Thyridia repens* (saline wetlands) and sand coprosma (*Coprosma acerosa*).

Colloquially referred to as 'The Gap', a section of shingle beach at Westshore is being restored for protection and enhancement by Biodiversity Hawke's Bay. It is a coastal herb field that contains species typical of coastal margins (including sand coprosma (At Risk – Declining)). This is the sole representative of this vegetation type and shingle beach ecosystem in Napier City, and potentially provides habitat for indigenous invertebrates.

A review of additional literature and databases shows that Jersey fern (*Anogramma leptophylla*; Threatened – Nationally Vulnerable) has been recorded in Tiffen Park growing on semi-shaded banks alongside tracks as recently as 2020²⁰. This species is threatened by habitat loss through the removal

¹⁵ Retrolens aerial photo 7/04/1943 and 5/09/1964, https://files.interpret.co.nz/Retrolens/Imagery/SN1654/Crown_1654_3845_40/High.jpg.

¹⁶ Retrolens aerial photo 16/05/1949. https://files.interpret.co.nz/Retrolens/Imagery/SN541/Crown_541_1702_32/High.jpg

¹⁷ Retrolens aerial photo 16/5/1949. https://files.interpret.co.nz/Retrolens/Imagery/SN541/Crown_541_1702_31/High.jpg

¹⁸ These sites require further survey (and possibly eDNA sampling) to confirm

¹⁹ de Lange et al. 2017

²⁰ <https://www.inaturalist.org/observations/63067750>. Accessed 8/7/2024.

of surrounding vegetation and competition with weeds²¹. New Zealand spinach (*Tetragonia tetragonioides*; At Risk - Naturally Uncommon) has also been recorded on the gravel beach adjacent to Marine Parade²². This area has not been determined to be an SNA at this point in time as no site visit has been undertaken to assess if it meets the NPS-IB criteria

3.3 AVIFAUNA

At least 43 At Risk or Threatened bird species are found in Napier, most of which inhabit the coastline, estuaries and freshwater wetlands (see Appendix III for these species and their habitats). Many of these species are highly mobile (as identified in the NPS-IB) and may be present in Napier only occasionally.

Bird hotspots in Napier are Ahuriri Estuary, the wetlands north of Napier Airport (Ahuriri plain wetland, Bayview wetland), the freshwater wetlands at Anderson Park, the Napier coastal area and the Tutaekuri and Esk Rivers. The Ahuriri Estuary and wetlands north of Napier Airport were identified as NSNAs but Anderson Park, the rivers and the coastal area were not.

Anderson Park is a highly modified urban park vegetated with exotic pasture and ornamental tree species. It has multiple artificial freshwater ponds²³ that provide habitat for many common bird species as well as At Risk and Threatened species, some of which may be nesting at the site. These species are as follows (* indicates 'specified highly mobile fauna' as identified by the NPS-IB):

- At Risk species:
 - little pied cormorant (little shag, *Microcarbo melanoleucos*) – a colony of this species may be nesting at Anderson Park²⁴
 - black-billed gull* (*Chroicocephalus bulleri*)
 - Eurasian coot (*Fulica atra*)
 - great cormorant (black shag, *Phalacrocorax carbo*)
 - little black cormorant (little black shag, *Phalacrocorax sulcirostris*)
 - pied cormorant* (NZ pied shag, *Phalacrocorax varius*)
 - royal spoonbill (*Platalea regia*)
 - red-billed gull* (*Larus novaehollandiae*)
- Threatened species:
 - White heron* (*Ardea alba*)
 - NZ dabchick* (*Poliiocephalus rufopectus*)
 - grey duck (*Anas superciliosa*)*
 - brown teal* (*Anas chlorotis*) – highly likely now locally extinct

Napier's coastal zone was also not identified as an NSNA but it provides habitat for a number of bird species. Banded dotterel (*Anarhynchus bicinctus*; At Risk - Declining) nest along the Napier coast, mostly north of Westshore, and are threatened by predators and vehicles on the beach. Some areas of the beach south of Bayview are fenced to protect nesting birds, but eBird and iNaturalist observations suggest that the birds are nesting at many locations along the coast south to near the

²¹ NZPCN <https://www.nzpcn.org.nz/flora/species/anogramma-leptophylla/>, accessed 8/7/2024.

²² <https://www.inaturalist.org/observations/2663875>, accessed 8/7/2024. Observed by plant taxonomist Peter de Lange.

²³ Note that these ponds may be modified natural wetlands. Retrolens 5/9/1964.

https://files.interpret.co.nz/Retrolens/Imagery/SN1654/Crown_1654_3847_36/High.jpg

²⁴ eBird global unique identifier URN: CornellLabOfOrnithology:EBIRD:OBS1130120926

Tutaekuri River²⁵. Citizen science observations also show that black-billed gulls (*Chroicocephalus bulleri*; At Risk – Declining) and red-billed gulls (At Risk - Declining) are nesting at the port of Napier²⁶.

The Tutaekuri River also reportedly contains significant breeding populations of banded and black-fronted dotterels (*Euseyornis melanops*; At Risk - Naturally Uncommon)²⁷. It is home to 43 bird species, including 19 wetland species²⁷. The Esk River is also home to a number of bird species including banded dotterels²⁸.

3.4 HERPETOFAUNA

Various species of lizard and gecko are found in Hawke’s Bay but only a single Threatened or At Risk species of skink is likely found in Napier. The northern spotted skink (*Oligosoma kokowai*; At Risk – Relict) reaches its northernmost extent in distribution on the Napier foreshore. The Napier population is nationally significant and is the most isolated population for the species in the country (Watts 2018). This species would have once been abundant in the area but the local population has been surveyed and estimated numbers are between 10-100 individuals that are mostly in one area. Appropriate habitat is limited and the population is threatened by introduced predators and disturbance. We understand a group of partner organisations and individuals are working to develop a sanctuary of around 100m² that will exclude predators and provide enhanced habitat to support population recovery.

Cornes et al. (2019) mention the presence of three other lizard species in Napier: common skink (*Oligosoma polychroma*), which is ‘Not Threatened’, *Oligosoma nigriplantare* which is only found on the Chatham Islands and spotted skink (*Oligosoma lineoocellatum*), which is found only in Canterbury. The latter two species name are probably errors. In the case of *O. lineoocellatum*, Cornes et al. were likely referring to the northern spotted skink *O. kokowai*.

No native frog species are present in Napier.

3.5 LONG-TAILED BATS

Two species of bats are known from Hawke’s Bay: the central lesser short-tailed bat (*Mystacina tuberculata*; At Risk – Declining) and the long-tailed bat (*Chalinolobus tuberculatus*; Threatened – Nationally Critical). In Hawke’s Bay, short-tailed bats are restricted to the very large and mature indigenous forest blocks (e.g. Ruahine Ranges), whereas long-tailed bats can feed across more open, exotic vegetation dominated habitats. Long-tailed bats have been recorded at various locations around lowland Hawke’s Bay including Pan Pac’s Tangoio Forest approximately 1.5 km north of the city boundary (DOC BioWeb). Bats are highly mobile fauna that can travel long distances to feed, so they may well utilise habitats within the city boundary.

²⁵ iNaturalist example observations: <https://www.inaturalist.org/observations/17372021>; <https://www.inaturalist.org/observations/209431248>. Accessed 8/7/2024.

²⁶ Black-billed gulls: <https://www.inaturalist.org/observations/143924311>. Accessed 8/7/2024. Red-billed gulls: eBird global unique identifier URN: CornellLabOfOrnithology:EBIRD:OBS351775847.

²⁷ <https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/web-documents/3-Values-reports/Tutaekuri-River-ID32-Summary-of-Values-Aug-2020-5511.pdf>

²⁸ <https://www.inaturalist.org/observations/199935803>. Accessed 8/7/2024.

3.6 INVERTEBRATES

Limited information is available on the distribution and taxonomy of invertebrates even at a national level. For this reason, Napier’s invertebrate fauna is not considered in this report. However, Cornes et al. (2019) do mention the presence of wētā at multiple NSNAs so it is worth noting that the term ‘wētā’ covers dozens of New Zealand Orthopteran species in the families Anostostomatidae and Rhabdophoridae. ‘Wētā’ could be referring to a number of cave wētā, tree wētā or ground wētā species in Napier, most of which are common and widespread in New Zealand. Hawke’s Bay does have a its own unique species of tree wētā, *Hemideina trewicki* (At Risk – Relict), which can be found in urban gardens and bush remnants in Hawkes Bay, but it is yet to be found in Napier (Watts 2018).

3.7 WETLANDS

Napier’s wetlands identified as NSNAs include lagoons & estuaries (Ahuriri Lagoon), saline plains with salt marshes and salt meadows (Ahuriri and Bayview plains) and freshwater wetlands (Rotokaramu peat wetland, Harakeke Reserve waterway margins).

Ahuriri Lagoon has been identified in Hawkes Bay Regional Council’s Proposed Plan Change 7 as an Outstanding Water Body because of its wildlife and fishery values²⁹. We did note that the mapping in the PDP layer did not match that within the NSNA report, and this has been updated, as the current plan map of the Ahuriri lagoon needs to capture all habitats not just saline vegetation communities as we suspect the current map does (see Figure 1).

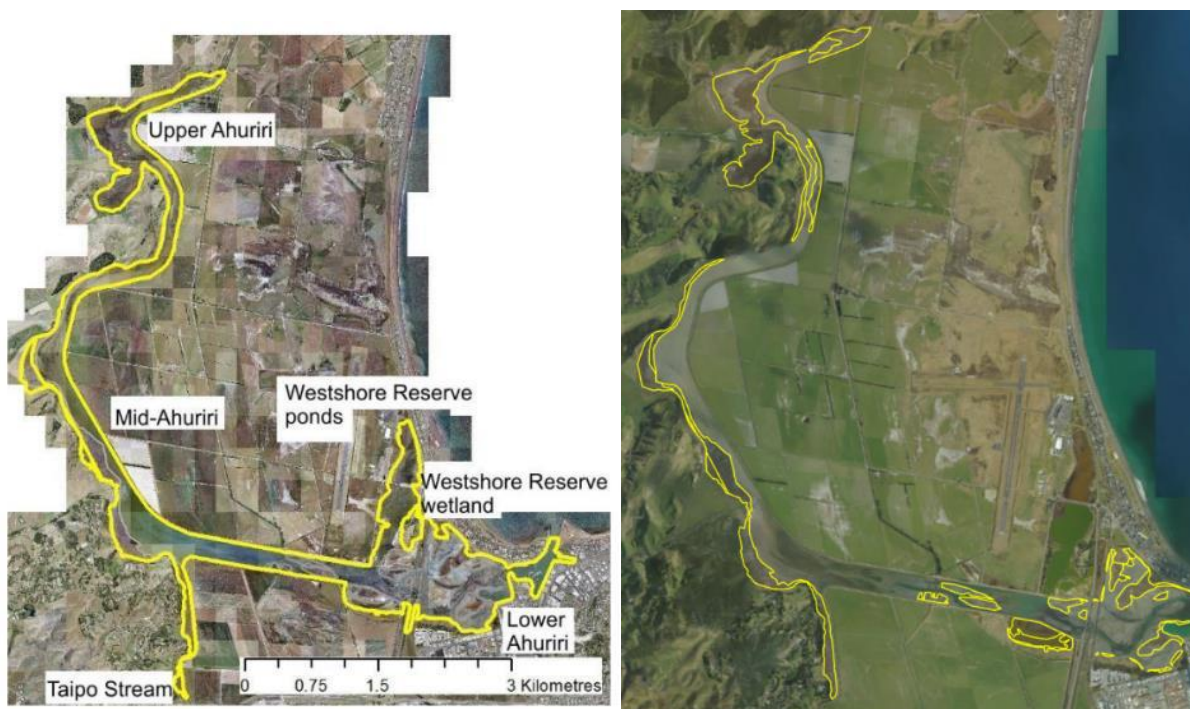


Figure 1. Left image: Ahuriri Estuary proposed SNA. Figure from Cornes et al (2019) Appendix 6 page 101. Right image: Ahuriri Estuary proposed SNA supplied spatial data.

