

PROTECTED NATURAL AREAS IN NORTHLAND, AND CARE STANDARDS FOR PROTECTED NATURAL AREAS

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NORTHLAND REGIONAL COUNCIL
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EXECUTIVE SUMMARY

This report uses available data to determine what proportion of Northland Region can be classed as Protected Natural Areas (PNA). A PNA is defined as an area of land that has formal legal status intended to protect indigenous ecosystems, vegetation, habitats, or species. Within the PNA network, different types of legislation provide different levels of protection. Some types of reserve, and areas looked after by community care groups, do not fit the definition of a PNA. A summary is provided of national and regional priorities for protection of natural values.

In total, 13.75% of the Northland Region has some sort of legal protection. This equates to 2,067 sites covering 180,336.2 ha. Of that total, 1,905 sites (*c.* 87% of the total number) covering 156,451 ha (*c.* 92% of the total area) are PNAs, as they have the legal mandate to conserve natural values. The remainder of the sites may protect natural values as a by-product of reservation (legal protection for other reasons than conservation of natural values) or through management without legal protection.

Northland Region includes 24 ecological districts, of which 19 have been fully or partially surveyed. For 11 ecological districts, less than 10% of the total land area comprises PNAs. These are ordered from least area of PNA sites to highest; Otamatea, Tokatoka, Hokianga, Whangarei, Kaikohe, Rodney (part), Kerikeri, Tangihua, Pouto, Aupouri, and Waipu. Other ecological districts (Poor Knights, Three Kings, Manaia, Taranga) are nearly completely protected.

Some of these ecological districts still contain a large proportion of indigenous vegetation in Acutely Threatened or Chronically Threatened Land Environments of New Zealand (LENZ) categories (Ministry for the Environment 2007a, 2007b). However, as a general rule, PNAs within ecological districts only include a small percentage of Acutely Threatened (1.7% over total region) and Chronically Threatened (4.2% over total region) land environments.

The amount of indigenous vegetation remaining within ecological districts varies greatly. Using the Land Cover Database vs 2 (LCDB2), 11.9% of the Northland Region is a PNA, a further 5.8% is legally protected but not a PNA (*i.e.* the legislative mandate is not protection of natural values) or is being looked after by community or Landcare Groups. This leaves *c.* 82% of Northland Region without any form of legal protection or care¹. There is considerable scope for further protection of natural values, as nearly 37% of Northland Region consists of indigenous landcover. The LCDB2 categories of native vegetation that require urgent protection are Alpine Gravel and Rock, Depleted Tussock Grassland, Estuarine Open Water and Fernland. Many other vegetation categories also warrant further protection.

¹ Note that the numbers do not quite add up as the different mapping layers LCDB2, PNA, Regional Council Territory include variable amounts of estuarine and coastal environments.

The Department of Conservation manages 92% of the area covered by PNAs (144,089 ha), Queen Elizabeth II National Trust protects 4.2% (6,587 ha), Nga Whenua Rahui 2.2% (3,718 ha), and the Whangarei District Council has protected 1.5% (2,266 ha) by means of covenants. The number of PNAs managed by the different agencies are: DOC 802 sites (42% of the sites), Whangarei District Council 613 sites (32%), QEII Trust 475 sites (25%), and Nga Whenua Rahui 15 sites (0.8%).

Within the Northland Region, 1,320 (283,947.8 ha) Natural Areas of Ecological Significance (NAES) were identified through Protected Natural Areas Programme surveys. In total, 506 NAES (37.39% of the area) are partially or fully protected by some mechanism. Of these, 444 NAES (85,535.9 ha or 31.5% of the area) are PNAs, either wholly or partially. A further 162 NAES (equalling 16,636 ha or 5.86% of the area) are partially or fully protected by mechanisms that may not protect natural values. Sixty-two percent of NAES are not protected or managed by any mechanism. Of those that are protected or managed (this includes legal protection but also efforts by community groups), nearly all NAES (98%) only have part of their total area protected. NAES can be protected by multiple mechanisms.

Whangarei District Council (WDC) has required the covenanting of 613 areas, usually as part of sub-division processes, totalling 2,266.0 ha. Nearly 50% of them (24% by area) were not NAES identified in PNAP surveys. In total, 311 NAES are fully or partially protected by WDC covenants.

A range of other mechanisms contribute to the conservation of natural values, but do not result in PNA status. These include community care groups, Council funded pest management projects, Government funded biodiversity projects, and Fish and Game reserves. The data for most of these mechanisms is often incomplete, contains errors, or in some cases is not available in a spatial (mapped) format. This limits how these data can be used.

There is currently no consistent classification of ecological features within protected areas. Descriptions of ecological areas vary within and between organisations. The only nationwide classification of vegetation cover that is relatively consistent across the entire country is the LCDB2. A consistent nationwide approach to classifying and ranking natural areas is required. The extent of all natural areas, and all areas where management is undertaken to manage natural values, needs to be mapped as GIS layers to allow better comparison and analysis.

There are no consistent standards of care between, and sometimes within, organisations. Few agencies have specified what the minimum standards of care should be, or have the means to enforce standards if they are present. Often management of PNAs can be hampered by lack of funds or other resources. General standards of care are suggested for different ecosystem types.

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1. INTRODUCTION

Northland Regional Council would like to establish a baseline data set on the location, extent, and type of Protected Natural Areas (PNAs) in Northland. This data set and associated report will help guide Regional and District Policy Statement Objectives and work plans for the Regional Council and the local District Councils.

Northland Regional Council (NRC) would also like to identify, in general terms, the existing levels of care in the various types of protected areas and to identify some minimum standards of care across all protected areas.

2. PROJECT OBJECTIVES

2.1 Existing protected natural areas

- Define “Protected Natural Areas” (PNAs).
- Collate existing GIS data on the location of all PNAs in Northland, e.g. DOC, QEII, Nga Whenua Rahui, and also data on other covenants, kiwi protection areas, Environment Fund areas, Biodiversity Condition Fund areas, Landcare Groups. Information on these latter groups is currently being pulled together in “The Whole of Northland Project”, a project which is to summarise biodiversity work in Northland jointly funded by Landcare Trust, NRC, DOC, and Biodiversity Advice Fund.
- Prepare a GIS map of PNAs in Northland using existing GIS data.
- Identify gaps in existing GIS layers.
- Use centrepoin ts for PNAs not mapped on existing GIS layers, if available, to help map the general location of PNAs.
- Calculate numbers and areas of each type of PNA (e.g. scenic reserves, conservation parks, QEII covenants, Nga Whenua Rahui).
- Undertake an analysis of the type of features that occur within the PNA network (e.g. are all ecosystem types represented, what are the most threatened land environments, what features were originally rare ecosystems, to what extent do the areas contribute to preserving biodiversity at a landscape scale by retaining habitat linkages, ecological sequences etc.).
- Identify anomalies. For example, the legal status of recreation reserves is not designed to protect indigenous ecosystems, vegetation, habitats, or species, even though some recreation reserves have significant ecological values (e.g. Te Pahi Recreation Reserve). Another category is Esplanade Reserves which are primarily for public access rather than for ecological values, although some often have significant ecological values (e.g. coastal and lake margins.)

- Identify private landowners such as forestry companies and farmers that may manage areas for natural values without formally protecting them.

2.2 Care standards

- Identify existing levels of care in natural areas, e.g. formal protection, fencing, pest animal control, pest plant control, and restoration.
- Identify levels of care related to:
 - (i) types of protected areas;
 - (ii) unprotected versus protected sites;
 - (iii) levels of ecological significance.
- Develop minimum standards of care. This could extend to recommending different levels of care for various types of features, or based on the relative ecological values of the area.

3. METHODS

All areas conforming to the definition of a PNA (see section 4 below and also Wildland Consultants Ltd 2002) were collated from existing databases. A spatial layer was developed in the Geographic Information System (GIS) ARCVIEW 3.1 from existing digital data provided by Department of Conservation (DOC), NRC, Whole of Northland Project, and QEII National Trust, and extracted from the Digital Cadastral Database (DCDB), as shown in Figure 3. Information on each site was recorded in an attribute table linked to the GIS layer (Tables in Appendix 5 Protected Natural Areas and Appendix 6 Significant Areas identified by Protected Natural Areas Programme (PNAP) surveys). The attributes table includes site name, protection status, DOC Conservation Management Strategy site number (where applicable), and area (hectares).

Nearly all of the layers used have limitations and some of the data is based on a range of assumptions. The various types of PNA, and areas that are not PNA but protected or managed by other means, are analysed and discussed in separate sections. Each section highlights any associated limitations and assumptions of those data. Section discusses and summarises these data limitations and suggests improvements.

4. DEFINITION OF PROTECTED NATURAL AREAS

Past definitions of Protected Natural Areas (PNA) have varied between agencies and surveys. There is an urgent need to standardise definitions and terminology across agencies and across the country.

For the purposes of this report a PNA is defined as:

An area of land that has a formal legal status intended to protect indigenous ecosystems, vegetation, habitats, or species. These include areas administered by the Crown or formally constituted Scenic Reserve Boards, and Maori and private land with covenants (e.g. Nga Whenua Rahui or QEII) or other protective mechanisms. In other words, the areas are legally protected with the express purpose of protecting natural values, or native species, or ecosystems.

Sites that have been identified as having high natural values, for instance through the Protected Natural Areas Programme (PNAP) survey approach, have been designated as Natural Areas of Ecological Significance (NAES). PNAs (i.e. sites with legal protection) may contain all or part of one or more NAES. Conversely, some PNAs do not include any NAES, because there were other sites with similar but somewhat higher values that became NAES, or because a process like a PNAP survey has not yet taken place, or because the sites were reserved some time ago but are not the best representative example of that habitat type.

The definition of PNAs quite strict, and areas of native vegetation that have been protected by mechanisms that do not expressly include protection of natural values, or native species, or ecosystems are not considered to be PNAs. Examples of this are Historic reserves (protection of historic values) and Recreation Reserves (protection of recreation opportunities). Table 1 lists those pieces of legislation that create or protect PNAs, and also those which create or protect sites other than PNAs. Appendix 2 provides more detail of the actual text within the various pieces of legislation, with text in bold highlighting the principle purpose for that legislation.

Note that, along the foreshore, the Land below mean high water springs (MHWS) is the responsibility of the Regional Council, while land above MHWS is the responsibility of the city and district councils. The foreshore and seabed below MHWS that extends out to the 12 mile nautical limit - in other words the "wet" part of the coast - is called the coastal marine area and is administered by the Crown.

5. PRIORITIES FOR PROTECTION

A range of protection and priority setting mechanisms have been developed over the last 30 to 40 (or so) years by central and local government. This section briefly outlines these tools and the priorities within them.

5.1 National priorities for protecting rare and threatened biodiversity on private land (2007)

Four national priorities for biodiversity protection have been set (Ministry for the Environment 2007a, 2007b). They are based on the latest and best scientific research available. Note that these priorities are not in order of importance but in order of scale, starting with the largest scale (Land Environments of New Zealand, also called

TABLE 1: DEFINITION OF A PROTECTED NATURAL AREA IN NORTHLAND REGION

A Protected Natural Area is a defined area of land that has formal legal status intended to protect indigenous ecosystems, vegetation, habitats, or species. These include areas administered by the Crown or formally constituted Scenic Reserve Boards, and Maori and private land with covenants or other protective mechanisms.

There are many categories and levels of legal protection and the ones included within the scope of this definition are listed below:

Land vested in the Crown and administered by the Department of Conservation (excluding reserves where other agencies have been appointed to control and manage, or reserves vested in other agencies):

- Conservation Park, Wilderness Area, or Ecological Area, Section 61, Conservation Act 1987
- Marginal Strip, Section 24, Conservation Act 1987
- Stewardship Area, Section 7, Conservation Act 1987 (land acquired and held for conservation purposes since the enactment of the Conservation Act 1987)
- Stewardship Area, Section 62, Conservation Act 1987
- Wildlife Management Reserve, Government Purpose, Reserves Act 1977
- Wildlife Refuge, Reserves Act 1977
- Wildlife Sanctuary, Government Purpose, Reserves Act 1977
- Nature Reserve, Reserves Act 1977
- Scientific Reserve, Reserves Act 1977
- Scenic Reserve, Reserves Act 1977

Other land classifications that can overlay land administered by the Department of Conservation:

- Ecological Area, Section 61, Conservation Act 1987
- Sanctuary Area, Section 61, Conservation Act 1987
- Wildlife Refuge, Wildlife Act 1953

Land vested in the Crown and administered by the Scenic Reserve Boards or District or Regional Councils

- Scenic Reserve, Section 19(1)(a), Reserves Act 1977
- Recreation Reserve, Section 17, Reserves Act 1977

Other lands classed as Protected Natural Areas:

- Conservation Covenants, Section 27, Conservation Act 1987
- Conservation Covenants, Section 77, Reserves Act 1977
- Wildlife Refuge, Wildlife Act 1953 (over land administered by the Crown that is NOT administered by the Department of Conservation)
- Wildlife Refuge, Wildlife Act 1953 (over private land)
- Protected private land administered as a Scenic Reserve, Reserves Act 1977
- QEII Covenants, Queen Elizabeth II National Trust Act 1977
- Nga Whenua Rahui Kawenata Section 27A, Conservation Act 1987 (some are also Maori Reserved Land Act 1955)
- Scenic Reserves and covenants, Reserves Act 1977, administered by District Council or other local authorities
- Reserves set aside as a condition of resource consent (RMA, Section 221)
- Conservation covenants, Crown Forest Assets Act 1989
- Reserves protected under the Maori Reserved Land Act 1955

Lands that do not offer protection, or for which the principle aim is not to protect indigenous habitats of species or species

- Public foreshore and seabed vested in the Crown is regarded as unprotected land of interest to DOC under Section 28(3), Foreshore and Seabed Act 2004.
- Recreation Reserves, section 17, Reserves Act 1977 - principle aim is protection of recreation opportunities.
- Historic Reserves, section 18, Reserves Act 1977 - principle aim is protection of historic assets.
- Watercourse areas, Section 23, Conservation Act 1987, or Section 16, 76, or 77 of the Reserves Act 1977, or Section 21(2)(a) or 22 of the Queen Elizabeth II National Trust Act 1977, or Section 52 of the Historic Places Act 1980 - purpose is to protect the wild, scenic, and other natural or recreational characteristics and allow for administration and management.

LENZ environments²) followed by smaller scale environments that are not adequately picked up in LENZ.

National Priority 1: To protect indigenous vegetation associated with land environments, (defined by Land Environments of New Zealand at Level IV), that have 20 percent or less remaining in indigenous cover.

National Priority 2: To protect indigenous vegetation associated with sand dunes and wetlands; ecosystem types that have become uncommon due to human activity.

National Priority 3: To protect indigenous vegetation associated with 'originally rare' terrestrial ecosystem types not already covered by Priorities 1 and 2 (the complete list of these originally rare habitats (Williams *et al.* 2007) is provided in Appendix 1).

National Priority 4: To protect habitats of acutely and chronically threatened indigenous species (these species are listed in de Lange *et al.* 2004 and Hitchmough *et al.* 2007).

5.2 Northland Protection Strategy (2001)

This strategy was prepared to assist the Nature Heritage Fund to assess priorities for further protection or restoration of indigenous ecosystems within Northland (Conning 2001). The report outlines five overarching priorities in order of rank.

Priority 1 Sites

1. Habitats are poorly represented as protected areas.
2. Habitats are now generally confined to small isolated areas, are rare and under continued threat of modification or development.
3. Habitats which are now nationally threatened and are essential to New Zealand biodiversity. In Northland they have a high degree of endemism and may contain a number of threatened species.

Priority 2 Sites

1. Habitats under-represented as protection areas.
2. Habitats may be adequately represented at a national level but are poorly represented in Northland.
3. Habitats that contain a large diversity of threatened and Northland endemic species.

² LENZ is a classification system that groups regions with similar climatic and soil attributes throughout the country. This classification system has been combined with a map of still extant native vegetation to determine which LENZ environments have the least amount of native vegetation remaining and are therefore considered to be at most risk. This has resulted in the LENZ threat classification, also known as Threatened Environments.

Priority 3 Sites

1. Habitats inadequately represented as protected areas.
2. Habitats that contain a significant diversity and number of threatened and Northland endemic species.

Priority 4 Sites

1. Habitats inadequately protected in some ecological districts.
2. Habitats important to threatened and Northland endemic species.

Priority 5 Sites

1. Habitat reasonably represented as protected areas or with within most ecological districts.
2. Habitats become significant if tThreatened or Northland endemic species are present, or the site adds to existing protected areas or they form linkages with other habitats and ecosystems.

5.3 Protected Natural Areas Programme (1998-2008)

New Zealand's physical environment is extremely diverse and this diversity is reflected in its indigenous plant and animal species, communities, and ecosystems. The concept of dividing New Zealand into a series of Ecological Regions and Ecological Districts evolved because of the need for the establishment of a representative system of reserves which would encompass this ecological diversity. One purpose of the Reserves Act 1977, is to ensure the

"preservation of representative samples of all classes of natural ecosystems and landscapes which in the aggregate originally gave New Zealand its own recognisable character."

(Section 3(1) (b))

Ecological District

The definition of an ecological district depends on a thorough consideration of the topography, geology, climate, soils, vegetation and man-induced modifications of the area (McEwen 1987). Thus, an ecological district is a local part of New Zealand where the topographical, geological, climatic, soil and biological features, including the broad cultural pattern, produce a characteristic landscape and range of biological communities (McEwen 1987).

Ecological Region

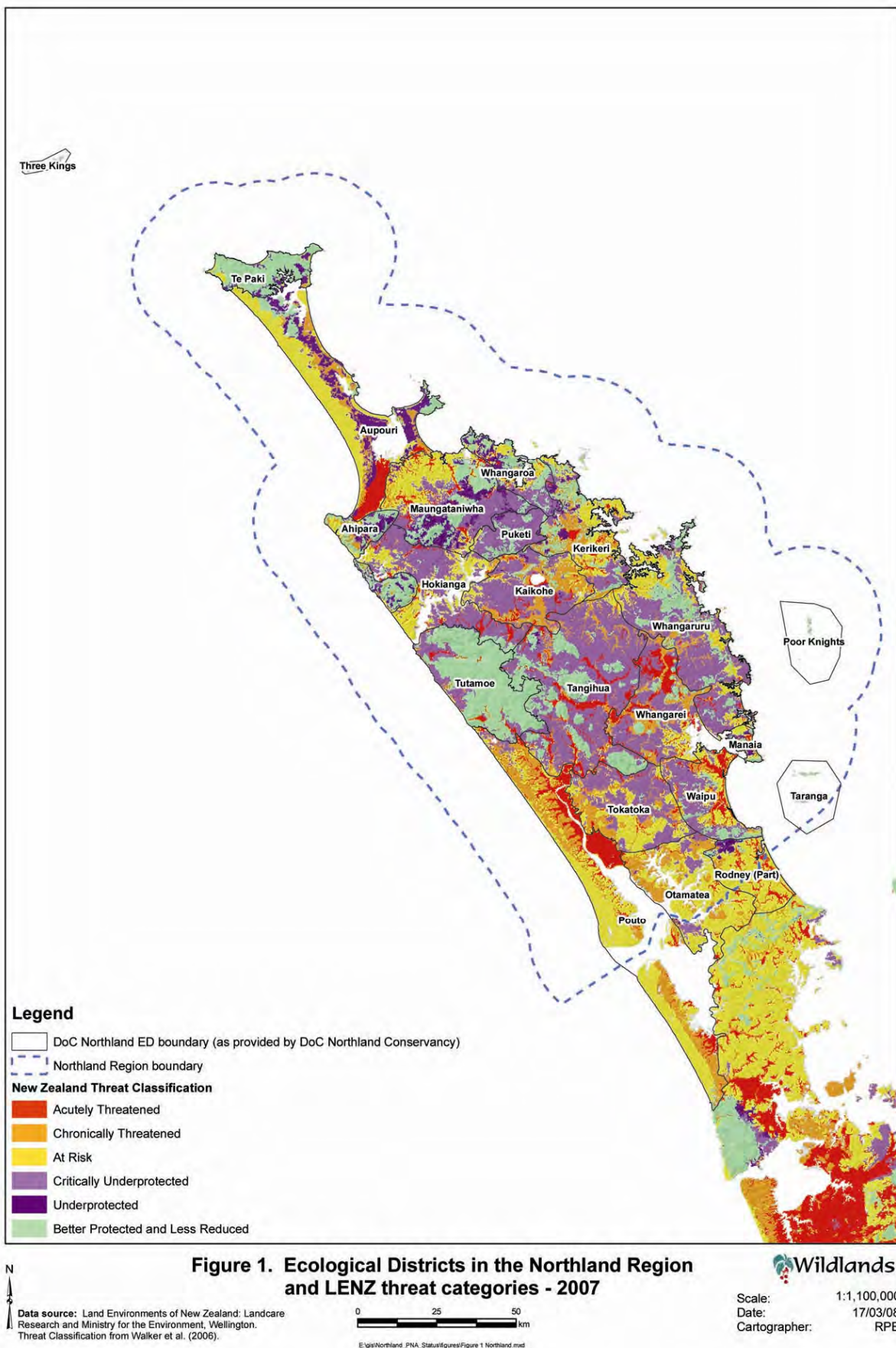
An aggregation of adjacent ecological districts with very closely related characteristics together form an ecological region. In some cases, a single very distinctive ecological district is given the status of ecological region to emphasise its uniqueness (Park *et al.* 1983).

