RANKING OF TOP WETLANDS IN THE NORTHLAND REGION
STAGE 4 - RANKINGS FOR 304 WETLANDS

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Prepared for:

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WHANGAREI
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1. INTRODUCTION

Northland Regional Council (NRC) commissioned Wildland Consultants Ltd to produce a draft list of the top wetlands in Northland. The Northland Regional Soil and Water plan requires NRC to identify and prepare a comprehensive state of the environment report on significant indigenous wetlands. To help achieve this, in the absence of comprehensive and recent survey information for the estimated more than one thousand wetlands in Northland, NRC assembled a shortlist of 355 wetlands from PNAP surveys and other sources. Each wetland has a Worksmart number, which is a unique number assigned to each site by NRC to be used as an identifier. Selection of wetlands took into account rarity of wetland types, landforms and vegetation composition as well as size, condition and representativeness across the 19 mainland ecological districts. This is because, although the crisis of wetland loss is generally portrayed as a loss of extent in Northland, the most urgent issue is the continuing loss of unique wetlands. Information about each wetland has been put into the Council Worksmart Database and GIS linked with point features.

Wildlands developed a draft scoring and grouping system for the ranking of wetlands in Northland (Wildland Consultants Contract Report No. 2336). The scoring system is based on accepted Landcare Research methodology, and includes a weighted score for rarity or uniqueness of wetland type. A system for grouping wetland types was also developed.

Wildlands then undertook a trial of the ranking system, assessing 20 wetlands throughout the Northland Region (Wildland Consultants Contract Report No. 2398). The relative scores for these wetlands were analysed to identify any problems with the system, and the scoring system was amended. The scores for the 20 ranked wetlands were then revised to reflect any changes to the ranking system.

Following this test of the ranking system, 246 high value wetlands in Northland for which there is adequate information were assessed and ranked (Wildland Consultants Contract Report No. 2418). Sites for which inadequate information exists were set aside, and identified as requiring field survey. This report presents the rankings for 304 Northland wetlands. These 304 wetlands comprise the 246 wetlands ranked in Report No. 2418, along with a further 58 wetlands assessed and ranked following undertaking field survey, and further desktop exercises.

2. CLASSIFICATION OF WETLAND TYPES

The classification of wetlands is based on a mutually exclusive hierarchical system (Table 1a), with the types to be used shown in bold, and also listed in Table 1b. Wetlands often comprised multiple wetland types. For these scenarios, wetlands were classified as the wetland type that was of greatest extent where this was known (e.g. a site with 1 ha of swamp and 4 ha of saltmarsh was classified as saltmarsh).
Table 1a: Classification of wetlands for Northland.

<table>
<thead>
<tr>
<th>HYDROSYSTEM¹</th>
<th>CLASS²</th>
<th>LANDFORM³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lacustrine</td>
<td>Open water</td>
<td>Lake/pond, duneland.</td>
</tr>
<tr>
<td>Palustrine</td>
<td>Bog</td>
<td>Level ground - hill crests, basins, terraces, duneland.</td>
</tr>
<tr>
<td>Palustrine</td>
<td>Fen</td>
<td>Slopes of bog margins, duneland.</td>
</tr>
<tr>
<td>Palustrine</td>
<td>Pakihi and gumland</td>
<td>Level to rolling, impervious soils.</td>
</tr>
<tr>
<td>Palustrine/Lacustrine/ Riverine</td>
<td>Ephemeral</td>
<td>Closed depressions, often on dunes.</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Various</td>
<td>Various.</td>
</tr>
<tr>
<td>Estuarine</td>
<td>Saltmarsh (including mangroves)</td>
<td>Intertidal flats.</td>
</tr>
<tr>
<td>Palustrine/Lacustrine/ Riverine</td>
<td>Swamp (including marshes and seeps)</td>
<td>Valley floors, deltas, plains, slight slopes, toe slopes, alluvial fans, duneland.</td>
</tr>
</tbody>
</table>

1. As per Johnson and Gerbeaux 2004
2. Modified from Johnson and Gerbeaux 2004
3. As per Johnson and Gerbeaux 2004.

Table 1b: Wetland types used for ranking Northland wetlands, derived from hydrosystem, wetland class, and landform types (Johnson and Gerbeaux 2004).

<table>
<thead>
<tr>
<th>Wetland Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lacustrine</td>
</tr>
<tr>
<td>Bog</td>
</tr>
<tr>
<td>Fen</td>
</tr>
<tr>
<td>Pakihi and gumland</td>
</tr>
<tr>
<td>Ephemeral</td>
</tr>
<tr>
<td>Geothermal</td>
</tr>
<tr>
<td>Saltmarsh</td>
</tr>
<tr>
<td>Swamp</td>
</tr>
</tbody>
</table>

3. WEIGHTING OF RANKING CRITERIA

Some criteria, e.g. size, can be of greater importance than factors such as browsing pressure, and this needs to be recognized. The weighting of criteria used for the ranking is presented in Figure 1.
4. **RANKING CRITERIA**

4.1 **Areal extent**

The wetland area (ha) within each site, for all wetland types, was used to calculate a score out of 5. A mathematical function was used, as per the Horizons Regional Council wetland ranking system (Jansenn *et al.* 2005), so that the value increases rapidly for smaller wetlands, and more slowly for larger wetlands. The value function used for areal extent was:

\[ V = 5*(1-e^{-bx}) \]

\( x \) being the size of the wetland in hectares, and \( b = 0.064377 \).

This value was defined so that wetlands greater than 50 ha are assigned a near maximum score for size. Areal extent comprises 10% of the total score for each wetland.

4.2 **Size contribution to wetlands within the ecological district**

The wetland area (ha) of each site was used to calculate the percentage contribution to area of PNAP wetlands within the relevant ecological district. A mathematical function was then used, as per Jansenn *et al.* (2005), to calculate a score for size contribution out of 5. The value function was:

\[ V = 5*(1-e^{-bx}) \]

\( x \) being the percentage of size contribution, and \( b = 7 \).
The total wetland area (ha) within each ecological district was calculated by summing the area of PNAP wetlands in the database for each ecological district. Within many ecological districts, this criteria is skewed by the presence of large estuarine wetlands, that often constitute a large proportion of wetland area within their respective ecological districts. The size contribution to wetland area will be overestimated for most ecological districts as the criteria fails to consider wetlands that have not been recognized as PNAP sites. However to obtain the current extent for all wetlands in each ecological district, extensive field surveys would need to be undertaken. Size contribution within the ecological district comprises 5% of the total score for each wetland.

4.3 LENZ threat category

A score from 0-5 was assigned to each wetland according to the highest LENZ threat category for land within each wetland. Estuarine wetlands below MHWS are not classified by LENZ, as LENZ only applies to terrestrial environments. For this study we assigned a LENZ threat category to estuarine wetlands that reflected the dominant LENZ threat category for land that buffered the wetland. For estuarine wetlands, this criterion is therefore an assessment of the intactness of indigenous vegetation on the landward margin of the wetland. The LENZ threat category comprises 5% of the total score for each wetland.

4.4 Representativeness

This criterion is essentially an assessment of wetland quality and rarity. Combined, these two factors can also be regarded as a measure of “irreplaceability”.

To achieve the highest score of ‘5’, a wetland needed to be “the best or only remaining representative example of an indigenous vegetation or habitat type within the Region”. Site descriptions and assessments in PNAP survey reports often comment on the representativeness of sites within the context of their ecological district. Some wetlands have therefore been conservatively assigned a score of ‘3’ for this criterion - “best or only within the ecological district” - that may, with additional regional assessment, be worthy of the highest score of ‘5’. Wetlands could also achieve a score of ‘5’ if they contained a good quality example of a historically rare ecosystem type as listed by Williams et al. (2007). For example, good quality examples of indigenous vegetation on damp sand plains, or herbfield on lake margins, were scored a ‘5’ for representativeness. Gumlands are listed by Williams et al. (2007) as historically rare ecosystems if they have not been induced by anthropogenic fires. However, given the extent of historical fires in Northland, and the lack of data as to which gumlands may be induced, gumlands were conservatively not regarded as historically rare ecosystems.

Good quality examples of indigenous vegetation or habitat types that are regionally under-represented were scored a ‘4’ for representativeness. After assessment of all of the sites, and with discussion with NRC staff, pakihi and gumland, bogs, swamp forest, dune lakes in Eastern Northland (excluding Aupouri Ecological District), and harakeke-dominated wetlands, were classified as “regionally under-represented”.

Representativeness comprises 25% of the total score for each wetland.
4.5 Vegetation diversity and pattern

This criterion is an assessment of the diversity of wetland vegetation types present, and ecological sequences. Assessment of ecological sequences within a site was inclusive of adjacent terrestrial vegetation. For example, a site with only one wetland vegetation type present, could score a “5”, a “4”, or a “3” if it was part of an ecological sequence that was the best in the Region, one of the best in the Region, or a good example in the ecological district, a “2” if it was a degraded example of an ecological sequence, or a “1” if no part of the wetland was contiguous with indigenous terrestrial vegetation. Alternatively, sites could score highly for diversity and pattern if a mosaic or sequence of indigenous vegetation types occurred within the wetland itself. For example, a coastal wetland might grade from mangroves to saltmarsh to raupo reedland to swamp forest.

Vegetation diversity and pattern comprises 25% of the total score for each wetland.

4.6 Hydrological integrity and water quality

This criterion is an assessment of the effect of human impacts on the natural hydrology and water quality of the wetland. The height and natural variation of water levels in wetlands can be modified by structures such as stop banks, drains, causeways, weirs, and dams. Water levels can also be modified by invasion of introduced plants, such as willows, or lowered, if a wetland on dunes is surrounded by plantation forestry that increases evapotranspiration within its catchment. Wetlands with unmodified hydrology are likely to support a higher diversity of indigenous vegetation types and flora, and be less prone to invasion by exotic species.

Modification of the catchment was also used as a proxy for hydrological integrity and water quality. Wetlands in catchments entirely covered in indigenous vegetation are likely to have better water quality than wetlands in highly modified environments, such those within urban areas or pasture. Wetlands to which stock have access were scored lower for this criteria than wetlands from which stock are excluded.

For example, wetlands were scored a ‘5’ if there was no evidence of drainage, stock were excluded, and if the wetland was well buffered by indigenous or exotic vegetation, or a ‘4’ if one or more of these modifying factors were affecting the wetland, but if the effects were minor effect, e.g. a fenced wetland with no evidence of drainage within pasture, or limited in extent, e.g. an estuarine wetland with small areas of drainage and grazing on its landward edge.

Hydrological integrity comprises 5% of the total score for each wetland.

4.7 Threatened, at risk, and regionally significant species

The score given for the presence of threatened, at risk, or regionally significant species considered both the number and conservation status of threatened species, and a weighting method is described below. The low percentage contribution to the total score ensures that wetlands with little or no fauna data are not unduly disadvantaged.
This criterion is scored on the number of species present in each threatened species class listed in the scoring sheet, with greater weighting for species that are more threatened. Threatened species classifications are based on de Lange et al. (2009) (vascular plants), Miskelly et al. (2008) (birds), Hitchmough et al. (2007) (fish, freshwater invertebrates). The maximum possible score for the presence of threatened or "At Risk" species was capped at 60 points (only a few sites exceeded 60 points). For each site the total score out of 60 was converted to a score out of 5.

Weighting of threat classes are as follows:

Table 2: Weighting of threat classes.

<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationally Critical</td>
<td>6</td>
</tr>
<tr>
<td>Nationally Endangered</td>
<td>5</td>
</tr>
<tr>
<td>Nationally Vulnerable</td>
<td>4</td>
</tr>
<tr>
<td>Declining/Serious Decline</td>
<td>3</td>
</tr>
<tr>
<td>Recovering/Gradual Decline</td>
<td>2</td>
</tr>
<tr>
<td>Relict/Naturally Uncommon/Sparse/Range Restricted/</td>
<td>1</td>
</tr>
<tr>
<td>Regionally Significant</td>
<td></td>
</tr>
<tr>
<td>Data Deficient</td>
<td>1</td>
</tr>
</tbody>
</table>

A worked example for Kerikeri Airport Gumland is shown in Table 3.

Table 3: Threatened species at Kerikeri Airport Gumland and calculation of the overall score for the ‘threatened species’ criterion, based on Hitchmough et al. 2007.

<table>
<thead>
<tr>
<th>Species in Each Threatened Species Class</th>
<th>Score Calculation (Number of Species × Weighting of Threat Class)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationally Endangered - Australasian bittern, Northland mudfish</td>
<td>2 × 5</td>
<td>10</td>
</tr>
<tr>
<td>Nationally Vulnerable - North Island brown kiwi</td>
<td>1 × 4</td>
<td>4</td>
</tr>
<tr>
<td>At Risk-Declining - North Island fernbird</td>
<td>1 × 3</td>
<td>3</td>
</tr>
<tr>
<td>Gradual Decline - Longfin eel</td>
<td>1 × 2</td>
<td>2</td>
</tr>
<tr>
<td>Regionally Significant - Banded kokopu</td>
<td>1 × 1</td>
<td>1</td>
</tr>
<tr>
<td>Total Out of 60</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Score Out of 5</td>
<td></td>
<td>1.7</td>
</tr>
</tbody>
</table>

4.8 Dominance of indigenous plants in the upper-most vegetation layer

This criterion is an assessment of the integrity of the site with regard to invasion by exotic plants. The criterion is based only on species in the upper-most vegetation layer, as many PNAP surveys are undertaken by viewing sites at a distance, without walk-through surveys. For many wetland types, for example manuka shrubland or swamp forest, PNAP surveys are likely to not detect, or underestimate, the presence of exotic plants in the understorey. The use of this criterion assumes that PNAP survey
reports list exotic vegetation types present within wetlands, rather than excluding exotic-dominated vegetation types from the site. If a site comprises wetland and terrestrial vegetation, only the wetland part of the site is assessed for this criterion.

5. DRAFT RANKINGS

5.1 Overview

Adequate information was available to calculate rankings for 255 freshwater wetlands and 49 estuarine wetlands. The full assessment and score for each wetland is captured in a Microsoft Excel spreadsheet which has been supplied to NRC. Within this report, the assessments and scores for key criteria for each ranked wetland are presented in Appendix 1 (freshwater wetlands) and Appendix 2 (estuarine wetlands).

The scores for the 304 ranked wetlands ranged from 7.84-88.24, with an average of 54.96. The 255 freshwater wetlands had scores ranging from 7.84-88.24, with an average score of 53.66. The scores for the 49 estuarine wetlands ranged from 29.88-80.87, with an average of 61.77.

Wetlands with scores greater than 75 were all large, ranging between 67.6 and 10,185 ha in extent, whilst wetlands with scores less than 40 ranged in size from 0.4-86.0 ha (Figure 2). For wetlands with scores between 40 and 75 there were no discernable size trends, with a range in sizes from 6.5-2,900 ha. Generally, the largest wetlands were assigned high rankings, and the smallest wetlands were assigned low rankings. However some small wetlands received relatively high scores, such as the bog within the Shenstone Block, Te Paki (7.7 ha) which scored 71.46 (rank 29th) because of its high scores for representativeness and vegetation diversity. Thus small wetlands are not unduly disadvantaged by their size if they contain features of high ecological value.

Figure 2: Wetland size versus score for 304 Northland wetlands.
Table 4: Ranking system for Northland wetlands (using PNAP data, LENZ, and aerial photography).

<table>
<thead>
<tr>
<th>Indicator and Components</th>
<th>Score and Degree of Modification</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Areal extent</td>
<td>50 ha (use mathematical formula to derive score out of 5)</td>
<td>23-49.9 ha (use mathematical formula to derive score out of 5)</td>
</tr>
<tr>
<td>Size contribution to remaining area of PNAP wetlands in the relevant ecological district (from PNAP survey reports)</td>
<td>&gt;80% (use mathematical formula to derive score out of 5)</td>
<td>50-79.9% (use mathematical formula to derive score out of 5)</td>
</tr>
<tr>
<td>Highest LENV threat category for wetland</td>
<td>Acutely Threatened</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>Representativeness (from PNAP survey reports)</td>
<td>Best or only remaining representative example of an indigenous vegetation or habitat type within the region, or;</td>
<td>A good example of a suite of vegetation types or an ecological sequence within an ecological district</td>
</tr>
<tr>
<td>Vegetation diversity and pattern (from PNAP data)</td>
<td>Best or only remaining example of a suite of vegetation types or an ecological sequence within the region</td>
<td>One of the best remaining examples of a suite of vegetation types or an ecological sequence within the region, or the best or only within the relevant ecological district</td>
</tr>
<tr>
<td>Hydrological integrity and water quality (from PNAP data, NZMS 260 map series, and aerial photographs)</td>
<td>Hydrology unmodified by human impacts (e.g. dams, drains, floodgates, stopbanks, willows, grazing, catchment clearance)</td>
<td>A good example of a suite of vegetation types or an ecological sequence within an ecological district (inclusive of surrounding terrestrial vegetation, if present).</td>
</tr>
<tr>
<td>Threatened/At Risk/Regionally Significant species (from PNAP data - very variable in coverage of this indicator)</td>
<td>Dominance of native plants in the upper-most vegetation layer (from PNAP data supplemented by LCDB2)</td>
<td>Threatened species score out of 5</td>
</tr>
<tr>
<td>Threatened species score out of 5</td>
<td>All wetland vegetation types dominated by indigenous species; or few or no exotic species present.</td>
<td>Most wetland vegetation types dominated by indigenous species; or exotic species are uncommon or are not species of conservation concern.</td>
</tr>
</tbody>
</table>
5.2 Freshwater wetlands

Of the top 50 freshwater wetlands, 33 are within five of the 19 ecological districts from which wetlands were ranked: Aupouri (eight wetlands), Tangihua (seven wetlands), Te Paki (eight wetlands), Kaikohe (five wetlands), and Kaipara (five wetlands) (Appendix 1). Thirty-two of the wetlands ranked from 51-100 also come from these five ecological districts. The top 50 wetlands include 25 swamps, eight lacustrine wetlands, 10 pakihi and gumland wetlands, five bogs, and two ephemeral wetlands. Forty-seven of the top 50 wetlands are known to support Threatened, At Risk, or Regionally Significant species.

5.3 Estuarine wetlands

Scores were obtained for 49 estuarine wetlands within 14 ecological districts (Appendix 2). Five of the top 10 estuarine wetlands were in Whangaruru Ecological District. This is probably attributable to the long coastline of this ecological district, with a series of drowned river valleys, and in many areas, a relatively low level of vegetation clearance and development. Other estuarine wetlands with high scores were usually larger estuaries and harbours from throughout the Region (e.g. Whangarei Harbour, Rangaunu Harbour, Hokianga Harbour, Houhora Harbour, and Parengarenga Harbour).

5.4 Top freshwater wetlands by type

The rankings for the 201 freshwater wetlands were also grouped by wetland type, and lists produced for the top wetlands of each type (Table 5). For each type, either the top 20 sites are listed, or if there were less than 20 sites, the number of sites listed is the number of sites ranked. The pragmatic classification of sites, so that each wetland was grouped according to its most extensive "wetland type", means that some larger and or good quality examples of particular wetland types are included within other wetland types. To develop accurate rankings for different types of wetlands, survey and assessment is needed to specifically target each wetland type. For example a thorough assessment and ranking of Northland’s top "bogs", would require the identification, survey, mapping, and assessment of all bogs, including those that form a smaller part of a larger wetland complex, dominated by a different wetland type.