²⁹ <https://www.hbrc.govt.nz/assets/Document-Library/Projects/Outstanding-Water-Body/Ahuriri-Estuary-candidate-OWB-report-201807111.pdf>

Other wetlands are present in Napier. For example, Google Earth indicates that large areas of farmland on the Ahuriri Plains are wet for much of the year and may be significant wetlands. The process to identify and determine the extent of wetlands is discussed further in section 4.5.

3.8 FRESHWATER HABITATS

The northern and southern boundaries of Napier City are bounded by rivers. The Tutaekuri River forms the southern boundary of Napier city. It has been identified in Hawke’s Bay Regional Council’s Proposed Plan Change 7 as an Outstanding Water Body³⁰. It is home to diverse freshwater life and is considered nationally significant for native fishery value. The Esk River at the northern boundary of Napier is one of Hawke’s Bay’s smallest rivers but has good quality habitat and also supports diverse freshwater life. Napier’s urban streams are generally highly incised with poor quality habitat and little riparian shading so likely support limited freshwater life. Napier waterways are illustrated in Figure 2.

The margins of the margins and beds of braided rivers within Napier City can be important parts of the braided river ecosystem (meeting one or more of the NPS-IB criteria) or significant because they buffer (protect) the braided river from the effects of adjacent landuse. These buffers may include areas of exotic vegetation, which although they are not areas of indigenous vegetation, they may be significant areas of indigenous fauna habitat or act as ecological buffers, or as migratory routes. However, that is not to say that some margins of braided rivers cannot be excluded if the values are so degraded that their structural functions are diminished so as not to be significant. Determination of this threshold requires ground truthing and evaluating on a case by case basis by a suitably qualified and experienced ecologist.

Seven species of Threatened or At Risk freshwater fish are found in Napier. Most species are restricted to the major rivers on the district boundary (the Esk and Tutaekuri Rivers) and tributaries to Ahuriri Lagoon, but less sensitive species are found in urban streams.

Giant bully (*Gobiomorphus gobioides*; At Risk - Naturally uncommon) live in slow flowing coastal habitats. This species has been recorded in the lower reaches of the Esk and Tutaekuri catchments and possibly also in tributaries to Ahuriri lagoon.

Inanga (*Galaxias maculatus*; At Risk – Declining) inhabit open rivers, streams, lakes, and swamps near the coast and can often be seen shoaling in open water. They are common throughout many water courses in Napier including Tutaekuri River, Esk River, tributaries to Ahuriri Lagoon and Taipo Stream.

Koaro (*Galaxias brevipinnis*; At Risk – Declining) prefer rocky, tumbling streams and they are almost always found in streams with native bush catchments. They are present upstream in the Tutaekuri and Esk Rivers but have been recorded at the Esk River estuary.

Lamprey (*Geotria australis*; Threatened - Nationally Vulnerable) spend most of their lives at sea before migrating into rivers to spawn at small headwater streams. Lamprey have been recorded in the Tutaekuri River.

Longfin eel (*Anguilla dieffenbachia*; At Risk – Declining) occupy a wide range of habitats and are excellent climbers and able to penetrate well inland. They are have been recorded in various watercourses in Napier including Taipo and Purimu Streams.

³⁰ <https://www.hbrc.govt.nz/assets/Document-Library/Outstanding-Water-Bodies/web-documents/3-Values-reports/Tutaekuri-River-ID32-Summary-of-Values-Aug-2020-5511.pdf>

Torrentfish (*Cheimarrichthys fosteri*; At Risk – Declining) inhabit swift white rapids of stony rivers and streams. It undertakes migrations between the sea and fresh water as part of its life cycle. Bluegill bully (*Gobiomorphus hubbsi*; At Risk – Declining) inhabit similar habitat to torrentfish and both species are found in the Esk and Tutaekuri Rivers.



Figure 2. Locations of waterways and Threatened and At Risk fish species in Napier.

3.9 MARINE AND COASTAL ENVIRONMENTS

Napier’s coastal environment has been substantially modified over the last century to accommodate the expanding city, agriculture and industry. The coastline is dominated by gravel beaches, only interrupted by the Port of Napier and Ahuriri Lagoon. Gravel extraction is carried out at Awatoto at the southern end of the city.

As described in previous sections, the coastline provides habitat to various bird, lizard and plant species. Cornes et al. (2019) report that the Napier coastal area is occasionally visited by At Risk – Naturally Uncommon leopard seals (*Hydrurga leptonyx*) as well as vagrant Weddell seals (*Leptonychotes weddellii*). Fur seals (*Arctocephalus forsteri*; Not Threatened) also visit the Napier coast and has been known to travel inland up rivers and streams³¹.

No Threatened or At Risk saltwater fish have been recorded in Napier (or nearby estuaries i.e. Waitangi Estuary) in the Freshwater Fish Database or on iNaturalist. However, some Threatened freshwater fishes identified in Section 3.8 will use the ocean for part of their lifecycle e.g. lamprey, eels.

4 DETERMINATION OF ECOLOGICAL SIGNIFICANCE

4.1 NPS- IB

The NSNA report uses significance criteria based on long-standing best practice and supported by case law, although these are not explicitly defined in the report. Nonetheless, we consider that the criteria used for determining the SNA for Napier in the NSNA report are suitable, and if the NPS-IB criteria were applied to these SNA (excluding the City SNA) they would still be able to be supported as such.

This is because the core principles by which areas of significant indigenous vegetation or significant habitat of indigenous fauna (as SNAs) are assessed in the NPS-IB are essentially the same. An area qualifies as an SNA if it meets any one of the attributes of the following four criteria (described in more detail in NPS-IB Appendix 1 – also included in Appendix II of this report):

- a. **Representativeness:** the extent to which the indigenous vegetation or habitat of indigenous fauna in an area is typical or characteristic of the indigenous biodiversity of the relevant ecological district. It is not restricted to the best or most representative examples. It is not a measure of how well that vegetation or habitat is protected elsewhere in the ecological district. This can include secondary or regenerating vegetation that is recovering following natural or induced disturbance, provided indigenous species composition is typical of that type of vegetation. Representative indigenous fauna habitat can support the typical suite of indigenous animals that would occur in the present-day, regardless of the threat status of those species.
- b. **Diversity and pattern:** the extent to which the expected range of diversity and pattern of biological and physical components within the relevant ecological district is present in an area. Pattern includes changes along environmental gradients, such as ecotones and

³¹ <https://www.nzherald.co.nz/hawkes-bay-today/news/watch-seal-hunts-eel-in-taradale-stream-5km-from-ocean/GSHUDGFKZVC3TAEB2NKFMXWV5U/>

sequences. Some communities or habitats are uniform, with naturally low species diversity; that attribute is assessed under the representativeness criterion.

- c. Rarity and distinctiveness: the presence of rare or distinctive indigenous taxa, habitats of indigenous fauna, indigenous vegetation or ecosystems.³² Rarity includes ecosystems that are uncommon, and species that are threatened. Threatened and At Risk (including ‘naturally uncommon’) species at a national scale are listed in publications (for plants, mammals, birds, and reptiles) prepared and regularly updated by the Department of Conservation. Rarity at a regional or local scale is defined by published local lists or determined by professional opinion. Some species within the Myrtaceae family are relatively common in the Hawke’s Bay region (e.g. kānuka, mānuka) but are listed as Threatened or At Risk due to the threat posed by myrtle rust so are excluded from being significant habitats by the NPS-IB on this reason alone. However, if an area qualifies as significant for any other reason, then it should be ranked as a Significant Natural Area. Two national frameworks are available for the assessment of rarity of terrestrial indigenous vegetation or ecosystems: Ecological Districts, as defined by McEwen (1987); and Land Environments, as defined by Leathwick et al (2003).
- d. Ecological context: the extent to which the size, shape, and configuration of an area within the wider surrounding landscape contributes to its ability to maintain indigenous biodiversity or affects the ability of the surrounding landscape to maintain its indigenous biodiversity. Ecological context has two main attributes: the characteristics that help maintain indigenous biodiversity at the site (such as size, shape and configuration); and the contribution the site makes to protection of indigenous biodiversity in the wider landscape (such as by linking or buffering other sites, providing ‘stepping stones’ of habitat, or maintaining ecological and hydrological processes). Higher value is placed on sites that: have features (such as size, shape, configuration or buffering) that help maintain indigenous biodiversity at the site; support large numbers of or provide important habitat for indigenous fauna; provide a buffer to or link between other significant areas; or play an important role in the biological/natural functioning of a freshwater or coastal/marine system.

In addition, historically rare (or naturally uncommon) terrestrial ecosystems need to be included in the assessment process, as defined and listed by Williams et al (2007) and further defined by Wiser et al (2013). These include wetlands and types of coastal ecosystems, which are proposed as a priority for protection on private land by the Ministry for the Environment (2007).

The context for an assessment is the ecological district (ED), but for a rarity assessment, the regional and national context must also be considered.

The assessment must be carried out in accordance certain principles including collaboration, transparency, quality, permission, consistency and without regard to artificial boundaries.

Threshold attributes are recommended when applying the criteria, and these are useful when differentiating between NSNA and City SNA. These include, for example:

³² Note that the presence of a single indigenous At Risk fauna or flora species does not necessarily mean the site is an SNA. See NPS-IB Appendix 1 Section 1.

- i. Threshold determiner for rare species: Can the habitats of the Threatened or At Risk species be clearly delineated and regular usage be determined? Consider the pattern of distribution of the subject species, its key habitat and lifecycle requirements, including if habitat usage is regular, seasonal or occasional.
- ii. Is the ecosystem integrity of the subject area sufficiently intact to delineate and define a recognisable ecosystem type comprising predominately of indigenous species? Matters to consider are vegetation cover composition and density at all structural tiers, the characteristic biophysical elements supporting that ecosystem type, the ecosystem's capacity to maintain its structural and functional processes, the proportion of exotic vegetation cover as opposed to indigenous vegetation cover, and if contains a range of defining elements characteristic for its ecotype.

Appendix IV shows how each SNA complies with each NPS-IB SNA determination criterion.

4.2 SEPARATION OF CITY SCALE SNAS

The NSNA report recorded 32 SNA that met the criteria for ecological significance, which were identified out of 52 surveyed sites. Of the 32 SNAs, 14 sites met one or more SNA criteria at an ecological district scale (i.e. NPSIB level – see Appendix 1). The total area of the 14 sites is 608 hectares, which represents 5.75% of Napier City. The remaining 18 sites met one or more SNA criteria at a city scale – 'City SNA'. The total area of the city scale sites is 20.8 hectares which represents 0.2% of Napier City (Table 1).