Table 2: Northland Region ecological regions and ecological districts.

CURRENT CLASSIFICATION		FORMER CLASSIFICATION (as it relates to the current classification)	
Ecological Region (DOC 2007)	Ecological District (DOC 2007)	Ecological Region (McEwen 1987)	Ecological District (McEwen 1987)
Kermadec	Kermadec ⁵	Kermadec	Kermadec
Three Kings	Three Kings	Three Kings	Three Kings
Northern Northland ¹	Te Paki ²	Te Paki	Te Paki
	Aupouri ³ (Conning and Holland 2003)	Aupouri	Aupouri
Eastern Northland	Whangaroa ³ (Conning 1999)	Eastern Northland	Eastern Northland and Islands
	Kerikeri ³ (Conning and Miller 1999)	Eastern Northland	Eastern Northland and Islands
	Puketi ³ (Conning and Moors 1998)	Western Northland	Maungataniwha
	Kaikohe ³ (Conning and Miller 2000)	Eastern Northland; Western Northland	Hokianga; Eastern Northland and Islands
	Whangaruru ³ (Booth 2005)	Eastern Northland	Eastern Northland and Islands
	Whangarei ³ (Manning 2001)	Eastern Northland; Western Northland	Eastern Northland and Islands; Tangihua
	Manaia ⁴	Eastern Northland	Eastern Northland and Islands
	Taranga	Eastern Northland	Taranga
	Waipu ³ (Lux <i>et al.</i> 2007)	Eastern Northland; Western Northland	Eastern Northland and Islands; Tangihua
	Rodney (Part) ³ (Michen <i>et al.</i> 1992)	Auckland	Rodney
Poor Knights	Poor Knights	Poor Knights	Poor Knights
	Mokohinau ⁵	Eastern Northland	Taranga
Western Northland	Maungataniwha ³ (Conning 2002)	Western Northland	Maungataniwha
	Ahipara ³ (Conning 1998)	Western Northland	Maungataniwha
	Hokianga ³ (Conning <i>et al.</i> 2004)	Western Northland	Hokianga; Maungataniwha
	Tutamoe ³ (Miller and Holland 2008)	Western Northland	Tutamoe; Hokianga
	Tangihua ⁴	Eastern Northland; Western Northland	Tangihua; Eastern Northland and Islands; Tutamoe
Kaipara	Tokatoka ⁴	Western Northland	Tangihua
	Otamatea ³ (Lux and Beadel 2006)	Kaipara	Kaipara
	Kaipara ² (known as Pouto in Brook 1996)	Kaipara	Kaipara

Notes

1. Te Paki and Aupouri Ecological Districts were formerly within their own separate ecological regions (see McEwen 1987), however they were merged into a single ecological region by Brook (1996).
2. PNAP field survey undertaken, draft PNAP report prepared, yet to be published.
3. PNAP field surveys have been undertaken and published for these ecological districts.
4. PNAP field survey undertaken, not written up.
5. Kermadec and Mokohinau Island are not included in further analysis



The Northland Regional Council area includes all or part of seven ecological regions and 24 ecological districts (Table 2). Note that the original ecological district boundaries within the Northland Region (McEwen 1987) were revised by Brook (1996) (Table 2).

5.3.1 Proportion of Ecological Districts threatened

Tables 3 and Figure 1 illustrate the size of each ecological district and the proportion that is considered to be an Acutely Threatened or Chronically Threatened land environment. About 20% (8% Acutely Threatened and 12% Chronically Threatened) of Northland falls within the first National Priority for protection (Ministry for the Environment 2007a, 2007b). The amount of area considered to be at threat varies greatly between ecological districts. For example, more than 50% of Pouto ED is considered to be highly threatened (i.e. contains significant areas of both Acutely or Chronically Threatened land environments), but only 0.8% of Te Pahi comprises threatened land environments.

Table 3: Total area of each ecological district in Northland and proportion that falls within Acutely or Chronically Threatened LENZ categories. Ecological districts are sorted by proportion of district threatened. (Note that the Kermadec and Mokohinau Islands are not included.)

Ecological District	Total Area (ha)	Acutely Threatened		Chronically Threatened		Total Threatened %
		ha	%	ha	%	
Pouto	92,913.4	24,366.9	26.20%	23,107.3	24.90%	51.10%
Whangarei	76,950.6	14,627.3	19.00%	15,362.1	20.00%	39.00%
Kaikohe	67,261.3	5,355.2	8.00%	19,021.7	28.30%	36.30%
Otamatea	57,953.3	1,130.2	2.00%	16,420.9	28.30%	30.30%
Tokatoka	74,669.4	3,583.8	4.80%	16,185.7	21.70%	26.50%
Kerikeri	67,349.5	3,455.7	5.10%	14,104.0	20.90%	26.00%
Waipu	50,072.1	8,429.1	16.80%	3,833.3	7.70%	24.50%
Rodney	20,578.8	1,942.5	9.40%	2,395.5	11.60%	21.00%
Aupouri	119,817.5	10,155.1	8.50%	14,494.7	12.10%	20.60%
Tangihua	167,024.4	16,292.9	9.80%	11,631.3	7.00%	16.80%
Manaia	6,356.6	612.7	9.60%	289.5	4.60%	14.20%
Ahipara	32,271.5	337.9	1.00%	3,063.3	9.50%	10.50%
Maungataniwha	98,407.0	7,601.9	7.70%	2,693.1	2.70%	10.40%
Whangaruru	120,437.6	1,626.3	1.40%	10,397.8	8.60%	10.00%
Hokianga	88,199.5	5,293.4	6.00%	2,453.5	2.80%	8.80%
Tutamoe	81,690.5	2,222.2	2.70%	1,472.4	1.80%	4.50%
Whangaroa	31,944.2	956.9	3.00%	152.1	0.50%	3.50%
Puketi	24,516.1	41.2	0.20%	180.7	0.70%	0.90%
Te Pahi	31,134.7	2.9	0.00%	237.6	0.80%	0.80%
Poor Knights	308.0		0.00%	1.7	0.50%	0.50%
Taranga	989.8		0.00%	2.4	0.20%	0.20%
Three Kings	523.2		0.00%		0.00%	0.00%
Grand Total	1,311,369.0	108,034.2	8.20%	157,500.5	12.00%	20.25%

The National Priorities for Protection (described in Section 5.1 and Ministry for the Environment 2007a, 2007b) encourage the protection of remaining indigenous vegetation in the Acutely Threatened and Chronically Threatened LENZ categories. The extent of remaining indigenous vegetation and the relationship with the Acutely Threatened and Chronically Threatened LENZ categories is illustrated in Figure 2.

6. PROTECTED NATURAL AREAS

This section describes the number and extent of PNAs protected by various mechanisms and whether the PNA network protects areas that are thought to be ecologically significant (such as NAES). By necessity, this section includes some analysis and discussion of non-PNAs to provide context and in order to appreciate the distinction between PNAs and non-PNAs.

6.1 DOC administered lands, QEII covenants, and Nga Whenua Rahui

These PNAs include lands administered by the the Department of Conservation on behalf of the Central Government (also known as public lands), and privately owned lands covenanted by the owners with the Queen Elizabeth II National Trust (here after QEII), or under Nga Whenua Rahui. In general, DOC administered lands and protected private lands (QEII and Nga Whenua Rahui) are mutually exclusive, but in some cases the mapped areas overlap. For example, Pakanae Scenic Reserve (overlap 111.7 ha) and Motatau Scenic Reserve (overlap 97.2 ha) appear to have significant overlap with Nga Whenua Rahui mapped areas.

Other overlaps are less substantial (next largest overlap is 0.5 ha), but further work may need to be undertaken to determine the exact cause of the apparent overlap. Determining the cause of overlap is beyond the scope of this project. The name of each of the areas of public conservation land that overlap with other agencies or groups is provided in Appendix 7. For the purposes of this report, overlaps between different agencies have been ignored; this may contribute to a slight error in reporting of the total areas.

Note that, in general, the data used in the analysis does not include Regional Council or District Council reserves or administered land. These data were not requested, or not available, and this is an omission that needs to be rectified in subsequent analysis. In a few cases a district council or community group may be the administering authority for an area of public lands e.g. Nihonui Scenic Reserve is public land administered by the Far North District Council and Whangarei District administers Parakao Domain, Mangapai Domain, Waiotira Domain, and Springfield Domain Recreation Reserves. These few areas have been included in the analysis.

Within the analysed data, there are also a few examples of public land administered by non-government organisations such as the New Zealand Historic Places Trust or community groups. The New Zealand Historic Places Trust has principle responsibility for the Edmonds Ruins Historic Reserve and Kaipara North Head Lighthouse Historic Reserve. Community groups look after the Hukatere Hall Recreation Reserve, Kohukohu Historic Reserve, Mangonui Court House Historic

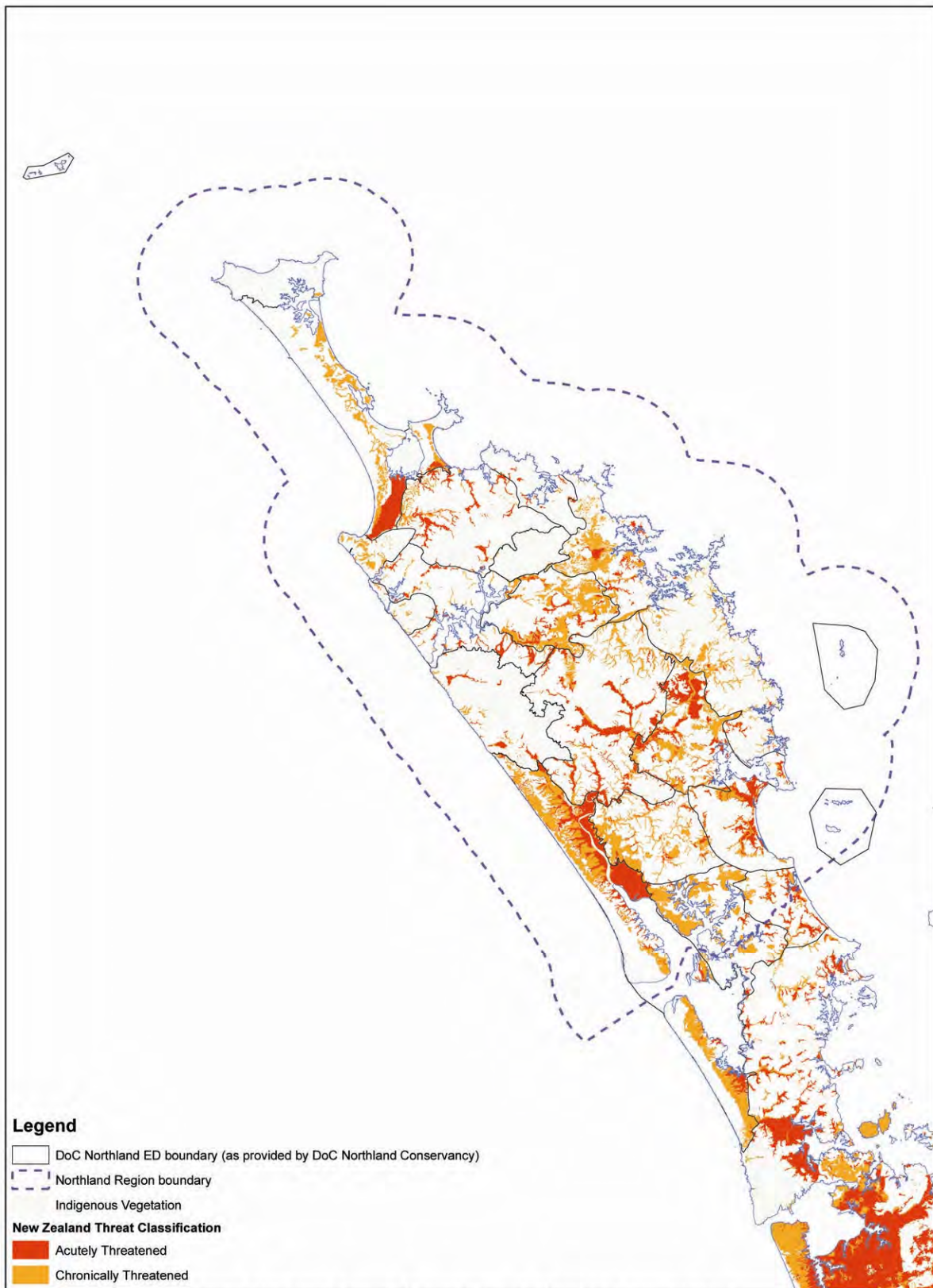


Figure 2. The extent of remaining indigenous vegetation and the relationship with the Acutely Threatened and Chronically Threatened LENZ Environments



Data source: Land Environments of New Zealand: Landcare Research and Ministry for the Environment, Wellington. Threat Classification from Walker et al. (2006).

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Wildlands

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Date: 17/03/08
Cartographer: RPB

Reserve, Maungakarama Domain Recreation Reserve, and Kerikeri Local Purpose (Pre-School) Reserve.

In total, 13.75% of Northland Region's terrestrial area has some sort of legal protection (Table 4c). This equates to 2,067 areas covering 180,336.2 ha. Of that total, 1,905 areas (*c.*87% of the total number) covering 156,451 hectares (*c.*92% of the total area) are protected with the aim of conserving natural values (Table 4a). The remainder of the areas may protect natural values as a by-product of protection but that is not the purpose of the reserve or protected area (Table 4b). So the total amount of PNAs comprises *c.*11% of the total Northland Region area.

The agency with both the greatest number of PNAs and largest area is the Department of Conservation: 144,089 ha in 802 sites, which amounts to 92% of the area covered by PNAs and 42% of the total number of sites. The Queen Elizabeth II National Trust protects the next largest share of land (6,587 ha, 4.2% of the area covered by PNAs and 475, or 25%, of the sites), followed by Nga Whenua Rahui (3,718 ha, 2.2% of the area covered by PNAs and 15, or 0.8%, of the sites). The Whangarei District Council has protected a large number of sites (613, or 32% of the total number of PNAs) but these areas comprise a relatively small total area (2,266 ha, or 1.5% of the area covered by PNAs). One-hundred and thirty one Whangarei District Council covenants are also covenanted under QEII.

6.2 Level of protection afforded by various acts

Different Acts, and the various sections within each Act, afford different levels of protection for natural values. Some Acts, or sections, have a primary purpose to protect natural features within a PNA. This includes all the reserves under the Conservation Act¹, Nga Whenua Rahui Kawenata², Government Purpose (Wildlife) Reserve under the Reserves Act³, and Nature Reserves under the Reserves Act⁴ (Table 4a). This group comprises 620 areas (33% of the total number of PNAs) and 117,937.9 ha (75% of the total area covered by PNAs).

There are four categories of legal protection where the natural features will be protected and the primary aim is usually the protection of these natural features, although there may also be other reasons for protection (e.g. landscape protection, scientific study, geomorphology). These categories are; Conservation Covenant under the Reserves Act⁵, Protected Private Land under the Reserves Act⁶, Scientific Reserve under the Reserves Act⁷, and QEII covenants⁸ (Table 4a). This group comprises 1,094 areas (57% of the total number of PNAs) and 10,832.0 ha (7% of the total area covered by PNAs).

¹ Conservation Act 1987.

² Nga Whenua Rahui Kawenata are legislated under §77A of the Reserves Act 1977 or Agreement for the Management of Land pursuant to §29 of the Conservation Act 1987.

³ Wildlife Management Reserve as a Government Purpose Reserve, §21 of the Reserves Act 1977 and/or Wildlife Management Reserve, §14A, Wildlife Act 1953. Also includes Wildlife Refuge as a Government Purpose Reserve, §21 of the Reserves Act 1977 and/or as a Wildlife Refuge, §14 of the Wildlife Act 1953.

⁴ Nature Reserve under §20 of the Reserves Act 1977.

⁵ Whangarei District Council covenants are legislated under §77 of the Reserves Act 1977.

⁶ Protected Private Land is legislated under §76 of the Reserves Act 1977.

⁷ Scientific Reserve, §21 of the Reserves Act 1977.

⁸ QEII Covenant, Queen Elizabeth II National Trust Act 1977.

Two further types of reserves can specify that the main focus is to protect natural features, but this is not always the primary focus of the reserve, and hence they are not always PNA. These categories are; Local Purpose Reserve under the Reserves Act¹ and Scenic Reserve under the Reserves Act. In the Northland Region, the focus of the majority of Local Purpose Reserves appears to be something other than protection of natural values (e.g. esplanade or landing reserves, building sites, and quarries), hence they are not included as PNAs (Table 4b). Scenic Reserves usually have been set up with the aim of protecting natural values and therefore they are included as PNAs (Table 4a). There are 191 Scenic Reserves (10% of the total number of PNAs) that cover 27,681.5 ha (17% of the total area covered by PNAs).

There are six categories of protected land where the primary focus within the legislation is **not** to protect natural features (Table 4b). However, natural features can often be protected provided protection does not impinge on the primary reason for protection. These categories are; Historic Reserve under the Reserves Act², Recreation Reserve under the Reserves Act³, Government Purpose Reserve under the Reserves Act (other than wildlife reserves)⁴, Waitangi Endowment Act Forest under the Waitangi Endowment Act⁵, and Foreshore and Seabed under the Foreshore and Seabed Act⁶. A total of 162 areas and a total of 23,884.7 ha falls under this category (Table 4b). They are not considered to be PNAs.

¹ Local Purpose Reserve, §22 of the Reserves Act 1977 – also includes esplanade and stream reserves.