Table 5: Top freshwater wetlands within each wetland type

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250332</td>
<td>Kaimaumau/Motutangi Wetland</td>
<td>84.28</td>
</tr>
<tr>
<td>2</td>
<td>250343</td>
<td>Otakairangi Peat Bog</td>
<td>77.47</td>
</tr>
<tr>
<td>5</td>
<td>250287</td>
<td>Ngawha Geothermal Field</td>
<td>77.19</td>
</tr>
<tr>
<td>3</td>
<td>250553</td>
<td>Tarakihi Fen and Environs</td>
<td>76.47</td>
</tr>
<tr>
<td>4</td>
<td>250317</td>
<td>Shenstone Block</td>
<td>71.46</td>
</tr>
<tr>
<td>6</td>
<td>250387</td>
<td>West Coast Rd Shrubland</td>
<td>57.31</td>
</tr>
<tr>
<td>7</td>
<td>250352</td>
<td>Southern Tokerau Swamp</td>
<td>54.14</td>
</tr>
<tr>
<td>8</td>
<td>250417</td>
<td>Stanner Rd Remnant - Guleray Bog</td>
<td>48.91</td>
</tr>
<tr>
<td>9</td>
<td>250089</td>
<td>Tangonge Wetland</td>
<td>43.53</td>
</tr>
<tr>
<td>Rank</td>
<td>Worksmart No.</td>
<td>Name</td>
<td>Total Weighted Score</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Ephemeral</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>250381</td>
<td>Sweetwater Station Depressions</td>
<td>67.55</td>
</tr>
<tr>
<td>2</td>
<td>250325</td>
<td>Ngakengi Beach Wetlands</td>
<td>67.33</td>
</tr>
<tr>
<td>3</td>
<td>250107</td>
<td>Te Taro Pond</td>
<td>58.48</td>
</tr>
<tr>
<td>4</td>
<td>250116</td>
<td>Kawakawa Flood Plain</td>
<td>55.06</td>
</tr>
<tr>
<td><strong>Lacustrine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>250010</td>
<td>Lake Omapere and Environns</td>
<td>77.64</td>
</tr>
<tr>
<td>2</td>
<td>250342</td>
<td>Lake Rotokawau and Pwheke Beach</td>
<td>77.14</td>
</tr>
<tr>
<td>3</td>
<td>250493</td>
<td>Lake Humuhumu Wetland and Forest</td>
<td>76.66</td>
</tr>
<tr>
<td>4</td>
<td>250336</td>
<td>Lake Waiparera and Wetlands</td>
<td>75.96</td>
</tr>
<tr>
<td>5</td>
<td>250329</td>
<td>Te Arai Sandfields</td>
<td>72.69</td>
</tr>
<tr>
<td>6</td>
<td>250480</td>
<td>Lake Kai Iwi</td>
<td>70.37</td>
</tr>
<tr>
<td>7</td>
<td>250360</td>
<td>Te Ramanuka Lakes and Shrubland</td>
<td>68.60</td>
</tr>
<tr>
<td>8</td>
<td>250479</td>
<td>Lake Taharoa Wetland</td>
<td>66.96</td>
</tr>
<tr>
<td>9</td>
<td>250011</td>
<td>Ruakaka Racecourse Dune Lake</td>
<td>64.76</td>
</tr>
<tr>
<td>10</td>
<td>250353</td>
<td>Lake Wahakari</td>
<td>63.92</td>
</tr>
<tr>
<td>11</td>
<td>250478</td>
<td>Lake Waikere Wetland and Shrubland</td>
<td>62.86</td>
</tr>
<tr>
<td>12</td>
<td>250383</td>
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<td>Paranoa Swamp, Waitahora Lagoon and Waitahora Wetland Complex</td>
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<td>Kaihu Forest</td>
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<td>6</td>
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<td>Kaipera Swamp</td>
<td>78.21</td>
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</tbody>
</table>
5.4.1 Bogs

Scores were obtained for nine bogs within six ecological districts, with four of these bogs within Aupouri Ecological District. Some bogs were classified as other wetland types (for example Kaipena Swamp) because other wetland types within the site were more extensive than bog habitats. Five of the bogs had scores greater than 70, and four, which were either very small, or significantly degraded due to weed invasion, drainage, or vegetation clearance, had scores of 57.31, 54.14, 48.91, and 43.53.

5.4.2 Ephemeral

Scores were obtained for only four ephemeral wetlands. Many ephemeral wetlands in Northland have probably not been identified, or have been included within other wetland types where only a small proportion of a wetland site meets this definition. The four ephemeral wetlands that were ranked are of divergent origin, one being a seasonally-inundated flood plain, one a depression ponded by basalt flows, and two being found where water pools on sandy substrates (dune slacks or sand flats). More ephemeral wetlands could be identified, surveyed, assessed, and ranked, but this would require a study specifically aimed at this wetland type.

5.4.3 Lacustrine

Scores were obtained for 31 lacustrine wetlands within eight ecological districts. Lacustrine wetlands were common in the Kaipara Ecological District (11 sites) and the Aupouri Ecological District (10 sites), with two sites in each of the Kaikohe, Waipu, Rodney, and Tutamoe Ecological Districts, and one each within the Whangarei and Whangaruru Ecological Districts.

5.4.4 Pahiki and gumland

Scores were obtained for 22 pahiki and gumland wetlands within 14 ecological districts. The highest ranked pahiki and gumland sites tended to be large with a wide range of vegetation types, and relatively low levels of weed invasion. Lake Ohia, with
a score of 83.65, was the 4\textsuperscript{th} highest ranked wetland in the Northland Region, and a further two gumlands were ranked in the Top 10 freshwater wetlands.

5.4.5 Swamps

Scores were obtained for 189 swamps throughout all of Northland’s ecological districts. The top 20 swamps were within 12 ecological districts, with five sites within the Tangihua Ecological District and three sites within the Te Paki Ecological District.

5.4.6 Fens

No wetlands were classified as fens. Fens probably occur throughout Northland, with an unknown proportion of swamps probably being misidentified fens. Site surveys would be needed to separate fens from swamps and bogs.

5.4.7 Geothermal wetlands

The one known geothermal wetland in Northland was classified as a bog (Ngawha Geothermal Field) as the PNAP data suggested this was more extensive than geothermal habitats within this site. The typically small extent of geothermal habitats means that site surveys are needed to identify, map, and describe geothermal wetlands. If this was undertaken, geothermal wetlands could be ranked separately from other natural areas with which they are contiguous.

5.5 Top wetlands by ecological district

The top wetlands within each ecological district are listed in Table 6. There is considerable variation within ecological districts in the type of wetlands that scored highly, which is reflective of the geomorphology of each ecological district. For example, all of the top 10 wetlands within each of the Hokianga and Otamatea Ecological Districts, which are centered on harbours within large drowned river valleys, are either swamps or saltmarshes. Five of the top 10 wetlands in the Kaipara Ecological District are dune wetlands, and the Ecological District is characterised by extensive coastal sand dunes. Gumlands, swamps, saltmarshes, and ephemeral wetlands make up the top 10 sites in the Kerikeri Ecological District, which is on the coast and has highly variable underlying geology.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Total Weighted Score</th>
</tr>
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<tbody>
<tr>
<td>Ahipara Ecological District</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>250372</td>
<td>Ahipara Massif including Epakauri Pakihi and gumland</td>
<td>79.63</td>
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</tr>
<tr>
<td>2</td>
<td>250389</td>
<td>Whakakoro Pakihi and gumland</td>
<td>50.46</td>
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<td>3</td>
<td>250388</td>
<td>Tauroa Lakes Swamp</td>
<td>40.98</td>
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<td>Aupouri Ecological District</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>250332</td>
<td>Kaimaumau/Motutangi Wetland Bog</td>
<td>84.28</td>
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</tr>
<tr>
<td>2</td>
<td>250348</td>
<td>Lake Ohia Pakihi and gumland</td>
<td>83.65</td>
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</tr>
<tr>
<td>3</td>
<td>250370</td>
<td>Rangaru Harbour Saltmarsh</td>
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<td>250329</td>
<td>Te Arai Sandfields</td>
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<td>8</td>
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<td>Te Ramanuka Lakes and Shrubland</td>
<td>Lacustrine</td>
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<td>9</td>
<td>250381</td>
<td>Sweetwater Station Depressions</td>
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**Hokianga Ecological District**

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<td>Upper Herekino River Wetlands</td>
<td>Swamp</td>
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<td>4</td>
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<td>Lower Waihou Swamp and Shrubland</td>
<td>Swamp</td>
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</tr>
<tr>
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**Kaikohe Ecological District**

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<td>Pakihi and gumland</td>
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<td>Whakaruangangana Gumfield</td>
<td>Pakihi and gumland</td>
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**Kaipara Ecological District**

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**Kerikeri Ecological District**

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<td>Waitangi Wetlands Complex</td>
<td>Swamp</td>
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<td>4</td>
<td>250097</td>
<td>Upper Te Puna Inlet</td>
<td>Saltmarsh</td>
<td>66.86</td>
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<td>Upper Pungaere Gumland</td>
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<td>250112</td>
<td>Maungaparerua Gumlands</td>
<td>Pakihi and gumland</td>
<td>59.33</td>
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<td>Ephemeral</td>
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<td>Wetlands located at Tapuaetahi</td>
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**Manaia Ecological District**

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<td>Harambee Road Swamp</td>
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<td>Kiteone Road Saltmarsh</td>
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<td>Kerr Road End Swamp</td>
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<td>250572</td>
<td>Kauri Mountain Swamp</td>
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<tr>
<td>Ranking</td>
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<td>Name</td>
<td>Main Wetland Type</td>
<td>Total Weighted Score</td>
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<td>250579</td>
<td>Timperly Road Wetland South</td>
<td>Swamp</td>
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**Maungataniwha Ecological District**

| 1       | 250394 | Paranui Stream Swamp | Swamp | 72.85 |
| 2       | 250396 | Mangonui Harbour | Saltmarsh | 62.84 |
| 3       | 250392 | Otaha-Ohiritoa | Swamp | 62.79 |
| 4       | 250390 | Church Rd Swamp Forest | Swamp | 58.02 |
| 5       | 250391 | Paritahi Rd | Pakihi and gumland | 57.57 |
| 6       | 250405 | Taipa Estuary | Saltmarsh | 56.54 |
| 7       | 250395 | Oruru | Swamp | 53.84 |
| 8       | 250407 | Tangikoko Stream | Swamp | 53.68 |
| 9       | 250398 | Otianga Wetland and Riparian Forest | Swamp | 49.82 |
| 10      | 250393 | Pipiwi Stream Swamp | Swamp | 49.09 |

**Otamatea Ecological District**

| 1       | 250516 | Arapaoa River | Saltmarsh | 66.36 |
| 2       | 250515 | Otamatea River | Saltmarsh | 64.64 |
| 3       | 250518 | Otamatea River Confluence | Saltmarsh | 59.77 |
| 4       | 250066 | Oruawhao River North Coast | Saltmarsh | 59.37 |
| 5       | 250517 | Hukatere Peninsula West Coast | Saltmarsh | 57.54 |
| 6       | 250043 | Hautakima South Forest | Swamp | 44.21 |
| 7       | 250055 | Kohutuahi Forest and Wetland | Swamp | 41.85 |
| 8       | 250050 | Te Ope Stream Remnants | Swamp | 41.27 |
| 9       | 250060 | Te Mira Road Wetland | Swamp | 40.87 |
| 10      | 250046 | Kirikiri Creek Forest and Wetlands | Swamp | 38.92 |

**Puketi Ecological District**

| 1       | 250432 | Puketi Forest Gumland | Pakihi and gumland | 67.19 |
| 2       | 250431 | Waiare Road Quarry gumland | Pakihi and gumland | 57.16 |
| 3       | 250430 | Omahuta Wetland | Swamp | 45.29 |

**Rodney Ecological District**

| 1       | 250601 | King Road Saltmarsh | Saltmarsh | 65.28 |
| 2       | 250591 | Topuni Saltmarsh | Saltmarsh | 56.13 |
| 3       | 250593 | Pearl Street Pond and Wetland | Pakihi and gumland | 51.23 |
| 4       | 250595 | Sands Lake | Lacustrine | 48.78 |
| 5       | 250587 | Wightmans- Lawrence Road Swamp | Swamp | 32.40 |
| 6       | 250589 | Garbolino Road Swamp | Swamp | 27.00 |
| 7       | 250594 | Cove Road Swamp | Swamp | 26.36 |
| 8       | 250596 | The Heads Subdivision Gumland- Swamp | Swamp | 25.51 |
| 9       | 250582 | Ti Kouka Way Riverine Forest Remnants and Lake | Lacustrine | 20.43 |

**Tangihua Ecological District**

| 1       | 250249 | Taikirau Swamp | Swamp | 80.96 |
| 2       | 250553 | Tarakihi Fen and Environ | Bog | 76.47 |
| 3       | 250551 | Taikirau Wetland | Swamp | 71.60 |
| 4       | 250545 | Kawiti Wetlands and Environ | Swamp | 70.68 |
| 5       | 250549 | Te Whatianga Swamp | Swamp | 70.21 |
| 6       | 250555 | Awakino and Flaxmill Swamps | Swamp | 67.61 |
| 7=      | 250554 | William Upton Hewett Memorial Reserve | Swamp | 67.44 |
| 7=      | 250547 | Mangaroa Stream Riverine Forest and Gumland | Pakihi and gumland | 64.58 |
| 9       | 250564 | Rata Tipene Road Harakeke Swamp | Swamp | 62.74 |
| 10      | 250552 | Horahora Stream Swamp Association | Swamp | 60.34 |

**Te Paki Ecological District**

<p>| 1       | 250320 | Paranooa Swamp, Waitahora Lagoon and Waitahora Wetland Complex | Swamp | 84.07 |
| 2       | 250319 | Te Werahi Wetland | Swamp | 74.79 |
| 3       | 250338 | Waivhero Stream Wetland | Swamp | 71.94 |
| 4       | 250317 | Shenstone Block | Bog | 71.46 |
| 5       | 250325 | Ngakengo Beach Wetlands | Ephemeral | 67.33 |
| 6       | 250341 | Waihakari Wetland | Swamp | 66.33 |</p>
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>250368</td>
<td>North Cape Scientific Reserve Gumlands</td>
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</tr>
<tr>
<td>8</td>
<td>250351</td>
<td>Te Paki Gumland</td>
<td>Pakihi and gumland</td>
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</tr>
<tr>
<td>9</td>
<td>250346</td>
<td>Haupatoto/Whareana Bay Wetlands</td>
<td>Swamp</td>
<td>63.57</td>
</tr>
<tr>
<td>10</td>
<td>250326</td>
<td>Tapotupotu Stream Wetland and Estuary.</td>
<td>Saltmarsh</td>
<td>63.29</td>
</tr>
</tbody>
</table>

**Tokatoka Ecological District**

<table>
<thead>
<tr>
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<th>Main Wetland Type</th>
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<tbody>
<tr>
<td>1</td>
<td>250519</td>
<td>Manganui River Complex</td>
<td>Swamp</td>
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</tr>
<tr>
<td>2</td>
<td>250522</td>
<td>Curnow Road Gemstone Conservation Area</td>
<td>Pakihi and gumland</td>
<td>69.65</td>
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<td>3</td>
<td>250530</td>
<td>Mittiat/Okahu Stream Remnant</td>
<td>Swamp</td>
<td>56.53</td>
</tr>
<tr>
<td>4</td>
<td>250538</td>
<td>Ararua North - Manganui River Complex</td>
<td>Swamp</td>
<td>36.11</td>
</tr>
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</table>

**Tutamoe Ecological District**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250455</td>
<td>Kaihu Forest</td>
<td>Swamp</td>
<td>82.47</td>
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<tr>
<td>2</td>
<td>250030</td>
<td>Muriwai Stream Swamp</td>
<td>Swamp</td>
<td>77.11</td>
</tr>
<tr>
<td>3</td>
<td>250031</td>
<td>Waipoua Coastal Strip and Taha Moana Scenic Reserve</td>
<td>Saltmarsh</td>
<td>65.10</td>
</tr>
<tr>
<td>4</td>
<td>250454</td>
<td>Waipoua Forest Gumlands</td>
<td>Pakihi and gumland</td>
<td>59.40</td>
</tr>
<tr>
<td>5</td>
<td>250033</td>
<td>Tutamoe Domain Recreation Reserve and Surrounds</td>
<td>Swamp</td>
<td>58.96</td>
</tr>
<tr>
<td>6</td>
<td>250029</td>
<td>Te Riu Lagoon</td>
<td>Lacustrine</td>
<td>56.69</td>
</tr>
<tr>
<td>7</td>
<td>250032</td>
<td>Marlborough Road Forest</td>
<td>Swamp</td>
<td>54.96</td>
</tr>
<tr>
<td>8</td>
<td>250034</td>
<td>Lake Waingata North</td>
<td>Lacustrine</td>
<td>53.86</td>
</tr>
<tr>
<td>9</td>
<td>250028</td>
<td>Te Kaitewhelu Shrublands and Arai Te Uru Coastal Strip</td>
<td>Swamp</td>
<td>51.43</td>
</tr>
<tr>
<td>10</td>
<td>250035</td>
<td>Tutamoe Maire Tawake Forest Remnants</td>
<td>Swamp</td>
<td>41.56</td>
</tr>
</tbody>
</table>

**Waipu Ecological District**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250316</td>
<td>Waipu River Estuary and Sandspit</td>
<td>Saltmarsh</td>
<td>80.87</td>
</tr>
<tr>
<td>2</td>
<td>250315</td>
<td>Ruakaka River Estuary</td>
<td>Saltmarsh</td>
<td>65.98</td>
</tr>
<tr>
<td>3</td>
<td>250011</td>
<td>Ruakaka Racecourse Dune Lake</td>
<td>Lacustrine</td>
<td>64.76</td>
</tr>
<tr>
<td>4</td>
<td>250039</td>
<td>McEwan Road Wetland</td>
<td>Swamp</td>
<td>64.53</td>
</tr>
<tr>
<td>5</td>
<td>250009</td>
<td>Sime Road Wetland</td>
<td>Swamp</td>
<td>64.11</td>
</tr>
<tr>
<td>6</td>
<td>250038</td>
<td>Blacksmiths Creek Estuary</td>
<td>Saltmarsh</td>
<td>58.32</td>
</tr>
<tr>
<td>7</td>
<td>250013</td>
<td>Takahiwai Stream Estuary</td>
<td>Saltmarsh</td>
<td>51.13</td>
</tr>
<tr>
<td>8</td>
<td>250412</td>
<td>Upper Mangawai River Wetlands</td>
<td>Swamp</td>
<td>49.50</td>
</tr>
<tr>
<td>9</td>
<td>250312</td>
<td>Doctors Hill Road Wetland</td>
<td>Swamp</td>
<td>48.44</td>
</tr>
<tr>
<td>10</td>
<td>250321</td>
<td>Glennmohr Road Wetland</td>
<td>Swamp</td>
<td>44.99</td>
</tr>
</tbody>
</table>

**Whangarei Ecological District**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250439</td>
<td>Whangarei Harbour</td>
<td>Saltmarsh</td>
<td>80.66</td>
</tr>
<tr>
<td>2</td>
<td>250434</td>
<td>Wairua River Wildlife Management Reserve</td>
<td>Swamp</td>
<td>77.64</td>
</tr>
<tr>
<td>3</td>
<td>250433</td>
<td>Otakairangi Peat Bog</td>
<td>Bog</td>
<td>77.47</td>
</tr>
<tr>
<td>4</td>
<td>250437</td>
<td>Maungatapere Mountain Swamp Forest</td>
<td>Swamp</td>
<td>63.99</td>
</tr>
<tr>
<td>5</td>
<td>250446</td>
<td>Rotomate Road Peat Bog</td>
<td>Lacustrine</td>
<td>56.50</td>
</tr>
<tr>
<td>6</td>
<td>250441</td>
<td>Mangakahia River Wetland</td>
<td>Swamp</td>
<td>54.72</td>
</tr>
<tr>
<td>7</td>
<td>250539</td>
<td>Parahaki Gumland</td>
<td>Pakihi and gumland</td>
<td>52.53</td>
</tr>
<tr>
<td>8</td>
<td>250590</td>
<td>Kerr Wetland</td>
<td>Swamp</td>
<td>51.21</td>
</tr>
<tr>
<td>9</td>
<td>250452</td>
<td>Wheki Stream Swamp</td>
<td>Swamp</td>
<td>46.86</td>
</tr>
<tr>
<td>10</td>
<td>250189</td>
<td>Akerama Bridge Riverine Forest</td>
<td>Swamp</td>
<td>43.33</td>
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</tbody>
</table>

**Whangaroa Ecological District**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250409</td>
<td>Upper Whangaroa Harbour</td>
<td>Saltmarsh</td>
<td>69.00</td>
</tr>
<tr>
<td>2</td>
<td>250410</td>
<td>Komutu Swamp</td>
<td>Swamp</td>
<td>67.72</td>
</tr>
<tr>
<td>3</td>
<td>250412</td>
<td>Tauranga Bay Estuary</td>
<td>Saltmarsh</td>
<td>51.14</td>
</tr>
<tr>
<td>4</td>
<td>250413</td>
<td>Tarataru Flax Swamp</td>
<td>Swamp</td>
<td>50.16</td>
</tr>
<tr>
<td>5</td>
<td>250411</td>
<td>Waihapa Bay Wetlands</td>
<td>Swamp</td>
<td>49.74</td>
</tr>
<tr>
<td>6</td>
<td>250414</td>
<td>North Whangaroa Wetlands</td>
<td>Swamp</td>
<td>45.67</td>
</tr>
<tr>
<td>7</td>
<td>250415</td>
<td>Taupo Bay Estuary</td>
<td>Saltmarsh</td>
<td>29.88</td>
</tr>
</tbody>
</table>
5.6 Top freshwater wetlands on dunes

For the purposes of this study, wetlands were defined as being on dunes if they were underlain by sand dunes, regardless of dune age. Thus the wetlands classified as on dunes can include wetlands on unconsolidated Holocene dunes on the coastal fringe, and wetlands on consolidated Pleistocene dunes, several kilometers inland from the coast. Scores were obtained for 69 wetlands on dunes. The top 20 dune wetlands are within four ecological districts (out of 18 ecological districts) (Table 7) with nine in Aupouri Ecological District, six in Te Paki Ecological District, four in Kaipara Ecological District, and one in Tutamoe Ecological District. Of the top 20 dune wetlands, seven are lacustrine, eight are swamps, two are bogs, two are ephemeral wetlands, and one is gumland. Of the top 20 freshwater wetlands overall, eight are on dunes, including all of the top four.