The NSNA report states that the City SNA do not meet the criteria of the draft NPS-IB (it was still draft in 2019). We also agree that most of these City SNA do not meet the criteria of the NPS-IB. The NSNA authors consider, however point out that: *“as per the finding of Judge R.J. Bollard (NZRMA Decision No. A71/2001 (see methodology section)) the Napier landscape is greatly diminished in biodiversity resources and thus every SNA is an important natural capital asset. Within the context of the draft NPSIB, these sites are important nuclei for reconstructing indigenous habitat.”*

We do not disagree with the authors in this regard; however, on review of the City SNA we consider that most, if not all of them, being mostly recently planted (see Figure 3 as an example), and mostly all being very small, fragmented areas, do not meet the NPS-IB significance assessment criteria. This is because they don't represent indigenous ecosystems found within the Heretaunga Ecological District and lack sufficient structural integrity to be viable, functioning ecosystems. Specifically, they do not meet A(7)(a)/(b) of the Representation Criterion or D(3)(a), (b), (c) (d) of the Ecological Context criterion of the *criteria for identifying areas that qualify as significant natural areas* in Appendix 1 of the NPS-IB. This opinion is on the proviso that they currently are not habitats for nationally At Risk or Threatened flora or fauna species, which if they were found to be such habitats, would give them an Ecological District scale SNA status consistent with the NPS-IB criteria.

It is therefore recommended that Council look at an alternative approach to identifying and defining these City SNA in the District Plan, and remove them as SNA. There are a range of non-regulatory options available to incentive landowners to protect them, and ideally enhance and restore them, in conjunction with broader city-wide measures to improve connectivity and fragmentation (see section 4.6).

Table 1. Summary of SNA sites assessed at two significance scales (from Cornes et al 2019)

Significance	Ecological district scale	City scale	Total
Number of sites	14	18	32
Area of sites (ha)	608.0	20.8	628.8
City area occupied by SNAs (%)	5.75	0.20	5.94

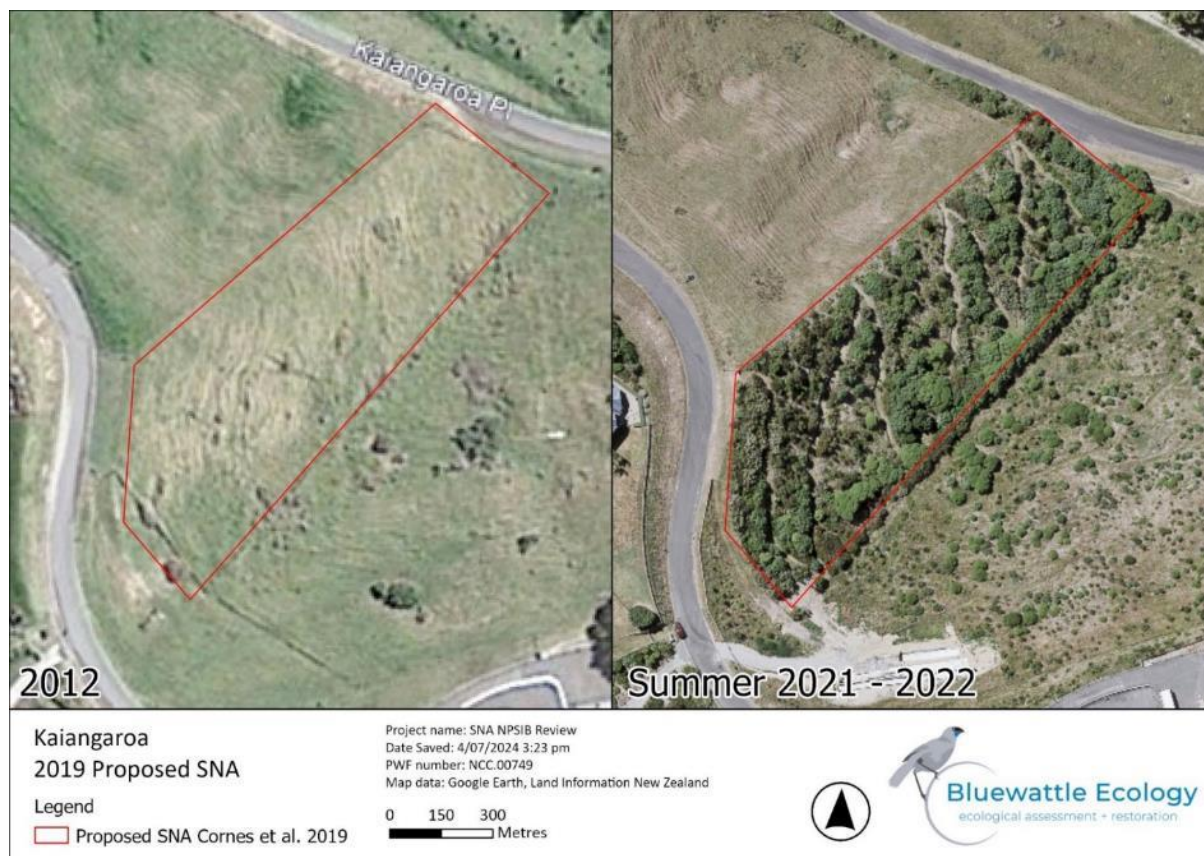


Figure 3. Proposed SNA at Kaiangaroa Place showing change over time from grazed pasture in 2012 to 2022, following growth of native trees and shrubs planted by the landowner in the interim

4.3 KĀNUKA FOREST

Although most of the forested City SNAs do not meet the criteria of the NPS-IB, there is a notable area of naturally occurring kānuka which has been mapped as an SNA – the Esk Hill SNAs. Excluding wetlands and coastal ecosystems, Napier City SNAs contain only scrub and less dense shrublands, usually mixtures of mānuka and kānuka forest with varying amounts of tauhinu, bracken, other ferns, small-leaved divaricating shrubs and broadleaved shrubs or saplings. The original indigenous forest of the City has been cleared, which was mostly combinations of giant podocarps and broadleaved species, with varying amounts of black beech. While not widely regarded as of value, these kānuka forest fragments are frequently the nursery for indigenous forest regeneration and habitat for a distinctive suite of flora and fauna. Given the right management (such as animal and plant pest control and fencing from stock) and the proximity to seed sources, such regrowth forests, treeland and shrublands will naturally develop into mixed broadleaved forests, with or without podocarps and beeches given enough time.

It is understood that many of the multiple private landowners of the Esk Hill SNAs have undertaken substantial replanting and animal and plant pest control over the past decade or so and sought professional assistance to guide them. The current mapping of the Esk Hill SNAs reflects these restoration efforts. The natural occurring portions of SNA are induced regrowth with indigenous vegetation largely absent from this SNA from at least the 1940s until the 1970s (see Figure 4). The regrowth appears to have achieved its spatial extent because of changes in landuse (from farming to rural-residential) and increased in size because of restoration efforts.

The Esk Hills SNAs are not significant at a regional or ecological district scale, but have value for the City in terms of being a relatively large stand of regenerating indigenous forest. The SNA status of Esk Hill SNAs requires re-consideration.. We have redrawn the SNA boundaries to include only the most mature and naturally occurring stands of forest and exclude roads, gardens (including indigenous vegetation near houses) and tiny fragments.

4.4 TERRESTRIAL FAUNA

All identified NSNAs were identified primarily based on vegetation. The NSNA assessment used available fauna data from field observations, literature and land owner information but did not include comprehensive fauna surveys. Additional fauna information is used in the current report but as per Cornes et al (2019), a comprehensive fauna survey is outside the scope of this contract. However, as the RMA requires the protection of significant habitats of indigenous fauna, targeted indigenous fauna surveys should be carried out to ensure that these habitats are identified and protected.

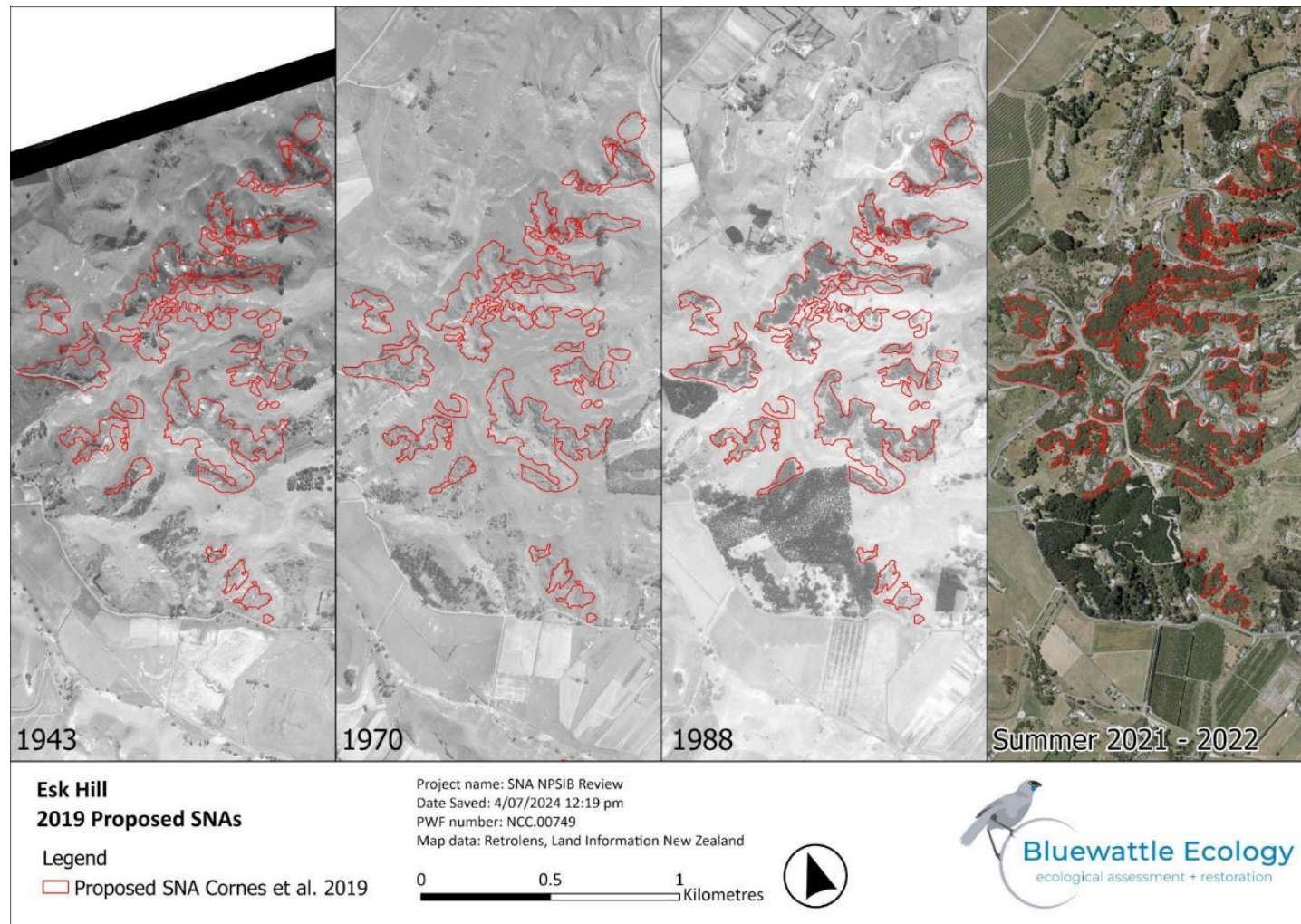


Figure 4. Esk Hill proposed SNAs with aerial imagery showing changes over time from 1943 to 2022: it was pasture dominated landscape over the last 60 years (at least), with scattered taller vegetation (presumably mostly kanuka scrub and shrublands), and how overtime, landowner initiated protection and replanting has allowed for revegetated native plants to dominate in parts of this locality with indigenous species.

4.5 WETLAND CRITERIA

The RMA defines a wetland as including ‘*permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions*’. This definition is very broad and difficult to apply in the field. In the case of determining SNA, Section 6(c) of RMA requires that to be defined as SNA wetlands must be shown to be areas of significant indigenous vegetation and significant habitats of indigenous fauna.