² Historic Reserve, §18 of the Reserves Act 1977, but also Historical Areas legislated under Stewardship Land, §7 of the Conservation Act 1987

³ Recreation Reserve under Reserves Act 1977

⁴ Government Purpose Reserve, §21, Reserves Act 1977

⁵ Waitangi Endowment Act Forest, §2, Waitangi Endowment Act 1932

⁶ Foreshore and Seabed Act 2004 §28(3)



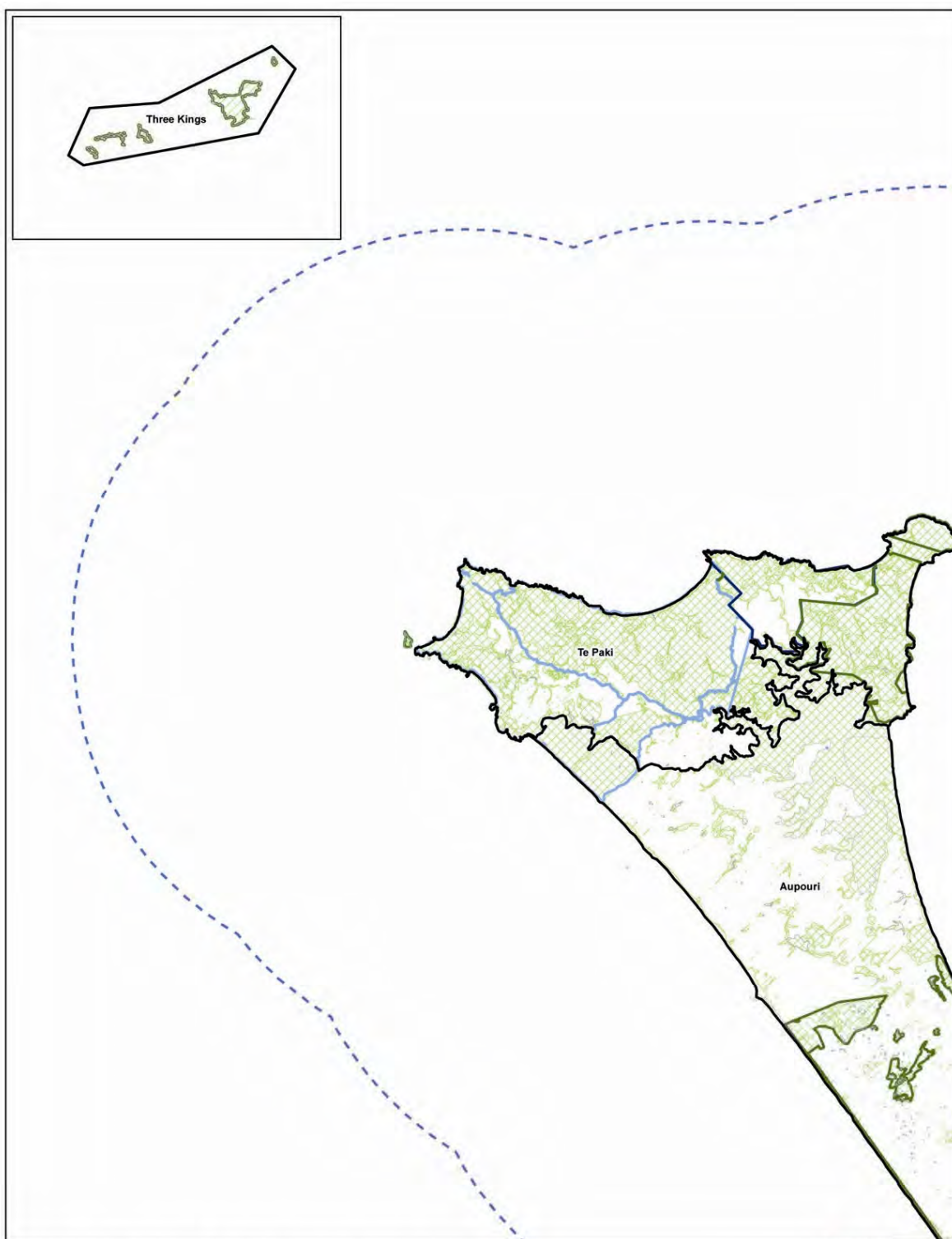


Figure 3a. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- ★ Far North District Council - Significant Natural Areas
- ★ Biodiversity Condition Funds
- ▲ Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

Wildlands



Figure 3b. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



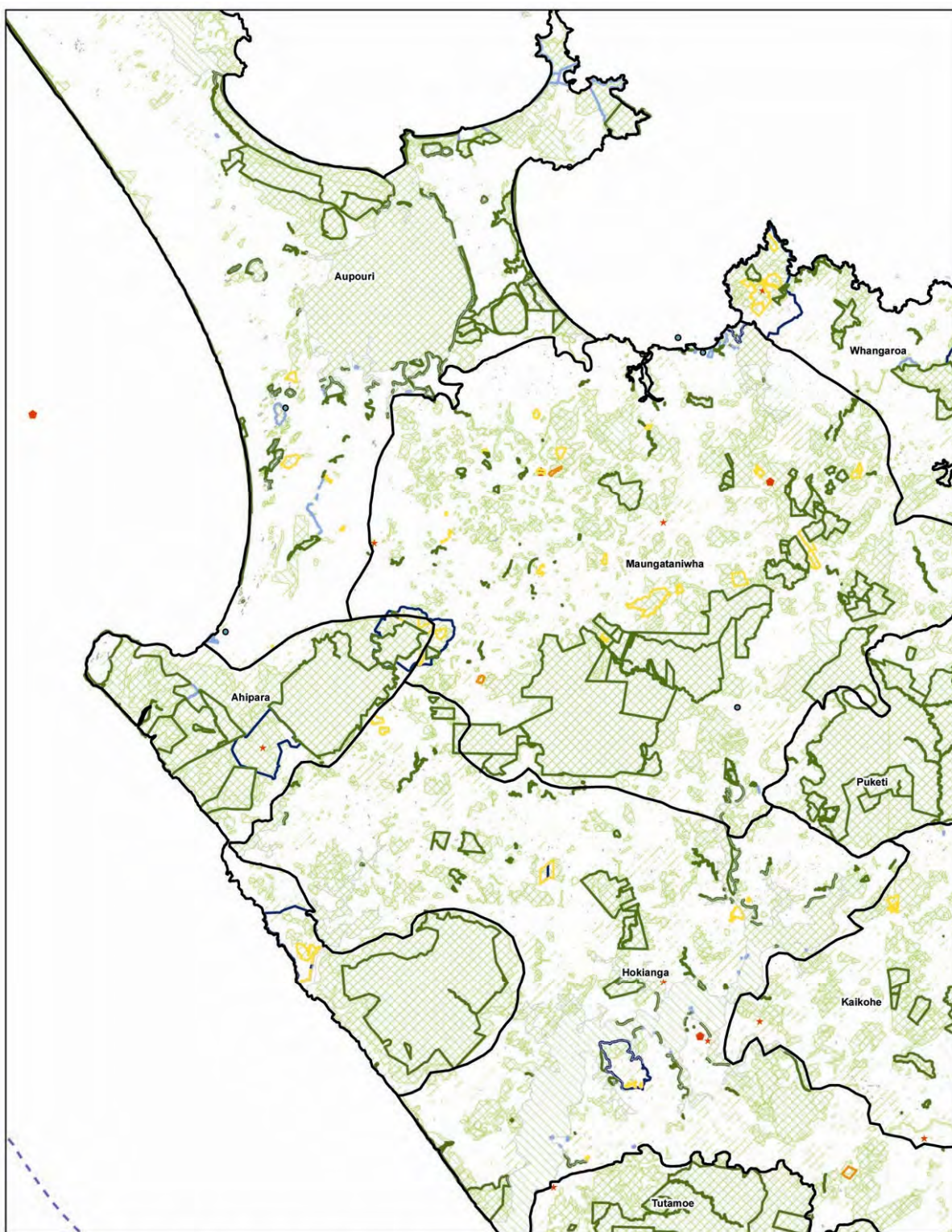


Figure 3c. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- Far North District Council - Significant Natural Areas
- Biodiversity Condition Funds
- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

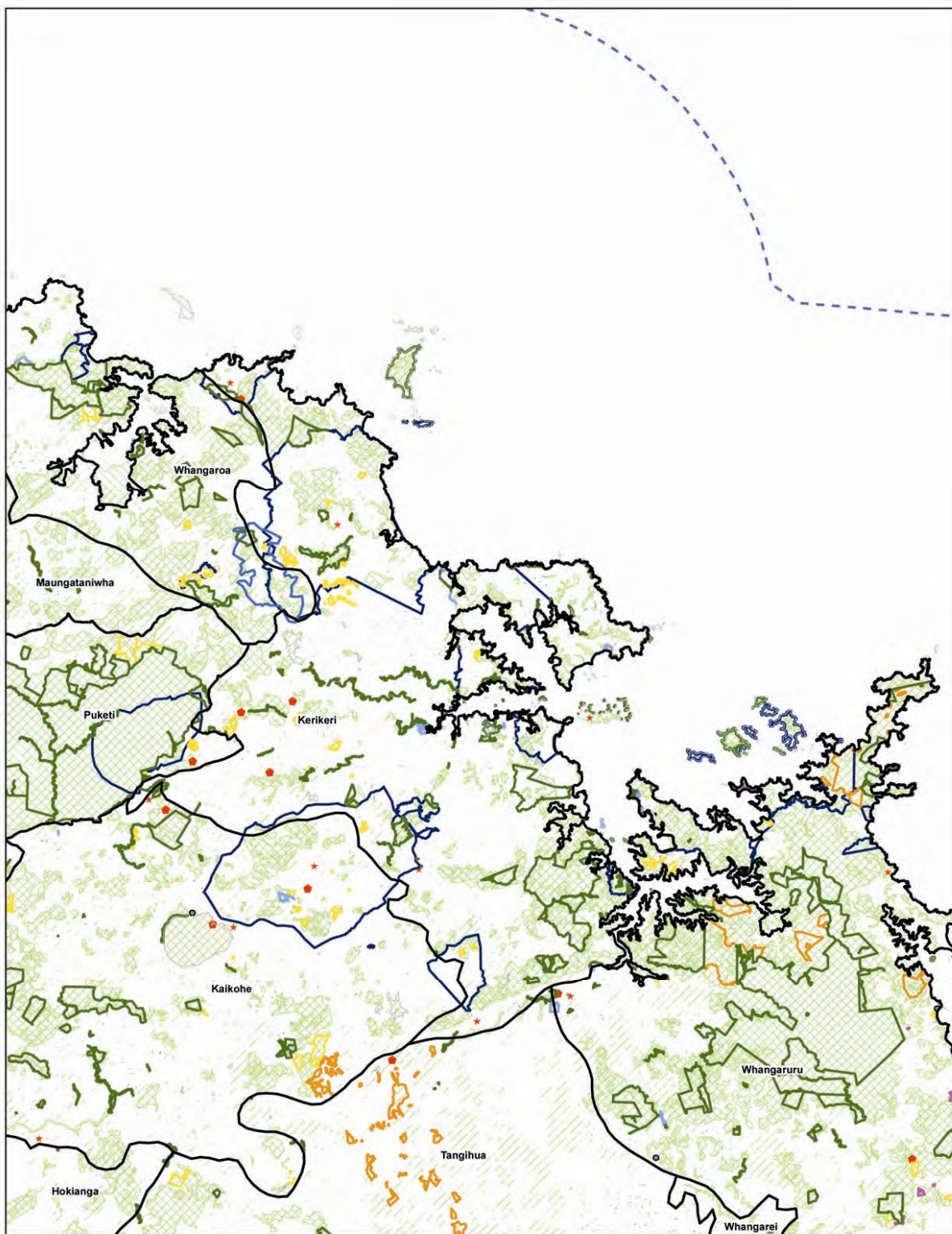


Figure 3d. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- Far North District Council - Significant Natural Areas
- Biodiversity Condition Funds
- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

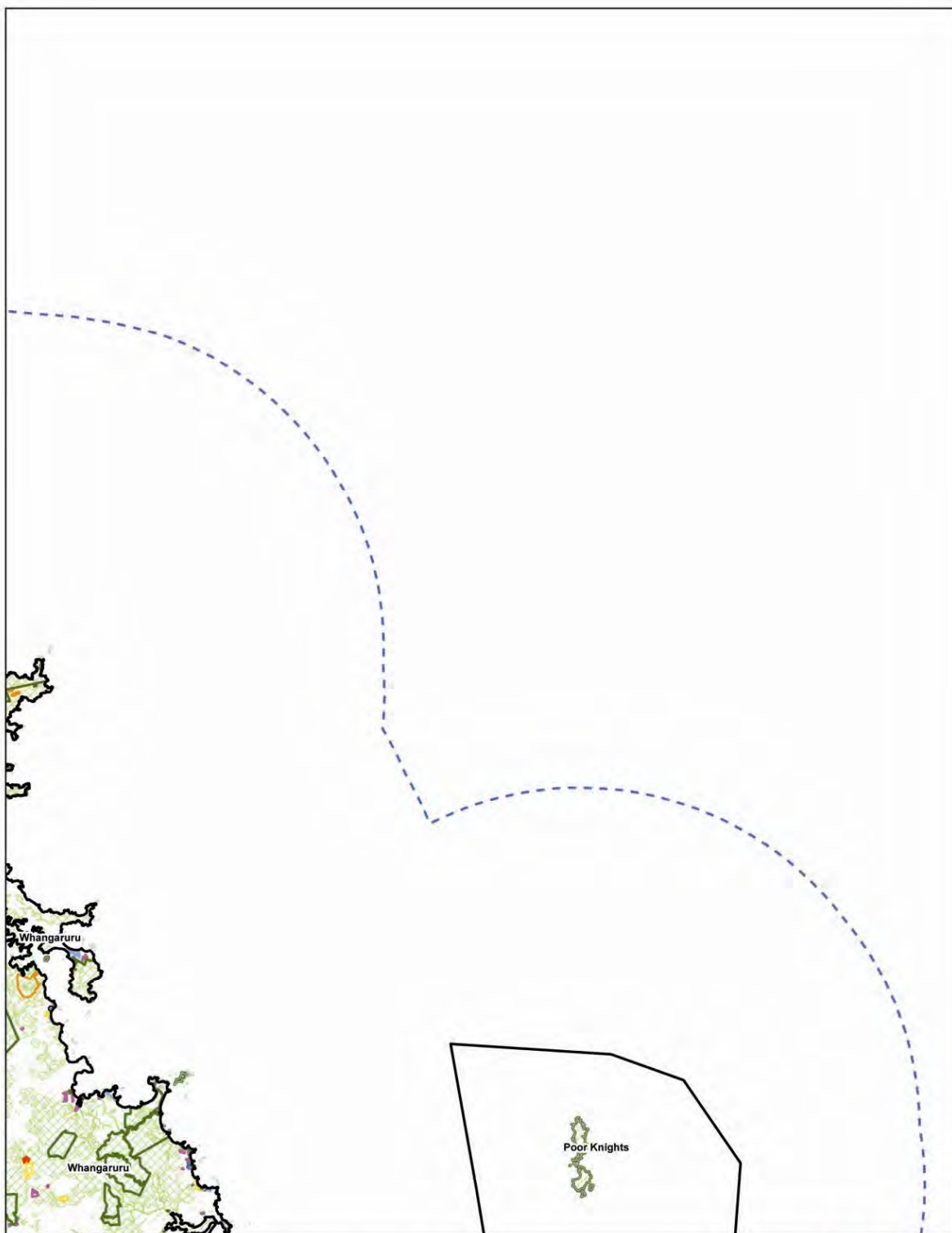


Figure 3e. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- ★ Far North District Council - Significant Natural Areas
- ★ Biodiversity Condition Funds
- ▲ Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation



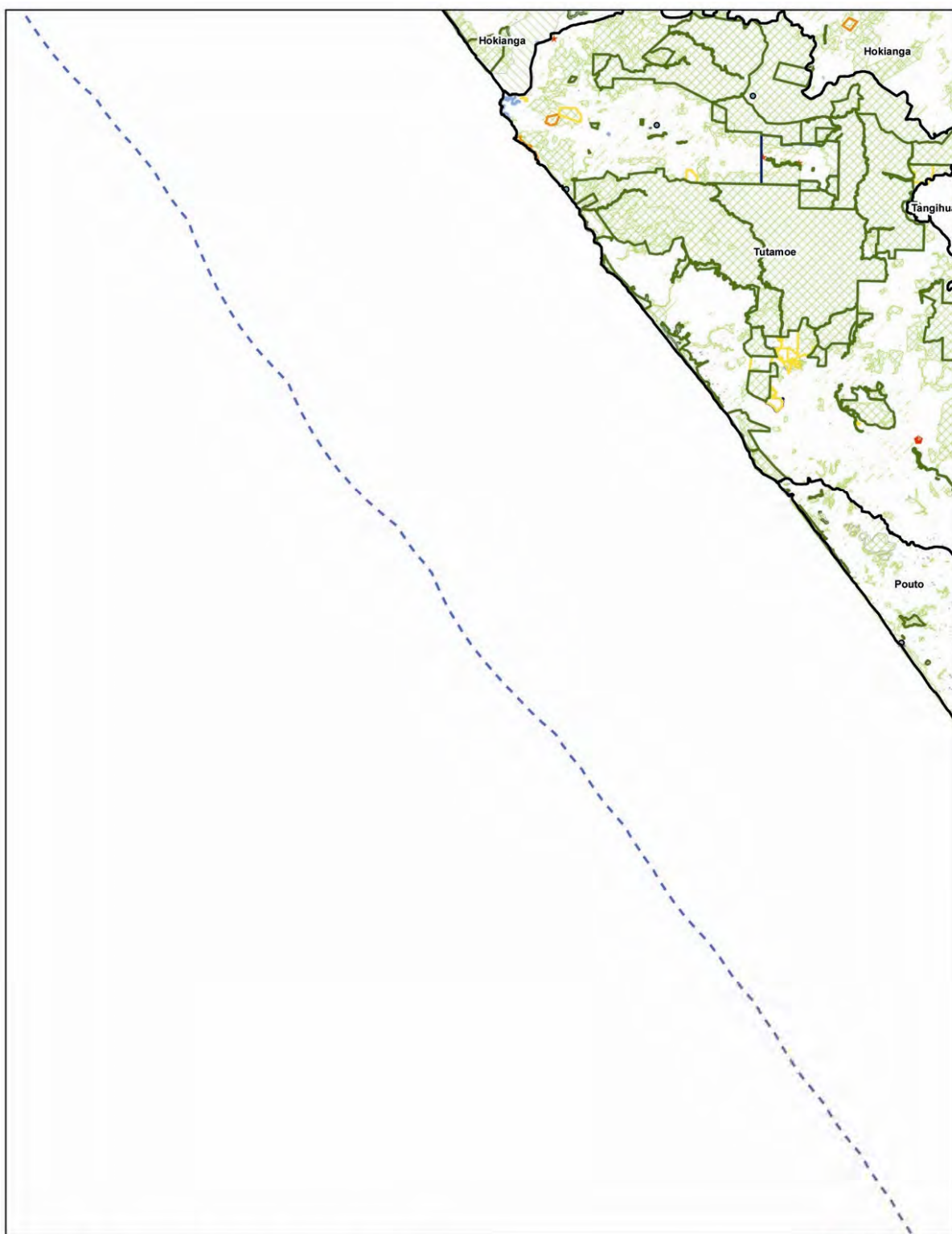


Figure 3f. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- Far North District Council - Significant Natural Areas
- Biodiversity Condition Funds
- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation



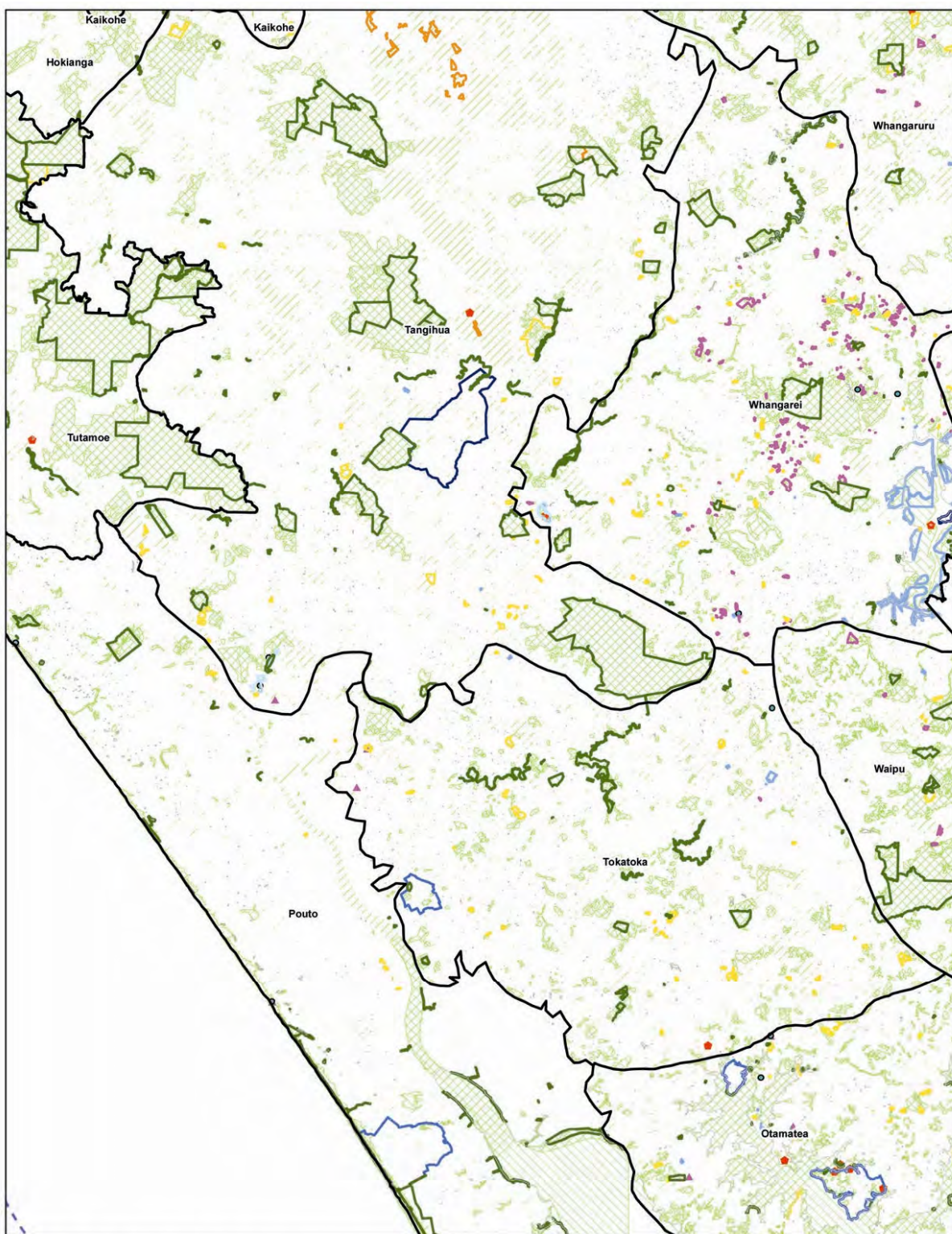


Figure 3g. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



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Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- Far North District Council - Significant Natural Areas
- Biodiversity Condition Funds
- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