Table 7: Top 20 freshwater wetlands on dunes.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Ecological District</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250489</td>
<td>Pouto Dune System</td>
<td>Swamp</td>
<td>Kaipara</td>
<td>88.24</td>
</tr>
<tr>
<td>2</td>
<td>250332</td>
<td>Kaimaumau/Motutangi Wetland</td>
<td>Bog</td>
<td>Aupouri</td>
<td>84.28</td>
</tr>
<tr>
<td>3</td>
<td>250320</td>
<td>Paranoa Swamp, Waitahora Lagoon and Waitahora Wetland Complex</td>
<td>Swamp</td>
<td>Te Paki</td>
<td>84.07</td>
</tr>
<tr>
<td>4</td>
<td>250348</td>
<td>Lake Ohia</td>
<td>Pakihi and gumland</td>
<td>Aupouri</td>
<td>83.65</td>
</tr>
<tr>
<td>5</td>
<td>250342</td>
<td>Lake Rotokawau and Puwhake Beach</td>
<td>Lacustrine</td>
<td>Aupouri</td>
<td>77.14</td>
</tr>
<tr>
<td>6</td>
<td>250030</td>
<td>Muriwai Stream Swamp</td>
<td>Swamp</td>
<td>Tutamoe</td>
<td>77.11</td>
</tr>
<tr>
<td>7</td>
<td>250493</td>
<td>Lake Humuhumu Wetland and Forest</td>
<td>Lacustrine</td>
<td>Kaipara</td>
<td>76.66</td>
</tr>
<tr>
<td>8</td>
<td>250336</td>
<td>Lake Waiparera and Wetlands</td>
<td>Lacustrine</td>
<td>Aupouri</td>
<td>75.96</td>
</tr>
<tr>
<td>9</td>
<td>250319</td>
<td>Te Werahi Wetland</td>
<td>Swamp</td>
<td>Te Paki</td>
<td>74.79</td>
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<tr>
<td>10</td>
<td>250373</td>
<td>Te Paki Stream</td>
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<td>Aupouri</td>
<td>74.28</td>
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<td>11</td>
<td>250329</td>
<td>Te Arai Sandfields</td>
<td>Lacustrine</td>
<td>Aupouri</td>
<td>72.69</td>
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<td>12</td>
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<td>Te Paki</td>
<td>71.94</td>
</tr>
<tr>
<td>Ranking</td>
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<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Total Weighted Score</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>-------------------------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>13</td>
<td>250317</td>
<td>Shenstone Block</td>
<td>Bog</td>
<td>Te Paki</td>
<td>71.46</td>
</tr>
<tr>
<td>14</td>
<td>250480</td>
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<td>Lacustrine</td>
<td>Kaipara</td>
<td>70.37</td>
</tr>
<tr>
<td>15</td>
<td>250360</td>
<td>Te Ramanuka Lakes and Shrubland</td>
<td>Lacustrine</td>
<td>Aupouri</td>
<td>68.60</td>
</tr>
<tr>
<td>16</td>
<td>250381</td>
<td>Sweetwater Station Depressions</td>
<td>Ephemeral</td>
<td>Aupouri</td>
<td>67.55</td>
</tr>
<tr>
<td>17</td>
<td>250325</td>
<td>Ngakengo Beach Wetlands</td>
<td>Ephemeral</td>
<td>Te Paki</td>
<td>67.33</td>
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<td>Lake Taharoa Wetland</td>
<td>Lacustrine</td>
<td>Kaipara</td>
<td>66.96</td>
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<td>19</td>
<td>250341</td>
<td>Waihakari Wetland</td>
<td>Swamp</td>
<td>Te Paki</td>
<td>66.33</td>
</tr>
<tr>
<td>20</td>
<td>250362</td>
<td>Wairahi Swamp and Lake Taore</td>
<td>Swamp</td>
<td>Aupouri</td>
<td>64.87</td>
</tr>
</tbody>
</table>

6. SUMMARY AND CONCLUSIONS

A ranking system was developed and applied to 304 wetlands throughout Northland. The wetlands were contained within the NRC Worksmart Database, and were identified from existing PNAP survey information and other sources. They included both freshwater and estuarine wetlands. The wetlands were distributed from the northern Rodney Ecological District, to Te Paki Ecological District in the Far North.

The ranking criteria were based on wetland characteristics that could be assessed and scored using standard PNAP style data. The quality, detail, and age of PNAP data varies significantly both between sites and between ecological districts, and therefore the scores and rankings derived from this data should be regarded as indicative. Common limitations of the data set included absence of fauna surveys, minimal vegetation descriptions, little or no information on hydrological modification, and probable underreporting of both exotic plant species and threatened species.

Scores were obtained for 255 freshwater wetlands and 49 estuarine wetlands. The wetlands scored included saltmarshes, bogs, pakihi and gumland wetlands, swamps, lacustrine wetlands, and ephemeral wetlands. Some wetlands contain more than one wetland type, and in these cases the wetland has been described based on its predominant type. One area of geothermal wetland was grouped within a larger site that was classified as a bog, and no fens were identified. Fens will occur in Northland, but are likely to have been misidentified as swamps or bogs in the PNAP reports, or be part of larger sites that are classified as swamps or bogs.

There were some information gaps in the existing data on these wetlands. For some of the sites scored, information gaps, such as size, were estimated from analysis of aerial photographs, if this could be done with a reasonable degree of accuracy. This prevented sites being excluded from this assessment for the lack of data for one field, and where a score has been obtained using an estimate, this has been noted in the overall summary for the site.

Further survey and assessment is desirable. The PNAP reports for each ecological district should be thoroughly checked for sites that were omitted from the database, which may contain high value wetlands. For example, two small dune slack wetlands

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in the Waipu Ecological District were added to the NRC database by Wildlands during this study and achieved scores of 64.57 and 64.21. These wetlands then ranked as fourth and fifth in the top 10 wetlands in the Waipu Ecological District. It is possible that other small wetlands of high value are not included in the NRC wetland database and are therefore not included in the rankings. Additionally, for some wetlands, the field surveys indicated a significant change in condition since the time of last survey, and several wetlands described in PNAP reports have been lost. It is possible that based on desktop assessment, wetlands have been included in this assessment that have been drained or cleared, or that previously degraded wetlands have been significantly enhanced through the restoration efforts.

Finally, the score for each wetland is based on the sum of values across all of its wetland types. For example Lake Omapere and Environs, a ‘lacustrine’ wetland with a score of 77.64, achieves a high score because of its associated bogs, swamps, and lakeside turfs. Accurate rankings for each wetland type requires further survey as the separation of many wetland types (e.g. swamps versus bogs), cannot be undertaken by desktop exercises alone.

Any prioritization of wetland management that arises from these rankings needs to ensure excellent spatial coverage of the Northland region. For example, no wetlands within the Manaia, Otamatea, Puketi, or Rodney Ecological Districts occur in the Top 50. This is partly due to the dominance of some Ecological Districts within the Top 50 (e.g. Aupouri, Tangihua, and Te Paki ED), and lower wetland values within districts that are more highly modified. The rankings should be used as a tool for identifying priority wetlands, by score, type, and ecological district, rather than solely relying on wetland score.

ACKNOWLEDGMENTS

Lisa Forester and Rebecca Ireland (NRC) provided client liaison.

REFERENCES


APPENDIX 1

RANK AND ASSESSMENT FOR THE 'TOP 255' FRESHWATER WETLANDS IN NORTHLAND
Rank and Assessments for the 'Top 255' Freshwater Wetlands in Northland

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksite No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>On-Dune</th>
<th>Ecological District</th>
<th>Size (Hectare)</th>
<th>Representativeness</th>
<th>Vegetation Diversity and Pattern</th>
<th>V &amp; P Score</th>
<th>Hydrological Integrity</th>
<th>HI Score</th>
<th>Dominance of Nature</th>
<th>Score</th>
<th>L&amp;K Cell Score</th>
<th>Treated Species Score</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250489</td>
<td>Pouto Dune System</td>
<td>Swamp</td>
<td>Y</td>
<td>Kaipara</td>
<td>638.00</td>
<td>Best remaining example of a large, relatively unmodified, sand dune system including, freshwater and dune slack wetlands in Kaipara ED. Regarded as the best and most pristine example of a dune system with wetlands in New Zealand, and also one of the most extensive.</td>
<td>4 At Risk</td>
<td>3.92</td>
<td>Adjacent to farmland and forestry operations.</td>
<td>4 4</td>
<td>All Risk</td>
<td>3.92</td>
<td>Assessed by desktop exercise. This large site contains a sequence of ecosystems from the coast to inland lakes, of which two are wetland types. It supports a high number of threatened bird species including the National Critical grey duck and Nationally Endangered Australian bittern. Size of the wetland component within this system is unknown, but is larger than the size required to achieve maximum score for size. Much of this site is protected and administered by DOC.</td>
<td>88.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>250332</td>
<td>Kaimaumau/ Motutangi Wetland</td>
<td>Bog</td>
<td>Y</td>
<td>Aupouri</td>
<td>1.870.00</td>
<td>In Aupouri ED, the site is representative site for manuka gumland, manuka-Schoenus brevifolius association, Gleichenia dicarpa-Schoenus brevifolius association, Baumea spp-manuka association, harakeke-raupo flaxland, and Baumea tetrella-Gleichenia dicarpa association (sole record in ED). Bogs are regionally under-represented.</td>
<td>4 4</td>
<td>5.00</td>
<td>A large, highly acidic lowland bog system with smaller, fertile areas near in-flowing streams and farmland edges. Peat bogs and semi-mineralised wetlands are much depleted vegetation types.</td>
<td>4 4</td>
<td>Under-protected</td>
<td>5.00</td>
<td>A large, highly acidic toward bog system with smaller, fertile areas near in-flowing streams and farmland edges. Peat bogs and semi-mineralised wetlands are much depleted vegetation types. The outstanding natural values of this site include 12 &quot;Threatened&quot; species, 14 &quot;At Risk&quot; species, and four regionally significant species. Representative for six wetland habitat types and includes an unbroken zonation of wetland sequences from freshwater to saltmarsh. The area is contiguous with Houhora Harbour and Rangaunu Harbour-Lake Ohia. It is being investigated for RAMSAR status. More than 100 ha has been cleared since 1995, and present farming activities such as drainage and grazing may threaten the integrity of the site. Weeds such as pine, eucalyptus, and macrocarpa are locally frequent in drier parts of the wetland. Approximately 69.3% of the site is protected (DOC-administered).</td>
<td>84.28</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>250320</td>
<td>Parana Swamp, Waitahora Lagoon and Waitakino Wetland Complex</td>
<td>Swamp</td>
<td>Y</td>
<td>Te Paki</td>
<td>269.60</td>
<td>In Aupouri ED, the site is representative site for eight freshwater wetland vegetation types, with the sole record of manuka-baumea juncea-B. teretifolia shrubland in the Te Paki ED. Probably the only example of a brackish wetland in the region as the lower reaches are inundated by king tides.</td>
<td>4 4</td>
<td>5.00</td>
<td>A large mesotrophic wetland within a fully vegetated catchment ranked as &quot;Outstanding&quot; (NIWA 2007). No pest species have been recorded in the Waitahora Lagoon and Lake. Site supports 10 &quot;Threatened&quot;, nine &quot;At Risk&quot; and five regionally significant species. Probably the only example of a brackish lagoon in the region, and habitat for a brackish algae (Rupispa sp.) not recorded elsewhere. Most of the area is protected within the Te Paki Recreation Reserve and administered by DOC.</td>
<td>5 5</td>
<td>All Risk</td>
<td>5.00</td>
<td>A large mesotrophic wetland within a fully vegetated catchment ranked as &quot;Outstanding&quot; (NIWA 2007). No pest species have been recorded in the Waitahora Lagoon and Lake. Site supports 10 &quot;Threatened&quot;, nine &quot;At Risk&quot; and five regionally significant species. Probably the only example of a brackish lagoon in the region, and habitat for a brackish algae (Rupispa sp.) not recorded elsewhere. Most of the area is protected within the Te Paki Recreation Reserve and administered by DOC.</td>
<td>84.07</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>250348</td>
<td>Lake Ohia</td>
<td>Parahi and gumland</td>
<td>Y</td>
<td>Aupouri</td>
<td>800.00</td>
<td>One of last vestiges of heath and boglands on old sand dunes in the Karkari Peninsula. Representative site for manuka-karaka shrubland on peat bed, baumea juncea sedgeland B. anthrophyla sedgeland (sole record in Aupouri ED), umbellata fern-Schoenus sp. association, manuka-Schoenus brevifolius association, Lepidosperma filiforme sedgeland, and wire rush sedgeland (sole record in Aupouri ED).</td>
<td>4 4</td>
<td>4.25</td>
<td>A large freshwater wetland (formerly a shallow lake) on interdune flats ponded between a belt of consolidated foredunes. The site contains outstanding habitat which is the last vestiges of heath and boglands on the Karkari Peninsula, forming a continuous ecological sequence from Rangaunu Harbour through to Tokerau Beach.</td>
<td>4 4</td>
<td>All Risk</td>
<td>4.25</td>
<td>The site comprises a freshwater wetland (formerly a shallow lake) on interdune flats ponded between a belt of consolidated foredunes. The site contains outstanding habitat which is the last vestiges of heath and boglands on the Karkari Peninsula, forming a continuous ecological sequence from Rangaunu Harbour through to Tokerau Beach.</td>
<td>83.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ranking</td>
<td>Worksmart No.</td>
<td>Main Wetland Type</td>
<td>On Dunes</td>
<td>Ecological District</td>
<td>Score (ha)</td>
<td>Vegetation Diversity and Plateau Representativeness</td>
<td>Score</td>
<td>Hydrological integrity</td>
<td>HI Score</td>
<td>Presence of Native Forest &amp; Scrub</td>
<td>LCN Cat</td>
<td>Threatened Species</td>
<td>Score</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
<td></td>
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<tr>
<td>5</td>
<td>250455</td>
<td>Kaituhi Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Tuatama</td>
<td>205.80</td>
<td>4</td>
<td>Unmodified</td>
<td>5</td>
<td>Better Protected and Loss Reduced</td>
<td>1.92</td>
<td>Assessed by desktop exercise. The site contains one of the best (if not the best) examples of upland plateau swamp forest and shrubland in the Northland Region.</td>
<td></td>
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<tr>
<td>6</td>
<td>250482</td>
<td>Maihia Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Karapara</td>
<td>280.00</td>
<td>4</td>
<td>Some drainage and development has occurred to the east.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>3.25</td>
<td>The site forms part of an excellent altitudinal sequence of plateau swamp forest on upland plateau grading into sub- montane forest and woodland forest.</td>
<td></td>
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<tr>
<td>7</td>
<td>250249</td>
<td>Taikirau Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Tanghua</td>
<td>481.60</td>
<td>4</td>
<td>Bisected by Motatau Road and railway; impounding of water likely to be present.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>2.92</td>
<td>The site forms an important component of the Taikirau wetland complex, one of Northland's most significant wetland complexes. It supports two &quot;Threatened&quot; bird species, five &quot;At Risk&quot; bird species, one regionally significant bird species, two &quot;At Risk&quot; plant species, and 10 regionally significant plant species. Water impounding caused by railways makes the wetland vulnerable to weed invasion. Wetland margins are weedy in some areas.</td>
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<tr>
<td>8</td>
<td>250519</td>
<td>Manganiu River Complex</td>
<td>Swamp</td>
<td>N</td>
<td>Tokakoua</td>
<td>338.40</td>
<td>5</td>
<td>Lacking evidence of upland plateau grading into sub- montane forest and woodland forest.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.00</td>
<td>The site comprises an extensive area of high value floodplain that is of national significance. It is likely to be the best example of its type in Northland, or possibly in the entire North Island. The alluvial forest is dominated by kahikatea, which is likely to form sequences with shrubland and sedgeland vegetation types. Parts of the site are likely to be grazed. The site was partially observed from a distance. Further assessment needed to determine the presence of threatened species and weeds. Extensive areas of gumland and freshwater wetland which are contiguous with indigenous shrubland and forest. Very high flora values with a high diversity of threatened and regionally significant plant species, and habitat for a significant population of North Island fernbird. The site's large size, remoteness, and diversity of vegetation types combine to make this a high scoring wetland.</td>
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<tr>
<td>9</td>
<td>250372</td>
<td>Ahihapa Massif including Epakaurl</td>
<td>Swamp</td>
<td>N</td>
<td>Ahihapa</td>
<td>1,549.70</td>
<td>5</td>
<td>Lacking evidence of upland plateau grading into sub- montane forest and woodland forest.</td>
<td>3</td>
<td>Under-protected</td>
<td>3.33</td>
<td>High quality under-represented gumland vegetation types, and certainly the best wetlands within the Ahihapa ED. One of the largest and most diverse areas of gumland vegetation in NZ, and probably the best gumland in Northland.</td>
<td></td>
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<tr>
<td>10</td>
<td>250298</td>
<td>Kaepeha Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Kaikohe</td>
<td>317.60</td>
<td>4</td>
<td>Contains eight wetland vegetation types, ranging from highly mineralised raupu-cabbage tree swamp to acidic bog dominated by Baumea and manuka. The site forms part of an altitudinal sequence grading into alluvial and hillside forest, which is likely to be one of the best</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>0.75</td>
<td>The largest freshwater system in Kaikohe ED, and one of the largest in Northland, the Kaepeha Swamp and its associated forested and shrubland catchment comprises one of the most threatened, highly valued and poorly represented ecosystems in Northland. Representative for four vegetation types, three of which are sole records for Kaikohe ED. Contains one of best remaining examples of a swamp-bog sequence in Kaikohe ED. Supports alt.</td>
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</tbody>
</table>