The NSNA mapping includes a number of freshwater and estuarine wetlands as SNA, and we agree with these areas being listed as SNA.

Problematically, the NPS-IB does not address significance of wetlands in terms of section 6(c) and thus provides no guidance. The Hawke’s Bay Regional Council also provides no guidance in its policy documents on this matter.

In turn, some may look to the National Policy Statement for Freshwater Management (NPS-FM) for determination of what constitutes a ‘natural wetland’, to act as a surrogate for determining a significant wetland in terms of section 6(c). Section 6(c) requires that wetlands are not simply a wetland within the confines of the NPS-FM, but a significant *indigenous* wetland. The flaw of the NPS-FM definition in this regard is that it has a threshold which includes wetland areas within pasture, where 50% of those species can be dominated by *exotic* wetland species (technically termed hydrophytic wetland species – for example obligate wetland, facultative wetland or facultative species) regardless of whether they are dominated by exotic or indigenous species (Clarkson et al 2021).

However, it is important to note that during a natural areas assessment for significance, if there was evidence that even though a wetland is dominated by exotic wetland species, it provides habitats for indigenous fauna, then the subject wetland could be deemed to be significant in terms of section 6(c).

As such for the purpose of defining wetland SNA for the NCC, a wetland should be defined as a habitat for indigenous plant communities and/or indigenous fauna communities (excluding exotic rush/pasture communities) characteristic of wetland ecosystem types, as defined by Johnson & Gerbeaux (2004), which meets at least one of the SNA assessment criteria in the NPS-IB .

Desk-top review does not easily allow for finer grained determination of potentially significant wetlands. Initially all potential wetlands were captured as significant wetlands due to the fact they are, as a whole, considered an under-represented ecosystem type. What this does not take into consideration is the type of wetland, of which some of these may be more common than in the past, such as farmland sedge and rush communities. Due to the difficulty in characterising these from aerial imagery many mapped wetland SNA may require further delineation investigations (see Figure 1 above as an example).

In regard to waterways, and their riparian margins, some of which have been deemed to be SNA or City SNA in the NSNA report, if the upstream site has been determined to be significant habitat for indigenous freshwater fauna which have migratory aspects to their lifecycle, then downstream habitat is likely to be significant because it may provide a migration pathway to that significant habitat.

4.6 OPPORTUNITIES FOR PROTECTING BIODIVERSITY

The NPS-IB requires local authorities to include objectives, policies, and methods in their plans to promote the restoration of indigenous biodiversity, including through reconstruction of biodiversity areas (section 3.21). Research shows that at least 10% (and preferably 20%) of indigenous habitat cover is needed across a landscape to ensure viable populations of species and ecosystems.

Currently less than 6% of Napier City is covered by indigenous vegetation or habitat for indigenous species. As the NSNA report states: “for Napier City to reach the recommended minimum 10% target of indigenous cover, 429.41 hectares of new indigenous cover needs to be created through ecological restoration and reconstruction (based on the 5.94% SNA cover figure).”

While the 10% target for highly modified urban environments is appropriate, achieving natural habitat connectivity between these SNA ecosystems, and ongoing management of these, is just as important and should be reflected as such in the District Plan.

The NSNA report provides excellent guidance in this regard in its “Ecological restoration and connectivity opportunities” section. Figure 5 of the NSNA (replicated below as Figure 5), maps the extent of habitat corridors required to increase the opportunity to develop a natural landform corridor. In this map, areas were scored from 1 to 7 (1 indicates little potential value up to 7, most potential value, for restoration) on how many positive features they contained e.g. current vegetation, distance between sites or along an existing ecological or landscape features.

The NSNA helpfully summaries how this ecological connectivity could be implemented within Napier City: “The main areas of potential ecological restoration/reconstruction are along the rivers/waterways, and in areas where exotic vegetation cover is currently dominant. Habitat along the Ahuriri Estuary SNA is a good example of a current corridor for flora and fauna. Ideally there could also be a corridor along the western hills to connect the hills with the rivers. For example, an ecological corridor could be created to link the Dolbel Reserve SNAs to the Tutaekuri River and then along the river to the coast. Another example is a link between the Esk Hill SNAs, the Esk River and the coast. In the built up urban areas there is the potential to transform areas currently in exotic dominant cover, such as on Bluff Hill, into a native dominant ecosystem by underplanting these areas with indigenous plants or replacing exotics as the opportunities arise (e.g. through death or dieback). Walkways, cycleways and waterways (i.e. drains) also hold potential for biodiversity corridor creation.”

Many of these restoration endeavours can be achieved in the non-RMA realm. However particularly on private land subject to landuse change, through subdivision consent applications for example, there are opportunities to use methods in the RMA toolbox to achieve these biodiversity objectives (see Figure 6 below). In the rule toolbox relating to SNAs, creating an inventory of SNA and defining their ecological significance is only the first step. Following this performance standards and ‘ecological triggers’ can be used to inform the consenting pathway where an activity may adversely effect an SNA. Ecological triggers are critical in setting the appropriate policy or non-regulatory response to potential effect of landuse on biodiversity. An ecological trigger in a policy framework is a specific event, condition, or indicator that, when observed or met, prompts a predetermined response or action to address potential environmental impacts or risks. Ecological triggers are designed to proactively identify problems or changes in ecological systems before they escalate into significant issues that could harm biodiversity, ecosystems, or natural resources



Figure 5. Opportunities for linking Napier SNAs and creating ecological connectivity. A ranking of 7 indicates high potential for linking SNAs while 1 indicates a low potential (from Cornes et al 2019).

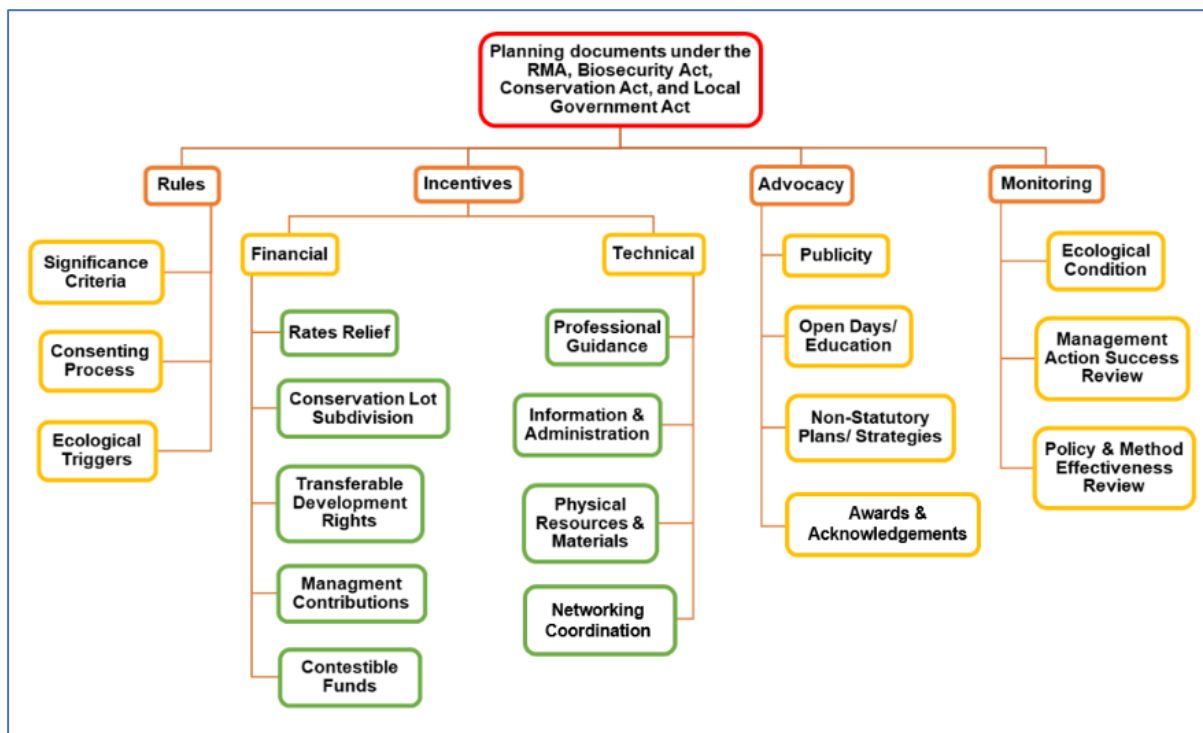


Figure 6: Planning and policy frameworks for protecting and restoring SNAs and biodiversity values

Overall, a combination of these policy methods, along with strong stakeholder engagement, and a suite of outreach, as well as contestable and subsidisation funds, sitting outside of the regulatory realm but still within Council’s RMA obligations, are critical to allow Council to protect and manage significant ecosystems. These wider opportunities for the council to protect and manage SNAs and biodiversity in general include:

- Assisting tangata whenua in research, restoration and protection of culturally significant ecosystems;
- Providing financial and educational assistance to community groups and landowners assistance with management and restoration; and
- Engaging district plan policies that encourage voluntary or incentivised subdivision covenant and restoration measures.

Of these non-regulatory tools, our experience is that ‘Conservation Lot’, or ‘Environmental Benefit Lot’ policies and rules provide pragmatic and workable incentives for landowners to restore or recreate in exchange for additional titles, be they on property or sold on as ‘transferable development rights’. For example, within Waipa District Council their District Plan Environmental Benefit Lot policies and assessment criteria, have produced very notable biodiversity gains. The key to their success in Waipa District are:

- clear and fair assessment criteria, a robust ecological analysis and consenting process; and
- ensuring not only identification of SNAs on the District Planning maps but also identification of biodiversity corridors and key habitats Council considers most important to protect and restore (such as those shown on Figure 1 above).

5 INITIAL REVIEW OF THE NATURAL ENVIRONMENT VALUES CHAPTER

As part of the review, we were asked to review a draft Natural Environment Values chapter in the PDP. In our view, while there are some minor amendments in the which could be made to improve the draft Natural Environment Values chapter in the PDP, the identification of the issues and supporting commentary are robust.

The confirmation in the issues portion of the section that: *“at least 10% of indigenous habitat is required in biodiversity depleted environments to avoid an accelerating rate of biodiversity loss and local extinctions”* stands out as the critical point which is consistent with the NPS-IB and supporting evidence.

However, although identified as an issue, it is not clear if it is a stated objective of the current set of “ECO” policies in the Natural Values section is to achieve indigenous habitat cover of 10%. The Natural Values section’s policies and regulations seem to focus on protecting the SNAs alone (both the ecological district and city scale SNA) and setting out rules relating to clearance of SNAs. This will not achieve this 10% target; without policy focussed on restoration and creation of additional habitats, the plan is at best, only likely to maintain the status quo, and at worst, allow for the incremental loss of SNAs through allowing permitted or consented clearance of SNAs over the term of the Plan.

While Policy ‘ECO-P8’ provides sound policy direction to ‘Enable appropriate restoration and enhancement works’, without clear targets and non-regulatory incentives within the RMA framework, as well as financial and resource support outside of the RMA framework, it is not apparent to what extent benefits will accrue from this policy. Noting that the overall initiatives of the Council to promote and restore biodiversity outside of the RMA framework has not been investigated in this review, this matter is considered to be the primary shortfall of the draft Natural Values section as it stands.

Further work to investigate non-regulatory approaches which enable and incentive landowner, mana whenua and community endeavours to restore and enhance biodiversity values, both within and outside of mapped SNAs is recommended.