Wildlands

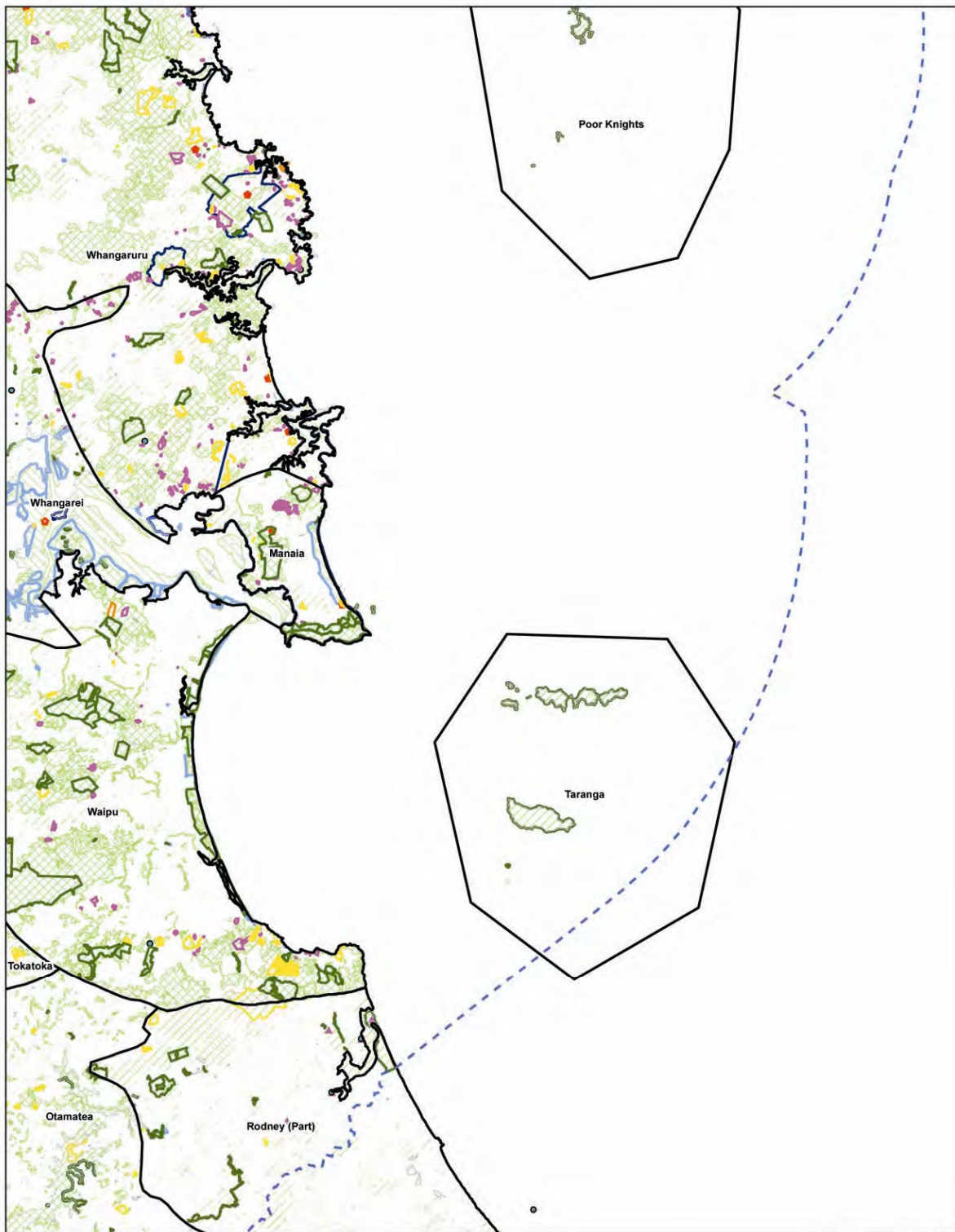


Figure 3h. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



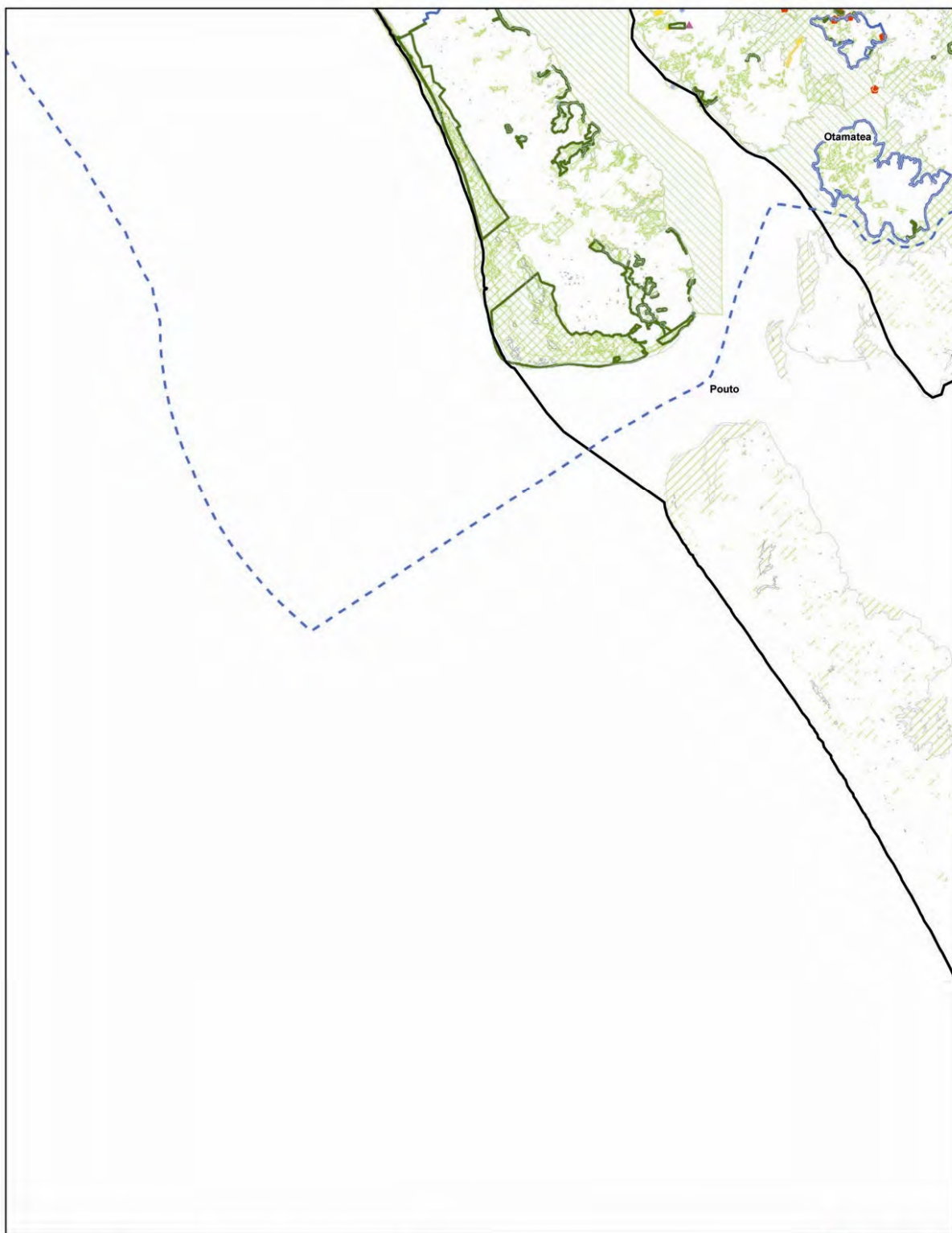


Figure 3i. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



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Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
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- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

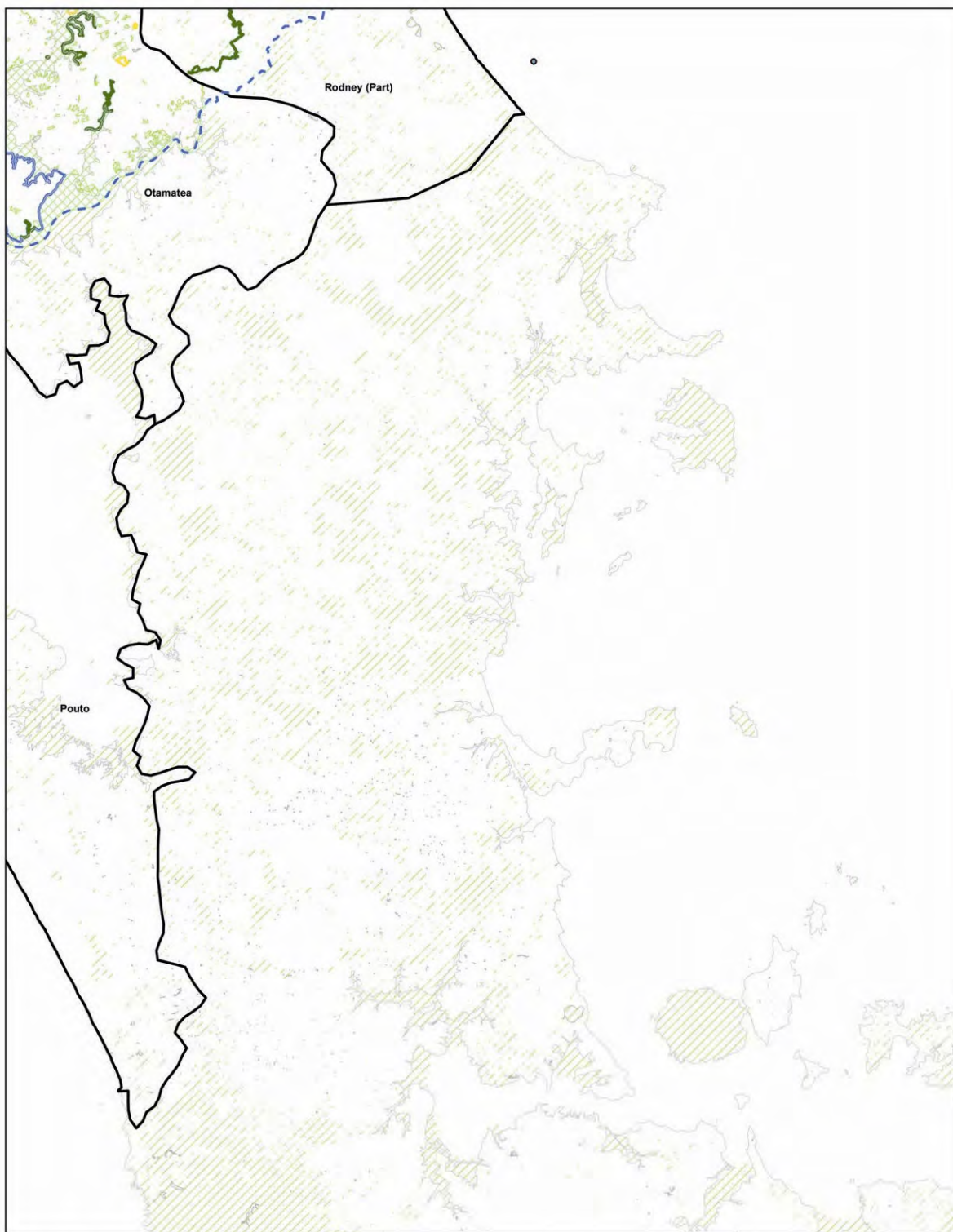
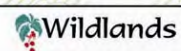


Figure 3j. Protected natural areas in relation to extent of indigenous vegetation and natural areas of ecological significance



Scale: 1:250,000
Date: 17/03/08
Cartographer: RPB

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Legend

- Northland Regional Boundary
- DoC Northland ED boundary
- Land managed by Department of Conservation
- QEII covenants
- Nga Whenua Rahui
- Whangarei District Council Covenants
- Northland Regional Council - Community Pest Control Areas
- Fish & Game Wetlands
- Landcare Groups (point data only)
- Landcare Groups (mapped extent)
- Far North District Council - Significant Natural Areas
- Biodiversity Condition Funds
- Kaipara District Council Biodiversity Improvement Fund
- Other
- Natural Areas of Ecological Significance
- Indigenous vegetation

Table 4a: Area and number (in brackets) of Protected Natural Areas in Northland Region. Data provided 15 April 2008.

Reserve Type and Act	Administrative Authority				Total	% of Total Area in Northland
	Public Conservation Land [#]	Whangarei District	QEII	Nga Whenua Rahui		
Conservation Park under Conservation Act	78,631.9 (20)				78,631.9 (20)	6.00%
Marginal Strip under Conservation Act	2,260.4 (348)				2,260.4 (348)	0.17%
Sanctuary Area under Conservation Act	4.7 (1)				4.7 (1)	0.00%
Stewardship Land under Conservation Act	29,780.1 (209)				29,780.1 (209)	2.27%
Government Purpose (Wildlife) Reserve under Reserves Act	1,934.2 (20)				1,934.2 (20)	0.15%
Nature Reserve under Reserves Act	1,818.1 (7)				1,818.1 (7)	0.14%
Protected Private Land under Reserves Act	3.7 (1)				3.7 (1)	0.00%
Scientific Reserve under Reserves Act	1,975.1 (5)				1,975.1 (5)	0.15%
Scenic Reserve under Reserves Act	27,681.5 (191)			(O) 209.4 (2)	27,681.5 (191)	2.11%
WDC covenant		2,266.0 (613)	(O) 462.5 (131)		2,266.0 (613)	0.17%
NWR				3,508.5 (15)	3,508.5 (15)	0.27%
QEII		(O) 462.5 (131)	6,587.2 (475)		6,587.2 (475)	0.50%
Total	144,089.8 (802)	2,266.0 (613)	6,587.2 (475)	3,718.0ha (15)	156,451.5 (1905)	11.93%
% of total area covered by PNAs in Northland	92.10%	1.45%	4.21%	2.24%		
% of total number of PNAs in Northland	42.10%	32.18%	24.93%	0.79%		
% of total area in Northland	10.99%	0.17%	0.50%	0.27%		

Public conservation land is predominantly administered by the Department of Conservation but there are a number of reserves administered by local councils;
(O) Overlap in responsibilities.

Table 4b: Area and number (in brackets) of protected areas in Northland Region for which legislative mandate is not protection of natural values. Data provided 15 April 2008.

Reserve Type and Act	Administrative Authority
	Public Conservation Land
Foreshore and Seabed under Foreshore and Seabed Act	2,446.7 (44)
Government Purpose Reserve under Reserves Act	6.3 (5)
Historic Reserve under Reserves Act	434.1 (24)
Local Purpose Reserve under Reserves Act	30.6 (29)
Recreation Reserve under Reserves Act	20,418.9 (59)
Waitangi Endowment Act Forest under Waitangi Endowment Act	548.1 (1)
Total	23,884.7 (162)
% of total area in Northland	1.82%

Table 4c: Area and number (in brackets) of DOC managed lands, QEII covenant or Nga Whenua Rahui land in Northland Region for which legislative mandate is protection of natural values. Data provided 15 April 2008.

Reserve Type	Administrative Authority				Total
	Public Conservation Land	Whangarei District	QEII	Nga Whenua Rahui	
Protected Natural Areas	144,089.8 (802)	2,266.0 (613)	6,587.2 (475)	3,508.5 (15)	156,451.5 (1,905)
Other reserves	23,884.7 (162)				23,884.7 (162)
Total	167,974.5 (964)	2,266.0 (613)	6,587.2 (475)	3,508.5 (15)	180,336.2 (2067)
% of total reserve area that is PNA	85.78%				86.76%
% of total number of reserves that are PNAs	84.20%				92.16%
% of Northland that is PNA					11.93%
% of Northland that is reserve					13.75%

6.3 Protection status of Natural Areas of Ecological Significance (NAES)

Nineteen of Northland Region's 24 ecological districts have been surveyed or partially surveyed¹ as part of the protected natural areas programme (PNAP). The PNAP surveys identified 1320 Natural Areas of Ecological Significance (NAES), with a combined area of 283,947.8 ha (Table 5). In total, 506 NAES (37.39% of the total number) are partially or fully protected by some mechanism. Of these, 444 NAES (equalling 85,535.9 ha or 31.5% of the area) are currently partially or fully protected by one or sometimes multiple protection mechanisms that protect natural values (i.e. mechanism that result in PNAs). A further 162 NAES (equalling 16,636 ha or 5.86% of the area) are partially or fully protected by a mechanism that may not protect natural values.

Table 5: Protection status of Natural Areas of Ecological Significance (NAES) in Northland Region. Data provided 7 December 2007.

Protection Mechanism	Area (ha)	Number	% Total Area	% Total Number
Protected Natural Areas				
Conservation Park under Conservation Act	45,139.9	26	15.90%	1.97%
Marginal Strip under Conservation Act	677.5	128	0.24%	9.70%
Sanctuary Area under Conservation Act	4.7	1	0.00%	0.08%
Stewardship Land under Conservation Act	19,821.5	123	6.98%	9.32%
Government Purpose (Wildlife) Reserve under Reserves Act	1,027.2	18	0.36%	1.36%
Nature Reserve under Reserves Act	11.2	2	0.00%	0.15%
Protected Private Land under Reserves Act	3.7	1	0.00%	0.08%
Scientific Reserve under Reserves Act	975.0	3	0.34%	0.23%
Scenic Reserve under Reserves Act	14,099.2	140	4.97%	10.61%
Nga Whenua Rahui Kawenata	2,826.0	11	1.00%	0.83%
QEI covenant	4,041.8	183	1.42%	13.86%
Whangarei District Council Covenant	908.0	116	0.32%	8.79%
Total Protected Natural Areas¹	89,535.9	444	31.53%	33.64%
Other Protected Areas (non-PNAs)				
Foreshore and Seabed under Foreshore and Seabed Act	2,130.9	18	0.75%	1.36%
Government Purpose Reserve under Reserves Act	2.8	3	0.00%	0.23%
Historic Reserve under Reserves Act	376.2	12	0.13%	0.91%
Local Purpose Reserve under Reserves Act	2.3	6	0.00%	0.45%
Recreation Reserve under Reserves Act	2,697.9	40	0.95%	3.03%
Waitangi Endowment Act Forest under Waitangi Endowment Act	49.8	2	0.02%	0.15%
Approved Community Pest Control Areas	1,192.0	56	0.42%	4.24%
Fish and Game Wetlands	46.5	3	0.02%	0.23%
Landcare Group	11,355.6	118	4.00%	8.94%
Total non-PNA¹	16,636.1	162	5.86%	12.27%
Total NAES partially or totally protected	106,172.0	506	37.39%	38.33%
Total NAES	283,947.8	1320		
NAES not completely protected	177,775.9	1292	62.61%	97.88%
NAES not protected at all	39,432.9	814	13.89%	61.67%

¹ The total area and total number of NAES protected will not sum to this total because some NAES are protected by more than one mechanism.

¹ Note that the five ecological districts that have not been surveyed are all offshore island groups.

Sixty-two percent of NAES are not protected or managed by any mechanism. Of those that are protected or looked after (this includes legal protection but also efforts by community groups) nearly all NAES (98%) only have part of their total area protected. The NAES which are completely without protection or not being looked after by community groups are listed in Appendix 8.

A NAES can have one or more protection mechanism and these mechanisms can sometimes be applied over the same topographic area (e.g. a scenic reserve that is also looked after by Fish and Game and a Landcare Group) (Table 6).

Of the PNAs, 15.9% (by area) is protected by Conservation Parks under the Conservation Act. A further 7% is protected as Stewardship Land under Conservation Act, Scenic Reserves under Reserves Act protects 5%, QEII Trust looks after 1.4% and the remainder sums to less than 1%.

Numerically, 31.5% of protected NAES are partially or fully protected by mechanisms whose primary purpose is conservation of natural resources, flora and or fauna. The largest categories are QEII covenant (13.9%), Scenic Reserve under Reserves Act (10.6%), Stewardship Land under Conservation Act (9.3%) and Whangarei District Council Covenants (8.8%).

Table 6: Number of protection mechanisms per Natural Area of Ecological Significance (NAES). Data provided 7 December 2007.

Number of Mechanisms	Number of NAES	Percent number of NAES
0	814	61.7
1	826	62.6
2	310	23.5
3	81	6.1
4	61	4.6
5	17	1.3
6	14	1.1
7	5	0.4
8	1	0.1
9	3	0.2
10	1	0.1
11	1	0.1

6.4 Whangarei District Council Covenants

Whangarei District Council has required the covenanting of 613 areas, totalling 2,266.0 ha (Table 7). Nearly 50% of them (24% by area) were not Natural Areas of Ecological Significance (NAES) identified in PNAP surveys. In total, 311 NAES are fully or partially protected by WDC covenants.