**Summary:**
- The Kaituhi Forest contains possibly the best, if not the only example of upland plateau swamp forest and shrubland in the Northland Region.
- The Maihia Wetland Scientific Reserve is one of the best (if not the best) examples of high altitude swamp forest and shrubland.
- The Taikirau Swamp is an excellent example of ecological sequences from gumland to freshwater wetlands (swamp and bog). Recent photography suggests some of this site has been drained and developed in the north.
- The Manganiu River Complex is one of Northland's most significant wetland complexes. It supports two "Threatened" bird species, five "At Risk" bird species, one regionally significant bird species, two "At Risk" plant species, and 10 regionally significant plant species. Water impounding caused by railways makes the wetland vulnerable to weed invasion. Wetland margins are weedy in some areas.
- The Ahihapa Massif including Epakaurl is one of the largest and most diverse areas of gumland vegetation in NZ, and probably the best gumland in Northland.
- The Kaepeha Swamp is the largest freshwater system in Kaikohe ED, and one of the largest in Northland, the Kaepeha Swamp and its associated forested and shrubland catchment comprises one of the most threatened, highly valued and poorly represented ecosystems in Northland. Representative for four vegetation types, three of which are sole records for Kaikohe ED. Contains one of best remaining examples of a swamp-bog sequence in Kaikohe ED. Supports alt.
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Main Wetland Type</th>
<th>On Coast</th>
<th>Ecological District</th>
<th>Size (ha): (x)</th>
<th>Quality Score</th>
<th>Representativeness</th>
<th>Vegetation Diversity and Pattern</th>
<th>Hydrological integrity</th>
<th>HI Score</th>
<th>Dominance Index</th>
<th>Score</th>
<th>Leibig Cat</th>
<th>Threatened Species</th>
<th>Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>11=</td>
<td>250434</td>
<td>Swamp</td>
<td>N</td>
<td>Whangarei</td>
<td>160.00</td>
<td>5</td>
<td>best in Kaikohe ED.</td>
<td>Large site with a mosaic of seven wetland vegetation types and areas of open water.</td>
<td>Contiguous with indigenous forest on alluvium. High diversity of vegetation types within a rivine system including oxbow lakes.</td>
<td>Oxbows within the site formed by the straightening of the Wairua River and construction of stopbanks.</td>
<td>4</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>2.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11=</td>
<td>250010</td>
<td>Lacustrine</td>
<td>N</td>
<td>Kaikohe</td>
<td>1,213.80</td>
<td>4</td>
<td></td>
<td>Rushland, swamp forest, peat bog, lakeside flats, and flaxland on lake margins, and submerged indigenous vegetation within lake. Most of lake margins modified by drainage and intensively grazed so no extensive sequence of riparian vegetation remain. However these are still the best examples of lakeside vegetation sequences in the ED.</td>
<td></td>
<td>Lake margins heavily modified by drainage, and the lake waters are eutrophic.</td>
<td>4</td>
<td>2</td>
<td>Acutely Threatened</td>
<td>3.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>250433</td>
<td>Bog</td>
<td>N</td>
<td>Whangarei</td>
<td>250.00</td>
<td>4</td>
<td></td>
<td>Mosaic of four freshwater wetland types, including peat bog vegetation. Contiguous with a large area of mixed indigenous-exotic shrubland on hillslopes.</td>
<td></td>
<td>Southern edge formed by a drainage channel and Otakairangi Stream, which flows through the centre of the wetland, has been channelised.</td>
<td>4</td>
<td>5</td>
<td>Acutely Threatened</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>250287</td>
<td>Bog</td>
<td>N</td>
<td>Kaikohe</td>
<td>181.00</td>
<td>4</td>
<td></td>
<td>Contains some uncommon bog and gumland vegetation associations. Probably the only example in Kaikohe ED of bog vegetation grading into gumland habitat.</td>
<td></td>
<td>Causes or swelling on drains and other structures evident. Nearby quantities may have adverse effects on water quality.</td>
<td>4</td>
<td>3</td>
<td>Critically Under protected</td>
<td>2.25</td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>250342</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Aupoir</td>
<td>97.00</td>
<td>4</td>
<td></td>
<td>Contains a good example of a freshwater wetland-shrubland-dunefield ecological sequence. Likely to be one of the best remaining within Northland.</td>
<td></td>
<td>Some farm drains present. Partially buffered by dunes and indigenous shrubland, but some margins vulnerable to grazing.</td>
<td>4</td>
<td>4</td>
<td>Under-protected</td>
<td>5.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ranking</td>
<td>Contract No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Representation Score</td>
<td>Vegetation Diversity and Pattern</td>
<td>Hydrological Integrity</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
<td></td>
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<tr>
<td>16</td>
<td>250030</td>
<td>Muruwiri Stream Swamp</td>
<td>Swamp</td>
<td>Yathamoe</td>
<td>97.40</td>
<td>4</td>
<td>Eight wetland vegetation types, including reedland, shrubland, fagland, and tī kōuka-harakeke associations. These vegetation types form a mosaic according to hydrology and fertility. Contiguous with indigenous forest.</td>
<td>4</td>
<td>No drainage, but southern edge likely to be partly modified where it is buffered by pasture.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17</td>
<td>250493</td>
<td>Lake Humuhumu Wetland and Forest</td>
<td>Lacustrine</td>
<td>Tarapara</td>
<td>268.08</td>
<td>5</td>
<td>Raupo reedland, manukau-naupō shrubland, open water</td>
<td>3</td>
<td>Appears to be contiguous with 250588 Lake Rotopoua, Wetland and Forest. No structures visible on aerial photo, but lake margins and surrounding landscape mostly exotic grassland and plantation forestry.</td>
<td>5</td>
<td>No data</td>
<td>3.92</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>18</td>
<td>250553</td>
<td>Takahiki Pen and Environ</td>
<td>Bog</td>
<td>Tangihua</td>
<td>105.33</td>
<td>4</td>
<td>The site contains three wetland vegetation types, which form part of an extensive freshwater-shrubland-forest ecological sequence. Best and possibly the only example of an ecological sequence including a bog component in the ED.</td>
<td>4</td>
<td>Largely buffered by pine forest and indigenous shrubland, although future harvesting is likely to affect hydrology. Some drains present, some margins likely to be grazed.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>250111</td>
<td>Kerikeri Airport Guantland</td>
<td>Pakahi and gumland</td>
<td>Kerikeri</td>
<td>87.60</td>
<td>5</td>
<td>Three wetland vegetation types on gumland and in bog. Best example of bog vegetation in the Kerikeri ED.</td>
<td>4</td>
<td>Dissected by several drains, but these are of minor effect.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.87</td>
<td></td>
<td></td>
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<tr>
<td>20</td>
<td>250338</td>
<td>Lake Waiparena and Wetlands</td>
<td>Lacustrine</td>
<td>Aupouri</td>
<td>186.50</td>
<td>5</td>
<td>Contains five habitat types: ecological sequence from open water to reedland/shrubland to shrubland on lake margin.</td>
<td>3</td>
<td>PFA says the lake has stable hydrology, but it may be affected by surrounding farm</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.83</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

which is the only record in Aupouri ED. Harakeke flaxland is regionally uncommon.

high wildlife values. Dune lakes are especially rare on the east coast of Northland. Representative for four ecological units and contains a rare freshwater-shrubland-dunefield ecological sequence. The site supports seven threatened species, 19 "At Risk" species, and four regionally significant species. Partially buffered by indigenous shrubland and exotic plantation. Threats include drainage, grazing, run-off, and weeds. Approximately 64.4 ha of the site are protected within a Marginal Strip (administered by DOC). 77.11

Aupouri ED. Harakeke flaxland is regionally uncommon.

contains a rare freshwater-shrubland-dunefield ecological sequence. The site supports seven threatened species, 19 "At Risk" species, and four regionally significant species. Partially buffered by indigenous shrubland and exotic plantation. Threats include drainage, grazing, run-off, and weeds. Approximately 64.4 ha of the site are protected within a Marginal Strip (administered by DOC). 77.11

16 250030 Muruwiri Stream Swamp

Swamp Y Tathamoe

8.70

Representative site for all eight wetland vegetation types present, and the only location for seven of these wetland types within the Tathamoe ED. Harakeke flaxland is a regionally under-represented vegetation type.

4

Eight wetland vegetation types, including reedland, shrubland, fagland, and tī kōuka-harakeke associations. These vegetation types form a mosaic according to hydrology and fertility. Contiguous with indigenous forest.

4

No drainage, but southern edge likely to be partly modified where it is buffered by pasture.

4

Chronically Threatened

1.92

Largest freshwater wetland in the Tutamoe ED, and the best example in the ED of a wetland in a tidal lagoon/dune complex. High diversity of representative vegetation types, seven of which are only present in the ED at this site. Habitat for seven "Threatened" or "At Risk" bird species, and four regionally significant species.

67.47

Swamp and bog vegetation on a very unusual geomorphic substrate (oxidised ironstone soil). Representative for all vegetation types present, the best example of bog vegetation in the Kerikeri ED, and habitat for several "Threatened" or "At Risk" species. Site contains one of the two known populations of Northland muftih. Site is of national significance. A fire recently burned through much of the site and careful management may be needed to address weed growth. 76.25

20 250338 Lake Waiparena and Wetlands

Lacustrine Y Aupouri

8.60

One of the best remaining lakes/wetland systems in Northland. Representative site for open water. Baumea

5

Contains five habitat types: ecological sequence from open water to reedland/shrubland to shrubland on lake margin.

3

PFA says the lake has stable hydrology, but it may be affected by surrounding farm

4

Chronically Threatened

1.83

The site comprises a large lake and an extensive semi-fertile wetland to the west, and is one of the best lakes/wetland systems in the Ecological Region. Supports two "Threatened" and two "At Risk" species.
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Wk No.</th>
<th>Name</th>
<th>Ecological District</th>
<th>Size (ha)</th>
<th>Dominance of Native Flora Score</th>
<th>Threatened Species Score</th>
<th>Hydrological Integrity</th>
<th>VD &amp; P Score</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>250319</td>
<td>To Werahi Wetland</td>
<td>To Paki</td>
<td>495.40</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>74.79</td>
</tr>
<tr>
<td>22</td>
<td>250373</td>
<td>To Paki Stream</td>
<td>Aupouri</td>
<td>43.00</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>74.28</td>
</tr>
<tr>
<td>23</td>
<td>250394</td>
<td>Paranui Stream</td>
<td>Maungataniwha</td>
<td>45.30</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>72.85</td>
</tr>
<tr>
<td>24</td>
<td>250329</td>
<td>Ta Ari Sandfields</td>
<td>Aupouri</td>
<td>13.00</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>72.69</td>
</tr>
<tr>
<td>25</td>
<td>250421</td>
<td>Opua Forest freshwater wetlands</td>
<td>Kerikeri</td>
<td>31.90</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>72.07</td>
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<tr>
<td>Ranking</td>
<td>Contract Report No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Grade</td>
<td>Size (ha)</td>
<td>On Dunes</td>
<td>Wetland Vegetation Types</td>
<td>Dominance of Native Vegetation</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------</td>
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<td>-------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>26</td>
<td>250338</td>
<td>Waihero Stream Swamp</td>
<td>'Y'</td>
<td>Te Paki</td>
<td>7.70</td>
<td></td>
<td></td>
<td>Three wetland vegetation types that form part of a much larger and important sequence comprising dune-field-wetland-shrubland-wetland-dune-field</td>
<td>Unmodified and in a well vegetated catchment</td>
</tr>
<tr>
<td>27</td>
<td>250091</td>
<td>Waitangi Wetlands Complex Swamp</td>
<td>N</td>
<td>Kerkari</td>
<td>114.70</td>
<td>Large mosaic of wetland and shrubland patches in fluvial wetlands.</td>
<td></td>
<td>Contains the largest wetland area in the ED, has an unusual substrate, and contains a rich diversity of wetland plant species and vegetation types.</td>
<td>4 5</td>
</tr>
<tr>
<td>28</td>
<td>250551</td>
<td>Takirau Wetland Swamp</td>
<td>N</td>
<td>Tangihua</td>
<td>144.26</td>
<td>The site contains representative examples of kahikatea forest on alluvium, Coprosma propinqua - kouka shrubland in swamp (sole record in Tangihua ED), harakeke-rata wetland in swamp (one of three records in Tangihua ED), Eleocharis sphacelata-rata-treedeed in swamp (sole record in Tangihua ED), Coprosma hiraculus - manuka shrubland on alluvial floodplain (sole record in Tangihua ED), and Eleocharis sphacelata reedland in swamp. Swamp forest and harakeke fastland are regionally under-represented habitat types.</td>
<td>4</td>
<td>Unmodified</td>
<td>4 4</td>
</tr>
<tr>
<td>29</td>
<td>250317</td>
<td>Shenton Stone Bog</td>
<td>'Y'</td>
<td>Te Paki</td>
<td>7.70</td>
<td></td>
<td></td>
<td>Grades from shrubland to bog to duneleaks</td>
<td>4 4</td>
</tr>
<tr>
<td>30</td>
<td>250468</td>
<td>Russell Forest Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>100.00</td>
<td>The best example of freshwater swamp vegetation in the Whangaruru ED. Representative site for raupo-harakeke association in swamp.</td>
<td></td>
<td>One of the best examples of coastal vegetation sequences in Northland, from estuarine vegetation at sea level, to fresh water wetlands, to hillside forest up to 430 m a.s.l.</td>
<td>4</td>
</tr>
<tr>
<td>31</td>
<td>250545</td>
<td>Kawiti Wetlands and Environments Swamp</td>
<td>N</td>
<td>Tangihua</td>
<td>356.00</td>
<td>Contains good examples of Baumea articulata sedgeland (one of two records in Tangihua ED) and manuka-Coprosma hiraculus-harakakee shrubland (sole record in Tangihua ED) in a predominantly forested catchment.</td>
<td></td>
<td>Displays a habitat sequence from open water (Lake Kaiwai), through wetland and swamp forest associations, which then grade into hillside shrubland and forest. Such an altitudinal sequence is rare in Tangihua ED and it is likely to be one of the best remaining in the region.</td>
<td>4</td>
</tr>
<tr>
<td>Rank.</td>
<td>Workunit No.</td>
<td>Type</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>On Dune</td>
<td>Ecological District</td>
<td>Size (ha): (x)</td>
<td>Representativeness</td>
<td>Vegetation Diversity and Pattern</td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
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<td>---------</td>
<td>-------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>32</td>
<td>250480</td>
<td>Lacustrine</td>
<td>Lake Kaitewa</td>
<td></td>
<td>Y</td>
<td>Kaipara</td>
<td>30.80</td>
<td>This site contains one representative wetland vegetation type in the Kaipara ED, however the lake is ranked as Outstanding (Wells et al. 2007) because it is dominated by indigenous plants and is free of aquatic weeds.</td>
<td>5</td>
</tr>
<tr>
<td>33</td>
<td>250549</td>
<td>Swamp</td>
<td>Ta Whatiangai Swamp</td>
<td></td>
<td>N</td>
<td>Tangihua</td>
<td>79.10</td>
<td>The site contains excellent examples of manuka tawake forest on alluvium (sole record in Tangihua ED), karaka karaka forest on alluvium, Baumea articifera-rapu sedgeland in swamp (sole record in Tangihua ED), karaka-manuka forest on alluvium (sole record in Tangihua ED), and Coprosma prospicua shrubland in swamp (sole record in Tangihua ED). Swamp forest is regionally under-represented.</td>
<td>4</td>
</tr>
<tr>
<td>34</td>
<td>250522</td>
<td>Pakih and gumland</td>
<td>Curnow Road Gemstone Conservation Area</td>
<td></td>
<td>N</td>
<td>Tokotokia</td>
<td>420.00</td>
<td>Only area of gumland within the Tokotokia ED, which supports threatened and regionally significant flora and fauna. Good quality gumland vegetation is regionally under-represented. Habitat for low recorded orchid species. Most of this site (41.8 ha) is public conservation land, and is administered by DOC.</td>
<td>4</td>
</tr>
<tr>
<td>35</td>
<td>250380</td>
<td>Pakih and gumland</td>
<td>Ta Ramanuka Lakes and Shrubland</td>
<td></td>
<td>Y</td>
<td>Aupouri</td>
<td>10.00</td>
<td>Representative for Juncus sp. sedgeland on damp sand flats (historically rare habitat type) and knobby clubrush-Juncus sp.-nici association in lake bed (sole record in Aupouri ED).</td>
<td>5</td>
</tr>
<tr>
<td>36</td>
<td>250285</td>
<td>Pakih and gumland</td>
<td>Rakautaro Bush Wetlands</td>
<td></td>
<td>N</td>
<td>Kaikohe</td>
<td>141.00</td>
<td>Representative for manuka-Gleichenia shrubland (gumland) (sole record for Kaikohe ED), which comprises most of the site, and one of only two</td>
<td>4</td>
</tr>
</tbody>
</table>
examples of raupo-Baumea association in Kaikohe ED. Glumland is a rare wetland habitat type in Northland.

37 250410 Komumu Swamp Swamp N Whangaroa 29.00 Best example of a freshwater wetland in the Whangaroa ED. Contains excellent examples of a range of swamp and alluvial vegetation types, including the only records of $t$ kiouka, Coprosma propinqua shrubland, $t$ kiouka-kahikatea swamp forest, Bolboschoenus fluviatilis sedgeland, Lepidosperma laterale-Dicrini a sp. sedgeland, manuka-harakeke shrubland, raupo-harakeke needleland, raupo-harakeke-kiouka needleland, and Eleocharis phaeoalata-raupo needland. Alligator weed is locally common in some areas. Good quality examples of rushland, reedland and shrubland within ephemeral dune depressions (nationally uncommon habitat type).

38 250555 Awakino and Flaxmill Swamps Swamp N Taupou 60.80 Large site with a mosaic of 13 wetland vegetation types and areas of open water. Contiguous with indigenous forest and shrubland on alluvium. High diversity of vegetation types. Some margins bounded by pasture.

39 250381 Sweetwater Station Depressions Ephemeral Y Aupouri 15.00 Contains good examples of four wetland vegetation types; unknown if any ecological sequences are present. Most wetlands are bounded by pasture.

40 250145 Upper Herekino River Wetlands Swamp N Hokianga 54.00 Representative site for seven ecological units in Hokianga ED: harakeke-Juncus sp. association on alluvium (sole record in ED), manuka shrubland on alluvium, raupo needleland on alluvium, manuka-raupo swamp association on alluvium (sole record in ED), harakeke-saltmarsh ribbonwood swamp association on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), and giant umbrella sedg-rapuro swamp association on alluvium (one of two records in ED). Harakeke-dominant swamp associations are regionally rare vegetation types in Northland.

41 250554 William Upton Hewett Swamp Swamp N Taipu 22.50 A largely unmodified wetland.

37 250410 Komumu Swamp Whale N Whangaroa 29.00 Best example of a freshwater wetland in the Whangaroa ED. Four wetland vegetation types, including raupo needleland, manuka shrubland, $t$ kiouka shrubland (now forest?), and raupo-harakeke needleland. Contiguous with indigenous shrubland on adjoining hillside, and separated from estuarine communities by road. Best example of freshwater wetland to terrestrial shrubland sequence in the Whangaroa ED.

38 250555 Awakino and Flaxmill Swamps Swamp N Taupou 60.80 Contains excellent examples of a range of swamp and alluvial vegetation types, including the only records of $t$ kiouka, Coprosma propinqua shrubland, $t$ kiouka-kahikatea swamp forest, Bolboschoenus fluviatilis sedgeland, Lepidosperma laterale-Dicrini a sp. sedgeland, manuka-harakeke shrubland, raupo-harakeke needleland, raupo-harakeke-kiouka needleland, and Eleocharis phaeoalata-raupo needland. Alligator weed is locally common in some areas. Good quality examples of rushland, reedland and shrubland within ephemeral dune depressions (nationally uncommon habitat type).

39 250381 Sweetwater Station Depressions Ephemeral Y Aupouri 15.00 Contains good examples of four wetland vegetation types; unknown if any ecological sequences are present. Most wetlands are bounded by pasture.

40 250145 Upper Herekino River Wetlands Swamp N Hokianga 54.00 Representative site for seven ecological units in Hokianga ED: harakeke-Juncus sp. association on alluvium (sole record in ED), manuka shrubland on alluvium, raupo needleland on alluvium, manuka-raupo swamp association on alluvium (sole record in ED), harakeke-saltmarsh ribbonwood swamp association on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), and giant umbrella sedg-rapuro swamp association on alluvium (one of two records in ED). Harakeke-dominant swamp associations are regionally rare vegetation types in Northland.

41 250554 William Upton Hewett Swamp Swamp N Taipu 22.50 A largely unmodified wetland.

37 250410 Komumu Swamp Whale N Whangaroa 29.00 Best example of a freshwater wetland in the Whangaroa ED. Four wetland vegetation types, including raupo needleland, manuka shrubland, $t$ kiouka shrubland (now forest?), and raupo-harakeke needleland. Contiguous with indigenous shrubland on adjoining hillside, and separated from estuarine communities by road. Best example of freshwater wetland to terrestrial shrubland sequence in the Whangaroa ED.

38 250555 Awakino and Flaxmill Swamps Swamp N Taupou 60.80 Contains excellent examples of a range of swamp and alluvial vegetation types, including the only records of $t$ kiouka, Coprosma propinqua shrubland, $t$ kiouka-kahikatea swamp forest, Bolboschoenus fluviatilis sedgeland, Lepidosperma laterale-Dicrini a sp. sedgeland, manuka-harakeke shrubland, raupo-harakeke needleland, raupo-harakeke-kiouka needleland, and Eleocharis phaeoalata-raupo needland. Alligator weed is locally common in some areas. Good quality examples of rushland, reedland and shrubland within ephemeral dune depressions (nationally uncommon habitat type).

39 250381 Sweetwater Station Depressions Ephemeral Y Aupouri 15.00 Contains good examples of four wetland vegetation types; unknown if any ecological sequences are present. Most wetlands are bounded by pasture.

40 250145 Upper Herekino River Wetlands Swamp N Hokianga 54.00 Representative site for seven ecological units in Hokianga ED: harakeke-Juncus sp. association on alluvium (sole record in ED), manuka shrubland on alluvium, raupo needleland on alluvium, manuka-raupo swamp association on alluvium (sole record in ED), harakeke-saltmarsh ribbonwood swamp association on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), manuka-saltmarsh ribbonwood shrubland on alluvium (sole record in ED), and giant umbrella sedg-rapuro swamp association on alluvium (one of two records in ED). Harakeke-dominant swamp associations are regionally rare vegetation types in Northland.

41 250554 William Upton Hewett Swamp Swamp N Taipu 22.50 A largely unmodified wetland.

regionally significant plant (maire tawake). Likely to be a refuge for mobile species during logging in nearby pine forest. Vulnerable to stock and drainage, but fed by at least two well-buffered streams.

67.72 67.61 67.55 67.50 67.44
Under-drainage. Cattle from shrubland, an uncommon habitat type in Northland’s rarest, but also includes rare wetland vegetation, including harakeke-ti kouka shrubland (sole record in Tangihua ED), harakeke-raupo flaxland (sole record in Tangihua ED), and manuka shrubland.