The second notable area where the Natural Values section is not consistent with NPS-IB, is that NPS-IB requires that local authorities must have regard to specified ‘highly mobile fauna’³³ and their habitats. Section 3.20 of the NPS-IB requires local authorities to include objectives, policies, or methods in their policy statements and plans for managing the adverse effects of new subdivision, use, and development on highly mobile fauna areas, in order to maintain viable populations of specified highly mobile fauna across their natural range and best practice techniques for managing adverse effects on any specified highly mobile fauna and their habitats in their regions and districts (Section 3.20 – NPS-IB). In fairness, the Hawkes Bay Regional Council has not likely had supplied information on highly mobile fauna and the location of habitat of these species, but will likely in due course.

In addition, the Ecosystems and Biodiversity policy, rules and assessment criteria in the draft natural Values section would benefit by allowing for biodiversity offsetting and compensation mechanisms where a subdivision application is affecting an SNA or within or adjacent to a mapped biodiversity corridor. This is consistent with the requirements of Section 3.10 (4) of the NPS-IB. This could be

³³ specified highly mobile fauna means the Threatened or At Risk species of highly mobile fauna that are identified in Appendix 2 on the NPS-IB

similar to the approach Hamilton City has used to protect and enhance long-tailed bat habitat (a listed Highly Mobile Species in the NPS-IB) in its Plan Change 5, which as well as mapping 'Bat Habitat' corridors in the plan change, also sets out detailed requirements in terms of avoiding, mitigating, offsetting or compensating effects on bats and their habitats in the subdivision consent application process. Plan Change 5 has been subject to Environment Court appeal, but is now operative and little-changed from that submitted to the hearings panel.

6 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUDING REMARKS

The NSNA report is a comprehensive inventory of the natural indigenous values of Napier city which is a robust foundation for Council to base its biodiversity objectives, policies and rules on in the preparation of the Proposed District Plan.

The NSNA report identified 5.94% of Napier City Council land area as SNAs. It is particularly concerning that of the total area covered by SNAs (cf. 629 hectares), the average size of an SNA is 1.53 hectares. This is a very small size for an SNA, and as an average, a sizable number of sites are smaller. This means that given this small size of SNAs on average, along with fragmentation and separation from other sites, the majority of SNAs in Napier City are unlikely to be viable and functional representations of indigenous ecosystems into the future without ongoing management, restoration and enhancement measures.

The key three recommendations of the NSNA report are therefore critical to be included in the relevant biodiversity objectives, policies and implementation methods of the PDP :

- D. It is recommended that management resources be directed towards the legal protection of existing SNAs, the restoration and reconstruction of missing and poorly represented local ecosystems and the linking of SNAs across Napier to ensure ecosystem buffering and ecological connectivity.
- E. Protection and restoration priorities should be focused on the sites that are significant at an ecological district scale but it is also important to protect and restore those that are significant at a city scale.
- F. These goals should be focused on improving ecological integrity and may be planned best through the development of a Napier City biodiversity strategy.

It is acknowledged that the RMA statutory framework will not allow for adoption of all possible methods and resourcing to achieve these recommendations in a District Plan, but by using regulatory and non-regulatory tools the draft Natural Environment Values section will be able to steer planning tools to towards achieving them to a greater or lesser degree.

6.2 RECOMMENDED SNA AMENDMENTS

Potential SNAs to be considered for addition, ground-truthed and an assessment form prepared:

- Parts of Anderson Park (multiple Threatened and At Risk bird species, and likely nesting site for At Risk species)
- Parts of the Napier foreshore (At Risk nesting bird species, At Risk lizard species, At Risk plant species, At Risk marine mammal visits occasionally). We have added to the dataset an area of the Napier foreshore that is known dotterel nesting habitat, but more information is required to identify the location of the At Risk lizard and plant species along other areas of the NCC foreshore.
- Tiffen Park (Threatened – Nationally Vulnerable fern). Note that further information on the distribution and abundance of Jersey fern is required to determine whether this site is SNA. At this time, we recommend that NCC considers this site a restoration site.
- The Tutaekuri River and its margins (dozens of native bird species utilise this area including nesting populations of At Risk species)
- The Esk River and its margins (limited information but potentially avian and freshwater values)

City SNAs to be deleted but considered for protection via a different mechanism:

- All SNAs that are mixed, recent plantings and defined as City SNA in the NSNA report excluding those listed below

City SNAs to remain as SNAs

- The Gap
- Bluff Hill, where some vegetation has been present since at least 1964.
- Harakeke Reserve

SNAs that have been amended (and may require further ground truthing):

- Ahuriri Estuary has been edited to exclude the road to the airport. Note that the spatial data files received from Council includes terrestrial habitats only but the SNA map of Ahuriri Estuary in Appendix 6 of Cornes et al. (2019) includes waterbodies (see Appendix I Figure 3 of this report). The SNA boundary has been adjusted to include waterbodies as per Cornes et al. (2019) Appendix 6.
- Lake Rotokaramu has been remapped to include all freshwater. The track between the waterbodies has been removed and the SNA now comprises two polygons. The southern part of this SNA requires further ground-truthing to more accurately determine the SNA boundary.
- Embankment Road wetland has been modified to remove areas that have been infilled and are now no longer wetland.
- Esk Hill SNAs have been reduced in size and number to three medium to large-sized core areas of predominantly taller regenerating kānuka. Boundaries have been adjusted to remove sparse vegetation, less mature plantings, roads, houses and gardens.

In conclusion, we have amended the spatial dataset according to our recommendations and passed the GIS layer and attribute table on to NCC. Following these edits, the total area of restoration sites is approximately 14.63 ha and SNAs is 690.75 ha, giving a total of 705.38 ha (Table 2). However, some SNAs will require further (restively minor) amendments, such as to remove tracks e.g. Bayview wetland, Ahuriri plain wetland.

Table 2. Total area of biodiversity sites following our edits

Biodiversity site type	Total area (ha)
Restoration site	14.63
SNA	690.75
Total	705.38

6.3 RESTORING ECOLOGICAL VIABILITY AND LINKAGES.

If Napier City wishes to enhance biodiversity values and protect the long-term viability of its existing SNAs, working towards a goal of achieving this 10% indigenous biodiversity cover, with ecological connectivity between them, the following ecological restoration targets are suggested:

- a) Increasing extent/percentage cover of indigenous vegetation across Napier City:
 - Increasing total indigenous vegetation cover towards the 10% target;
 - Increasing cover (the proportion) of threatened ecosystem types.
- b) Restoring health and condition of significant natural areas/ key sites in the city.
- c) Restoring habitats and creating viable populations of threatened and iconic indigenous species in the city.
- d) Restoring coastal margins/wetlands/streams– increasing riparian planting (ensuring effective maintenance of planting), which will restore connectivity, and habitat for iconic species.

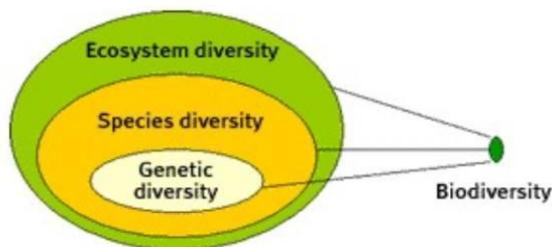
GLOSSARY

At Risk: This means a species facing a longer-term risk of extinction in the wild (either because of severely reduced or naturally small population size or because the population is declining but buffered by either a large total population or a slow rate of decline) as identified in the New Zealand Threat Classification System lists.

Biodiversity (or biological diversity): Section 2 of the Resource Management Act 1991 (RMA) provides a definition for 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”; and/or is simply a way of defining the variety of life on Earth. This includes the different:

- types of animals, birds, fish, insects, plants, bacteria and other species;
- characteristics within a species, for example, how one giant skink differs from another;
- ways species live together, for example, how wood pigeons help to sow seeds;
- types of places species live together, for example, kauri forest or streams;
- ways in which species interact with their environment, for example, kahikatea forest likes to be seasonally flooded. the composition and abundance of species and communities in an ecosystem; and
- ‘engines’ that makes ecosystems work; e.g. the energy links which drive the interactions between trees, insects, birds and fish.

Biodiversity can be represented at three different levels as shown below:



(from MfE web site, 2003)

Biodiversity is also about New Zealand’s biological wealth. Much of our economy is based on the use of biological resources and we benefit from the “services” provided by healthy ecosystems. These include providing raw materials, purifying water, decomposing waste, cycling nutrients, creating and maintaining soils, and regulating climate.

Ecology: (from Greek: οἶκος, oikos, "house, household, housekeeping, or living relations"; -λογία, -logia, "study of") Ecology is the interdisciplinary scientific study of the interactions between organisms and the interactions of these organisms with their environment.

Ecological District: A local part of New Zealand where the features of geology, topography, climate and biology, plus the broad cultural pattern, inter-relate to produce a characteristic landscape and range of biological communities unique to that area. In New Zealand, 268 Ecological Districts have been identified and mapped (at 1:500,000 scale; McEwen, 1987).

Ecosystems: Are communities of living things (animals, plants, fungi, bacteria and other micro-organisms) that interact with each other and their physical environment (soil, rock, minerals, air, water, temperature, salinity). The roles of the animals and plants, and their abundance, are

inseparably bound up with the numbers of other organisms and the amounts of materials available, and with the kinds of physical forces acting at any time. There are ceaseless exchanges of materials, and of energy between living things and their environment, following cyclic pathways which are perpetually repeated, for example the carbon and nitrogen cycles. These cycling systems are characteristic of ecological systems, or ecosystems for short; and/or an interacting system of living and non-living parts such as sunlight, air, water, minerals and nutrients. Ecosystems can be small and short-lived, for example, water-filled tree holes or rotting logs on a forest floor, or large and long-lived such as forests or lakes.

Endemic species: An endemic species is one that exists naturally in a particular environment or location (e.g. New Zealand), and does not exist naturally anywhere else.

Exotic species/Introduced species: A plant or animal species that has been brought to New Zealand by humans, either by accident or design. A synonym is 'Introduced species'.

Ground truthing: Undertaking a site visit of a natural feature to assess its ecological values, as well as to verify if what was found in literature and relevant databases is reflected on the ground.

Habitat: A habitat (which is Latin for "it inhabits") is an ecological or environmental area that is inhabited by a particular animal and plant species. It is the natural environment in which an organism lives, or the physical environment that surrounds (influences and is utilized by) a species population.

Indeterminate: Not able to be determined, defined or described accurately due to a lack of information.

Indigenous species: A plant or animal species that occurs naturally without the assistance of humans in New Zealand. A synonym is 'native'.

Indigenous vegetation: Any local indigenous plant community containing throughout its growth the complement of native species and habitats normally associated with that vegetation type or having the potential to develop these characteristics. It includes vegetation with these characteristics that has been regenerated with human assistance following disturbance, but excludes plantations and vegetation that have been established for commercial purposes.

Protected: This means the site is on private and/or public land and/or water that is legally protected by statute or covenant (e.g. under the Conservation Act 1987, Reserves Act 1977, etc.) and/or other type of legal protection. A list and categorisation of protection types that were applied for the Waikato SNA is included in Appendix III.

SNA: The short term for Significant Natural Areas. SNA means "...areas of significant indigenous vegetation and significant habitats of indigenous fauna" as defined in (Section 6(c) of RMA).

Terrestrial ecosystems: Terrestrial ecosystems can be defined in the most general of terms as the various communities of organisms that inhabit the land in interaction with their environment. In the context of this project, terrestrial ecosystem types are permanently or intermittently dry areas with emergent vegetation dominated by forest, scrub and/or shrubland, or tussock land.

Threatened Species: A species faces a very high risk of extinction in the wild and includes nationally critical, nationally endangered and nationally vulnerable species as identified in the New Zealand Threat Classification System lists.

Threat Status: National Threat classification systems for ranking threatened species.