Comparing the number of WDC covenants and the number of NAES protected is not straightforward, since some WDC covenants have multiple protection mechanisms and are sometimes superseded by other mechanisms (e.g. QEII covenant and a WDC covenant relating to the same area). Similarly, some NAES have more than one

mechanism or type of covenant (e.g. two QEII covenants and two WDC covenants cover Kokopu Block Road Bush) or part of the NAES is protected and part isn't. Table 7 provides an overview of the area and number of WDC covenants that include NAES. Approximately half of the WDC covenants include both NAES and areas that are not NAES, and on average the proportion of a WDC covenant that is NAES is $66\% \pm 4\%$ (95% confidence interval), but this ranges from 1% to 99% NAES.

Furthermore, "sliver" polygons, where the GIS layers don't quite line up when overlaid, may be artificially affecting the overall numbers. Where possible these slivers of overlap have been removed, but it is not possible to remove all slivers by just looking at the tabulated (not mapped) data.

Table 7: Area and number of Whangarei District Council (WDC) covenants that are Natural Areas of Ecological Significance (NAES). QEII: Queen Elizabeth II covenants; CPCA: Community Pest Control Area; F&G: NZ Fish and Game wetlands. Data provided 11 January 2008.

	WDC	WDC & QEII	WDC & CPCA	WDC & F&G	Grand Total	%
Area in ha						
Not NAES	862.9	139.5	29.8	2.3	1,034.5	45.7%
NAES	904.8	323.1	3.3		1,231.5	54.3%
Total	1,767.6	462.5	33.1	2.3	2,266.0	
% of total ha that is NAES	78.0%	20.4%	1.5%	0.1%		
Numbers						
Not NAES	584	84	5	1	588	95.9%
NAES	311	67	2		316	51.5%
Total					613	

	Area	Numbers	% Total ha	% Total Number
Not NAES	536.1	302	23.7%	49.3%
NAES	330.2	26	14.6%	4.2%
Both	1,399.7	285	61.8%	46.5%
Total	2,266.0	613		

7. OTHER PROTECTION MECHANISMS (NON-PNAS)

7.1 Kaipara District Council Biodiversity Improvement Fund

The aim of the fund is to help and encourage people to restore and improve Kaipara District's natural environment. Examples of projects that may be funded include fencing and restoration of bush or wetlands, dune care, and animal and pest control. Individuals, private landowners, community groups, conservation organisations, iwi and school groups may apply (Kaipara District Council 2007).

Most of the location data provided is point data, not mapped area data, and therefore no mapped extent or overlaps of area could be calculated. Only three projects had information about the geographical extent of the project and the data was received

mechanism or type of covenant (e.g. two QEII covenants and two WDC covenants cover Kokopu Block Road Bush) or part of the NAES is protected and part isn't. Table 7 provides an overview of the area and number of WDC covenants that include NAES. Approximately half of the WDC covenants include both NAES and areas that are not NAES, and on average the proportion of a WDC covenant that is NAES is $66\% \pm 4\%$ (95% confidence interval), but this ranges from 1% to 99% NAES.

Furthermore, "sliver" polygons, where the GIS layers don't quite line up when overlaid, may be artificially affecting the overall numbers. Where possible these slivers of overlap have been removed, but it is not possible to remove all slivers by just looking at the tabulated (not mapped) data.

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Most of the location data provided is point data, not mapped area data, and therefore no mapped extent or overlaps of area could be calculated. Only three projects had information about the geographical extent of the project and the data was received

long after all other data had been analysed. A summary of Kaipara District Council Biodiversity Improvement Fund Projects are provided in Table 8.

Table 8: Kaipara District Council Biodiversity Improvement Fund Projects. Data provided 27 February 2008.

Applicant	Aim of Project	Habitat and Ecological District	LENZ Threat Category	Area (ha)
Hua Raukau Trust	Dune care	Coastal Sand and Gravel, Pouto ED	At Risk	28.06
Glinks Gully Coastcare	Dune care/planting	Flaxland, Pouto ED	At Risk	20.65
Friends of Mangawhai Harbour	Riparian management			
Mangawhai Harbour Restoration	Dune restoration/planting			
Mangawhai Pride	Riparian/estuary protection			
Private Landowner	Bush restoration and fencing			
Paparoa Lions	Predator control			
Private landowner/ QEII covenant	Possum control	Indigenous Forest, Tokatoka	Critically Under-protected	10.12
Private Landowner	Bush restoration and fencing			
Private Landowner	Bush protection/fencing			
Northern Wairoa Flax Community	Bush protection/fencing			
Mangawhai River Enhancement	Riparian Planting			
Private Landowner	Bush protection/fencing			

7.2 Northland Regional Council Community Pest Control Areas

Communities can propose to the NRC that an area should be protected from a particular plant and/or animal pest. If the Council agrees, the area becomes a Community Pest Control Area (CPCA), pests defined in the proposal become total control pests for that area, and the landholder(s) must follow a programme of control (following an initial knockdown) (Northland Regional Council 2008).

There are 14 Approved CPCAs in the Northland Region. Another nine have been proposed. They range in size from approximately 9 ha to nearly 6,500 ha (Table 9). Nine CPCAs were included in the analysis (they had mapped areas). Nearly all are on private land (98.5% of total area), with a further 1.1% (92.8 ha) on Public Conservation Land, 0.4% (33.1 ha) within Whangarei District Council covenants, and 4.4 ha of QEII covenant included in one project. Northland Regional Council currently contributes to protecting biodiversity values on nearly 12,000 ha of private land. This area will roughly double when the pending projects are included.

Table 9: Approved Community Pest Control Areas and NAES. Data provided 31 January 2008.

Approved Community Pest Control Areas	Area (ha)	Number and area of NAES
Skudders Beach	8.8	1 (0.2 ha)
Mangaiti Bay	13.9	1 (0.4 ha)
Manganese Point	116.5	1 (6.4 ha)
Petley Road	230.7	3 (17.2 ha)
Maungarahoe Rock	423.8	0
Waiare Valley, Kaeo	812.6	8 (426.2 ha)
Linton road	879.2	13 (169.0 ha)
Te Kuri	1,710.7	0
Oneriri	3,757.9	30 (650.1 ha)
Subtotal	7,954.2	57 (1,269.5 ha)*
Additional CPCA received after analysis		
Nook	121	approved
Tutukaka	231	approved
Takahoa Bay	226	approved
Purerua Peninsula	3,212	approved
Opara Estuary	158	approved
Subtotal	3,948	
Pending CPCA received after analysis		
Ranganui	921	pending
Hoanga	1,690	pending
Swan Lake	664	pending
Mangaru	6,438	pending
Marohemo	992	pending
Pataua North	789	pending
Waione	137	pending
Dargaville wetland	55	pending
Rawhiti	61	pending
Total approved	11,902	
Total pending	11,747	
Total	23,649	

* Two CPCAs protect part of the Arapaoa River NAES, Linton Road, and Petley Road.

Nearly all the projects included in the analysis contained one or more (whole or part) Natural Area of Ecological Significance (NAES). Nearly fifteen percent of the area under CPCA projects is also NAES (Table 10). Fourteen percent of private land included in the CPCAs is NAES and 77% of Public Conservation Land is also NAES.

Table 10: Area of Community Pest Control Areas (CPCAs) that are NAES. Data provided 31 January 2008.

Administration	Area (ha)			% NAES
	Not NAES	NAES	Total	
Private land	7,361.4	1,192.0	8,553.4	13.94%
DOC managed land	21.5	71.3	92.8	76.82%
QEII	1.5	2.9	4.4	65.22%
WDC covenant	29.8	3.3	33.1	9.97%
Total	7,414.3	1,269.5	8,683.8	14.62%

7.3 Northland Regional Council CoastCare Groups

Northland Regional Council, through its Environment Fund, also supports a number of CoastCare Groups. The Northland Regional Council Environment Fund has provided over \$1.5 million to help people improve and protect Northland's natural environment since 1996. In 2007 the contestable fund increased from \$450,000 to around \$500,000. The Regional Council recognises the effort and commitment that Northlanders are putting into improving native biodiversity and the increase in funding reflects this. The fund is targeted at several different areas with most projects funded at 50% of their total costs (Northland Regional Council 2007).

Projects must be of long-term benefit to the local environment and show evidence of good resource management. Examples of projects funded previously include protecting native bush and wetlands by fencing out stock, replanting streamsides, dune management, and pest control to enhance native habitat (Northland Regional Council 2007). Laura Shaft is the CoastCare Co-ordinator for the Northland Regional Council and provided the list (Table 11) and map (Figure 4) of Current coast Care Groups. From the names of the Coast Care Groups it would appear that there is some overlap with the Northland Region Community Pest Control Areas, but due to the late acquisition of this information and the lack of a GIS data (mapping) layer it is not possible to provide any further analysis.

Table 11: List of Northland Region Coast Care Groups. Data provided 10 April 2008.

Coast Care Group
Baylys Beach Society Inc
Bream Bay Coastal Care Trust
Doubtless Bay Marine Protection Group
Glinks Gully Protection Society Inc
Hokianga Harbour Foreshore Restoration Society Inc (HHFRS)
Hua Rakau Ki Omamari Trust
Kaimaumu Coastal Reserve Group
Karikari Peninsula Beach Care Group
Mangawhai Heads Restoration Society
Ocean Beach Protection Group
Owhata Ahu Whenua Trust
Taipa Beach Improvement Society
Taupo Bay Progressive Association Inc
Tauranga Bay Community Association
Te Ngare Bay CoastCare Group
Te Roopu Whakaoranga O Te Taha Moana
Waipapakauri Coastal Care Group
Whananaki CoastCare Group



Figure 4: Map of Coast Care Groups in Northland Region.

(Image provided by Laura Shaft, Northland Regional Council)

7.4 Fish and Game wetlands

New Zealand Fish and Game looks after five wetland areas in Northland. These range in size from 22.5 ha to 56.5 ha. Three include part of a single NAES; Jack Bisset Wetlands includes 25.8 of Draffin Farm Wetland; Kawakawa Wetlands includes 17.0 ha of Kawakawa Flood plain; and Waitangi Wetlands includes 3.6 ha of Waitangi Wetlands and Environs. By area, 67% of the Fish and Game administered land is private land or land owned by Fish and Game. A further 31.6% is Public Conservation Land and a very small percentage is a QEII covenant or a Whangarei District Council covenant (Table 12).

Table 12: Fish and Game Wetlands and NAES. Data provided 23 January 2008.

Fish and Game Wetlands	Total	Number of NAES
Kawakawa Wetlands	22.53	1
Awakino River Reserve	23.82	0
Waitangi Wetlands	47.43	1
Jack Bisset Wetlands	54.58	1
Flaxmill	56.53	0
Total	204.89	3

Of the public conservation land, 66% is also an NAES, while 34% of the private/Fish and Game owned land is NAES (Table 13).

Table 13: New Zealand Fish and Game wetlands that are also a NAES. Data provided 23 January 2008.

Administration	Area (ha)			% NAES
	Not NAES	NAES	Total	
Private/Fish and Game	91.1	46.5	137.6	33.8%
Public Conservation Land	22.0	42.8	64.8	66.1%
QEII	0.2	-	0.2	0.0%
WDC covenant	2.3	0.0	2.3	0.0%
Total	115.6	89.3	204.9	43.6%

7.5 Landcare Groups

There are 60 Landcare Groups within the Northland Region. For 27 of these we have GIS polygons (and therefore maps) showing the extent of the cared for land. We have compared these areas with NAES below. The unmapped Landcare Groups are listed in Appendix 3. We have not done detailed analysis of their relationship to NAES.

The 27 Landcare Groups that were analysed care for areas ranging from 4 ha to 24,844 ha (Table 14). These 27 Landcare Groups look after about 121,512 ha. This total area may not be accurate. The GIS data layers show six Landcare Groups all look after exactly the same area. This may indicate data errors.

Sixteen of these Landcare Group areas include one or more Natural Areas of Ecological Significance (NAES) (Tables 14 & 15). The area managed for kiwi by the NZ Kiwi Foundation includes portions of 153 NAES. In addition, ten unmapped Landcare Groups are also likely to include one or more NAES. One of Landcare Groups includes Public Conservation land and three are Fish and Game wetlands.

Table 14: Landcare Group areas and NAES. Data provided 23 January 2008.

Landcare Groups	Area (ha)	Number of NAES
Te Puia Waipounamu Aotearoa Charitable Trust	3.79	0
Friends of Matakohē/Limestone Island Society	39.09	0
Jack Bisset Wetlands Committee	54.58	0
Manganese Point Landcare Group	123.87	1
Waipoua Forest Trust	146.05	2
Taupo Bay Kiwi Group/NZ Kiwi Foundation	267.98	0
Kaiaetea Landcare Group	352.60	2
Mahinepua-Radar Hill Landcare Group Incorporated	1,048.19	13
Herekino Landcare Group	1,059.20	7
Hupara Landcare Group	1,111.52	7
Tutukaka Landcare Coalition	1,230.43	8
Wekaweka Landcare Group	1,458.66	3
Whakaangi Landcare Trust	2,178.09	10
Mangakahia Landcare Group	2,304.27	1
Guardians of the Bay of Islands Incorporated	3,035.16	34
Russell Landcare Trust	3,035.16	0
Te Oho Mai Puketi	3,164.43	1
Muriwhanenua Incorporation	3,810.85	31
Bream Bay Restoration Committee	8,860.22	25
Little Munro Landcare Group	8,860.22	0
Papakarahi Landcare Group	8,860.22	0
Taiharuru Catchment Care Group	8,860.22	0
Taurikura Landcare Group	8,860.22	0
Whangarei Heads Landcare Group	8,860.22	0
Waimate North Landcare Group	9,405.38	40
Takou Were-Te-Mokai Charitable Trust	9,677.21	0
NZ Kiwi Foundation	24,844.70	153
Grand Total	121,512.6	338

Table 15: Number of NAES contained within Landcare Group areas. Data provided 23 January 2008.

Number of NAES	Number of Landcare Groups
0	11
1	3
2	2
3	1
4	0
5	0
6-10	4
11-15	1
16-20	0
21-30	1
31-40	3
153	1
n/a	10 ¹

¹ No GIS data showing the location/extent of the area managed by these groups was available.

The majority of the land, by area, looked after by Landcare Groups is private land (89.6%), followed by DOC managed land (6.2%), QEII covenants (2.7%), Whangarei District Council covenants (0.8%), and Nga Whenua Rahui Kawenata (0.6%) (Table 16). Only 21.5% of private land includes NAES, but 48.8% of Public Conservation lands include NAES. QEII covenants and Nga Whenua Rahui Kawenata have high proportions of NAES.

The high correlation between QEII covenant areas and NAES is largely due to the NZ Kiwi Foundation encouraging QEII covenantors to undertake pest control to protect kiwi within covenanted areas. This is due in part to a NZ Kiwi Foundation Trustee (Greg Blunden) also being the QEII representative. Forty percent of QEII covenants with Landcare Groups fall under the management of the NZ Kiwi Foundation. In total about 25.5% of the area looked after by Landcare Groups has been identified as NAES in a Northland PNAP report.

Table 16: Proportion of Landcare Group areas by administration type, and the proportion of each that is also a NAES. Data provided 23 January 2008.

Administration	Area (ha)			% NAES
	Not NAES	NAES	Total	
Private	40,726.3	11,123.4	51,849.8	21.5%
Public Conservation Land	1,841.6	1,754.4	3,596.0	48.8%
QEII	330.3	1,260.2	1,590.6	79.2%
Nga Whenua Rahui	5.3	365.7	371.0	98.6%
WDC covenant	188.8	268.6	457.4	58.7%
Total	43,092.4	14,772.5	57,864.8	25.5%

7.6 Far North District Council significant natural areas

Since 2006 the Far North District Council has had a Significant Natural Areas Fund to assist landowners with the protection of these areas. Thus far 18 organisations (mostly Landcare Groups, some schools and farms) and three private individuals have benefitted from this fund (Table 17). The project boundaries are currently not digitally mapped and it is therefore not possible to accurately determine the size or location of the areas protected. Four of the projects are likely to include all or some of a NAES, nine of the projects (including all those with NAES) have Landcare Group involvement, and one of these is also a QEII covenant.

Table 17: Far North District Council, Significant Natural Areas funding recipients.
Data provided 23 January 2008.

Recipient
Herekino Landcare Group
Lake Omapere Project Management Team
Mahinepua-Radar Hill Landcare
Moturoa Island Ltd
Ngai Tupoto ki Motukaraka Trust
Omapere-Rangihamama Trust
Private landowner
Private landowner
Private landowner
Taikapiti Farm
Taipa Area School
Takou Were-Te Moka Charitable Trust
Te Kuta Wetland Restoration Group
Te Puia Waipounamu Aoteroa Charitable
Te Rere I Tiria Charitable Trust
Te Toru Farms Ltd
Totara Park Farms
Waimate North Landcare Group
Wekaweka Landcare Group
Whakaangi Landcare Trust
Whangaoreore Hakaraia Private Rd Committee

7.7 Areas afforded some level of protection investment through the Biodiversity Condition and Advice Funds

A total of just over 2.5 million dollars has been allocated under the Biodiversity Condition and Advice Funds to projects in Northland to assist with the protection of biodiversity values. About half a million was allocated to advice projects, which supports the provision of information and advice to land managers to assist them in managing indigenous biodiversity. The Advice Fund funds projects that inspire landholders or groups to improve the condition of indigenous biodiversity (outside of public conservation lands) (Department of Conservation 2008).

The Biodiversity Condition Fund aims to improve and maintain the condition of areas of indigenous vegetation, species and habitats (including wetlands and water bodies). The Fund seeks to broaden community effort in the management of indigenous biodiversity, and to complement contributions for its enhancement. It will fund projects that enhance biodiversity outside public conservation lands, and particularly on areas under legal protection. Projects could involve, for example, fencing or pest control (Department of Conservation 2008).

The number of projects, the total funds allocated, and the total area protected by the Condition Fund all vary greatly from one year to the next (Table 18). GIS data were point data only, not polygon. So no spatial comparison could be made with PNAs or NAES.

Table 18: Funds approved in various rounds for the Biodiversity Condition and Advice Funds. Data provided 10 December 2007.

Funding Round	Advice ¹	Condition ¹	\$ Total	Area protected (Condition ²)	Cost/ha (Condition ²)
2	150,000.00 (2)	414,425.00 (10)	564,425.00	9,952 ³	41.64
3	59,725.00 (2)	296,562.40 (14)	356,287.40	17,465	16.98
4		291,916.00 (20)	291,916.00	30,358	9.62
5	103,000.00 (2)	265,973.13 (14)	368,973.13	9,502	27.99
6	13,732.00 (3)	122,124.00 (13)	135,856.00	1,222	99.94
7	6,373.00 (1)	74,895.00 (4)	81,268.00	10,103	7.41
8	187,800.00 (2)	327,319.00 (14)	515,119.00	8,576	38.17
9	24,327.00 (2)	199,292.00 (6)	223,619.00	7,812	25.51
Total	\$544,957.00 (14)	\$1,992,506.53 (95)	\$2,537,463.53	94,990	\$20.98

¹Numbers in brackets are the number of projects funded.

²No area or cost/ha are provided for any of the Advice Fund projects.

³Area data was not available for all projects in Round 2.

Numerically, Northland Regional Council and Landcare Trust type organisations have been very successful in securing funds from this source (38 and 26 approved applications respectively) and Landcare Trust type organisations have both obtained the greatest total amount of funds and achieved the lowest cost per hectare over all Condition Fund projects (Table 19).

The GIS data relevant to this dataset is incomplete and inaccurate (e.g. no grid references and grid references out at sea) and it is therefore hard to draw accurate conclusions about the types of areas protected. The following are indicative trends only. Of the 37 projects with some location data:

- one includes Public Conservation land (Kiwi recovery in Whangarei Heads);
- three others involve QEII covenants (one of which is also a WDC covenant);
- eleven NAES are fully or partially protected;
- two projects are a CPCA project (Linton Road);
- one is a Fish and Game wetland (Jack Bisset Wetlands).

8. ECOLOGICAL FEATURES THAT OCCUR WITHIN PROTECTED AREAS

There is currently no consistent classification of ecological features within the protected areas. Different organisations use different descriptions and often the descriptions within an organisation are inconsistent. The only nationwide classification of vegetation cover that is relatively consistent across the entire country is the Land Cover Database vs 2 (LCDB2). Satellite imagery has been used to classify land use and landcover types and these have been spot checked on the ground to ensure consistency.

Table 19: Types of organisations that successfully applied for funds. Data provided 10 December 2007.

Organisation	Number			Funds granted			Area (ha) (Condition ¹)	Cost/ha (Condition ¹)
	Advice	Condition	Total	Advice	Condition	Total		
Company	0	3	3	0	42,500	42,500	2,037	20.86
NZ Kiwi Foundation Charitable Trust	1	3	4	22,800	233,500	256,300	20,823	11.21
Landcare Trust or similar	10	26	36	459,549	1,030,683	1,490,232	66,028	15.61
Northland Regional Council	1	38	39	50,000	327,372	377,372	974	336.11
Private	2	7	9	12,608	61,079	73,687	248	246.29
QEII	0	18	18	0	297,373	297,373	4,880	60.94
Grand Total	14	95	109	\$544,957	\$1,992,507	\$2,537,464	94,990	\$20.98

¹ No area or cost/ha are provided for any of the Advice Fund projects.