<p>| Rank | Workcard No. | Name                   | Main Wetland Type | On Crown | Ecological District | Size (ha) | Representation | Representation Score | Vegetation Diversity | Threatened Species | Hydrological integrity | Overall Summary | Total Weighted Score |
|------|--------------|------------------------|-------------------|----------|---------------------|-----------|----------------|----------------------|----------------------|---------------------|-------------------|---------------------|---------------------|---------------------|
| 42   | 290025       | Ngakengo Beach Wetlands| Ephemeral         | Y        | Te Paki             | 2.80      | Represented    | 4                    | Poor                 | Unmodified and in a well vegetated catchment | 5 5                 | Chronically Threatened | 1.83                | 67.33               |
| 43   | 290432       | Puketi Forest Gumland  | Palahine and gumland | N        | Puketi              | 0.00      | Poor           | 4                    | Poor                 | No evidence of modification          | 5 5                 | Under-protected       | 1.80                | 75.79               |
| 44   | 290302       | Whakakunangana Gumfield| Palahine and gumland | N        | Kaikohe             | 13.70     | Poor           | 4                    | Poor                 | Small dirt roads throughout with possible incidental effects. | 4 3                 | Critically Under-protected | 0.30                | 67.15               |
| 45   | 290479       | Lake Taharoa Wetland   | Lacustrine         | Y        | Kaipara             | 189.12    | Poor           | 5                    | Poor                 | Few instances, not well buffered | 1 3                 | Chronically Threatened | 3.00                | 66.96               |
| 46   | 290341       | Wahakani Wetland       | Swamp              | Y        | Te Paki             | 7.06      | Poor           | 5                    | Poor                 | Large area of gumland, some parts well buffered by indigenous or exotic vegetation. | 5 5                 | Critically Under-protected | 0.33                | 66.33               |
| 47   | 290106       | Wetland located within Huta Creek Coastal Shrublands | Swamp | N | Karken | 30.30 | Poor           | 5                    | Poor                 | No evidence of drainage and most parts well buffered by indigenous or exotic forest. | 4 4                 | At Risk               | 1.42                | 65.91               |
| 48   | 290368       | North Cape Scientific Reserve gumlands | Palahine and gumland | N  | Te Paki             | 52.20     | Poor           | 5                    | Poor                 | Gumland on plateau and hillslope (two vegetation types) and a harakeke-kouka wetland in a gully | 4 5                 | Better Protected and Less | 1.42                | 65.71               |</p>
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Main Wetland Type</th>
<th>On Dune</th>
<th>Ecological District</th>
<th>Size (ha)</th>
<th>Ecological District</th>
<th>Vegetation Diversity and Pattern</th>
<th>HI Score</th>
<th>V &amp; P Score</th>
<th>Dominance Relative</th>
<th>Percentage</th>
<th>Species Represented</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>259150</td>
<td>Swamp</td>
<td>N</td>
<td>Hokianga</td>
<td>20.00</td>
<td></td>
<td>4 The site has two wetland vegetation types and contains a good example of raupo reedland grading into shrubland and secondary forest.</td>
<td>3</td>
<td>4</td>
<td>3 Significant farm drain connects the wetland to Whangamaru Creek. Margins grazed by stock.</td>
<td>3</td>
<td>5</td>
<td>0.33</td>
</tr>
<tr>
<td>50</td>
<td>250351</td>
<td>Swamp</td>
<td>N</td>
<td>Te Paki</td>
<td>100.00</td>
<td></td>
<td>4 Wetlands and gumlands form part of a diverse and extensive tract of indigenous habitats that is nationally significant.</td>
<td>4</td>
<td>3</td>
<td>4 Many areas unmodified by drainage and in a well-vegetated catchment.</td>
<td>4</td>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>51</td>
<td>250362</td>
<td>Swamp</td>
<td>Y</td>
<td>Aupouri</td>
<td>127.00</td>
<td></td>
<td>3 Contains two wetland vegetation types and a good example of an ecological sequence grading from reedland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>4</td>
<td>3 Farm drains may affect hydrology. Lake Taeroe appears to be drying out. Wairahi Swamp is likely to be grazed by indigenous vegetation, but some margins are grazed. Lake Taeroe has little buffering and is likely to be affected by stock.</td>
<td>3</td>
<td>5</td>
<td>2.83</td>
</tr>
<tr>
<td>52</td>
<td>250011</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Waipu</td>
<td>2.70</td>
<td></td>
<td>4 The only example of an ecological sequence in a dune lake in the Eastern Northland Ecological Region.</td>
<td>4</td>
<td>3</td>
<td>4 Largely unmodified, but recent clearance of vegetation and drainage has occurred at the northern end.</td>
<td>4</td>
<td>3</td>
<td>2.42</td>
</tr>
<tr>
<td>53</td>
<td>250547</td>
<td>Swamp</td>
<td>N</td>
<td>Tangihua</td>
<td>885.24</td>
<td></td>
<td>2 Although only one wetland vegetation type is present, (manuka shrubland), it is part of an unusual gumland-riverine forest on alluvial ecological sequence, which is likely to be the best example remaining in Tangihua ED.</td>
<td>4</td>
<td>3</td>
<td>4 Some drains present. Some margins vulnerable to grazing.</td>
<td>4</td>
<td>3</td>
<td>1.92</td>
</tr>
<tr>
<td>54</td>
<td>250548</td>
<td>Swamp</td>
<td>Y</td>
<td>Waipu</td>
<td>0.76</td>
<td></td>
<td>5 Five wetland vegetation types in a dune slack. Probably the best example of a range of dune slack vegetation in the Waipu ED. Surrounded by pasture and gorse.</td>
<td>4</td>
<td>3</td>
<td>4 No evidence of drainage but surrounded by pasture. Edges of wetland where stock can reach are grazed.</td>
<td>4</td>
<td>3</td>
<td>0.55</td>
</tr>
</tbody>
</table>

The site consists of a raupo-dominant wetland which is one of the largest mineralised freshwater wetlands in Hokianga ED. It contains a rare swamp forest association and is representative for two vegetation types. Water level and quality likely to be adversely affected by farm drain and stock, although a good proportion of the site is buffered by indigenous vegetation. Supports two "At Risk" birds (spotted crane and Hi tawarua). Site needs to be re-surveyed as there is very little information in the PNAF report.

endemic to North Cape.

The site consists of a raupo-dominant wetland which is one of the largest mineralised freshwater wetlands in Hokianga ED. It contains a rare swamp forest association and it is representative for two vegetation types. Water level and quality likely to be adversely affected by farm drain and stock, although a good proportion of the site is buffered by indigenous vegetation. Supports two "At Risk" birds (spotted crane and Hi tawarua). Site needs to be re-surveyed as there is very little information in the PNAF report.

Assessed by desktop exercise. Wetlands and gumlands within a large 10,829.8 ha SNA that is nationally significant for its diverse vegetation. Habitat for one "At Risk" and five regionally significant plant species, and one of the largest populations of North Island fernbird in Northland. Contains good quality representative examples of manuka shrubland on gumland, raupo reedland, and Glischerna fernland.

A wetland on the east coast comprising Wairahi Swamp and Lake Taeroe. Supports four "Threatened" species, six "At Risk" species, and two regionally significant species. Representative site for two ecological units, one of which is the sole record for Aupouri ED. Lake Taeroe appears to be drying out, although it is unclear if the cause is anthropogenic. Surrounding farm activities are likely to affect the site, particularly Lake Taeroe. The site also contains soils of national importance: lowland organic and gley soils, and good examples of Waiapu and Ruakaka soils. Lake Taeroe is a protected Wildlife Management Reserve with 11.4 ha protected within this site (DOC administered).

The only dune lake in the Eastern Northland Ecological Region. Representative for five wetland vegetation types, and share a dune slack. Probably the best example of a range of dune slack vegetation in the Waipu ED. Small but good quality example of dune slack vegetation that is uncommon nationally.
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Ecological District</th>
<th>Size (ha): (x)</th>
<th>Representativeness</th>
<th>Vegetation Diversity and Plurality</th>
<th>Rep Score</th>
<th>TG &amp; P Score</th>
<th>Hydrological Integrity Score</th>
<th>HI Score</th>
<th>Dominance of Native Species Score</th>
<th>Overall Summary</th>
<th>LENZ_Cat</th>
<th>Threatened Species Score</th>
<th>Threatened Species</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>250122</td>
<td>Edwards/Tikitiki Coastal Habitat</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>44.00</td>
<td>Representative site for raupo-harakeke reedland.</td>
<td>2</td>
<td>Extensive sequences of coastal vegetation from hill forest to freshwater wetlands to mangrove forest. Contiguous with extensive estuarine habitats within Q05/01 of high ecological value.</td>
<td>4</td>
<td>Some parts affected by causeways, but several areas without drainage and well buffered by indigenous vegetation.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>2.25</td>
<td>Several wetlands that form part of a larger area of coastal habitats including coastal forest, and estuarine wetlands. Intact ecological sequences from hill forest to freshwater wetlands to saltmarsh and mangrove forest. Some parts of the wetlands are well buffered and largely free of exotic plant species. Other areas affected by causeways and weed invasion (Mexican devil). Habitat for eight &quot;Threatened&quot; or &quot;At Risk&quot; wetland species, two regionally significant fish species, and maire tawake.</td>
<td>64.49</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>250337</td>
<td>Maungatapere Mountain</td>
<td>Swamp</td>
<td>Y</td>
<td>Waipu</td>
<td>0.50</td>
<td>Representative site for three wetland vegetation types in dune slack. Small but good quality example of dune slack vegetation that is uncommon nationally.</td>
<td>5</td>
<td>Poorly vegetated, with only a small area of vegetation on the dune slope. Majority of the area is covered by exotic vegetation.</td>
<td>4</td>
<td>Highly modified catchment but no evidence of drainage within the wetland itself.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.42</td>
<td>Small dune slack wetland with three representative vegetation types. One of only two dune slack wetlands in the ED, and one of only five natural coastal freshwater wetlands in ED. Only dune slack wetland in Whangaruru ED that is contiguous with indigenous forest. Good quality examples of dune slack vegetation are nationally uncommon. Habitat for Australasian bittern.</td>
<td>64.21</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>250353</td>
<td>Lake Wahakari</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Aupouri</td>
<td>162.00</td>
<td>Representative site for open water, raupo reedland, Gleichenia dicarpa-manuka swamp forest association, the latter of which is the sole record in Aupouri.</td>
<td>3</td>
<td>Contains a good example of open water grading into reedland and terrestrial shrubland. Largely surrounded by indigenous shrubland, pine plantation, and pasture.</td>
<td>3</td>
<td>No structures evident, although proximity to agricultural land and plantation is likely to affect hydrological integrity.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.33</td>
<td>Assessed by desktop exercise. High quality maire tawake-pukatea swamp forest in the Whangarei ED, and a regionally under-represented vegetation type. Contiguous with, and buffered by, indigenous vegetation that covers the remainder of the cone. Habitat for four nationally significant species (three plants, one bird - North Island tomtit).</td>
<td>63.99</td>
<td></td>
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<tr>
<td>56</td>
<td>250437</td>
<td>Sime Road Wetland</td>
<td>Swamp</td>
<td>Y</td>
<td>Whangarei</td>
<td>0.50</td>
<td>Only example of maire tawake-pukatea swamp forest in the Whangarei ED, and a regionally under-represented vegetation type.</td>
<td>4</td>
<td>One wetland vegetation type (swamp forest) contiguous with broadleafed forest on the slopes of the volcanic cone. Only example of a volcanic cone in the region that has retained complete forest cover, and therefore probably the best example of an ecological sequence on a volcano driven by drainage/erosion/sealevel gradients.</td>
<td>4</td>
<td>No evidence of drainage. Catchment of crater entirely covered in indigenous vegetation.</td>
<td>5</td>
<td>Chronically Threatened</td>
<td>0.33</td>
<td>Contained a good example of open water grading into reedland and terrestrial shrubland. Good quality examples of dune slack vegetation are nationally uncommon. Habitat for Australasian bittern.</td>
<td>63.92</td>
<td></td>
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<tr>
<td>57</td>
<td>250289</td>
<td>Youngs kahikatea Stream</td>
<td>Swamp</td>
<td>N</td>
<td>Kaikohe</td>
<td>12.10</td>
<td>Contains a small but representative for maire tawake-kahikatea-flax dune slack forest on volcanic flats, which is only one of two examples in Kaikohe ED. Swamp forest is regionally under-represented.</td>
<td>4</td>
<td>Contains three alluvial wetland types; ecological sequence of manuka shrubland grading into swamp forest. Surrounded by pasture.</td>
<td>3</td>
<td>Drains present. Some areas recently cleared. Vulnerable to grazing.</td>
<td>2</td>
<td>Acutely Threatened</td>
<td>0.08</td>
<td>The site comprises a small area of young kahikatea-dominant swamp forest in the upper catchment of the Ngawha Stream, in an Acutely Threatened Land Environment. Representative site for two vegetation types, and supports one regionally significant plant species. No information is available on fauna, although it is likely to be seasonally utilised by kukupa (regionally significant). The site lacks buffering and is vulnerable to stock incursions; some areas have been recently cleared. Further survey is recommended to determine the current ecological values and threats of the site.</td>
<td>63.83</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>250366</td>
<td>S Ulrich Rd Wetland</td>
<td>Swamp</td>
<td>Y</td>
<td>Aupouri</td>
<td>31.60</td>
<td>Good quality examples of raupo reedland, harakeke-raupo reedland, and harakeke flaxland. Wetlands dominated by harakeke are uncommon in the Northland Ecological Region (one of only two records in</td>
<td>4</td>
<td>Contains three wetland vegetation types; ecological sequence from reedland and flaxland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>Some farm drains present. Wetlands have no buffering and are likely to be degraded by stock.</td>
<td>2</td>
<td>Chronically Threatened</td>
<td>0.42</td>
<td>S Ulrich Wetland is relatively large, and is part of a chain of wetlands on the eastern coast of Kaiteri Peninsula. The site contains three representative vegetation types, and provides habitat for at least one nationally threatened species. Invasive weeds such as pampas are notably less abundant in this wetland than Northern Takerua Wetland, with</td>
<td>63.58</td>
<td></td>
</tr>
<tr>
<td>Ranking</td>
<td>Worksmart No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>On Dover</td>
<td>Ecological District</td>
<td>Score (1-6)</td>
<td>Vegetation Diversity and Flora</td>
<td>Representation Score</td>
<td>Hydrological Integrity Score</td>
<td>HI Score</td>
<td>Dominance Native Species Score</td>
<td>VD &amp; P Score</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
<td>Threatened Species Score</td>
<td>Threatened Score</td>
<td>DOC Administered</td>
</tr>
<tr>
<td>61</td>
<td>250346</td>
<td>Haupatutu Wharaina Bay Wetlands</td>
<td>Swamp</td>
<td>Y</td>
<td>To Paki</td>
<td>14.90</td>
<td>2</td>
<td>Contains three vegetation types and is within a coastal duneland-shrubland sequence.</td>
<td>5</td>
<td>Surrounded by indigenous vegetation.</td>
<td>5</td>
<td>Under-protected</td>
<td>6.67</td>
<td>A largely unmodified wetland system in the valley floor of a fully vegetated catchment. One &quot;Threatened&quot; and one &quot;At Risk&quot; species present. Site fully protected by a Scenic Reserve, administered by DOC.</td>
<td>63.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>250496</td>
<td>Frith Road Dairylands Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Kapara</td>
<td>65.20</td>
<td>4</td>
<td>Extensive area of freshwater wetland with several vegetation types. Some areas grading into indigenous forest on hillslope, remainder bordered by pasture.</td>
<td>3</td>
<td>No evidence of drainage but most of the wetland is grazed.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.08</td>
<td>Extensive interconnected areas of swamp forest, raupo-Coprosma reedland, and shrubland on seepages. Mostly grazed but retains high flora values with two &quot;At Risk&quot; and nine regionally significant plant species. The wetlands are partly contiguous with indigenous hillslope forest so the site is also important within the Kaipara ED for representation of vegetation sequences from wetlands to dryland forest, he largest and best example of kahikatea swamp forest in the Kaipara ED.</td>
<td>63.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>250288</td>
<td>Ngawha Swamps</td>
<td>Swamp</td>
<td>N</td>
<td>Kaikohe</td>
<td>24.18</td>
<td>3</td>
<td>Contains only two wetland vegetation types; wetlands in the south of the site are contiguous with indigenous forest/shrubland, thus a freshwater-terrestrial vegetation sequence is implied. Bounded by SH12 and farmland.</td>
<td>3</td>
<td>Partially bisected by SH12. Drains present. Some margins vulnerable to grazing.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>0.83</td>
<td>The site comprises a small area of remnant swamp forest hydrologically linked to four scattered raupo-dominant wetlands in an Acutely Threatened Land Environment. Representative for two wetland vegetation types, including one of only two examples of its type recorded in Kaikohe ED. Some wetlands are contiguous with a relatively large area of indigenous forest/shrubland to the south, while others are bordered by pasture and are thus vulnerable to grazing and trampling. The site supports one &quot;At Risk&quot; and one regionally significant plant species, and one &quot;Threatened&quot; and one &quot;At Risk&quot; bird species.</td>
<td>63.04</td>
<td></td>
<td></td>
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<tr>
<td>64</td>
<td>250492</td>
<td>Wetland East of Lake Rotopoua</td>
<td>Swamp</td>
<td>Y</td>
<td>Kaipara</td>
<td>20.00</td>
<td>4</td>
<td>Contains two wetland vegetation types and the only population of wire rush in the Pouto Peninsula. Surrounded by pasture.</td>
<td>3</td>
<td>Surrounded by farmland and deep drains.</td>
<td>1</td>
<td>Acutely Threatened</td>
<td>0.33</td>
<td>Representative freshwater wetland isolated by pastoral land that contains indigenous wetland vegetation including manuka-Skeua and artau-shrubland reedland and raupo reedland on alluvium. Probably an allogenic wetland which are rare in the Kaipara ED.</td>
<td>62.96</td>
<td></td>
<td></td>
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<tr>
<td>65</td>
<td>250478</td>
<td>Lake Waikere Wetland and Shrubland</td>
<td>Lacsunine</td>
<td>Y</td>
<td>Kaipara</td>
<td>21.35</td>
<td>5</td>
<td>Three freshwater vegetation types partially bordered by haka-manuka shrubland pasture and forestry surround the rest of the site.</td>
<td>2</td>
<td>Dammed dune lakes. From the smaller north-western lake, major drains flow into Lake Waikere. Smaller lake is unfenced.</td>
<td>1</td>
<td>Chronically Threatened</td>
<td>2.81</td>
<td>The site, which comprises two lakes, contains one of the two deepest dune lakes in New Zealand. Indigenous wetland communities occur on the lake margins. Despite being unfenced this area supports five &quot;Threatened&quot;, six, &quot;At Risk&quot; and two regionally significant species. It is part of a 538 ha Recreation Reserve administered by the Kaipara District Council.</td>
<td>62.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>250382</td>
<td>Oiiahia-Oihitoa</td>
<td>Swamp</td>
<td>N</td>
<td>Maungataniwha</td>
<td>33.50</td>
<td>3</td>
<td>Large valley floor wetland including the best and largest example of open water habitats in the Maungataniwha ED.</td>
<td>3</td>
<td>An extensive wetland with sequences from indigenous forest to reedland to open water. Best example of a wetland gradient including open water in the ED.</td>
<td>4</td>
<td>At Risk</td>
<td>1.25</td>
<td>Assessed by desktop exercise. Extensive wetland within a larger site of c.378 ha. High diversity of wetland types, including raupo reedland and open water. Largest area of open water in ED. Habitat for several &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species, and two regionally significant plant species. The swamp is the upper-most component of the Taikirau wetland chain in the Horahora Stream catchment. It is representative for one wetland vegetation type (harakeke flaxland), which is regionally uncommon. The swamp is surrounded by pasture and is vulnerable to drainage and stock. There is no information on fauna, and additional survey is recommended to determine the full ecological values of this site.</td>
<td>62.79</td>
<td></td>
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<tr>
<td>67</td>
<td>250564</td>
<td>Rata Tipene Road Harakeke Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Tangihua</td>
<td>13.00</td>
<td>4</td>
<td>The site contains two wetland vegetation types, and is surrounded by rough pasture.</td>
<td>4</td>
<td>Drains present (peripheral drainage is likely to have encouraged spread of harakeke). Margins vulnerable to grazing.</td>
<td>2</td>
<td>Chronically Threatened</td>
<td>0.00</td>
<td>The swamp is the upper-most component of the Taikirau wetland chain in the Horahora Stream catchment. It is representative for one wetland vegetation type (harakeke flaxland), which is regionally uncommon. The swamp is surrounded by pasture and is vulnerable to drainage and stock. There is no information on fauna, and additional survey is recommended to determine the full ecological values of this site.</td>
<td>62.74</td>
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</tr>
</tbody>
</table>
The site comprises a mosaic of wetland habitats, including open water and areas of reedland and shrubland on peat. Peat bogs are much reduced from their previous extent and are now an under-represented habitat type in Northland. Representative site for Baumea articulata-Eleocharis sphacelata-Isolepis prolifera association, which is the sole record for Aupouri ED. Supports one "Threatened" bird, one "At Risk" fish, and one "At Risk" plant. All areas are grazed to their margins, and some weeds are present.