Unprotected: This means the site is on private and/or public land and/or water where there is no legal protection status. If it is unknown whether they are protected or not, then it is "indeterminate"

Wetland: Permanently or intermittently wet areas, shallow water and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions (Resource Management Act 1991). The vegetation may be exotic and/or native woody plants such as willows or mānuka, and/or herbaceous plants such as sedges, rushes, raupo (*Typha*), or mosses such as Sphagnum. "Willow wetlands" are wetland areas with a canopy dominated by exotic willows, but often contain native vegetation beneath the willows.

Definitions are primarily sourced from:

Ministry for the Environment. 2000. *The New Zealand Biodiversity Strategy*. Ministry for the Environment. New Zealand. Retrieved from <http://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/>

Ministry for the Environment & Department of Conservation. 2011. *Proposed National Policy Statement on Indigenous Biodiversity*. Retrieved from <http://www.mfe.govt.nz/publications/biodiversity/indigenous-biodiversity/proposed-national-policy-statement/index.html>

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APPENDIX I: PHOTO INVENTORY



Photo 1: 'Norther Reserve' Esk Hill SNANC02



Photo 3: Entrance to Esk Hills reserve track



Photo 3: Bait station in Esk Hills SNA NC02

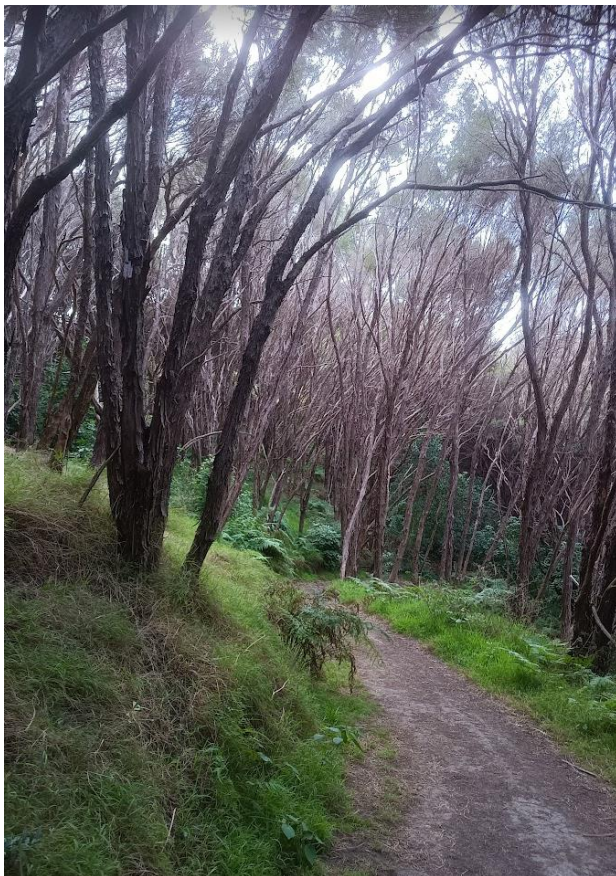


Photo 4: Understorey in Esk Hill SNA NC02 – typical kānuka and mānuka regenerating and planted scrubs and trees.



Photo 5a and 6b: Privately planted ‘City SNA’.



Photo 5: Potential restoration corridor area



Photo 6: Harakeke Reserve SNA NC22



Photo 7: Bluff (Napier) Hill SNA 19. Mature forest remnant amongst exotic trees and planted native species

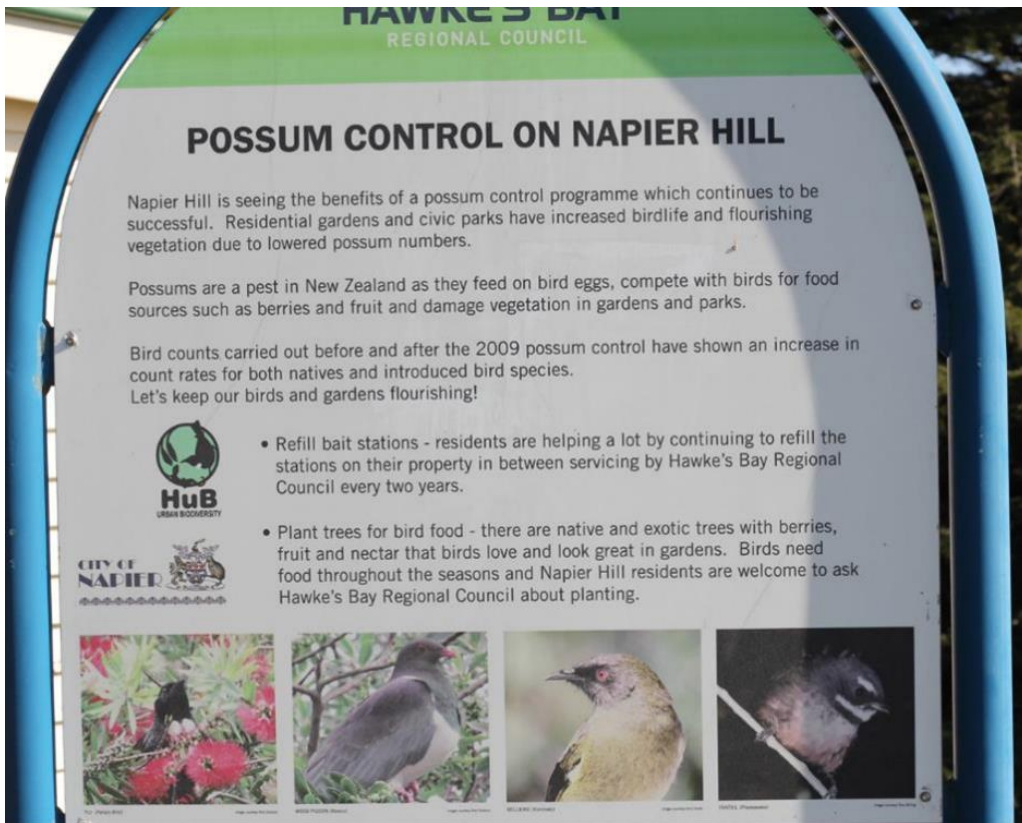


Photo 8: Interpretation sign at Bluff Hill



Photo 8: Community managed dune and shingle ecosystem remnant – Te Taha “the Gap” SNANC17

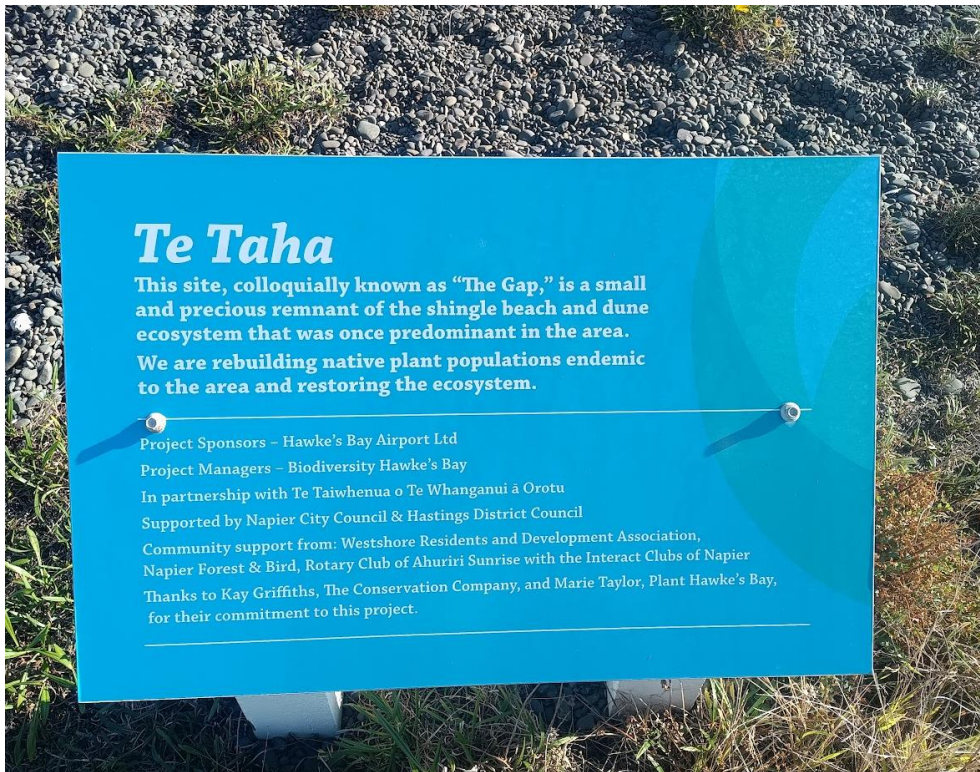


Photo 9: Interpretation sign – “the Gap” SNANC17



Photo 10: Beach and dune system which are regular nesting sites for banded dotterel from Westshore to Bay View – potential fauna SNA



Photo 11: Interpretation sign at Westshore beach



Photo 12: Interpretation sign at Dolbel Reserve SNA NC27



Photo 14: Interpretation sign at Lower Ahuriri Estuary SNA NC14



Photo 15: Embankment Road SNA NC21



Photo 16: Jersey fern growing in bank at Tiffen Park

APPENDIX II: NPS-IB SNA ASSESSMENT CRITERIA

Appendix 1: Criteria for identifying areas that qualify as significant natural areas (SNAs)

This appendix sets out the criteria for identifying significant indigenous vegetation or significant habitats of indigenous fauna in a specific area, so that the area qualifies as an SNA.

1 What qualifies as an SNA

- (1) An area qualifies as an SNA if it meets any one of the attributes of the following four criteria:
 - (a) representativeness:
 - (b) diversity and pattern:
 - (c) rarity and distinctiveness:
 - (d) ecological context.
- (2) If an area would qualify as an SNA solely on the grounds that it provides habitat for a single indigenous fauna species that is At Risk (declining), and that species is widespread in at least three other regions, the area does not qualify as an SNA unless:
 - (a) the species is rare within the region or ecological district where the area is located; or
 - (b) the protection of the species at that location is important for the persistence of the species as a whole.
- (3) If an area would qualify as an SNA solely on the grounds that it contains one or more indigenous flora species that are Threatened or At Risk (declining), and those species are widespread in at least three other regions, the area does not qualify as an SNA unless:
 - (a) the species is rare within the region or ecological district where the area is located; or
 - (b) the protection of the species at that location is important for the persistence of the species as a whole.

2 Context for assessment

- (1) The context for an assessment of an area is:
 - (a) its ecological district; and
 - (b) for the rarity assessment only, its ecological district, its region and the national context.

3 Manner and form of assessment

- (1) Every assessment must include at least:

- (a) a map of the area; and
 - (b) a general description of its significant attributes, with reference to relevant criteria (as specified below); and
 - (c) a general description of the indigenous vegetation, indigenous fauna, habitat, and ecosystems present; and
 - (d) additional information, such as the key threats, pressures, and management requirements; and
 - (e) for SNAs in areas of Crown-owned land referred to in clause 3.8(8), the conservation management strategy or plan or national park management plan that applies to the area.
- (2) An assessment under this appendix must be conducted by a suitably qualified ecologist (which, in the case of an assessment of a geothermal ecosystem, requires an ecologist with geothermal expertise).

A Representativeness criterion

- (1) Representativeness is the extent to which the indigenous vegetation or habitat of indigenous fauna in an area is typical or characteristic of the indigenous biodiversity of the relevant ecological district.