There are, however, still limitations with these data, as some types of landcover were difficult to distinguish from satellite imagery (e.g. wetlands, tussock vs rough pasture) and other landcover classes may have been misclassified (e.g. confusion between gorse and native scrub). LCDB2 also does not account for originally rare ecosystems or special ecosystem types of less than one hectare (e.g. limestone outcrops). Some of the outlying island groups have not been included in LCDB2, including the Mokohinau and Kermadec groups in the Northland Region. Nevertheless, this is currently the most consistent vegetation classification available.

This report cannot determine whether vegetation that was included as a NAES still exists. It may well be that the indigenous vegetation cover in some NAES has been completely removed since it was reported in a PNAP report. In that case LCDB2 will report the vegetation type as what it was when the satellite image was taken.

Classification of ecological features within the QEII database does include some of these rarer ecotypes (as per Williams *et al.* 2007) and is broadly internally consistent within the organisation.

8.1 Types of habitats protected as classified by LCDB2

The New Zealand Land Cover Database (LCDB) is a Crown database that translates satellite images of New Zealand into information on the different types of land cover that exist on the ground. The areas are mapped with a minimum size of 1 ha. This information can be used, over time, to monitor and report on the changes to the state of our environment and provide the basis for better resource management decisions, more efficient use of natural resources and improved environmental management. LCDB2 was used in the analysis and has 61 classes. Not all of the landcover is indigenous; Table 20 outlines which landcover classes are found within the Northland Region and which of these are considered to be mostly or generally indigenous in nature.

Table 20: List of indigenous and non-indigenous land use and landcover classifications used in the Landcover Database (LCDB2). Data provided 24 January 2008.

Not Indigenous	Indigenous
Afforestation (imaged, post LCDB 1)	Alpine gravel and rock
Afforestation (not imaged)	Broadleaved indigenous hardwoods
Built-up area	Coastal sand and gravel
Deciduous hardwoods	Estuarine open water
Dump	Fernland
Forest harvested	Flaxland
Gorse and broom	Grey scrub
High producing exotic grassland	Herbaceous freshwater vegetation
Low producing grassland	Herbaceous saline vegetation
Major shelterbelts	Indigenous forest
Mixed exotic shrubland	Lake and pond
Orchard and other perennial crops	Landslide
Other exotic forest	Mangrove
Pine forest - closed canopy	Manuka and or kanuka
Pine forest - open canopy	River
Short-rotation cropland	River and lakeshore gravel and rock
Surface mine	

Not Indigenous	Indigenous
Transport infrastructure	
Urban parkland/open space	
Vineyard	

Over the entire Northland Region, 11.9% of the area (including estuarine areas) is a PNA, a further 5.8% is legally protected but not a PNA (legislative mandate is not protection of natural values) or is being looked after by community or Landcare Groups (Table 21a). This leaves 82% of Northland Region without any form of protection, or care. There is still considerable scope for protection of natural values as nearly 37% of Northland Region is still covered in indigenous vegetation.

Eleven ecological districts have less than 10% of their total area covered in PNAs; Otamatea (0.7%), Tokatoka (1.3%), Hokianga (3.1%), Whangarei (3.3%), Kaikohe (3.6%), Rodney (4.2%), Kerikeri (6.1%), Tangihua (6.4%), Pouto (7.1%), Aupouri (7.6%), and Waipu (9.1%) (Table 21a). Other EDs are nearly completely protected (Poor Knights, Three Kings, Manaia, Taranga). There is only a slight, non-significant, correlation between the size of the ecological district and the percentage area covered in PNAs or the percentage of indigenous landcover remaining.

Generally the PNAs within EDs only include a small percentage of Acutely Threatened (1.7% over total region) and Chronically Threatened (4.2% over total region) LENZ categories. This information can be found in Table 21b under “Native vegetation in PNA”, which lists the the amount or percentage of the Acutely Threatened (13.8% over total region) or Chronically Threatened (16.4% over total region) indigenous landcover protected by the PNA network within each ecological district. In many cases there still are significant areas with predominantly native vegetation that could be protected. The focus for protection should be those ecological districts where there still is some unprotected native vegetation in the Acutely or Chronically Threatened LENZ categories. Other reserves, those that are not legislated to protect natural values and areas managed by community and care groups, are listed in Table 21c.

The categories of native vegetation that require urgent protection are Alpine Gravel and Rock (0.0% protected), Depleted Tussock Grassland (0.0% protected), and Estuarine Open Water (2% protected) and fernland (10% protected) (Tables 22a, 22b, 22c). Many other vegetation categories also warrant further protection. Some of the categories are likely to change over time, e.g. kanuka may colonise landslips, or grey scrub may succeed to taller forest. Table 22d provides a further breakdown by LENZ threat classes (i.e. the proportion that is Acutely or Chronically Threatened).

8.2 Types of habitats protected under QEII Trust covenants

The QEII National Trust uses a one line description to summarise the values in each covenant. This description has been analysed for each of the covenants that falls within the Northland Region (Tables 23 & 24). One covenant can contain multiple habitats but only the two largest or most significant (from the way the QEII covenant description is structured) were used in this analysis. This type of analysis will give some indication as to the range of habitats found within NRC territory, but may not accurately reflect the proportions of those habitats within the area, or the proportions of those habitats protected by other mechanisms.

Ninety-five percent of QEII covenants (by number or area) are predominantly coastal, semi-coastal, or lowland forest, scrub or shrubland. All other categories, by number or area, are generally represented in less than 5% of QEII covenants. The features or habitats that are not well represented in QEII covenants include:

- Archaeological site or remnants
- Artificial wetland
- Coastal dune or sand habitat
- Coastal primary forest
- Coastal revegetated area
- Coastal salt influenced wetland
- Coastal scrub or shrub forest
- Coastal secondary forest
- Coastal wetland (not salt influenced)
- Geological feature
- Lowland flaxland
- Lowland revegetated area
- Lowland scrub or shrub forest
- Lowland secondary forest
- Lowland wetland
- Semi-coastal scrub or shrub forest
- Semi-coastal secondary forest
- Semi-coastal wetland

Table 21a: Proportion of ecological district currently protected¹, partially protected² or not protected at all, and amount of native vegetation remaining. Data provided 15 April 2008.

Ecological District	ED Area (ha)	ED in PNA ¹	% of ED in PNA ¹	ED in non-PNA ²	% of ED in non-PNA ²	ED in not protected	% of ED not protected	All Threat Categories	
								Remaining Native Vegetation in ED (ha, %)	
Ahipara	32,271.5	15,607.7	48.36%	2,670.6	8.28%	13,993.2	43.36%	26,107.5	80.90%
Aupouri	119,817.5	9,093.1	7.59%	2,645.3	2.21%	108,079.2	90.20%	41,340.0	34.50%
Hokianga	88,199.5	2,709.1	3.07%	700.8	0.79%	84,789.7	96.13%	36,342.7	41.21%
Kaikohe	67,261.3	2,451.2	3.64%	7,676.7	11.41%	57,133.4	84.94%	18,626.1	27.69%
Kerikeri	67,349.5	4,109.6	6.10%	18,362.8	27.26%	44,877.1	66.63%	18,519.6	27.50%
Kermadec	-	-	-	-	-	-	-	-	-
Manaia	6,356.6	1,157.8	18.21%	5,160.7	81.19%	38.1	0.60%	2,648.6	41.67%
Maungataniwha	98,407.0	15,945.9	16.20%	549.4	0.56%	81,911.7	83.24%	43,786.1	44.49%
Mokohinau	-	-	-	-	-	-	-	-	-
Otamatea	57,953.3	414.2	0.71%	4.8	0.01%	57,534.2	99.28%	17,410.2	30.04%
Poor Knights	308.0	286.8	93.13%		0.00%	21.1	6.87%	307.3	99.78%
Pouto	92,913.4	6,557.5	7.06%	11.8	0.01%	86,344.0	92.93%	16,059.0	17.28%
Puketi	24,516.1	15,050.3	61.39%	233.0	0.95%	9,232.8	37.66%	19,391.2	79.10%
Rodney	20,578.8	866.4	4.21%	8.9	0.04%	19,703.4	95.75%	4,826.0	23.45%
Tangihua	167,024.4	10,631.0	6.36%	2,392.9	1.43%	154,000.5	92.20%	40,986.2	24.54%
Taranga	989.8	984.2	99.44%		0.00%	5.6	0.56%	989.8	100.00%
Te Pahi	31,134.7	5,632.0	18.09%	20,531.1	65.94%	4,971.6	15.97%	22,877.3	73.48%
Three Kings	523.2	497.0	94.99%		0.00%	26.2	5.01%	523.2	100.00%
Tokatoka	74,669.4	935.4	1.25%	31.1	0.04%	73,702.9	98.71%	9,326.0	12.49%
Tutamoe	81,690.5	33,206.3	40.65%	1,574.0	1.93%	46,910.3	57.42%	49,578.9	60.69%
Waipu	50,072.1	4,577.7	9.14%	212.0	0.42%	45,282.4	90.43%	15,099.3	30.16%
Whangarei	76,950.6	2,521.6	3.28%	2,249.0	2.92%	72,180.0	93.80%	17,518.6	22.77%
Whangaroa	31,944.2	3,724.0	11.66%	3,063.6	9.59%	25,156.6	78.75%	15,470.6	48.43%
Whangaruru	120,437.6	19,497.0	16.19%	8,508.4	7.06%	92,432.1	76.75%	64,376.1	53.45%
Grand Total	1,311,369.0	156,456.1	11.93%	76,586.9	5.84%	1,078,326.1	82.23%	482,110.3	36.76%

- 1 Protected Natural Areas (PNA) includes Conservation Area, Conservation Park, Ecological Area, Fish and Game, Government Purpose Reserve under Reserves Act (Wildlife), Marginal Strip, Nature Reserve, Nga Whenua Rahui, Protected Private Land under Reserves Act, QEII, Sanctuary, Scenic Reserve, Scientific Reserve, Seabed, Stewardship Land under Conservation Act, WDC covenant, Wildlife Management Reserve, and Wildlife Refuge.
- 2 Reserves and community care areas, that are not PNA. They include Government Purpose Reserve under Reserves Act, Historic Reserve, Historical Area, Landcare Group, Local Purpose Reserve under Reserves Act (including esplanade and streams), NAES, Recreation Reserve, and Waitangi Endowment Act Forest under Waitangi Endowment Act.

Table 21b: Proportion of ecological district currently protected by PNA, with special attention to Acutely and Chronically Threatened LENZ categories. Data provided 15 April 2008.

Ecological District	All Threat Categories		Acutely Threatened				Chronically Threatened			
	Remaining Native Vegetation in ED		Remaining Native Vegetation		Native Acutely Threatened Veg in PNA ¹		Remaining Native Veg		Native Chronically Threatened Veg in PNA ¹	
	Area (ha)	%	ha	%	ha	%	ha	%	ha	%
Ahipara	26,107.5	80.90%	47.9	0.18%	2.8	5.80%	2,388.9	9.15%	1,321.2	55.31%
Aupouri	41,340.0	34.50%	729.0	1.76%	277.7	38.09%	2,290.6	5.54%	676.8	29.55%
Hokianga	36,342.7	41.21%	793.3	2.18%	17.4	2.19%	555.1	1.53%	23.3	4.20%
Kaikohe	18,626.1	27.69%	775.0	4.16%	105.5	13.62%	2,327.6	12.50%	47.0	2.02%
Kerikeri	18,519.6	27.50%	358.7	1.94%	12.6	3.52%	1,345.9	7.27%	155.9	11.58%
Kermadec	-	-	-	-	-	-	-	-	-	-
Manaia	2,648.6	41.67%	15.2	0.58%	0.4	2.35%	48.3	1.82%	4.2	8.76%
Maungataniwha	43,786.1	44.49%	652.2	1.49%	24.5	3.75%	284.7	0.65%	15.4	5.40%
Mokohinau	-	-	-	-	-	-	-	-	-	-
Otamatea	17,410.2	30.04%	68.3	0.39%	0.2	0.31%	1,814.7	10.42%	42.8	2.36%
Poor Knights	307.3	99.78%	-	0.00%	-	-	1.7	0.54%	1.3	77.90%
Pouto	16,059.0	17.28%	1,142.2	7.11%	179.7	15.73%	953.8	5.94%	110.4	11.58%
Puketi	19,391.2	79.10%	12.3	0.06%	8.2	66.68%	35.3	0.18%	4.7	13.19%
Rodney	4,826.0	23.45%	166.1	3.44%	3.7	2.23%	398.3	8.25%	20.2	5.06%
Tangihua	40,986.2	24.54%	1,389.9	3.39%	16.6	1.19%	1,698.5	4.14%	131.0	7.71%
Taranga	989.8	100.00%	-	0.00%	-	-	2.4	0.24%	2.3	97.13%
Te Paki	22,877.3	73.48%	0.2	0.00%	-	0.00%	227.5	0.99%	154.2	67.76%
Three Kings	523.2	100.00%	-	0.00%	-	-	-	0.00%	-	-
Tokatoka	9,326.0	12.49%	144.8	1.55%	0.7	0.49%	1,380.7	14.81%	162.0	11.73%
Tutamoe	49,578.9	60.69%	232.5	0.47%	27.4	11.76%	225.6	0.45%	70.3	31.16%
Waipu	15,099.3	30.16%	364.2	2.41%	20.8	5.72%	377.0	2.50%	26.9	7.15%
Whangarei	17,518.6	22.77%	1,051.1	6.00%	425.1	40.45%	1,829.2	10.44%	130.5	7.14%
Whangaroa	15,470.6	48.43%	122.0	0.79%	0.0	0.04%	28.5	0.18%	3.1	10.88%
Whangaruru	64,376.1	53.45%	111.4	0.17%	10.6	9.53%	1,795.6	2.79%	171.0	9.52%
GrandTotal	482,110.3	36.76%	8,176.4	1.70%	1,133.9	13.87%	20,009.7	4.15%	3,274.5	16.36%

¹ Protected Natural Areas (PNA) includes Conservation Area, Conservation Park, Ecological Area, Fish and Game, Government Purpose Reserve under Reserves Act (Wildlife), Marginal Strip, Nature Reserve, Nga Whenua Rahui, Protected Private Land under Reserves Act, QEII, Sanctuary, Scenic Reserve, Scientific Reserve, Seabed, Stewardship Land under Conservation Act, WDC covenant, Wildlife Management Reserve, and Wildlife Refuge.

This does **not** include Government Purpose Reserve under Reserves Act, Historic Reserve, Historical Area, Landcare or Community Groups, Local Purpose Reserve under Reserves Act (including esplanade and streams), NAES, Recreation Reserve, and Waitangi Endowment Act Forest under Waitangi Endowment Act.

Table 21c: Proportion of other protected areas in Northland Region for which legislative mandate is not protection of natural values, by ecological district, and with special attention to Acutely and Chronically Threatened LENZ categories. Data provided 15 April 2008.

Ecological District	All Threat Categories		Acutely Threatened				Chronically Threatened			
	Remaining Native Vegetation in ED		Remaining Native Vegetation		Native Acutely Threatened Veg in Non-PNA ²		Remaining Native Veg.		Native Chronically Threatened Veg in Non-PNA ²	
	Area (ha)	%	ha	%	ha	%	ha	%	ha	%
Ahipara	26,107.5	80.90%	47.9	0.18%	2.6	5.33%	2,388.9	9.15%	278.6	11.66%
Aupouri	41,340.0	34.50%	729.0	1.76%	0.0	0.00%	2,290.6	5.54%	1.7	0.07%
Hokianga	36,342.7	41.21%	793.3	2.18%	0.0	0.00%	555.1	1.53%	2.1	0.38%
Kaikohe	18,626.1	27.69%	775.0	4.16%		0.00%	2,327.6	12.50%	322.4	13.85%
Kerikeri	18,519.6	27.50%	358.7	1.94%	77.2	21.52%	1,345.9	7.27%	308.1	22.89%
Kermadec	-	-								
Manaia	2,648.6	41.67%	15.2	0.58%	14.9	97.54%	48.3	1.82%	42.5	87.89%
Maungataniwha	43,786.1	44.49%	652.2	1.49%	13.1	2.01%	284.7	0.65%	0.1	0.04%
Mokohinau	-	-								
Otamatea	17,410.2	30.04%	68.3	0.39%		0.00%	1,814.7	10.42%	0.0	0.00%
Poor Knights	307.3	99.78%		0.00%			1.7	0.54%		0.00%
Pouto	16,059.0	17.28%	1,142.2	7.11%		0.00%	953.8	5.94%		0.00%
Puketi	19,391.2	79.10%	12.3	0.06%	0.3	2.58%	35.3	0.18%	0.2	0.61%
Rodney	4,826.0	23.45%	166.1	3.44%	0.0	0.00%	398.3	8.25%	1.0	0.25%
Tangihua	40,986.2	24.54%	1,389.9	3.39%	28.9	2.08%	1,698.5	4.14%	57.8	3.40%
Taranga	989.8	100.00%		0.00%			2.4	0.24%		0.00%
Te Pahi	22,877.3	73.48%	0.2	0.00%	0.2	100.00%	227.5	0.99%	22.1	9.71%
Three Kings	523.2	100.00%		0.00%				0.00%		
Tokatoka	9,326.0	12.49%	144.8	1.55%	0.0	0.00%	1,380.7	14.81%		0.00%
Tutamoe	49,578.9	60.69%	232.5	0.47%	14.6	6.30%	225.6	0.45%		0.00%
Waipu	15,099.3	30.16%	364.2	2.41%	2.5	0.67%	377.0	2.50%	0.3	0.07%
Whangarei	17,518.6	22.77%	1,051.1	6.00%	136.6	13.00%	1,829.2	10.44%	25.8	1.41%
Whangaroa	15,470.6	48.43%	122.0	0.79%	0.3	0.28%	28.5	0.18%		0.00%
Whangaruru	64,376.1	53.45%	111.4	0.17%	18.5	16.65%	1,795.6	2.79%	94.4	5.26%
GrandTotal	482,110.3	36.76%	8,176.4	1.70%	309.8	3.79%	20,009.7	4.15%	1,157.1	5.78%

Table 22a: LCDB2 native landcover or land-use types in Protected Natural Areas¹ in each ecological district. Data provided 15 April 2008.

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fernland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not native Total	Grand Total
Protected Natural Area																					
Ahipara		60.6	1,094.2					1.8			11,951.4				2,080.1	4.3			15,192.5	415.2	15,607.7
Aupouri		159.2	1,133.5		31.1				683.3	52.0	219.8	204.3		75.8	4,551.5	6.9			7,117.4	1,975.7	9,093.1
Hokianga		3.8	301.7		1.0					16.0	1,264.7			129.5	707.9	2.6			2,427.2	282.0	2,709.1
Kaikohe		58.1							123.3		1,714.6	5.6			354.5				2,256.0	195.2	2,451.2
Kerikeri		354.8	6.4		0.0	3.9			12.9	1.8	2,025.1	17.6		21.0	1,130.0				3,573.4	536.2	4,109.6
Manaia		74.9	9.8							0.0	644.0			0.5	286.9				1,016.1	141.7	1,157.8
Maungataniwha		224.0	1.6		2.3				7.2	1.5	14,871.2			3.1	562.9	0.1			15,673.8	272.1	15,945.9
Otamatea		48.0	0.2		10.7					0.3	193.3	12.2		20.0	41.3		0.2		326.1	88.1	414.2
Poor Knights			34.8								251.3								286.2	0.7	286.8
Pouto		81.2	2,056.6		13.4		5.1	49.0	104.7	218.6	64.6	200.6		159.5	2,225.9	1.1			5,180.2	1,377.3	6,557.5
Puketi		18.8									14,448.3				264.8	0.6			14,732.4	317.9	15,050.3
Rodney		40.9	237.0		0.5			0.3	1.0	2.2	445.6	3.5		1.8	82.5	0.2			815.6	50.9	866.4
Tangihua		160.0							37.8		9,440.9	1.0	0.3		343.0	3.5			9,986.4	644.6	10,631.0
Taranga		20.7	8.4								841.8		1.0		112.3				984.2		984.2
Te Paki		176.4	500.0		2.3				98.2	7.2	159.7	6.3	0.7	3.0	4,467.7	1.6			5,423.1	208.9	5,632.0
Three Kings		186.4	134.7								175.3				0.7				497.0		497.0
Tokatoka		4.6							87.9		560.7	0.1			66.3	0.4			720.1	215.4	935.4
Tutamoe		267.6	63.4					85.1	20.0		30,071.1	8.4			1,294.7	0.1			31,810.5	1,395.7	33,206.3
Waipu		40.1	170.8		9.2				0.6	9.9	3,393.6	2.9		3.0	464.2	0.9			4,095.2	482.4	4,577.7
Whangarei		35.8					26.8		39.3	24.1	1,453.8	10.4		4.9	420.2	3.2			2,018.5	503.1	2,521.6
Whangaroa		11.4	1.3					4.9		0.2	2,027.7			4.4	1,539.0				3,588.9	135.1	3,724.0
Whangaruru		377.6	269.4		0.4	1.6		0.5	13.2	8.4	13,509.4	3.9	1.3	100.5	4,134.1				18,420.2	1,076.8	19,497.0
Total		2,404.7	6,023.6		70.9	5.5	31.8	141.7	1,229.4	342.3	109,728.1	476.6	3.2	526.7	25,130.5	25.7	0.2		146,141.1	10,315.0	156,456.1
% of NR	0.0%	13.4%	36.3%	0.0%	0.2%	9.6%	18.9%	41.1%	17.6%	11.1%	42.8%	11.4%	20.3%	3.3%	21.3%	1.3%	0.7%	0.0%	30.3%	1.2%	11.9%

1 Protected Natural Areas includes all those noted for Table 21.

Table 22b: LCDB2 native landcover or land-use types 'protected' by non-PNA reserves or community care groups in each ecological district. Data provided 15 April 2008.