**Table:**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Warrant No.</th>
<th>Main Wetland Type</th>
<th>On Dunes</th>
<th>Ecological District</th>
<th>Size (ha): (x)</th>
<th>On Dunes</th>
<th>Ecological District</th>
<th>Size (ha): (x)</th>
<th>Site Description</th>
<th>Dominance of Native Vegetation</th>
<th>Hydrological Integrity</th>
<th>HI Score</th>
<th>Ecology Score</th>
<th>Landscape Score</th>
<th>workshop. *</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>250382</td>
<td>Swamp</td>
<td>Y</td>
<td>Aupouri</td>
<td>14.10</td>
<td>Drains present. Margins grazed.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>0.83</td>
<td>The site comprises a mosaic of wetland habitats, including open water and areas of reedland and shrubland on peat. Peat bogs are much reduced from their previous extent and are now an under-represented habitat type in Northland. Representative site for Baumea articulata-Eleocharis sphacelata-Isolepis prolifera association, which is the sole record for Aupouri ED. Supports one &quot;Threatened&quot; bird, one &quot;At Risk&quot; fish, and one &quot;At Risk&quot; plant. All areas are grazed to their margins, and some weeds are present.</td>
<td>62.66</td>
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</tr>
<tr>
<td>69</td>
<td>250383</td>
<td>Lake Rotoreia and Wetlands</td>
<td>Lagoon</td>
<td>Aupouri</td>
<td>29.90</td>
<td>Drains present. Margins grazed.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>0.58</td>
<td>The site comprises a small, isolated, mineralised wetland fed by the Waianguru Stream, with peripheral swamp forest remnant. Representative for all four vegetation types, three of which are sole records for Kaikohe ED. Provides habitat for one &quot;Threatened&quot; and two &quot;At Risk&quot; bird species, and one &quot;Threatened&quot; and one &quot;At Risk&quot; plant species. Partially buffered by shrubland and forest, though some margins are vulnerable to stock incursions. Despite its size, it is likely to act as an important stepping stone between larger wetland sites (including Lakes Omapere and Chearsland).</td>
<td>62.15</td>
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<tr>
<td>70</td>
<td>250291</td>
<td>Waingaruru Stream Swamp</td>
<td>Swamp</td>
<td>Kaikohe</td>
<td>7.50</td>
<td>Small drains present though unlikely to affect site. Vulnerable to grazing.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.00</td>
<td>The site comprises a moderately-large mineralised wetland on an alluvial floodplain associated with the Puketotara and Patukauwae Streams. Outside of the Kapeha Swamp, it is one of the largest wetlands in Kaikohe ED. Representative for three vegetation types, but includes a sequence of open water grading into indigenous sedgeland. Wetland forest is a regionally under-represented habitat type.</td>
<td>62.66</td>
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<tr>
<td>71</td>
<td>250331</td>
<td>Kapowairua Wetland and Lagoon</td>
<td>Swamp</td>
<td>To Paki</td>
<td>26.40</td>
<td>Unmodified and in a well vegetated catchment</td>
<td>4</td>
<td>At Risk</td>
<td>3.83</td>
<td>One of the largest in a chain of dune lakes, with high ecological values, supporting two &quot;Threatened&quot; and one &quot;At Risk&quot; bird species, and one &quot;Threatened&quot; and one &quot;At Risk&quot; plant species. Representative site for two habitat types, one of which has only been recorded once in Aupouri ED. Only one small part is fenced; most of the margins of the site are grazed. Forms an important component in a local habitat network, providing a linkage to other wetlands and wetlands.</td>
<td>61.96</td>
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<tr>
<td>72</td>
<td>250294</td>
<td>Puketotara/Patukauwae Koine Stream Swamp</td>
<td>Swamp</td>
<td>Kaikohe</td>
<td>25.30</td>
<td>Difficult to discern if drains are present. Cattle access is restricted by the river and wet substrate.</td>
<td>4</td>
<td>Chronic Threatened</td>
<td>1.00</td>
<td>The site comprises a moderately-large mineralised wetland on an alluvial floodplain associated with the Puketotara and Patukauwae Streams. Outside of the Kapeha Swamp, it is one of the largest wetlands in Kaikohe ED. Representative for three vegetation types, two of which are the only known examples in the ED. Supports two &quot;Threatener&quot; and one &quot;At Risk&quot; bird species. May perform a linking function for the dispersal/movement of wetland species between the Motataua-Pokapu wetland complex and those of the Waipat effort complex. Although bordered by pasture, stock access to the site is limited.</td>
<td>61.55</td>
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<tr>
<td>73</td>
<td>250301</td>
<td>Tauroko Wetland</td>
<td>Swamp</td>
<td>Kaikohe</td>
<td>5.40</td>
<td>Only two wetland vegetation types, but includes a sequence of open water grading into indigenous sedgeland. Wetland forest is a regionally significant plant species; grey duck (&quot;Threatened-Nationally Critical&quot;) has been recorded from the site, but further survey is required of the current fauna values of the site.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>0.87</td>
<td>The site comprises a small mineralised wetland remnant with a substantial area of open water, bisected by Mangakahia Road. Representative for two vegetation types, of which one (Carex secta sedgeland) is uncommon in Northland and is the only example in Kaikohe ED. Supports two</td>
<td>61.38</td>
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<tr>
<td>Ranking</td>
<td>Contract No.</td>
<td>Name</td>
<td>Location</td>
<td>Area (ha)</td>
<td>Vegetation Type</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Dominance Rating</td>
<td>LEI Score</td>
<td>Threatened Species Score</td>
<td>Overall Summary</td>
<td></td>
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<tr>
<td>74</td>
<td>250570</td>
<td>Harembee Road Swamp</td>
<td>N Manaia</td>
<td>9.40</td>
<td>Comprises the central linkage in a complete ecological sequence from indigenous forest to grassy ridge and to saltmarsh in the Talahiru estuary, the only such example in Manaia ED.</td>
<td>3</td>
<td>4</td>
<td>Fed by streams within a forested catchment. Area surveyed is fenced and partially buffered by bushland; intersected by a farm road at the top of the wetland. Western arms of the wetland were not surveyed and may be vulnerable to grazing.</td>
<td>5 3</td>
<td>At Risk</td>
<td>0.75</td>
<td>The site is one of the best freshwater wetlands remaining in Manaia ED and is part of a very good altitudinal sequence from forest to saltmarsh. Supports at least one &quot;Threatened&quot; and one &quot;At Risk&quot; species of wetland bird, one &quot;At Risk&quot; fish species, and one regionally significant fish species. Most of the wetland is fenced and retired, and downstream sections are partially buffered by bushland and the road. Some parts of the wetland, however, were not surveyed and may be vulnerable to grazing. Further survey is required to determine the site's full ecological values.</td>
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<tr>
<td>75</td>
<td>250377</td>
<td>Lake Morehurehu &amp; Wetland</td>
<td>Y Aupouri</td>
<td>36.00</td>
<td>Contains two habitat types, with an ecological sequence of open water grading into reedland, which connects with surrounding manuka shrubland on sand flats.</td>
<td>3</td>
<td>3</td>
<td>Completely buffered by pine. No drains or stock access. Removal of pine could affect water table.</td>
<td>4 5</td>
<td>Chronically Threatened</td>
<td>1.92</td>
<td>A relatively large open-water dune lake and wetland on Chronically Threatened Land Environment that supports two &quot;Threatened&quot; and three &quot;At Risk&quot; bird species and one &quot;Threatened&quot; plant species. The lake is a representative example of its type in the ED, but is vulnerable to grazing due to the effects of future pine harvesting.</td>
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<tr>
<td>76</td>
<td>250419</td>
<td>Upper Pungare gumland</td>
<td>N Kerikeri</td>
<td>287.50</td>
<td>Only one vegetation type is listed as present but there is probably considerable variation within the site according to drainage and soil types.</td>
<td>3</td>
<td>3</td>
<td>No evidence of drainage.</td>
<td>5 4</td>
<td>Critically Under-protected</td>
<td>0.25</td>
<td>Large area of manuka-dominated gumland with unusual underlying geology. Representative site for manuka shrubland in Kerikeri ED, and habitat for North Island fernbird. Recent vegetation clearance at northern end.</td>
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<tr>
<td>77</td>
<td>250562</td>
<td>McDonald Coastal Shrubland</td>
<td>N Manaia</td>
<td>35.00</td>
<td>Gumdland contiguous with secondary coastal forest.</td>
<td>3</td>
<td>3</td>
<td>No evidence of grazing or drainage.</td>
<td>5 3</td>
<td>At Risk</td>
<td>0.83</td>
<td>The only area of gumland in the Manaia ED. On a daisie dominated and contiguous with secondary coastal forest. Habitat for North Island brown kiwi, North Island fernbird, and three regionally significant plant species. Threatened by weed invasion (radada pine, contorta pine, hakea, aridarea).</td>
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<tr>
<td>78</td>
<td>250565</td>
<td>Horahora Stream Swamp Association</td>
<td>N Tangihua</td>
<td>24.00</td>
<td>The site contains a relatively diverse wetland flora, which form part of an excellent alluvial floodplain in swamp forest-terrestrial forest sequence.</td>
<td>3</td>
<td>3</td>
<td>Some drains present. Wetland is being grazed.</td>
<td>3 4</td>
<td>Critically Under-protected</td>
<td>0.17</td>
<td>The wetland occupies a narrow valley floor and is representative for three vegetation types, two of which are sole records for Aupouri ED. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;Threatened&quot; plant (Todea benettii), one &quot;At Risk&quot; bird (Koaro, black-faced swamphen) and one regionally significant plant species (Cassinia prostrata), and one regionally significant fish species (Stegastes semidiadema). They are vulnerable to grazing. Further survey is required to determine the full ecological values of the site.</td>
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<tr>
<td>79</td>
<td>250565</td>
<td>Karaitia Wetland</td>
<td>N Aupouri</td>
<td>27.00</td>
<td>Contains a very good example of a sequence of two swamp associations grading into raupo reedland and then kanuka shrubland. Surrounded by pine plantation and pasture.</td>
<td>3</td>
<td>3</td>
<td>Some drains present on wetland margins. Some margins buffered by pine and other areas vulnerable to grazing.</td>
<td>4 5</td>
<td>Under-protected</td>
<td>1.50</td>
<td>The wetland occupies a narrow valley floor and is representative for three vegetation types, two of which are sole records for Aupouri ED. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;Threatened&quot; plant (Todea benettii), one &quot;At Risk&quot; bird (Koaro, black-faced swamphen) and one regionally significant plant species (Cassinia prostrata), and one regionally significant fish species (Stegastes semidiadema). They are vulnerable to grazing. Further survey is required to determine the full ecological values of the site.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>80</td>
<td>250147</td>
<td>Haumanga Road Wetland</td>
<td>N Hokianga</td>
<td>26.00</td>
<td>Contains three wetland vegetation types. The adjoining saltmarsh grades into raupo then manuka then kanuka</td>
<td>3</td>
<td>3</td>
<td>No drains or structures evident. Grazed.</td>
<td>4 5</td>
<td>Chronically Threatened</td>
<td>0.00</td>
<td>A small wetland situated at the freshwater-saline interface of the Avakura River. Representative for three vegetation types and part of a saltmarsh-freshwater-terrestrial ecological sequence. A</td>
<td></td>
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</tbody>
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DRAFT
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<tr>
<th>Ranking</th>
<th>Wka No.</th>
<th>Name</th>
<th>EC Dist.</th>
<th>RA</th>
<th>Main Wld Type</th>
<th>Vegetation Diversity and Pattern</th>
<th>HI</th>
<th>HI Score</th>
<th>Dominance of Native Fish</th>
<th>LSE Cat</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
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<tr>
<td>81</td>
<td>290379</td>
<td>Lake Waikop and Shrubs</td>
<td>Aupouri</td>
<td>Y</td>
<td>Lacustrine</td>
<td>Vegetation remains in the Kerikeri ED, and the only vegetation of this type on a rhyolitic dome. Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>4</td>
<td>4</td>
<td>0.87</td>
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<tr>
<td>82</td>
<td>290512</td>
<td>Lake Kanoro Wetland and Forest</td>
<td>Kaipara</td>
<td>Y</td>
<td>Lacustrine</td>
<td>Vegetation remains in the Kerikeri ED, and the only vegetation of this type on a rhyolitic dome. Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>4</td>
<td>4</td>
<td>0.87</td>
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<tr>
<td>83</td>
<td>250112</td>
<td>Maungaparetua-Gumlands</td>
<td>Kerikeri</td>
<td>N</td>
<td>Pakihi and gumland</td>
<td>Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>5</td>
<td>3</td>
<td>0.17</td>
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<tr>
<td>84</td>
<td>290363</td>
<td>Kowhai Swamps</td>
<td>Aupouri</td>
<td>Y</td>
<td>Swamp</td>
<td>Vegetation remains in the Kerikeri ED, and the only vegetation of this type on a rhyolitic dome. Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>4</td>
<td>5</td>
<td>0.87</td>
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<tr>
<td>85</td>
<td>250464</td>
<td>Waipoua Forest Gumlands</td>
<td>Tutamoe</td>
<td>N</td>
<td>Pakihi and gumland</td>
<td>Vegetation remains in the Kerikeri ED, and the only vegetation of this type on a rhyolitic dome. Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>5</td>
<td>5</td>
<td>0.87</td>
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<td>86</td>
<td>290339</td>
<td>Waimango Swamp</td>
<td>Aupouri</td>
<td>Y</td>
<td>Swamp</td>
<td>Vegetation remains in the Kerikeri ED, and the only vegetation of this type on a rhyolitic dome. Contiguous with indigenous forest on the lower dunes which is contiguous with duneland. Supports one &quot;Threatened&quot; bird (Australasian bittern), one &quot;At Risk&quot; fish (black mudfish), one regionally significant plant (Coprosma parviflora), and provides potential habitat for spotted crane (At Risk-Relict) and other wetland fauna.</td>
<td>2</td>
<td>Contains three wetland vegetation types: ecological sequence grading from reedland and sedgeland in dune hollow to shrubland on dunes.</td>
<td>3</td>
<td>No structures evident.</td>
<td>5</td>
<td>5</td>
<td>0.87</td>
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<td>Ranking</td>
<td>Warrant No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>On Dunes</td>
<td>Geographical Representativeness</td>
<td>Vegetation Diversity and Pattern</td>
<td>VD &amp; P Score</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Dominance Native Reptile Score</td>
<td>LENZ Cat</td>
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<tr>
<td>87</td>
<td>250033</td>
<td>Tutamo Domain</td>
<td>Swamp</td>
<td>N Tutamo</td>
<td>9.30</td>
<td>Representative site for kahikatea-maire tawake swamp forest and toeai swamp forest, and the only location for these vegetation types in the Tutamo ED. Good quality examples of swamp forest are regionally under-represented.</td>
<td>4 Two wetland vegetation types present, surrounded by pasture.</td>
<td>5 Hydrologically unmodified</td>
<td>5 No Threat Category</td>
<td>0.58</td>
<td>Small area of old-growth kahikatea-maire tawake swamp forest within a larger area of swamp forest dominated by toeai. Representative for both swamp forest vegetation types, present which are both not recorded elsewhere in the Tutamo ED. Swamp forest on alluvium is a habitat type that has been significantly reduced at a national scale.</td>
<td>58.96</td>
<td></td>
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<tr>
<td>88</td>
<td>250153</td>
<td>Rangahua Wetland</td>
<td>Swamp</td>
<td>N Hokianga</td>
<td>12.00</td>
<td>Representative site for harakeke-Coprosma propinqua-manuka II kouka swamp association on alluvium in Hokianga ED (sole record in the ED). Harakeke-dominated wetlands are a regionally rare habitat type.</td>
<td>4 Contains only one vegetation type. The site was once part of an extensive transitional ecotone between alluvial swamp forest and saltmarsh associations.</td>
<td>3 Bisected by driveway, margins likely to be grazed. Crack willow is frequent and may influence water level. Some of the site has already been lost to pastoral development.</td>
<td>4 At Risk</td>
<td>0.17</td>
<td>This site is a small remnant of an once extensive transitional ecotone between alluvial swamp forest and saltmarsh associations. It is influenced primarily by a high water table, high fertility and periodic inundation by brackish water during spring tides. Supports two regionally significant plants and is a representative site for harakeke-Coprosma propinqua-manuka II kouka swamp association on alluvium (the sole record in Hokianga ED). Not surveyed for fauna, but sites of this nature are used extensively by spawning galaxias, N fibrosus, and banded rail which are known from sites further downstream. Some areas have been drained for pasture. Crack willow is frequent throughout the site.</td>
<td>58.75</td>
<td></td>
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<tr>
<td>85</td>
<td>250107</td>
<td>Te Taro Pond</td>
<td>Ephemeral</td>
<td>N Kerikeri</td>
<td>44.40</td>
<td>Representative site for Baumea sedgeland and Polygonum- Spilium-isolaaps herbfield. Ephemeral wetlands on volcanic substrates under-represented regionally, but the site is degraded by weed invasion and drainage.</td>
<td>3 A good examples of wetland vegetation types, including open water, ephemeral herbfield, sedgeland, and reedland.</td>
<td>3 Main wetland area dissected by drains but these do not exit the wetland area. Well buffered by indigenous and exotic scrub.</td>
<td>3 Acutely Threatened</td>
<td>0.87</td>
<td>Ephemeral wetland on volcanic substrates. The wetland is in a former lake bed, and floods after heavy rain. Small areas of permanent open water ephemeral herbfields, sedgeland and reedland. Representative for two wetland vegetation types and habitat for waterfowl.</td>
<td>58.48</td>
<td></td>
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<tr>
<td>90</td>
<td>250557</td>
<td>Ukehehe Wetlands</td>
<td>Swamp</td>
<td>N Tangihua</td>
<td>22.40</td>
<td>Contains good quality examples of kahikatea swamp forest and manuka shrubland in swamp.</td>
<td>4 Contains two wetland vegetation types, which form part of an ecological sequence with surrounding shrubland and forest.</td>
<td>3 One drain present at north of site. Some arms of wetland are bisected by forestry roads. Future harvesting my have adverse impacts on hydrology. No stock access.</td>
<td>3 At Risk</td>
<td>0.33</td>
<td>The site comprises a relatively large wetland occupying a gully floor within pine plantation. It contains good examples of kahikatea swamp forest and manuka shrubland in swamp, and it is known to support North Island fernbird (At Risk-Declining) and lamprey (At Risk-Sparse). Well buffered by existing plantation forest. Hydrology likely to be largely intact, although future harvesting may have adverse impacts.</td>
<td>58.43</td>
<td></td>
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<tr>
<td>91</td>
<td>250565</td>
<td>Mangio Road Wetland</td>
<td>Swamp</td>
<td>N Tangihua</td>
<td>6.70</td>
<td>The site is representative for raupo reedland in swamp and harakeke-raupo flaxland in swamp, the letter of which is a regionally under-represented habitat type.</td>
<td>4 The site contains two wetland vegetation types, and an example of raupo reedland grading into manuka shrubland.</td>
<td>3 The wetland is bounded by Poiapu Road along its northern boundary. Well buffered by pine plantation and not accessible by stock. No drains evident.</td>
<td>4 Chronically Threatened</td>
<td>0.42</td>
<td>The site comprises a narrow raupo-dominant wetland buffered by pine plantation. It is linked to Taikirau Wetland and Shrublands (P06/072) by Waipuna Stream. Representative for two ecological units and supports two &quot;At Risk&quot; bird species and one regionally significant plant species. The site is currently well-buffered by mature pine plantation and most weed species are confined to the wetland margins.</td>
<td>58.38</td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>250485</td>
<td>Dinks Gully Wetland</td>
<td>Swamp</td>
<td>Y Kapara</td>
<td>60.00</td>
<td>Freshwater wetland within a larger site which is the best example of the only semi-consolidated dune system in the ED still predominantly under</td>
<td>3 Contains only one wetland vegetation type, but is part of a sequence of indigenous vegetation that grades from unconsolidated coastal sand</td>
<td>3 Bounded by sand dunes and cliff faces, no apparent evidence of drainage.</td>
<td>4 Chronically Threatened</td>
<td>1.17</td>
<td>This large site with its diverse array of contiguous plant communities is representative of indigenous vegetation on the only semi-consolidated dune system in the ED, is still predominantly under native vegetation, and supports two &quot;Threatened&quot;, widespread coastal wetland complex which is habitat for many threatened plants and animals. The site supports seven threatened species, seven &quot;At Risk&quot; species, and one regionally significant species. Partially buffered by dunes, indigenous shrubland, exotic plantation, and pasture. Representative for two ecological units. Approximately 46.6% of the site is protected (DOC-administered).</td>
<td>58.28</td>
<td></td>
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<td>Ranking</td>
<td>Reference No.</td>
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<td>Main Wetland Type</td>
<td>On / Off</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Natural Vegetation</td>
<td>Representativeness</td>
<td>Vegetation Diversity and Pattern</td>
<td>Size (ha)</td>
<td>Hydrological Integrity</td>
<td>Riparian Strip</td>
<td>Overall Summary</td>
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<tr>
<td>93</td>
<td>295550</td>
<td>Totara Bush Associations</td>
<td>Swamp</td>
<td>N</td>
<td>Tangihua</td>
<td>140.00</td>
<td>Dunes to semi-consolidated dunes, with occasional freshwater wetlands and manuka shrubland and shrub grassland on coastal faces.</td>
<td>2</td>
<td>The site contains four types of wetland vegetation, which range from sedgeland to swamp forest. It is part of an excellent example of secondary and cut-over hill country forest grading into aluvial and swamp forests, and eventually into freshwater wetland. The wetland is also contiguous with pine plantation.</td>
<td>3</td>
<td>Largely unmodified. Well-buffered by indigenous and plantation forest.</td>
<td>5</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>94</td>
<td>295390</td>
<td>Church Rd Swamp Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Maungataniwha</td>
<td>30.90</td>
<td>A rare remnant swamp forest which was formerly common in this part of the Ecological District. Site is one of the best stands of lowland kahikatea forest in the District. Contains a wide range of divaricating shrubs including one uncommon and one unusual Coprosma. Good quality examples of swamp forest are regionally under-represented.</td>
<td>4</td>
<td>Kahikatea, puriri and cabbage tree treedeland; totara forest.</td>
<td>2</td>
<td>Site is fragmented within pasture, with farm tracks and fencing present, but no visible structures affecting hydrology.</td>
<td>4</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>95</td>
<td>295340</td>
<td>Waitangi Stream Wetland and Riparian Strip</td>
<td>Swamp</td>
<td>N</td>
<td>Te Paki</td>
<td>20.50</td>
<td>Representative example for raupo reedland within swamp in the Te Paki ED.</td>
<td>2</td>
<td>Contains only one vegetation type (raupo reedland), but is contiguous with a large area of indigenous forest and shrubland.</td>
<td>3</td>
<td>Mostly buffered by indigenous vegetation, some plantation forestry.</td>
<td>3</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>96</td>
<td>295058</td>
<td>Lake Rotopouoa Wetland and Forest</td>
<td>Swamp</td>
<td>Y</td>
<td>Kapara</td>
<td>27.70</td>
<td>Good quality dune lake and associated swamp. Representative site for two wetland vegetation types.</td>
<td>2</td>
<td>Contains three wetland vegetation types within a sequence from open water to kanuka forest.</td>
<td>3</td>
<td>Partially buffered by plantation forestry.</td>
<td>3</td>
<td>Chronically Threatened</td>
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<tr>
<td>97</td>
<td>295391</td>
<td>Pairatangi Rd</td>
<td>Pakihi and gumland</td>
<td>N</td>
<td>Maungataniwha</td>
<td>50.70</td>
<td>Valley floor freshwater wetlands with gumland vegetation on ridges and hillslopes. Degraded by weed invasion and clearance but still the best, if not the only, example of gumland on a raised marine terrace in the Maungataniwha ED.</td>
<td>3</td>
<td>Nearly continuous sequences from freshwater wetlands to gumland vegetation. Saline influenced wetlands are probably also present on the margins of the Pairatangi River.</td>
<td>3</td>
<td>Drainage ditches visible within some freshwater wetlands, with one constructed pond.</td>
<td>3</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>98</td>
<td>295378</td>
<td>Wageners Swamps</td>
<td>Swamp</td>
<td>Y</td>
<td>Aupouri</td>
<td>40.00</td>
<td>This site contains a representative example of manuka/Eleochites spiculata swamp association, which is only one of two records in</td>
<td>2</td>
<td>Three vegetation types are present, forming ecological sequences of open water grading into reedland; shrubland and dune fields.</td>
<td>3</td>
<td>Drains present. Some margins grazed.</td>
<td>4</td>
<td>At Risk</td>
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<td>Ranking</td>
<td>Contract No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
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<td>Hydrological Integrity</td>
<td>Dominance Native Vegetation</td>
<td>Total Weighted Score</td>
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<tr>
<td>99</td>
<td>250387</td>
<td>West Coast Rd Shrubland</td>
<td>Bog</td>
<td>Aupouri ED.</td>
<td>5.10</td>
<td>Contains peat swamp (regionally uncommon habitat type), although quality cannot be assessed from the information available. Representative for Baeomia juncea-manuka association.</td>
<td>4</td>
<td>5</td>
<td>Under-protected</td>
<td>57.61</td>
<td></td>
<td></td>
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<tr>
<td>100</td>
<td>250477</td>
<td>Horahora Dune Lake</td>
<td>Lacustrine</td>
<td>Whangaruru ED.</td>
<td>2.00</td>
<td>Not covered by PNP report. Only dune lake in Whangaruru ED, and one of two in the Eastern Northland Ecological Region.</td>
<td>4</td>
<td>3</td>
<td>At Risk</td>
<td>57.23</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>101</td>
<td>250431</td>
<td>Waiake Road Quary</td>
<td>Pakhi and gumland</td>
<td>Puketi</td>
<td>23.30</td>
<td>Representative site for gumland vegetation in the Kerikeri ED, but invaded by gorse.</td>
<td>2</td>
<td>1</td>
<td></td>
<td>57.16</td>
<td></td>
<td></td>
<td></td>
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<td>102</td>
<td>250297</td>
<td>Punakitere Valley Swamp Forest</td>
<td>Swamp</td>
<td>Kakohe</td>
<td>19.00</td>
<td>Although the site is fragmented, it is representative for manuka-shrubland on alluvium and kahikatea forest on alluvium (the largest recorded area in Kakohe ED). Swamp forest is a regionally under-represented habitat type.</td>
<td>4</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>57.13</td>
<td></td>
<td></td>
<td></td>
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<td>103</td>
<td>250471</td>
<td>Kaimanu Stream Riverine Forest</td>
<td>Swamp</td>
<td>Whangaruru</td>
<td>4.55</td>
<td>Representative site for kahikatea forest on alluvium. Presence of maike tawake is indicative of swamp forest, and swamp forest on alluvium is regionally under-represented.</td>
<td>4</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>57.09</td>
<td></td>
<td></td>
<td></td>
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<td>104</td>
<td>250467</td>
<td>Punaruku/Paranaranui Bay Coastal Habitat</td>
<td>Swamp</td>
<td>Whangaruru</td>
<td>36.00</td>
<td>Good quality example of an infertile freshwater wetland on a valley floor.</td>
<td>2</td>
<td>1</td>
<td></td>
<td>57.09</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>105</td>
<td>250358</td>
<td>Whakaterehau Stream Swamp</td>
<td>Swamp</td>
<td>Aupouri</td>
<td>18.40</td>
<td>Wetter representative site for oioi swamp forest and Batavia rubiginosa sedgeland, the latter</td>
<td>3</td>
<td>3</td>
<td></td>
<td>56.97</td>
<td></td>
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<tr>
<td>Rank</td>
<td>Contract No.</td>
<td>Name</td>
<td>Ecological District</td>
<td>Total Weighted Score</td>
<td>Overall Summary</td>
<td>Threatened Species Score</td>
<td>Dominance Native</td>
<td>Resistant Score</td>
<td>CV %</td>
<td>Longevity of Plant Span</td>
<td>Threatened Species</td>
<td>Hydrological Integrity</td>
<td>Vegetation Diversity and Phytomass</td>
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<tr>
<td>106</td>
<td>250237</td>
<td>Maraenoe Swamps</td>
<td>N Kaikohe</td>
<td>6.50</td>
<td>The only site in Kaikohe ED that contains Apodasmia sedgeland in swamp.</td>
<td>3 Grades from reedland to sedgeland to alluvial forest.</td>
<td>3 A third wetland was also identified in 1978 and registered as a SSSI but has since been drained, reducing the total area by c. 9 hectares.</td>
<td>4 5 Acutely Threatened 0.08</td>
<td>This site comprises two small remnant freshwater swamps within the Lower Utlakura River valley on Acutely Threatened Land Environment. Contain three vegetation types, two of which, representative, and supports one &quot;At Risk&quot; bird species. The wetlands do not appear to be grazed. Exotic shrubland borders both, but the wetlands are not currently under threat from weeds.</td>
<td>56.72</td>
<td></td>
<td></td>
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<tr>
<td>107</td>
<td>250229</td>
<td>Te Rio Lagoon</td>
<td>Y Tutamoe</td>
<td>17.80</td>
<td>Representative site for all four wetland vegetation types present, and the only location for open water in dune lake and raupo reedland in dune lake in the Tutamoe ED.</td>
<td>3 Four wetland vegetation types but some degradation due to weed invasion and lowered water table. Surrounded by plantation forestry.</td>
<td>3 Surrounding pine forestry is probably causing lowered water levels</td>
<td>2 3 Chronically Threatened 1.87</td>
<td>Largest of two dune lakes in Tutamoe ED. Four vegetation types, all of which are representative, and two ecological units not found elsewhere in Tutamoe ED. Four &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species, one &quot;Regionally Threatened&quot; bird species, and one regionally significant plant species. Site is the only known habitat in the Tutamoe ED for the Nationally Endangered bladenewt Chelidura australis. The site is threatened by the surrounding pines that are probably lowering the water table.</td>
<td>56.89</td>
<td></td>
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<tr>
<td>108</td>
<td>250481</td>
<td>Omamari Government Purpose Wildlife Management Reserve and Surrounds</td>
<td>N Kaipara</td>
<td>85.20</td>
<td>Representative site of harakeke-pampas fastland, Baumea anthophylla sedgeland and raupo reedland on alluvium in Kaipara ED.</td>
<td>2 This site has four wetland vegetation types and contains a good example of freshwater vegetation grading into manuka shrubland on adjacent hillslopes.</td>
<td>3 More than half of the wetland edge is buffered by indigenous shrubland, with much of the rest being affected by surrounding farm activities. No evidence of drainage.</td>
<td>4 3 Acutely Threatened 2.25</td>
<td>Largest remaining freshwater wetland in the Kaipara ED, relatively weed free and provides habitat for two &quot;Threatened&quot;, five &quot;At Risk&quot; and three regionally significant species. A portion of the site is protected as a Wildlife Management Reserve and administered by DOC. Three discrete wetlands are undescribed to the north of the main wetland.</td>
<td>56.67</td>
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<tr>
<td>109</td>
<td>250530</td>
<td>Mititai/Okahue Stream Remnant</td>
<td>N Tokatoka</td>
<td>4.00</td>
<td>Good example of ti kouka swamp forest within Tokatoka ED. Swamp forest is a regionally uncommon vegetation type.</td>
<td>4 One wetland vegetation type (swamp forest) contiguous with indigenous forest.</td>
<td>3 Well connected to stream channel but almost surrounded by pasture and probably grazed.</td>
<td>3 4 Chronically Threatened 0.08</td>
<td>Ti kouka swamp forest on alluvium. Surrounded by pasture but well connected with stream channel. Habitat for one regionally significant plant species (manatu). Size estimated from aerial photograph, and fauna not surveyed.</td>
<td>56.53</td>
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<tr>
<td>110</td>
<td>250448</td>
<td>Rotomate Road Volcanic Cones</td>
<td>N Whanganui</td>
<td>2.50</td>
<td>Representative site for manuka swamp shrubland in the Whanganui ED, and the only site in the ED for Baumea rubiginosa-Juncus-willow wetland-Sphagnum association. The site is the only wetland in a volcanic crater in the ED, and this feature is also regionally rare.</td>
<td>4 Three wetland habitat types are present (open water, Baumea rubiginosa-Juncus-willow- Sphagnum association, and manuka swamp shrubland) and these form an ecological sequence within the wetland. The site is surrounded by pasture but is close to indigenous forest on the slopes of the volcanic cone.</td>
<td>3 No evidence of drainage, but the hydrology is probably partially modified by grazing.</td>
<td>4 4 Critically Under protected 0.00</td>
<td>Small wetland in the crater of a volcanic cone. Unusual geological substrate, both within the ED and regionally. Representative for manuka swamp shrubland, and the only locality for Baumea rubiginosa-Juncus-willow-Sphagnum association in the ED. Most of surrounding crater sides are covered in pasture.</td>
<td>56.50</td>
<td></td>
<td></td>
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<tr>
<td>111</td>
<td>250296</td>
<td>Tauanui Volcanic Lake</td>
<td>N Kaikohe</td>
<td>10.00</td>
<td>Good quality example of a volcanic lake, a habitat type that is regionally uncommon in Northland.</td>
<td>4 Although indigenous wetland vegetation types have not been recorded from the site, it still forms part of good quality lacustrine-terrestrial forest ecological sequence.</td>
<td>3 Limited grazing. Overall, hydrological integrity is likely to be good. Lake is ponded by basalt cone and lava flows.</td>
<td>4 3 Chronically Threatened 0.25</td>
<td>Assessed by desktop exercise. This site comprises a small lake located next to Tauanui Volcano. It is well buffered by indigenous forest and is hydrologically intact, although some margins are likely to be grazed. The site provides important habitat for waterfowl (including little shag (At Risk - Naturally Uncommon), black shag (At Risk - Naturally Uncommon), and NZ shoveller (regionally significant). Volcanic lakes are regionally uncommon in Northland. The lake contains at least two species of invasive aquatic weeds.</td>
<td>56.46</td>
<td></td>
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</tr>
</tbody>
</table>
3.5 Chronically Likely to be affected by Threatened estuarine margins of the Waihou River. It contains a sequence of brackish to saline wetland types and is representative for three vegetation types, two of which are sole records in Hokianga ED. Supports one “Threatened” bird (Australasian bittern) and one “At Risk” bird (Nil fernbird). Approximately two hectares of the freshwater wetland is protected Stewardship Land administered by the DOC. Past drainage schemes and dykes have greatly reduced the area of this habitat type.