Key assessment principles

- (2) Significant indigenous vegetation has ecological integrity typical of the indigenous vegetation of the ecological district in the present-day environment. It includes seral (regenerating) indigenous vegetation that is recovering following natural or induced disturbance, provided species composition is typical of that type of indigenous vegetation.
- (3) Significant indigenous fauna habitat is that which supports the typical suite of indigenous animals that would occur in the present-day environment. Habitat of indigenous fauna may be indigenous or exotic.
- (4) Representativeness may include commonplace indigenous vegetation and the habitats of indigenous fauna, which is where most indigenous biodiversity is present. It may also include degraded indigenous vegetation, ecosystems and habitats that are typical of what remains in depleted ecological districts. It is not restricted to the best or most representative examples, and it is not a measure of how well that indigenous vegetation or habitat is protected elsewhere in the ecological district.
- (5) When considering the typical character of an ecological district, any highly developed land or built-up areas should be excluded.
- (6) The application of this criterion should result in identification of indigenous vegetation and habitats that are representative of the full range and extent of ecological diversity across all environmental gradients in an ecological district, such as climate, altitude, landform, and soil sequences. The ecological character and pattern of the indigenous vegetation in the ecological district should be described by reference to the types of indigenous vegetation and the landforms on which it occurs.

Attributes of representativeness

- (7) An area that qualifies as an SNA under this criterion has at least one of the following attributes:
- (a) indigenous vegetation that has ecological integrity that is typical of the character of the ecological district:
 - (b) habitat that supports a typical suite of indigenous fauna that is characteristic of the habitat type in the ecological district and retains at least a moderate range of species expected for that habitat type in the ecological district.

B Diversity and pattern criterion

- (1) Diversity and pattern is the extent to which the expected range of diversity and pattern of biological and physical components within the relevant ecological district is present in an area.

Key assessment principles

- (2) **Diversity of biological components** is expressed in the variation of species, communities, and ecosystems. Biological diversity is associated with variation in physical components, such as geology, soils/substrate, aspect/exposure, altitude/depth, temperature, and salinity.
- (3) **Pattern** includes changes along environmental and landform gradients, such as ecotones and sequences.
- (4) **Natural areas** that have a wider range of species, habitats or communities or wider environmental variation due to ecotones, gradients, and sequences in the context of the ecological district, rate more highly under this criterion.

Attributes of diversity and pattern

- (5) An area that qualifies as a significant natural area under this criterion has at least one of the following attributes:
- (a) at least a moderate diversity of indigenous species, vegetation, habitats of indigenous fauna or communities in the context of the ecological district:
 - (b) presence of indigenous ecotones, complete or partial gradients or sequences.

C Rarity and distinctiveness criterion

- (1) Rarity and distinctiveness is the presence of rare or distinctive indigenous taxa, habitats of indigenous fauna, indigenous vegetation or ecosystems.

Key assessment principles

- (2) **Rarity** is the scarcity (natural or induced) of indigenous elements: species, habitats, vegetation, or ecosystems. Rarity includes elements that are uncommon or threatened.
- (3) **The list of Threatened and At Risk species** is regularly updated by the Department of Conservation. Rarity at a regional or ecological district scale is defined by regional or district lists or determined by expert ecological advice. The significance of nationally

listed Threatened and At Risk species should not be downgraded just because they are common within a region or ecological district.

- (4) Depletion of indigenous vegetation or ecosystems is assessed using ecological districts and land environments.
- (5) Distinctiveness includes distribution limits, type localities, local endemism, relict distributions, and special ecological or scientific features.

Attributes of rarity and distinctiveness

- (6) An area that qualifies as an SNA under this criterion has at least one of the following attributes:
 - (a) provides habitat for an indigenous species that is listed as Threatened or At Risk (declining) in the New Zealand Threat Classification System lists:
 - (b) an indigenous vegetation type or an indigenous species that is uncommon within the region or ecological district:
 - (c) an indigenous species or plant community at or near its natural distributional limit:
 - (d) indigenous vegetation that has been reduced to less than 20 per cent of its pre-human extent in the ecological district, region, or land environment:
 - (e) indigenous vegetation or habitat of indigenous fauna occurring on naturally uncommon ecosystems:
 - (f) the type locality of an indigenous species:
 - (g) the presence of a distinctive assemblage or community of indigenous species:
 - (h) the presence of a special ecological or scientific feature.

D Ecological context criterion

- (1) Ecological context is the extent to which the size, shape, and configuration of an area within the wider surrounding landscape contributes to its ability to maintain indigenous biodiversity or affects the ability of the surrounding landscape to maintain its indigenous biodiversity.

Key assessment principles

- (2) Ecological context has two main assessment principles:
 - (a) the characteristics that help maintain indigenous biodiversity (such as size, shape, and configuration) in the area; and
 - (b) the contribution the area makes to protecting indigenous biodiversity in the wider landscape (such as by linking, connecting to or buffering other natural areas, providing 'stepping stones' of habitat or maintaining ecological integrity).

Attributes of ecological context

- (3) An area that qualifies as an SNA under this criterion has at least one of the following attributes:

- (a) at least moderate size and a compact shape, in the context of the relevant ecological district:
- (b) well-buffered relative to remaining habitats in the relevant ecological district:
- (c) provides an important full or partial buffer to, or link between, one or more important habitats of indigenous fauna or significant natural areas:
- (d) important for the natural functioning of an ecosystem relative to remaining habitats in the ecological district.

APPENDIX III: AVIFAUNA SPECIES LIST

At Risk and Threatened birds recorded within Napier City and their habitats. Source: eBird, iNaturalist. * denotes 'specified highly mobile fauna' as per NPSIB.

Common name	National conservation status	Oceanic	Coastal/estuary	Freshwater/wetland	Scrub/shrubland	Farmland/oeppn	Native forest	Exotic forest
Buller's Shearwater	At Risk - Declining	■						
Flesh-footed Shearwater	At Risk - Relict	■						
Sooty shearwater	At Risk - Declining	■						
Buller's Albatross	At Risk - Declining	■						
White-capped Albatross	At Risk - Declining	■						
Salvin's Albatross	Threatened - Nationally Critical	■						
Fluttering Shearwater	At Risk - Relict	■						
Northern giant petrel	At Risk - Recovering	■						
Fairy Prion	At Risk - Relict	■						
Common Diving-Petrel	At Risk - Relict	■						
Cape Petrel	At Risk - Naturally Uncommon	■						
Little Penguin	At Risk - Declining	■						
Red knot	At Risk - Declining		■					
Northern New Zealand dotterel*	Threatened - Nationally Increasing		■					
Reef heron*	Threatened - Nationally Endangered		■	■				
Bar-tailed godwit*	At Risk - Declining		■					
White fronted tern*	At Risk - Declining		■					
Wrybill*	Threatened - Nationally Increasing		■	■				
White heron*	Threatened - Nationally Critical		■	■				
Royal Spoonbill	At Risk - Naturally Uncommon		■	■				
Caspian tern*	Threatened - Nationally Vulnerable		■	■				
Black-billed gull*	At Risk - Declining		■	■		■		
Variable Oystercatcher*	At Risk - Recovering		■	■		■		
Banded dotterel*	At Risk - Declining		■	■		■		
Red-billed gull*	At Risk - Declining		■	■		■		
Marsh crake*	At Risk - Declining		■	■				
Spotless Crake*	At Risk - Declining		■	■				
Brown Teal*	Threatened - Nationally Increasing		■	■				
Grey duck*	Threatened - Nationally Vulnerable		■	■				
Australasian bittern*	Threatened - Nationally Critical		■	■				
Black-fronted Dotterel	At Risk - Naturally Uncommon		■	■		■		
Eurasian Coot	At Risk - Naturally Uncommon		■	■				
South Pied Island Oystercatcher*	At Risk - Declining		■	■				
Little Pied Cormorant	At Risk - Relict		■	■				
Great Cormorant	At Risk - Relict		■	■				
Little Black Cormorant	At Risk - Naturally Uncommon		■	■				
NZ pied shag*	At Risk - Recovering		■	■				
NZ dabchick*	Threatened - Nationally Increasing		■	■				
Australasian Pipit*	At Risk - Naturally Uncommon		■	■		■		
NZ falcon*	Threatened - Nationally Increasing				■	■	■	■

Kaka*	At Risk - Recovering								
Long-tailed cuckoo	At Risk - Nationally Vulnerable								

APPENDIX IV: SNA ATTRIBUTE & NPS-IB ASSESSMENT TABLE

SNA name	Site number (Cornes et al)	Shape Area (m ²)	Type	General description	Significant fauna/flora	A Representativeness criterion	B Diversity and pattern criterion	C Rarity and distinctiveness criterion	D Ecological context criterion	Ecological significance justification	Key threats, pressures and management requirements
Esk Hill 2	2	66774	SNA	Large patch of kānuka-dominant early successional forest, possibly with relictual tōtara and tītoki. Some areas with restoration plantings.	Fernbird (At Risk - Declining); NZ falcon (At Risk - Recovering).	Yes	No	Yes	No	A. Large patch of kānuka-dominant early successional forest, possibly with relictual tōtara and tītoki (Cornes et al. 2019). Fairly extensively vegetated in 1988 (Retrolens) and is quite large compared to other patches of indigenous scrub/forest. C. <1% native vegetation left on the hills and one of few remaining kānuka forest remnants within the Napier City boundary. Fernbird (At Risk - Declining) are present (Cornes et al. 2019).	Ensure that the area is fenced area from stock. Remove ecological weeds. Continue pest control. Plant trees at higher densities to create a closed canopy. Plant to link with adjacent areas of regenerating kānuka forest
Esk Hill 5	5	21139	SNA	Medium-sized patch of naturally regenerating kānuka-dominant early successional forest. Planting has begun under kānuka canopy	NA	Yes	No	Yes	No	A. Medium-sized patch of kānuka-dominant early successional forest. This area has been vegetated since the 1970s and is fairly large compared to other areas of regenerating forest. C. <1% native vegetation left on the hills and one of few remaining kānuka forest remnants within the Napier City boundary.	Plant in canopy gaps to close the canopy. Underplant dense canopy areas with shade tolerant species. Continue pest control. Plant areas between other Esk Hill sites to increase connectivity.