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fernland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not native Total	Grand Total
Legal protection, but not natural values mandate, and community care groups.																					
Ahipara		26.7	7.4							0.0	1,136.9				491.9				1,662.9	1,007.7	2,670.6
Aupouri		2.9	1,811.8		3.4				91.8	3.9	36.6	55.6		7.1	419.9	1.8	9.1		2,443.9	201.3	2,645.3
Hokianga			13.0		0.9					0.0	50.4			51.1	214.6			1.5	331.6	369.2	700.8
Kaikohe		288.2							3.3		1,184.0	0.9			328.8				1,805.1	5,871.6	7,676.7
Kerikeri		458.1	260.9		65.5				116.7	3.0	1,918.3	18.1	0.0	42.2	1,811.3		2.0	1.4	4,697.5	13,665.3	18,362.8
Manaia		89.1	198.4						14.9	2.9	496.0	8.0		0.5	794.6				1,604.5	3,556.3	5,160.7
Maungataniwha		3.5	5.3		7.3	0.5					205.6			4.9	21.6				248.6	300.8	549.4
Otamatea					0.0														0.0	4.8	4.8
Pouto			5.4											0.7	3.3				9.4	2.4	11.8
Puketi											96.3				2.8				99.1	133.9	233.0
Rodney		0.2									4.5								4.7	4.2	8.9
Tangihua		4.8							51.8		223.2				18.2	0.0			298.0	2,094.9	2,392.9
Te Paki		337.1	1,300.3		25.7		38.1		733.2	28.0	836.1	67.9	1.5	5.4	11,184.3		3.6		14,561.2	5,969.9	20,531.1
Tokatoka											4.9					0.0			4.9	26.2	31.1
Tutamoe		95.4	3.6								730.4				30.7				860.0	714.1	1,574.0
Waipu		1.0	42.8		1.6					0.6				53.6					99.7	112.3	212.0
Whangarei		0.9	45.2		461.5				19.7	16.3	4.9	6.1		1,544.9	8.0	0.2			2,107.6	141.4	2,249.0
Whangaroa		273.9	31.9		0.8			26.0		1.3	403.7			0.9	949.7				1,688.2	1,375.4	3,063.6
Whangaruru		197.6	112.8		48.6				19.9	36.7	1,578.3	1.4		157.3	2,401.8				4,554.3	3,954.1	8,508.4
Total	0.0	1,779.3	3,838.7		615.3	0.5	38.1	26.0	1,051.3	92.8	8,910.1	158.0	1.5	1,868.6	18,681.5	1.9	14.6	2.9	37,081.1	39,505.8	76,586.9
%	0.0%	9.9%	23.2%	0.0%	1.5%	0.9%	22.6%	7.6%	15.0%	3.0%	3.5%	3.8%	9.1%	11.8%	15.8%	0.1%	43.7%	100.0%	7.7%	4.8%	5.8%

Table 22c: LCDB2 native landcover or land-use types currently not afforded any protection in each ecological district and total of each landcover type within Northland Region. Data provided 15 April 2008.

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fernland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not native Total	Grand Total
Not protected																					
Ahipara		221.4	446.9		7.0	21.2			19.7	18.8	5,349.8	11.2	1.5	7.7	3,143.4	3.6			9,252.2	4,741.0	13,993.2
Aupouri		437.4	2,995.5		13,168.0	3.4			1,958.6	876.8	634.9	534.6	1.2	4,132.2	6,934.1	101.3	0.5		31,778.7	76,300.5	108,079.2
Hokianga		855.2	555.0		8,243.6	18.0	4.6		239.0	717.0	9,560.9	10.8		2,826.3	10,464.2	89.5			33,584.0	51,205.7	84,789.7
Kaikohe		713.2	1.0		45.4		4.5		330.8		7,627.8	1,397.5		121.2	4,274.5	45.7	3.4		14,565.0	42,568.4	57,133.4
Kerikeri		579.8	33.7		206.8	0.0			257.6	24.9	4,403.9	230.0	2.9	410.7	4,061.0	37.5			10,248.7	34,628.4	44,877.1
Manaiā		0.8	3.2							0.0	9.5				14.4				28.0	10.1	38.1
Maungataniwha		2,014.7	33.3		716.0			20.3	19.3	108.0	14,383.2	8.0	1.1	396.3	10,142.0	21.3			27,863.7	54,048.0	81,911.7
Otamatea		537.1	106.3		10,183.5				16.1	5.8	3,228.8	58.2		1,847.8	1,077.2	15.7	7.7		17,084.1	40,450.2	57,534.2
Poor Knights			15.9								5.3								21.1		21.1
Pouto		342.2	1,490.8		2,326.3	2.5	82.6	103.7	421.1	440.2	518.8	762.6		647.2	2,754.4	973.0	4.0		10,869.4	75,474.6	86,344.0
Puketī		184.4					2.0		5.2		3,736.3	0.7			626.4	4.6			4,559.6	4,673.1	9,232.8
Rodney		794.3	35.5		51.2			5.4	7.1	72.7	2,546.2	35.3		83.1	367.1	7.2	0.7		4,005.7	15,697.7	19,703.4
Tangihua		1,759.5					1.1		630.5		21,524.4	98.3	0.7		6,425.3	261.9			30,701.8	123,298.7	154,000.5
Taranga		0.1	0.8								2.4				2.3				5.6		5.6
Te Paki		32.7	177.7		46.8		0.2		39.0	49.7	31.6	0.0		29.3	2,486.1				2,893.0	2,078.6	4,971.6
Three Kings		1.7	23.1								1.4								26.2		26.2
Tokatoka		1,351.3			1.6	3.3	0.4		309.4		5,861.3	119.6			824.4	129.6			8,601.0	65,101.9	73,702.9
Tutamoe		1,125.4	127.0					13.0	81.9		13,524.1	7.1			1,988.6	41.3			16,908.4	30,001.9	46,910.3
Waipu	0.2	643.6	87.6		114.0		1.5		5.2	12.8	8,041.3	44.5		27.7	1,846.2	79.6			10,904.4	34,378.1	45,282.4
Whangarei		558.0	5.7		3,056.2		1.5		270.8	23.3	7,528.4	173.1		565.0	1,115.9	94.5			13,392.5	58,787.5	72,180.0
Whangaroa		576.9	157.0		848.4			8.4	4.2	65.8	3,080.5	1.2	3.2	137.8	5,310.0				10,193.5	14,963.1	25,156.6
Whangaruru		1,058.6	417.0	6.8	872.6	2.5		25.9	99.8	222.9	26,186.5	56.9	0.6	2,146.3	10,302.0	0.8	2.3		41,401.5	51,030.6	92,432.1
Total	0.2	13,788.4	6,713.0	6.8	39,887.5	51.0	98.4	176.7	4,715.4	2,638.6	137,787.2	3,549.6	11.2	13,378.5	74,159.4	1,907.3	18.6		298,888.1	779,437.9	1,078,326.1
	100.0%	76.7%	40.5%	100.0%	98.3%	89.5%	58.5%	51.3%	67.4%	85.8%	53.7%	84.8%	70.5%	84.8%	62.9%	98.6%	55.6%	0.0%	62.0%	94.0%	82.2%
Total for Entire Northland Region	0.2	17,972.5	16,575.4	6.8	40,573.7	57.0	168.4	344.4	6,996.1	3,073.7	256,425.4	4,184.2	15.9	15,773.8	117,971.5	1,934.9	33.5	2.9	482,110.3	829,258.7	1,311,369.0

Table 22d: Area (ha) comprising Acutely or Chronically Threatened categories of LENZ for each LCDB2 native landcover or land-use class and summarised by ecological district. Data grouped by Protected Natural Areas, legally protected (but not for natural values) or cared for sites, and not protected sites. Data provided 15 April 2008.

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fermland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not Native Total	Grand Total
Protected Natural Area																					
Acutely Threatened																					
Ahipara			66.5						46.5	0.0	2.8	23.6		0.2	131.2	3.1			2.8	0.1	2.9
Aupouri											6.5								277.7	55.4	333.1
Hokianga		0.0									13.6				3.8				17.4	25.0	42.4
Kaikohe		0.4							79.6		22.3	1.3			2.0				105.5	35.4	141.0
Kerikeri		4.2							1.9		0.1				6.4				12.6	5.4	18.1
Manaia		0.0									0.3				0.1				0.4	0.3	0.6
Maungataniwha		0.8			0.2				0.1		17.9			0.0	5.4	0.1			24.5	26.9	51.3
Otamatea															0.2				0.2	0.7	0.9
Pouto		0.2	0.0		0.2				56.0	2.1	16.9			14.5	89.3	0.5			179.7	58.6	238.3
Puketi											8.2								8.2	0.3	8.6
Rodney					0.2				0.6	1.9	0.6			0.5					3.7	2.4	6.1
Tangihua		0.1									14.4	0.0			0.3	1.8			16.6	62.0	78.6
Tokatoka									0.0		0.4					0.3			0.7	5.3	6.0
Tutamoe		0.3	0.1						14.4		11.7	0.4			0.5				27.4	22.0	49.4
Waipu			7.5		0.0						7.6			2.6	2.7	0.4			20.8	19.1	39.9
Whangarei		5.0					26.8		26.5		30.2	0.6		0.6	335.3	0.1			425.1	69.1	494.2
Whangaroa														0.0	0.0				0.0	0.2	0.3
Whangaruru		0.0	0.3								5.8				4.4				10.6	30.0	40.6
Acutely Threatened Total		11.0	74.4		0.5		26.8		225.6	4.0	159.3	25.8		18.5	581.8	6.3			1,133.9	418.2	1,552.2
%	0.0%	0.1%	0.4%	0.0%	0.0%	0.0%	15.9%	0.0%	3.2%	0.1%	0.1%	0.6%	0.0%	0.1%	0.5%	0.3%	0.0%	0.0%	0.2%	0.1%	0.1%
Protected Natural Area																					
Chronically Threatened																					
Ahipara		0.1	23.5								309.0				988.5				1,321.2	97.1	1,418.3
Aupouri		42.3	18.9						52.5	1.2	1.0	9.1		1.5	550.3				676.8	240.4	917.2
Hokianga					0.0					12.7	3.4			0.0	7.2				23.3	30.3	53.6
Kaikohe		6.9									37.3				2.7				47.0	24.7	71.7
Kerikeri		31.7	0.3			3.9			4.5		36.1	1.0		9.6	68.8				155.9	94.0	249.9
Manaia			2.2								0.8				1.3				4.2	0.0	4.3
Maungataniwha		1.2			0.1				6.3	0.1	4.6			0.0	3.0				15.4	10.5	25.9
Otamatea		3.2			1.5						23.9			1.8	12.3				42.8	14.2	56.9
Poor Knights			1.0								0.3								1.3		1.3
Pouto		0.5			0.3				3.7	0.5	22.6	2.5		0.1	80.3				110.4	40.6	151.0
Puketi											4.6					0.0			4.7	0.5	5.2
Rodney		1.7	0.7		0.3				0.5	0.3	14.3			0.0	2.4				20.2	12.9	33.1
Tangihua		4.4							31.9		72.7	0.6	0.0		20.8	0.5			131.0	55.0	186.0
Taranga			1.0												1.3				2.3		2.3
Te Pahi			16.9										0.7		136.6				154.2	1.6	155.8
Tokatoka		1.6							80.5		62.6	0.0			17.2				162.0	136.0	298.0
Tutamoe		2.3	11.9						4.0		40.4	0.4			11.4				70.3	42.8	113.0
Waipu		0.8	0.1								23.3				2.6	0.1			26.9	18.2	45.1
Whangarei		1.3							10.5		100.2	5.5		0.6	10.4	2.1			130.5	118.3	248.9
Whangaroa											0.4				2.7				3.1	0.5	3.7
Whangaruru		0.9	6.5		0.0				10.6	1.9	50.0	1.8		6.1	93.3				171.0	146.2	317.2
Chronically Threatened Total		98.9	83.1		2.2	3.9			204.8	16.6	807.6	20.9	0.7	19.7	2,013.4	2.7			3,274.5	1,083.9	4,358.4
%	0.0%	0.6%	0.5%	0.0%	0.0%	6.8%	0.0%	0.0%	2.9%	0.5%	0.3%	0.5%	4.3%	0.1%	1.7%	0.1%	0.0%	0.0%	0.7%	0.1%	0.3%
PNA Total		2,404.7	6,023.6		70.9	5.5	31.8	141.7	1,229.4	342.3	109,728.1	476.6	3.2	526.7	25,130.5	25.7	0.2		146,141.1	10,315.0	156,456.1
%	0.0%	13.4%	36.3%	0.0%	0.2%	9.6%	18.9%	41.1%	17.6%	11.1%	42.8%	11.4%	20.3%	3.3%	21.3%	1.3%	0.7%	0.0%	30.3%	1.2%	11.9%

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fernland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not Native Total	Grand Total
Legal protection, but not natural values mandate, and community care groups																					
Acutely Threatened																					
Ahipara											2.6								2.6	36.6	39.1
Aupouri											0.0			0.0					0.0	1.7	1.7
Hokianga										0.0									0.0	5.0	5.0
Kaikohe																				128.8	128.8
Kerikeri		1.1							42.3	0.6	0.9			0.3	30.9		1.1		77.2	357.2	434.4
Manaia		1.4	2.0								1.7	0.6			9.3				14.9	597.2	612.1
Maungataniwha											13.0				0.0				13.1	41.0	54.1
Puketi											0.3								0.3	0.1	0.4
Rodney											0.0								0.0		0.0
Tangihua		1.5									26.8				0.6				28.9	344.7	373.6
Te Pahi															0.2				0.2	2.7	2.9
Tokatoka																0.0			0.0	1.9	1.9
Tutamoe		14.6									0.0								14.6	81.4	96.1
Waipu			0.1		1.4									0.9					2.5	14.9	17.4
Whangarei			0.0		123.7					0.0	0.8	0.6		11.4	0.0				136.6	28.7	165.3
Whangaroa															0.3				0.3	0.3	0.7
Whangaruru		4.8	0.2		0.0				2.8	0.1	1.0			0.3	9.4				18.5	155.6	174.2
Acutely Threatened Total		23.3	2.3		125.2				45.1	0.8	47.1	1.2		13.0	50.8	0.0	1.1		309.8	1,797.8	2,107.5
%	0.0%	0.1%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	3.4%	0.0%	0.1%	0.2%	0.2%
Legal protection, but not natural values mandate, and community care groups																					
Chronically Threatened																					
Ahipara											32.9				245.6				278.6	48.3	326.8
Aupouri			0.0						1.2			0.5							1.7	13.8	15.5
Hokianga															2.1				2.1	0.0	2.1
Kaikohe		25.1							3.3		208.4	0.2			85.5				322.4	3,239.0	3,561.4
Kerikeri		32.2	2.2		0.4				15.3		127.0	0.0		2.0	128.8				308.1	1,849.0	2,157.0
Manaia		7.1							4.1		0.2				31.1				42.5	241.1	283.6
Maungataniwha					0.1														0.1	0.0	0.1
Otamatea					0.0														0.0	3.9	4.0
Poua																				2.0	2.0
Puketi											0.2								0.2	0.0	0.2
Rodney											1.0								1.0	0.3	1.3
Tangihua		0.9							46.5		1.8				8.6				57.8	14.8	72.6
Te Pahi		0.1	7.0						5.2						9.8				22.1	5.3	27.4
Tokatoka																				2.2	2.2
Waipu			0.3																0.3	5.4	5.7
Whangarei		0.1	3.1						17.2		1.1	0.6		0.1	3.5	0.1			25.8	48.1	73.8
Whangaroa																				6.7	6.7
Whangaruru		1.2	3.5		1.3				0.0	4.4	25.7			10.0	48.2				94.4	213.0	307.4
Chronically Threatened Total		66.8	16.0		1.9				92.8	4.4	398.4	1.3		12.1	563.2	0.1			1,157.1	5,693.0	6,850.0
%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.1%	0.2%	0.0%	0.0%	0.1%	0.5%	0.0%	0.0%	0.0%	0.2%	0.7%	0.5%
Some Protection																					
Some Protection Total		1,779.3	3,838.7		615.3	0.5	38.1	26.0	1,051.3	92.8	8,910.1	158.0	1.5	1,868.6	18,681.5	1.9	14.6	2.9	37,081.1	39,505.8	76,586.9
%	0.0%	9.9%	23.2%	0.0%	1.5%	0.9%	22.6%	7.6%	15.0%	3.0%	3.5%	3.8%	9.1%	11.8%	15.8%	0.1%	43.7%	100.0%	7.7%	4.8%	5.8%