Far North Rd Shrublands and Wetlands

3.5 At Risk 1.08 The wetlands form part of a mosaic of partially linked shrubland and wetland habitats, including eutrophic and mesotrophic wetland types. The site supports one “Threatened” and one “At Risk” bird species, two “At Risk” and one regionally significant fish species. Representative site for three wetland vegetation types. At least one wetland is fenced, although weeds remain a threat. 30.6 ha of the site is protected by a QEII Open Space Covenant, although it is not known what area of wetlands fall within this covenant. Additional survey is recommended to determine further ecological significance.

Waiku Coach Road Wetlands

3.5 Better Protected and Loss Reduced 0.33 The site comprises two small artificial ponds buffered by exotic plantation forest. Representative for mārā tawake forest, which is the only record in Hokianga ED, although diversity is restricted by small size and lack of open water. Supports one “At Risk” bird (Nil fernbird) and one regionally significant plant species (mārā tawake). Buffering and exclusion of farming activities would improve hydrology, although this may decline following the harvesting of adjacent pines.

Kawakawa Floodplain

4.00 Representative site for mārā tawake forest, which is the only example recorded in Hokianga ED and is regionally under-represented.

Wild Horse Wetland

2.60 Representative and the only site for mārā tawake forest in Tutamoe ED. Mārā tawake forest is a regionally under-represented vegetation type.

Marlborough Road Forest

3.00 Representative for kahikatea-ki Kouka swamp forest in swamp and raupo reedland in swamp. It is only one of three examples of kahikatea-ki Kouka associations in Hokianga ED.

Whauharu Swamp

3.00 Representative for kahikatea-ki Kouka swamp forest in swamp and raupo reedland in swamp. It is only one of three examples of kahikatea-ki Kouka associations in Hokianga ED.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Contract Report No. 2489</th>
<th>Main Wetland Type</th>
<th>On Farm</th>
<th>Ecological District</th>
<th>Size (ha)</th>
<th>Vegetation Diversity and Pattern</th>
<th>VD &amp; P Score</th>
<th>Vegetation Integrity</th>
<th>HI Score</th>
<th>Dominance of Native B. Species</th>
<th>LEI Cat</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
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<tr>
<td>112</td>
<td>250154</td>
<td>Hautau Steeen Remnant</td>
<td>Swamp</td>
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<td>Hokia</td>
<td>5.00</td>
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<tr>
<td>113</td>
<td>250380</td>
<td>Far North Rd Shrublands and Wetlands</td>
<td>Swamp</td>
<td>Y</td>
<td>Aoupou</td>
<td>13.80</td>
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<td>250159</td>
<td>Waiku Coach Road Wetlands</td>
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<td>N</td>
<td>Hokia</td>
<td>4.00</td>
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<td>115</td>
<td>250116</td>
<td>Kawakawa Floodplain</td>
<td>Ephemeral</td>
<td>N</td>
<td>Keri</td>
<td>75.00</td>
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<tr>
<td>116</td>
<td>250376</td>
<td>Wild Horse Wetland</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Aoupou</td>
<td>7.90</td>
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<td>0.00</td>
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<td>Marlborough Road Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Tutamo</td>
<td>2.60</td>
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<td></td>
<td></td>
<td>0.17</td>
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<tr>
<td>118</td>
<td>250163</td>
<td>Whauharu Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Hokia</td>
<td>11.00</td>
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<td>Ecological District</td>
<td>Representativeness</td>
<td>Vegetation Diversity and Pattern</td>
<td>V/G &amp; Pic Score</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Degree of Native</td>
<td>LHS_Cat</td>
<td>Threatened Species Score</td>
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<tr>
<td>119</td>
<td>250441</td>
<td>Mangakahia River Wetland</td>
<td>Swamp</td>
<td>Whangai &amp;</td>
<td>N</td>
<td>Whangai &amp;</td>
<td>4.20</td>
<td>Representativeness for 4 Ti Kouka-Coprosma propinqua swamp forest in the Whangarei ED. Good quality examples of swamp forest are a regionally under-represented vegetation type.</td>
<td>3</td>
<td>No evidence of stop banks or drainage, but surrounded by pasture and likely to be grazed.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>0.17</td>
<td>Assessed by desktop exercise. Representative site for kahikatea swamp forest and the only site for ti kouka-Coprosma propinqua swamp forest on alluvium in the Whangarei ED. Partly cleared past last survey in 1994, and further survey is needed to accurately determine extent of wetland habitat. The site is probably grazed but there is no evidence of drainage. Habitat for two regionally significant plant species (kakomako and Hohenia sexstyla).</td>
</tr>
<tr>
<td>120</td>
<td>250123</td>
<td>Whanganu North Head Coastal Remnant</td>
<td>Swamp</td>
<td>Whanganu &amp;</td>
<td>N</td>
<td>Whanganu &amp;</td>
<td>9.00</td>
<td>Representative site for raupo reedland.</td>
<td>3</td>
<td>Hydrologically unmodified and in a well-vegetated catchment.</td>
<td>5</td>
<td>Acutely Threatened</td>
<td>1.08</td>
<td>Valley floor wetland dominated by raupo reedland. Lower reaches grade into mangrove forest in small tidal creek, and upper reaches contiguous with, and buffered by, Whanganu North Head Scenic Reserve. Representative for raupo reedland, and habitat for four &quot;Threatened&quot; or &quot;At Risk&quot; species, and one regionally significant species.</td>
</tr>
<tr>
<td>121</td>
<td>250125</td>
<td>Naistonga Swamp</td>
<td>Swamp</td>
<td>Whanganu &amp;</td>
<td>N</td>
<td>Whanganu &amp;</td>
<td>39.00</td>
<td>Representative site for raupo reedland, which is a rare habitat type in Whanganu ED.</td>
<td>3</td>
<td>Recent drainage work has been carried out. Past drainage has meant that the area which was once a large wetland is now fragmented into two main parts divided by pasture. Whanganu North Road and farm tracks cross the wetland. Other, smaller raupo swamps feed the same catchment.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>0.50</td>
<td>Gully wetland dominated by raupo with kuta, harakeke, ti Kouka and manuka that is mostly surrounded by pasture, but grading into mangrove estuary. Three &quot;At Risk&quot; species of birds recorded. Representative for raupo reedland in Whanganu ED. Modified and further threatened by drainage.</td>
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<tr>
<td>122</td>
<td>250513</td>
<td>Lake Kahuparere Wetland and Shrubland</td>
<td>Lacustrine</td>
<td>Kaipara</td>
<td>Y</td>
<td>Kaipara</td>
<td>13.50</td>
<td>Good quality raupo and raupo-Schoenoplectus tabernaemontani reedlands on the margins of a dune lake.</td>
<td>3</td>
<td>Borderied by plantation forest, pasture, and manuka shrubland, all of which is grazed. No evidence of drainage.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>3.83</td>
<td>Dune lake fringed by reedland and manuka shrubland. Fencing of this site would increase its conservation value as it provides habitat for five &quot;Threatened&quot;, 10 &quot;At Risk&quot; and four regionally significant species. Most of this site is protected in three conservation areas, all administered by DOC.</td>
</tr>
<tr>
<td>123</td>
<td>250158</td>
<td>Te Hurunga Forest</td>
<td>Swamp</td>
<td>Hokianga &amp;</td>
<td>N</td>
<td>Hokianga</td>
<td>15.00</td>
<td>A good quality example of raupo reedland in swamp in Hokianga ED.</td>
<td>3</td>
<td>Currently well-buffered by indigenous shrubland and forest and pine plantation. No evidence of drainage.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.00</td>
<td>The site comprises a small area of raupo buffered by indigenous vegetation and pine forest in the lower Waihopai River. Representative for one vegetation type, which forms part of a freshwater-terrestrial sequence with a coastal influence, reflected in the frequent occurrence of kowhai and karaka. Very little information provided in the PNAP report about this wetland; fauna not surveyed. The Nationally Vulnerable swamp herb, Mazus novae-zeelandiae subsp. impolitus f. impolitus was recorded in 1949. Hydrology largely unmodified but this is likely to change following harvesting of adjacent pines.</td>
</tr>
<tr>
<td>124</td>
<td>250352</td>
<td>Southern Tokerau Swamp</td>
<td>Bog</td>
<td>Aupouri &amp;</td>
<td>Y</td>
<td>Aupouri</td>
<td>97.60</td>
<td>A degraded example of manuka swamp shrubland on dunes and harakeke-raupo reedland grading into manuka swamp</td>
<td>3</td>
<td>Some farm drains present; bisected by Inland Road. Margins</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>1.50</td>
<td>This wetland adjoins Tokerau beach and is contiguous with the Lake Ohia complex. It is ponded in parts by Holocene fomendies. It is an</td>
</tr>
</tbody>
</table>
**Ranking**