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Esk Hill 7	7	73146	SNA	Large patch of kānuka-dominant early successional forest.		Yes	No	Yes	No	A. Large patch of kānuka-dominant early successional forest. Parts of this area have been vegetated since 1970, small areas since 1943, By 1988 the vegetation appears quite dense. C. <1% native vegetation left on the hills and one of few remaining kānuka forest remnants within the Napier City boundary.	Continue pest management. Plant in canopy gaps to reduce weeds. Plant around the margins of the site to connect blocks within the SNA and this site to other areas of regenerating kānuka.
Bayview wetland	15	250107	SNA	Saline wetland with sea rush and glasswort	<i>Thyridia repens</i> (At Risk - Naturally Uncommon)	Yes	No	Yes	No	A. Typical saline wetland. C. Wetlands have been reduced across the region. Is habitat for At Risk - Naturally Uncommon <i>Thyridia repens</i>	Fence the wetland from stock. Reduce the area exposed to the margins by planting native vegetation in areas with large marginal edge.
Ahuriri plain wetland	16	886677	SNA	Saline wetland with sea rush and glasswort	NA	Yes	No	Yes	No	A. Typical saline wetland. C. Wetlands have been reduced across the region.	Fence the wetland from stock. Reduce the area exposed to the margins by planting native vegetation in areas with large marginal edge.
Esplanade herbfield ("the Gap")	17	8037	SNA	Coastal gravel herbfield. Very weedy.	<i>Coprosma acerosa</i> (At Risk - Declining)	Yes	No	Yes	No	A. Contains species typical of coastal margins. C. Sand coprosma (<i>Coprosma acerosa</i> , At Risk - Declining) is present.	Remove ecological weeds. Plant site with native herbfield species to create native dominance.
Westshore Reserve Bush	18	9544	Restoration site	Native plantings, some to 8 m in height.	NA	No	No	No	No	This site is vegetated with indigenous plantings	Remove ecological weeds. Plant in

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				Weedy but with good regeneration in places.						(planted 1999) so is not an SNA; however, this site is public land so retain as restoration site.	canopy gaps and around margins to increase canopy cover and link blocks.
Bluff hill	19	12387	SNA	Indigenous vegetation surrounded by exotic vegetation. Much of this vegetation has been present since 1964 (Retrolens).	NA	No	No	Yes	No	C. <1% native vegetation is left in Hawkes Bay	Increased planting to create a closed forest canopy. Stop mowing the area. Plant natives into the connected exotic dominant areas to increase size and connectivity. Remove environmental weeds (ivy, tradescantia, cotoneaster etc). Investigate reducing the amount of concrete in the area.
Lake Rotokaramu	20	34626	SNA	Non-draining Peat wetland - lot of <i>Lemna</i> , <i>Eleocharis</i> sedge and <i>Typha orientalis</i> common in water. 30 percent vegetation is <i>Eleocharis</i> . <i>Juncus</i> and pasture weeds, willows present in and out. No fish – anecdotal. Drained 1920 and cleared by digger. The SNA comprises two areas of wetland separate by a track.	<i>Ricciocarpos natans</i> (At Risk - Declining); Royal spoonbill (At Risk - Naturally Uncommon); New Zealand dabchick (Threatened - Nationally Increasing); Australasian bittern (Threatened - Nationally Critical)	Yes	No	Yes	No	A. This peat wetland is vegetated with <i>Eleocharis</i> and <i>Typha</i> which are typical indigenous vegetation of the area. Habitat is present for freshwater wetland birds. C. It is habitat for the At Risk - Declining plant species <i>Ricciocarpos natans</i> . A range of Threatened and At Risk bird species are present including royal spoonbill, NZ dabchick and Australasian bittern, but likely also At Risk species of rail and shag (Cornes et al. 2019). Wetlands have	Fully fence SNA from stock. Plant margins to increase site and provide ecotone from wetland to forest. Remove ecological weeds (blackberry, willows etc).

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										been reduced across the region.	
Embankment Road wetland	21	12169	SNA	Small salt marsh/meadow surrounded by industrial urban Napier. Appears to be dominated by <i>Salicornia quinqueflora</i> .	NA	Yes	No	Yes	No	A. Typical saline wetland. C. Wetlands have been reduced across the region.	Need fencing and planting to connect to estuary.
Harakeke Reserve	22	19422	SNA	Urban waterway with margins of mixed native and exoic plantings. Wetland areas with ecotone from <i>Typha orientalis</i> to <i>Bolboschoenus</i>	NA	No	Yes	Yes	No	B. Species diverse wetland with ecotone from <i>Typha orientalis</i> to <i>Bolboschoenus</i> . C. <1% native vegetation is left on the plains.	Extend planting and link to beach. Remove ecological weeds such as blackberry and moth plant.
Halliwell Reserve 1	23	11174	Restoration site	Planted with species-diverse indigenous plantings in 2012, some species are now greater than 8 m tall.	NA	No	No	No	No	This site is vegetated with indigenous plantings so is not an SNA; however, this site is public land so retain as restoration site.	Remove ecological weeds. Plant natives denser. Try to plant to join to other Halliwell SNA.
Halliwell Reserve 2	24	14477	Restoration site	Planted with indigenous plantings in 2012, some species are now greater than 6 m tall.	NA	No	No	No	No	This site is vegetated with indigenous plantings so is not an SNA; however, this site is public land so retain as restoration site.	Remove ecological weeds. Plant natives denser. Try to plant to join to other Halliwell SNA.
SH50 planting	25	4030	Restoration site	Weedy stand of planted natives.	NA	No	No	No	No	This site is vegetated with indigenous plantings so is not an SNA; however, this site is public land so retain as restoration site.	Plant in canopy gaps and under canopy as some canopy species are nearing end of their life. Control weeds. Extend planting out both length and width ways to create a

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											vegetation corridor, which could get closer to Friend’s Bush.
Dolbel Reserve 1	26	21718	Restoration site	Fenced native broadleaved forest with some sections of closed canopy. Some natural secondary growth of kānuka.	NA	No	No	No	No	This site is vegetated with indigenous plantings so is not an SNA; however, this site is public land so retain as restoration site.	Increased and denser planting of ecologically appropriate species to reduce weeds and help develop the forest to become humid enough for later successional species. Fully fence from stock. Remove ecological weeds like <i>Nephrolepis cordifolia</i> . Plant along hill to connect Dolbel sites
Dolbel Reserve 2	27	24799	Restoration site	Two areas of native plantings on steep hillside with closed canopy in places. Surrounded by park/farmland.	NA	No	No	No	No	This site is vegetated with indigenous plantings so is not an SNA; however, this site is public land so retain as restoration site.	Plant the area to link the two parts of the SNA to each other and to Dobel 1. Plant at higher densities to increase canopy cover and reduce weeds. Remove ecological weeds like blackberry.
Otatara Park	29	6078	Restoration site	Small park planted with a mix of native and exotic species	NA	No	No	No	No	This site is vegetated with indigenous plantings (planted 1993) so is not an SNA; however, this site is public land so retain as restoration site.	Increase canopy by planting in gaps and planting around the margins. Remove regenerating exotic trees. Make sure this is done slowly so it won’t create large canopy gaps.

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Otatara Pa 1	30	11213	Restoration site	Small area of sparse kākūka-dominated early successional forest.	NA	No	No	No	No	This is site vegetated with indigenous species but does not meet significance criteria; however, this site is public land so retain as restoration site.	Remove ecological weeds. Plant to reduce margins and join to other Otatara Pa SNA sites.
Otatara Pa 2	31	4543	Restoration site	Small patch of ngaio forest with understorey of pasture grass and blackberry.	NA	No	No	No	No	This is site vegetated with indigenous species but does not meet significance criteria; however, this site is public land so retain as restoration site.	Plant to fill canopy gaps and connect to other SNA sites.
Otatara Pa 3	32	28093	Restoration site	Mixed forest of ngaio, kōwhai and treer lucerne with understorey of pature and mixed exotic weeds.	NA	No	No	No	No	This is site vegetated with indigenous species but does not meet significance criteria; however, this site is public land so retain as restoration site.	Fully fence site. Remove rubbish and deter people from dumping. Plant under exotic canopy and kill the exotics as the natives come up to take over the canopy. Plant area to connect to other SNA sites.
Ahuriri Estuary	14-1 to 14-6	4484872	SNA	A very large site with mixed habitat types including saline plains, open water, raupo reedland, some margins with relictual kōwhai and karaka trees.	<i>Thyridia repens</i> (At Risk - Naturally Uncommon). A range of bird species including but not limited to Australasian bittern (Threatened - Critically Endangered), Royal spoonbill (At Risk - Naturally Uncommon), red-billed gull (At Risk - Declining), black-	Yes	Yes	Yes	Yes	A. Typical saline wetland with a typical suite of indigenous coastal and wetland birds present. B. Ecotone: <i>Salicornia quinqueflora</i> to pasture grass to shrubs/trees C. Is a wetland that has been reduced in Napier by drainage and farming. Is habitat for At Risk - Naturally Uncommon <i>Thyridia repens</i> . Habitat for a range of At Risk and Threatened bird species.	Management of subdivision runoff is needed to reduce pollution that is harming wildlife. Remove environmental weeds like blackberry. Eliminate stock from the area with more fencing. Add plantings to increase connectivity within the SNA.

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					billed gull (At Risk - Declining).					D. The site is large and links to many other sites along the Ahuriri River. It is critical habitat for coastal and wetland birds.	
Anderson Park	New1	45376	SNA	Anderson Park is a highly modified urban park vegetated with exotic pasture and ornamental tree species. It has multiple artificial freshwater ponds.	Threatened species present include: white heron, NZ dabchick. At Risk species present include: little shag; black-billed gull, Eurasian coot, black shag, little black shag, NZ pied shag, royal spoonbill, red-billed gull.	No	No	Yes	No	C. A range of At Risk and Threatened bird species utilise this site. A colony of little shag may be nesting at this site.	Nesting birds are vulnerable to predators. Planting could be added to enhance habitat.
Bayview Coast	New2	124725	SNA	Strip of coastal gravelfield.	Banded dotterel (At Risk - Declining)	No	No	Likely	No	C. Banded dotterel (At Risk - Declining) nest at this site. A site doesn't necessarily qualify as an SNA solely on the grounds that it provides habitat for a single At Risk indigenous fauna species; however, given that this is a nesting site for this species then the protection of this species at this site may be important for the persistence of the species.	Nesting birds are threatened by predators and vehicles on the beach. Some areas of the beach are fenced to protect nesting birds.
Esk River	New3	156737	SNA	River with habitat for freshwater species. Riparian vegetation is likely weedy but provides some	Banded dotterel (At Risk - Declining). A range of other Threatened and At Risk bird species likely also use this	Yes	Indeterminate	Yes	Yes	A. The river bed is representative of a braided river with modified riparian habitat. It supports the typical suite of indigenous	Nesting birds are threatened by predators and vehicles on the gravel bed. Riparian margins are likely dominated

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				buffering of the river and habitat for birds.	river. Various freshwater fish species including giant bully (At Risk - Naturally Uncommon), longfin eel (At Risk - Declining), inanga (At Risk - Declining), torrentfish (At Risk - Declining) and koaro (At Risk - Declining).					freshwater species. C. Provides habitat for a range of At Risk and Threatened species. Braided rivers are a naturally uncommon ecosystem type. D. Connects the ocean to the upper reaches of the river	by weedy species. Freshwater life is vulnerable to declines in water quality.
Tiffen Park	New4	10619	Restoration site	Steep urban park with canopy dominated by mature exotic trees. Understory is a mix of weedy and ornamental species.	Jersey fern <i>Anogramma leptophylla</i> (Threatened - Nationally Vulnerable)	No	No	Indeterminate	No	C. Is habitat for Jersey fern (Threatened - Nationally Vulnerable). A site doesn't necessarily qualify as an SNA solely on the grounds that it provides habitat for a single Threatened species. Further information on the distribution and abundance of Jersey fern is required to determine whether this site is SNA.	Jersey fern is threatened through habitat loss by competition with weeds, and by the removal of surrounding vegetation.

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Tutaekuri River	New5	711272	SNA	Braid river with habitat for freshwater species. Riparian vegetation is likely weedy but provides some buffering of the river and habitat for birds.	Various freshwater fish species including giant bully (At Risk - Naturally Uncommon), longfin eel (At Risk - Declining), inanga (At Risk - Declining), torrentfish (At Risk - Declining), koaro (At Risk - Declining) and lamprey (Threatened - Nationally Vulnerable). Contains significant breeding populations of banded dotterels (At Risk - Declining) and black-fronted dotterels (At Risk - Naturally Uncommon). It is home to 43 bird species, including 19 wetland species and likely includes a range of Threatened and At Risk species.	Yes	Indeterminate	Yes	Yes	A. The river bed is representative of a braided river with modified riparian habitat. It supports the typical suite of indigenous freshwater and bird species. C. Provides habitat for a range of At Risk and Threatened species. Braided rivers are a naturally uncommon ecosystem type. D. Connects the estuary to the upper reaches of the river	Nesting birds are threatened by predators and vehicles on the gravel bed. Riparian margins are likely dominated by weedy species. Freshwater life is vulnerable to declines in water quality.