Ecological District	Alpine Gravel and Rock	Broadleaved Indigenous Hardwoods	Coastal Sand and Gravel	Depleted Tussock Grassland	Estuarine Open Water	Fernland	Flaxland	Grey Scrub	Herbaceous Freshwater Vegetation	Herbaceous Saline Vegetation	Indigenous Forest	Lake and Pond	Landslide	Mangrove	Manuka and or Kanuka	River	River and Lakeshore Gravel and Rock	Seabed	Native Total	Not Native Total	Grand Total
Not protected																					
Acutely Threatened																					
Ahipara		0.8	0.0		0.1					0.3	14.4	0.2		0.5	26.4				42.6	253.3	295.9
Aupouri		12.7			0.9				243.4	4.0	40.5	13.9	0.1	9.3	99.6	26.8			451.3	9,369.0	9,820.3
Hokianga		29.3	10.7		1.1				20.8	24.9	222.7	0.5		26.3	429.3	10.1			775.9	4,470.2	5,246.1
Kaikohe		92.4							91.7		226.8	15.9			240.2	2.4			669.4	4,416.0	5,085.4
Kerikeri		30.1							132.8		66.8	9.6		0.7	28.8				268.9	2,734.4	3,003.2
Manaia															0.0				0.0		0.0
Maungataniwha		14.3			5.5				2.2	12.1	307.6	0.4		11.4	250.4	10.7			614.6	6,881.9	7,496.5
Otamatea		18.9									41.8	1.0		5.9	0.6				68.1	1,061.2	1,129.3
Pouo		49.8	5.8		24.2	0.8	9.7	0.6	191.7	55.2	96.1	7.8		27.9	454.4	38.6			962.6	23,166.0	24,128.6
Puketi											3.8								3.8	28.5	32.3
Rodney		3.5			3.7				2.0	48.9	19.0	2.7		29.5	53.1				162.4	1,774.0	1,936.4
Tangihua		63.3							54.5		828.2	15.3			349.2	34.0			1,344.4	14,496.2	15,840.7
Tokatoka		9.4							4.1		97.5	4.3			14.7	14.1			144.1	3,431.9	3,576.0
Tutamoe		5.0	0.3						47.2		84.0	0.0			47.6	6.5			190.5	1,886.3	2,076.8
Waipu		1.0	18.1		4.3		0.0		1.5	0.2	260.8	7.9		8.6	13.9	24.6			340.9	8,030.9	8,371.8
Whangarei		20.8	0.2		0.1		1.5		67.7	2.3	273.9	37.2		15.8	52.9	17.0			489.3	13,478.4	13,967.7
Whangaroa		3.0	8.1					2.3	1.5	3.2	14.6	0.3		5.7	83.0				121.7	834.3	956.0
Whangaruru		5.9	1.2	1.5	2.4						44.4	7.2		1.2	18.3		0.3		82.2	1,329.3	1,411.5
Total Acutely Threatened		360.2	44.4	1.5	42.2	0.8	11.2	2.9	861.1	151.1	2,642.8	124.2	0.1	142.7	2,162.4	184.8	0.3		6,732.6	97,641.9	104,374.5
%	0.0%	2.0%	0.3%	21.5%	0.1%	1.4%	6.6%	0.9%	12.3%	4.9%	1.0%	3.0%	0.8%	0.9%	1.8%	9.6%	0.8%	0.0%	1.4%	11.8%	8.0%
Not protected																					
Chronically Threatened																					
Ahipara		5.1	20.8		0.8	1.2			16.4	0.0	92.6				652.1				789.1	529.0	1,318.2
Aupouri		99.3	40.1		7.6				330.2	21.8	119.9	32.2		12.7	947.4	0.8			1,612.0	11,950.0	13,562.0
Hokianga		11.1	0.7		8.4				91.6	120.7	125.6			6.4	163.5	1.7			529.7	1,868.0	2,397.8
Kaikohe		94.5							177.4		959.1	16.3			705.1	4.1	1.7		1,958.2	13,430.4	15,388.6
Kerikeri		82.1	25.3		1.4	0.0			66.5	1.1	385.9	30.5	2.9	4.9	267.1	14.1			881.9	10,815.1	11,697.0
Manaia		0.8	0.7												0.1				1.6	0.1	1.7
Maungataniwha		20.9	2.8		5.0		1.5		5.6	7.6	124.1	1.7		2.4	97.4				269.2	2,397.9	2,667.1
Otamatea		210.1	16.8		41.1					0.1	933.6	5.8		41.9	522.4				1,771.9	14,588.1	16,360.0
Poor Knights			0.4																0.4		0.4
Pouo		51.0	11.9		3.7		3.9	0.2	110.6	3.9	157.4	46.4		17.4	430.4	3.6	3.0		843.3	22,110.9	22,954.3
Puketi									0.2		28.6	0.7			0.1	0.8			30.4	144.9	175.3
Rodney		87.3	0.4		7.4				5.1	1.9	218.7	0.8		1.3	54.3				377.2	1,984.0	2,361.2
Tangihua		102.5					0.0		449.7		521.3	43.5			372.4	20.3			1,509.7	9,863.0	11,372.7
Taranga			0.0												0.0				0.1		0.1
Te Pahi			3.6		0.6										47.1				51.2	3.2	54.4
Tokatoka		191.7				0.0	0.4		274.0		667.3	32.6			36.1	16.6			1,218.7	14,666.8	15,885.5
Tutamoe		19.5	2.3						12.4		60.3	0.5			57.1	3.1			155.3	1,204.1	1,359.4
Waipu		4.4	3.3		0.1				0.7		273.2	6.1			43.6	18.4			349.8	3,432.6	3,782.4
Whangarei		39.6	0.0						190.9	3.6	1,262.6	47.0		5.4	97.3	26.4			1,672.8	13,366.5	15,039.3
Whangaroa		9.6	9.8								2.0			0.2	3.9				25.4	116.3	141.7
Whangaruru		60.1	72.3		26.8		1.2	63.5	47.5	669.3	28.7			204.0	356.6				1,530.1	8,243.0	9,773.1
Chronically Threatened Total		1,089.8	211.2		103.0	1.3	4.3	2.9	1,795.0	208.3	6,601.6	292.8	2.9	296.6	4,854.2	109.8	4.8		15,578.2	130,713.8	146,292.0
%	0.0%	6.1%	1.3%	0.0%	0.3%	2.2%	2.5%	0.8%	25.7%	6.8%	2.6%	7.0%	17.9%	1.9%	4.1%	5.7%	14.2%	0.0%	3.2%	15.8%	11.2%
Not Protected Total	0.2	13,788.4	6,713.0	6.8	39,887.5	51.0	98.4	176.7	4,715.4	2,638.6	137,787.2	3,549.6	11.2	13,378.5	74,159.4	1,907.3	18.6		298,888.1	779,437.9	1,078,326.1
%	100.0%	76.7%	40.5%	100.0%	98.3%	89.5%	58.5%	51.3%	67.4%	85.8%	53.7%	84.8%	70.5%	84.8%	62.9%	98.6%	55.6%	0.0%	62.0%	94.0%	82.2%
Total for Entire Northland Region	0.2	17,972.5	16,575.4	6.8	40,573.7	57.0	168.4	344.4	6,996.1	3,073.7	256,425.4	4,184.2	15.9	15,773.8	117,971.5	1,934.9	33.5	2.9	482,110.3	829,258.7	1,311,369.0

Table 23: Number of Queen Elizabeth II covenants in Northland Region by the main habitat type(s) (up to two) in each covenant. Data provided 8 November 2007.

	Other Habitat																Total	% of total
	No other habitat	Coastal salt influenced wetland	Coastal wetland (not salt influenced)	Semi-coastal wetland	Lowland wetland	Lowland flaxland	Artificial wetland	Coastal dune or sand habitat	Coastal secondary forest	Coastal scrub or shrub forest	Semi-coastal secondary forest	Semi-coastal scrub or shrub forest	Lowland secondary forest	Lowland scrub or shrub forest	Archaeological site or remnants	Geological feature		
Primary Habitat																		
Coastal salt influenced wetland									1	2							3	0.7%
Coastal wetland (not salt influenced)										2							2	0.5%
Semi-coastal wetland	2																2	0.5%
Lowland wetland	4																4	0.9%
Lowland flaxland	1																1	0.2%
Coastal dune or sand habitat	1	1															2	0.5%
Coastal primary forest	9	2								1							12	2.7%
Coastal secondary forest	21	1						1		31					1		55	12.4%
Coastal scrub or shrub forest	2		2														4	0.9%
Coastal revegetated	1																1	0.2%
Semi-coastal primary forest	17										2	1			2		22	5.0%
Semi-coastal secondary forest	22			2								1					25	5.6%
Semi-coastal scrub or shrub forest	1										1						2	0.5%
Lowland primary forest	107				6									1		1	115	26.0%
Lowland secondary forest	125	3			18	2	3			2				26		1	180	40.6%
Lowland scrub or shrub forest	2																2	0.5%
Lowland revegetated	8																8	1.8%
Geological feature	3																3	0.7%
Total	326	7	2	2	24	2	3	1	1	38	3	2	0	27	3	2	443	
% of Total	73.6%	1.6%	0.5%	0.5%	5.4%	0.5%	0.7%	0.2%	0.2%	8.6%	0.7%	0.5%	0.0%	6.1%	0.7%	0.5%		

Table 24: Area (ha) of Queen Elizabeth II covenants in Northland Region by the main habitat type(s) (up to two) in each covenant. Data provided 8 November 2007.

	Other Habitat																Total	% of total
	No other habitats	Coastal salt influenced wetland	Coastal wetland (not salt influenced)	Semi-coastal wetland	Lowland wetland	Lowland flaxland	Artificial wetland	Coastal dune or sand habitat	Coastal secondary forest	Coastal scrub or shrub forest	Semi-coastal secondary forest	Semi-coastal scrub or shrub forest	Lowland secondary forest	Lowland scrub or shrub forest	Archaeological site or remnants	Geological feature		
Primary Habitat																		
Coastal salt influenced wetland									29.4	29.6							59	0.9%
Coastal wetland (not salt influenced)										1							1	0.0%
Semi-coastal wetland	71																71	1.1%
Lowland wetland	41.8																41.8	0.6%
Lowland flaxland	2																2	0.0%
Coastal dune or sand habitat	26.5	6.9															33.4	0.5%
Coastal primary forest	178.2	34.9								46.7							259.8	3.9%
Coastal secondary forest	147.2	6.8						3.5		157					2.6		317.1	4.8%
Coastal scrub or shrub forest	14.7		14.8														29.5	0.4%
Coastal revegetated	1.2																1.2	0.0%
Semi-coastal primary forest	277.9										80.1	34			26.7		418.7	6.4%
Semi-coastal secondary forest	150.2			10.3								7.8					168.3	2.6%
Semi-coastal scrub or shrub forest	0.7										2.4						3.1	0.0%
Lowland primary forest	1233.6				54									242.2		59.9	1,589.7	24.1%
Lowland secondary forest	2582.4	11.1			158.7	7.4	41.4			7.7				407.9		1.7	3,218.3	48.8%
Lowland scrub or shrub forest	50.3																50.3	0.8%
Lowland revegetated	327.1																327.1	5.0%
Geological feature	2.1																2.1	0.0%
Total	5106.9	59.7	14.8	10.3	212.7	7.4	41.4	3.5	29.4	242	82.5	41.8	0	650.1	29.3	61.6	6,593.4	
% of Total	77.5%	0.9%	0.2%	0.2%	3.2%	0.1%	0.6%	0.1%	0.4%	3.7%	1.3%	0.6%	0.0%	9.9%	0.4%	0.9%		

9. INFORMATION GAPS AND ANOMALIES

Data used for the assessment of PNAs were incomplete. Data sets which were not yet available are summarised in Appendix 4. Some data are available 'on paper' but have not yet been converted to GIS layers and have therefore not been included in this analysis. Other data requires data-sharing agreements and rules surrounding the use of the data before they are likely to become available. Some data is yet to be created or sourced. It is beyond the scope of this project to address these issues or to create additional GIS layers.

The Department of Conservation GIS layers (Public Conservation Land, Nga Whenua Rahui and NAES), QEII, Whangarei District Council, Northland Regional Council Community Pest Control and Fish and Game Wetland layers seem reasonably complete and accurate, although in the NAES layers there is truncation of some names and misspelling within the NAES layer (so that the NAES can appear multiple times in the data).

Just under half of the Landcare Groups within the Northland Region have GIS polygons. Little information is available for the other Landcare Groups. It was also discovered, when the analysis were nearly completed, that any area looked after by more than one Landcare Group occurred multiple times in the area data. The most extreme example of this (which has been manually corrected) occurred in the Manaia Ecological District, which is nearly fully cared for by six Landcare Groups. The total area for the ED ballooned to nearly six times the actual area. There was no further time available to correct such overlaps for other Landcare Groups, hence some protected areas or the size of areas managed by organisations such as Landcare Groups may be overestimated in other EDs.

The Far North District Council possesses Significant Natural Areas funding recipients' data, but it is point data only and no GIS polygons are currently available. The GIS data accompanying Biodiversity Condition and Advice Funds is only provided as point data which is incomplete and scrappy (e.g. no grid references, grid references out at sea, no or incomplete data for some rounds, no estimates of area protected for Advice Funds) and for some multi-site projects such as the NZ Kiwi Foundation Charitable Trust only one location point is provided although multiple areas are being protected by the funds. It would be advantageous if all these data could be provided as polygons so that the real scope of the work can be assessed and overlaid with other biodiversity conservation efforts.

Another issue is that different layers have minor differences in some boundaries (i.e. boundaries which are in fact identical may be slightly misaligned in mapping space), which will have resulted in reporting inaccurate areas in some instances. In addition, multiple protection mechanisms over the same piece of land make it difficult to accurately estimate the area of land protected.

The protected areas layer provided by the Department of Conservation includes a number of protected marine areas and in some instance the boundaries of individual 'reserves' go as far as Mean High Water Springs. Other layers such as the Ecological District Boundaries and LENZ generally only include the terrestrial portions. The

Landcover Database 2 includes some estuarine vegetation types. This mismatch will have resulted in errors in calculating the areas.

The project brief requested that an analysis be undertaken to describe “the type of features that occur within protected areas (e.g. are all ecosystem types represented, what are the most threatened land environments, what features were originally rare ecosystems, to what extent do the areas contribute to preserving biodiversity at a landscape scale by retaining habitat linkages, ecological sequences etc)”. There is no consistent classification or mapping of ecosystem types, mapping of rare ecosystem types (especially since many are small areas), classification or mapping of ecological sequences, or descriptions or classifications of the types of biodiversity protected or contained within each area. It is currently only possible to approximate these characteristics by using two national classification systems; the Land Environments New Zealand (Leathwick *et al.* 2002) and Land Cover Database (Ministry for the Environment 2001). Both these classifications systems are relatively coarse classification of ecotypes because, by necessity, they deal with the entire country, do not have particularly fine resolution, and are models built on data that has errors or has been extrapolated.

Many important natural areas within Northland have been described, and often mapped to some extent, in the various Protected Natural Areas Programme reports (these areas are called Natural Areas of Ecological Significance, NAES, in this report). Transferring the attributes of these data (e.g. quality of habitat) to a GIS platform would greatly enhance the ability to describe and quantify the habitats and ecosystems protected and those that are missed. It would also allow some quantification of the quality of the sites/locations and their progression through time. This would require that the descriptions for all Natural Area of Ecological Significance (NAES) be standardised for the region. Standardising descriptions and mapping of NAES is a substantial project in its own right and beyond the scope of this project. These same standardised descriptions and ecotype mapping should then also be applied to protected areas that were not previously identified as NAES. These areas should then be assessed using the NAES criteria to determine if they meet the criteria.

When data from various sources are overlapped the lines that make up the polygons can be slightly mismatched. This mismatch can be caused by inaccurately drawn polygons, variations in geo-registration, or other errors. These mismatched polygons result in data anomalies (e.g. incorrectly designating what is contained within an area) or “sliver” polygons (very small polygons) that can in turn incorrectly inflate the number of a particular type of area. It is beyond the scope of the current project to correct these ‘errors’.

10. STANDARDS OF CARE

It is difficult to summarise what standards of care operate in each of the different types of PNAs, as these care standards vary according to which agency manages the area (e.g. DOC, QEII, local councils, Landcare Groups, etc) and what the particular values of the area and aims of the project are (e.g. kiwi protection, pest free offshore island, weed eradication project, revegetation project, riparian margin protection,

geological features, etc). Some of the mechanisms identified in this report have been developed with the sole aim of providing some level of care (e.g. Community Pest Control Areas, Landcare Groups) whilst others may have rules/guidance about what can or cannot be undertaken in the PNA (e.g. Whangarei District Council Covenants, QEII covenants, Nga Whenua Rahui Kawenata, particular types of Public Land managed by DOC).

There are no consistent standards of care and often management of PNAs can be hampered by lack of funds or other resources. Even within one category of PNA (e.g. Conservation Park) standards of care can differ quite significantly between sites. Not many agencies have specified what the minimum standards of care should be, or have the means to enforce those standards. As far as is known, there are no agreements between management agencies about the minimum standards of care required for each type of ecosystem or PNA category. The Queen Elizabeth II National Trust does have some minimum standards that are nationally applied and these are presented in Section 7.2.

This report has shown that in some instances the ecological values of a site may have little bearing on whether it is a PNA or not. For instance 75% of Whangarei District Council Covenants by area were **not** identified as a Natural Area of Ecological Significance (NAES) identified in the PNAP studies of the Whangarei District. Recreation Reserves (which are not PNAs) can in fact have significant natural values, and Scenic Reserves (which are PNAs) can sometimes be weedy road-side verges. Acceptance of new covenants (e.g. QEII, Nga Whenua Rahui Kawenata, and Whangarei District Council Covenants) and the decisions to undertake management at any particular site are often guided by some type of priority setting on a local basis or within a particular agency. However, priorities change over time, and often there are also local factors that influence these priorities. Thus priorities are often not consistent between management agencies, within management agencies, or within a national or regional framework. It would be useful if minimum standards of care could be agreed upon between all relevant management agencies and, if possible, applied nationwide, tailored to account for the values being protected and the relative significance of an area. In the meantime it should be possible to develop minimum standards of care assessment for the Northland Region.

10.1 Suggested standards of care

Each site that is protected or needs to be protected is likely to be unique in some way, hence is not possible to prescribe exact standards of care for each site in this report. However there are some general guidelines that can be applied. If sites have already been identified and ranked in a PNAP report or in the Northland Protection Strategy (Conning 2001) then their protection and care should be considered a priority. For sites that have not yet been assessed, priority sites can be identified using the recently published “Statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land” (Ministry for the Environment 2007a). Priority should be given to those sites that fulfil more than one criterion, with perhaps less emphasis on sites that only contain one of the priorities indicated.

The following are general guidelines that could be used to help assess the standard of care required for each site.

All Sites That Are Not, or Are Only Partially, Legally Protected

- Investigate if legal protection is required. Use mechanisms such as the Conservation Act, the Reserves Act, covenanting (QEII, Nga Whenua Rahui, district council), rules in Regional or District Plan, gifting to crown or territorial authorities, and/or listing in Regional or District Plan to ensure the site is protected.
- Prevent further clearance, drainage or changes to hydrology.

Wetlands, Lakes, and Riparian Margins

- Prevent further drainage or alteration of hydrology that lowers ecological values.
- Maintain riparian vegetation.
- Exclude stock (this generally requires fencing).
- Eradicate invasive plants and fish species and control other species that may be impacting on hydrology or flora and fauna values.
- Consider restoration planting or other restoration activities (e.g. reinstatement of original hydrological regime).

Special Habitat, Plant, or Animal Species

- Prevent further vegetation clearance.
- Assess, and if necessary instigate, fencing requirements to exclude stock and/or pest species.
- Assess and/or monitor stock and/or pest species and/or human impact.
- Eradicate invasive plants, and where possible stock, mustelids, feral cats & rats.
- Consider restoration planting.
- Assess whether increasing urbanisation will pose problems and whether resource consent conditions can be imposed to prevent further degradation and if possible enhance the native system.

Inadequately Surveyed Sites

- Prevent further vegetation clearance until the site is fully assessed.
- Undertake a flora and fauna species survey.
- Assess and or monitor stock and/or pest species and/or human impact.
- Determine ecological, geological, historic etc. features present and their values.

Mammal Pest Free Offshore or Mainland Islands

- Maintain pest free status.
- Consider restoration planting (pastoral or heavily modified islands only).
- Eradicate invasive plants.
- Ensure no pest species colonise.
- For islands with kiore only; consider control of kiore in liaison with local iwi.

10.2 Queen Elizabeth II covenants

Standards of care in QEII covenants are probably more uniform than for other types of PNAs. As a rule, if stock needs to be kept out of the covenant area then the covenant will be fenced with contributions from the landowner, QEII, and often the District or Regional Council. This has meant that 84% of registered covenants are stock proof (Table 25). About 80% of these fences are in good or fair condition and are excluding stock from the covenants. Not all covenants require fencing as some are in more urban areas.

Table 25: Numbers of QEII covenants fenced in the Northland Region. Data provided 8 November 2007.

	Approved	Registered
Total area of covenants	1,017.7	7,166.8
Number of covenants	56	372
% covenants with fences	61.5%	84.0%
Number of blocks	73	504

The majority of covenants are also visited by QEII representatives every two years or so to check on the condition of the covenant. Average condition means that the covenantors are adhering to covenant conditions; good adherence indicates that the landowners are improving the values within the covenant; and poor means that covenant conditions have been breached and the covenant may be deteriorating. As of 8 November 2007 93.9% of covenants in Northland met or exceeded covenant conditions (Table 26). Thus standards of care appear to be met for the majority of sites.

Table 26: Adherence of QEII covenants to covenant conditions in Northland Region. Data provided 8 November 2007.

Adherence	Number of Registered Covenants	Area of Registered Covenants	% of Registered Covenants	% Area of Registered Covenants
Good	330	5,417.0	74.5	82.2
Average	56	768.3	12.6	11.7
Poor	3	10.0	0.7	0.2
Unknown	54	398.3	12.2	6.0
Total	443	6,593.6		

11. RECOMMENDATIONS

- Funding (e.g. Community Pest Control Areas, Biodiversity Condition and Advice Funds) and covenanting should be targeted at features identified as of National Priority and at Natural Areas of Ecological Significance (NAES), where these have been identified.
- Encourage landowners to protect features identified as of National Priority, and Natural Areas of Ecological Significance (NAES), where these have been identified.

- Identify and evaluate protection options for indigenous habitats present in Acutely or Chronically Threatened LENZ categories which are not yet protected.
- Ensure Natural Areas of Ecological Significance (NAES) and other significant habitats (e.g. naturally uncommon ecosystems) are protected in their entirety at each location as far as this is possible. That is, encourage protection of entire NAES, not just parts of one whenever possible.
- Encourage the preparation of a management plan that will ensure that the identified values within PNAs are maintained, or enhanced, and not degraded over time. This plan should include measurable performance criteria where possible and follow a generic format that allows more ready comparisons between areas, districts and regions.
- Review whether the protection status of reserves for which the primary focus within the legislation is not the protection of natural features is appropriate for the protection of the identified natural values (e.g. recreation reserves and local purpose reserves).
- Ensure that GIS polygons (digital maps) for areas under all types of protection are generated and maintained by a central agency to enable more accurate reporting.
- Complete the Protected Natural Areas Programme surveys to identify Natural Area of Ecological Significance (NAES) in the ecological districts where field surveys have been undertaken but reporting is not complete, or where a survey has not yet been undertaken.

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