<table>
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<tr>
<th>Warrant No.</th>
<th>Main Wetland Type</th>
<th>On Catchment</th>
<th>Ecological District</th>
<th>Strata (x,y)</th>
<th>Vegetation Diversity and Phenomena</th>
<th>Total Weighted Score</th>
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<td>Kaiako</td>
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<td>250034</td>
<td>Lake Wairagata North</td>
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<td>Tutamoe</td>
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<td>Maungataniwha</td>
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<td>Whangarei</td>
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<td>Te Paki</td>
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<td>132</td>
<td>250359</td>
<td>Te Kao South Swamp</td>
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<td>Aupouri</td>
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<td>250427</td>
<td>Rahangahanga Potentiary</td>
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<td>Hokianga</td>
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<td>250130</td>
<td>Parsoni Road Swamp Forest</td>
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<td>Whangarei</td>
<td>3.50</td>
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<td>Turk Lake and Wetland</td>
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<td>Aupouri</td>
<td>12.40</td>
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<td>Kapara</td>
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<td>20.40</td>
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<td>Main Ecological District</td>
<td>Size (ha): (x)</td>
<td>Vegetation Diversity and Pattern</td>
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<tr>
<td>139</td>
<td>250357</td>
<td>Swamp</td>
<td>Upper Karalia Swamp</td>
<td>Swamp Y Aupouri</td>
<td>17.50</td>
<td>A good example of Baumea rubra-gross-manuka association in dune hollow.</td>
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<td>Swamp</td>
<td>Lodine wetland</td>
<td>Swamp N Karikiri</td>
<td>5.00</td>
<td>The only known locality in the Karikiri ED for manuka-harakeke association in swamp.</td>
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<td>Swamp</td>
<td>Waipatora Creek Swamp</td>
<td>Swamp N Aupouri</td>
<td>22.50</td>
<td>Contains four wetland vegetation types; good example of an ecological sequence grading from saltmarsh to freshwater swamp and shrubland on alluvium.</td>
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<td>Swamp</td>
<td>Ninety Mile Swamp</td>
<td>Swamp Y Aupouri</td>
<td>5.10</td>
<td>Contains a good example of raupo-harakeke reedland for Aupouri ED. Weeds are more frequent in the smaller, southermost wetland.</td>
</tr>
<tr>
<td>143</td>
<td>250559</td>
<td>Swamp</td>
<td>Patutahi River Wetlands</td>
<td>Swamp N Tanghua</td>
<td>4.50</td>
<td>Contains three representative wetland vegetation types: raupo reedland, harakeke flaxland (regionally under-represented), and manuka-harakeke shrubland in swamp.</td>
</tr>
<tr>
<td>144</td>
<td>250571</td>
<td>Swamp</td>
<td>Kerr Road End Swamp</td>
<td>Swamp N Manaia</td>
<td>3.30</td>
<td>Kerr Road Swamp is one of the best remaining examples of a fertile swamp remaining in Manaia ED, and is representative for kahikatea-Bolboschoenus fluviatilis treedland (sole record in Manaia ED). Baumea articulata reedland, raupo reedland, and harakeke-manuka-Baumea articulata flaxland (sole record in Manaia ED).</td>
</tr>
<tr>
<td>145</td>
<td>250028</td>
<td>Swamp</td>
<td>Te Kaiatawhetu Swamp</td>
<td>Swamp Y Tutamoe</td>
<td>25.20</td>
<td>Representative site for raupo reedland.</td>
</tr>
</tbody>
</table>
**Ranking**

<table>
<thead>
<tr>
<th>Worksheet No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Ecological District</th>
<th>Size (ha)</th>
<th>Vegetable Diversity and Pattern</th>
<th>Environmental Integrity</th>
<th>HI Score</th>
<th>Dominance of Native Flora and Fauna</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>146 250593</td>
<td>Pearl Street Pond and Wetland</td>
<td>Pakihi and gumland</td>
<td>N Rodney</td>
<td>1.50</td>
<td>A good quality example of manuka-Gleichenia gumland, which is regionally underrepresented. Subdivision and weed encroachments are threatening values of the site.</td>
<td>4 One gumland vegetation type (manuka-Gleichenia shrubland) grading into secondary indigenous scrub and vegetation.</td>
<td>2 3</td>
<td>0.00</td>
<td>3</td>
<td>51.23</td>
<td></td>
</tr>
<tr>
<td>147 250590</td>
<td>Ken Wetland</td>
<td>Swamp</td>
<td>N Whangarei</td>
<td>4.88</td>
<td>Good quality example of a spring-fed seep on volcanic substrate, and regarded as “one of the best and most unusual” in the Whangarei ED.</td>
<td>3 Several freshwater wetland vegetation types, including raupo reedland and swamp forest, contiguous with podocarp-broadleaved forest. Probably the best example of an ecological sequence from indigenous forest to spring wetland in the Whangarei ED.</td>
<td>4 A proportion of the wetland has been affected by drainage, and the margins are grazed.</td>
<td>4 3</td>
<td>0.25</td>
<td>3</td>
<td>51.21</td>
</tr>
<tr>
<td>148 250323</td>
<td>Ta Haupu Wetland</td>
<td>Pakihi and gumland</td>
<td>N To Paki</td>
<td>25.20</td>
<td>Representative site for sedgeland on interdunal flats, which is the only example of this type in the Whangarei District.</td>
<td>3 Only one wetland vegetation type, but this forms an ecological sequence with surrounding indigenous shrubland.</td>
<td>3 Not grazed, although some drains are present.</td>
<td>4 3</td>
<td>0.00</td>
<td>3</td>
<td>51.14</td>
</tr>
<tr>
<td>149 250337</td>
<td>Paringatai Channel wetlands</td>
<td>Swamp</td>
<td>N To Paki</td>
<td>12.60</td>
<td>Representative site for raupo reedland.</td>
<td>2 The raupo reedland forms part of a complex ecological sequence from indigenous forest and scrub to freshwater wetland to eustarine vegetation type, largely surrounded by pasture.</td>
<td>Unmodified and in a well-vegetated catchment</td>
<td>5 5</td>
<td>0.50</td>
<td>2</td>
<td>50.87</td>
</tr>
<tr>
<td>150 250389</td>
<td>Whakakoro</td>
<td>Pakihi and gumland</td>
<td>N Ahirara</td>
<td>98.00</td>
<td>Manuka gumland. Weeds such as prickly hakea and gorse are likely to be present.</td>
<td>2 Wetland grades into indigenous terrestrial forest.</td>
<td>No structures evident. Waterway flows out of site into pasture</td>
<td>4 4</td>
<td>0.00</td>
<td>1</td>
<td>50.46</td>
</tr>
<tr>
<td>151 250426</td>
<td>Upokoekeashia Forest Remnant</td>
<td>Swamp</td>
<td>N Hokianga</td>
<td>2.20</td>
<td>Representative site for old growth kahikatea forest on alluvium, a very rare vegetation type in Hokianga ED (not recorded elsewhere in the ED).</td>
<td>4 Only one wetland vegetation type present. Semi-contiguous with kahikatea-kikau-poplar taraire forest on hillslope, but largely surrounded by pasture.</td>
<td>Fed by a small stream, although most indigenous vegetation has been cleared in the catchment. No drains or structures evident, but likely to be grazed.</td>
<td>2 5</td>
<td>0.00</td>
<td>2</td>
<td>50.33</td>
</tr>
<tr>
<td>152 250495</td>
<td>Newlove Airstrip Wetland</td>
<td>Swamp</td>
<td>Y Karapara</td>
<td>5.80</td>
<td>Good quality example of a wetland vegetation on alluvium within a dunefield.</td>
<td>2 Contains four wetland vegetation types that occur as a mosaic. Surrounded by pasture.</td>
<td>3 Enclosed with a ditch on all sides.</td>
<td>3 5</td>
<td>0.08</td>
<td>3</td>
<td>50.30</td>
</tr>
<tr>
<td>153 250413</td>
<td>Taratara Flax swamp</td>
<td>Swamp</td>
<td>N Whangarei</td>
<td>3.46</td>
<td>Good quality example of harakeke flaxland on alluvium (a regionally under-represented vegetation type). Degraded raupo reedland in upper valley.</td>
<td>4 Lower wetland is contiguous with extensive manuka scrub on adjacent hillslope (P04/015) and is a good example of a wetland-scrub and forest</td>
<td>No evidence of drainage. Upper wetland in intensively modified catchment.</td>
<td>4 3</td>
<td>0.00</td>
<td>2</td>
<td>50.16</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Representativeness</td>
<td>Main Wetland Type</td>
<td>On Dunes</td>
<td>Ecological District</td>
<td>Size (ha: x)</td>
<td>Representativeness</td>
<td>Main Wetland Type</td>
</tr>
<tr>
<td>-----</td>
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<td>-------------------</td>
</tr>
<tr>
<td>154</td>
<td>Moelau wetland and Forest Remnant</td>
<td>Swamp</td>
<td>N</td>
<td>Kaikohe</td>
<td>48.80</td>
<td>Representative site for Coprosma propinqua, Coprosma rigida, and Borrerochesmus sp.</td>
<td>shrubland, a rare vegetation type in Northland and the only example recorded in Kaikohe ED. Threatened by weeds.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>155</td>
<td>Oillanga Wetland and Riparian Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Maungatamatea</td>
<td>5.00</td>
<td>Ecological sequence from mangrove to saltmarsh to raupo reedland to riparian forest on estuarine deposits.</td>
<td>Threatened by a narrow but nearly continuous band of indigenous forest. No evidence of drainage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>156</td>
<td>Wahapa Bay wetlands</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaroa</td>
<td>9.70</td>
<td>Three indigenous wetland vegetation types (raupo-Baumea reedland, manuka shrubland, and kouka-hukihuki-manuka shrubland) which grade into mangrove forest in Wahapa Bay. Contiguous with, and well buffered by, manuka-dominant scrub on adjacent hilltops.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>157</td>
<td>Mangakahia Forest Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Kaipara</td>
<td>6.60</td>
<td>Only one wetland vegetation type (manuka-Baumea rubigiosa-B. tinax shrub sedgeland within Kaipara ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>Tawakewake Wetland</td>
<td>Swamp</td>
<td>Y</td>
<td>Te Paki</td>
<td>5.60</td>
<td>Contains three wetland vegetation types contiguous with indigenous shrubland and Waikowhai Stream Wetland.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>159</td>
<td>Upper Mangawai River Wetlands</td>
<td>Swamp</td>
<td>N</td>
<td>Waiapu</td>
<td>6.80</td>
<td>Three wetland vegetation types, two of which are dominated by indigenous species. Surrounded by pasture, roads, or plantation forest.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160</td>
<td>Kauri Mountain Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Manka</td>
<td>4.70</td>
<td>Contains representative examples of Lena minor-rape hortfield and harakeke-Baumea articulata-rape flowerland, although these are likely to be degraded by weeds unless control is undertaken.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>161</td>
<td>Pipiwai Stream Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Maungatamaitea</td>
<td>30.00</td>
<td>Representative site for raupo reedland and open water. Largest raupo reedland in ED.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The site is part of a relatively large remnant bordering the Waimea River, which drains into the upper Hokianga Harbour. Despite being modified by stop banks and internal drainage, which has encouraged a significant weed problem (gorse and pampas), the site remains one of the few in Kaikohe ED that exhibit altitudinal gradients from hill country to estuarine habitat. Representative for one habitat type, which is the only example in Kaikohe ED, and supports two species of regionally significant plants. Little is known about the site’s fauna values, so further survey is recommended.

**DRAFT** 49.84

Note: No evidence of drainage, but the upper part has been modified by grazing and weed invasion.

**DRAFT** 49.82

Note: Small freshwater wetland that is part of an uncommon ecological sequence from riparian forest on estuarine deposits to raupo reedland to saltmarsh to mangroves. Extent of wetland within the larger site estimated, and fauna not surveyed. Invaded by cattails and Japanese honeysuckle.

**DRAFT** 49.74

Note: Coastal freshwater wetlands on alluvium. At least three indigenous wetland vegetation types (raupo-Baumea reedland, kouka-hukihuki-manuka scrub, and manuka shrubland) grading into estuarine habitats in Whangaroa Harbour. Well buffered by indigenous scrub, with only localised weed invasion. Small areas of grazing and drainage at upper reaches. Habitat for two regionally significant plant species, and four "Threatened" or "At Risk" bird species - spotted crake (heard in 2010), North Island fernbird, waiwhero stream, and well buffered by, manuka-dominant scrub on adjacent hilltops.

**DRAFT** 49.65

Note: Large representative wetland that is buffered by exotic forest and is relatively intact and weed free. Contains one regionally significant species. Possibly partially drained.

**DRAFT** 49.55

Note: Representative wetland within a sequence of indigenous vegetation that is largely unmodified and nationally uncommon. Supports two "Threatened" and two "At Risk" species. Partially protected as a Scientific Reserve and administered by DOC.

**DRAFT** 49.50

Note: Valley floor wetland dominated by harakeke, kahikatea, and need sweetchest. Representative site for harakeke flaxland and kahikatea-harakeke treeland. Separated into two parts by pastures, partly grazed, and threatened by weed invasion.

**DRAFT** 49.48

Note: The wetland comprises a long, thin valley floor with a 0.9 ha dammed pond at the lower end. It is part of an altitudinal sequence that connects the site to Kauri Mountain Conservation Area (070707). Representative for two vegetation types, although weeds threaten the integrity of the site. Supports one "Threatened" and three "At Risk" bird species, and one "At Risk" and one regionally significant fish species. Grazed and quite degraded in parts. Largest area of raupo reedland in the Mangatitiwha ED. Most of the wetland is surrounded by pasture and is grazed. Small areas adjacent forest remnants. Habitat for one...
<table>
<thead>
<tr>
<th>Rank</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Ecological District</th>
<th>On Dunes</th>
<th>Size (ha):</th>
<th>Vegetation, Hydrology, and Threatened Species Scores</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>162</td>
<td>250162</td>
<td>NNIN Swamp &amp; Catchment</td>
<td>N</td>
<td>Hokianga</td>
<td>8.00</td>
<td>Representative for raupo reedland. 2 Contains only one wetland vegetation type (raupobrush), but this grades into indigenous forest and shrubland beyond the site. 3 Largely buffered by forested catchment; northern margins bounded by Ninini Road.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>163</td>
<td>250148</td>
<td>Kohe Stream Remnants</td>
<td>N</td>
<td>Hokianga</td>
<td>4.00</td>
<td>Representative site for raupobrush-juniper ssp. association in brackish zone. 2 Contains only one wetland vegetation type, but is part of a sequence that grades into coastal riparian vegetation dominated by manuka. 3 No structures evident; Kohe Stream mostly buffered with riparian vegetation.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>164</td>
<td>250417</td>
<td>Stanner Rd Remnant - Guleray bog</td>
<td>N</td>
<td>Kerikeri</td>
<td>2.00</td>
<td>Although small, this wetland is probably the best example of a low fertility, raised and groundwater fed wetland in the Kerikeri ED. 3 Good examples of low fertility manuka shrubland and Baumea reedland over peaty substrates. Some of the margins are contiguous with drier manuka shrubland with totara. 3 No evidence of drainage with a stable water table. Fenced but surrounded by pasture.</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>165</td>
<td>250105</td>
<td>Porotu Road Swamp and Environs</td>
<td>N</td>
<td>Kerikeri</td>
<td>2.40</td>
<td>Representative site for raupo-Baumea reedland in Kerikeri ED. 2 Wetland grades from open water to reedland to indigenous forest dominated by podocarps. 3 No evidence of drainage but surrounded by pasture and probably grazed.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>166</td>
<td>250595</td>
<td>Sands Lake</td>
<td>Y</td>
<td>Hokianga</td>
<td>2.60</td>
<td>1 ha dune lake close to Mangawhai. Largely native vegetation and still in mostly natural vegetation. Ranked Moderate by NIWA in 2005. One of few reasonable dune lake examples left on east coast. Previously within pine forest and appears to have been dry. Not recorded in any other previous surveys. Gumland and bog vegetation round lake. Some weeds. Threatened plants and birds. Three reports in other documents. 4 Estocarthus spiralis and Baumea articulata; Baumea rubiginosa and Junicea rubusand</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>167</td>
<td>250483</td>
<td>Long Gully Wetland and Shrubland</td>
<td>V</td>
<td>Kaipara</td>
<td>22.80</td>
<td>Representative site for two wetland vegetation types in Kaipara ED. 2 Fire freshwater wetland vegetation types creating a wetland mosaic. Some areas are contiguous with manuka 3 Eastern end heavily grazed and bisected by a road.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ranki</td>
<td>Worksmart No.</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Representativeness Score</td>
<td>HI Score</td>
<td>HI Score</td>
<td>Overall Summary</td>
</tr>
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<td>----------------</td>
</tr>
<tr>
<td>168</td>
<td>250350</td>
<td>Swamp</td>
<td>Te Paki</td>
<td>3.80</td>
<td>2</td>
<td>2</td>
<td>0.50</td>
<td>At Risk</td>
</tr>
<tr>
<td>169</td>
<td>250312</td>
<td>Swamp</td>
<td>Waipu</td>
<td>17.60</td>
<td>3</td>
<td>2</td>
<td>4.20</td>
<td>Acutely Threatened</td>
</tr>
<tr>
<td>170</td>
<td>250138</td>
<td>Swamp</td>
<td>Whanganuru</td>
<td>15.50</td>
<td>2</td>
<td>1</td>
<td>5.30</td>
<td>At Risk</td>
</tr>
<tr>
<td>171</td>
<td>250248</td>
<td>Swamp</td>
<td>Kakīkē</td>
<td>3.10</td>
<td>3</td>
<td>1</td>
<td>5.30</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>172</td>
<td>250335</td>
<td>Swamp</td>
<td>Te Paki</td>
<td>22.60</td>
<td>2 Raupō reedland, raupō sedge on flats</td>
<td>1</td>
<td>5.30</td>
<td>At Risk</td>
</tr>
<tr>
<td>173</td>
<td>250494</td>
<td>Lacustrine</td>
<td>Kaiapara</td>
<td>17.00</td>
<td>1 Open water with narrow fringe of Eleocharis phaeoalata</td>
<td>1</td>
<td>5.30</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>174</td>
<td>250452</td>
<td>Swamp</td>
<td>Whanganui</td>
<td>7.50</td>
<td>2 Only one vegetation type present</td>
<td>2</td>
<td>5.30</td>
<td>Acutely Threatened</td>
</tr>
<tr>
<td>175</td>
<td>250556</td>
<td>Swamp</td>
<td>Tangihua</td>
<td>9.40</td>
<td>3 Only three vegetation types present</td>
<td>3</td>
<td>5.30</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>176</td>
<td>250466</td>
<td>Swamp</td>
<td>Awarau</td>
<td>17.00</td>
<td>3 Only one vegetation type present</td>
<td>3</td>
<td>5.30</td>
<td>Chronically Threatened</td>
</tr>
</tbody>
</table>

### Te Hurrewi Stream Wetland
- **Location**: Waipu
- **Size**: 17.60 ha
- **Representativeness Score**: 3
- **HI Score**: 2
- **Overall Summary**: At Risk

### Doctors Hill Rd Wetland
- **Location**: Waipu
- **Size**: 17.60 ha
- **Representativeness Score**: 3
- **HI Score**: 2
- **Overall Summary**: Acutely Threatened

### Whakanirua Wetlands
- **Location**: Te Paki
- **Size**: 15.50 ha
- **Representativeness Score**: 2
- **HI Score**: 1
- **Overall Summary**: At Risk

### Te Hurewai Stream Wetland
- **Location**: Te Paki
- **Size**: 3.80 ha
- **Representativeness Score**: 2
- **HI Score**: 0.50

### Doctors Hill Rd Wetland
- **Location**: Waipu
- **Size**: 17.60 ha
- **Representativeness Score**: 3
- **HI Score**: 2
- **Overall Summary**: Acutely Threatened
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Warrant No. 250349</th>
<th>Main Wetland Type</th>
<th>Ecological District</th>
<th>Site Description</th>
<th>Vegetation Diversity and Pattern</th>
<th>VD &amp; P Score</th>
<th>Hydrological Integrity</th>
<th>HI Score</th>
<th>Dominance Index Score</th>
<th>LEU Cat</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>177</td>
<td>Cape Road Wetlands and shrubland</td>
<td>Swamp</td>
<td>N</td>
<td>To Paki</td>
<td>Uncommon.</td>
<td>2</td>
<td>Contains only one vegetation type (raupo reedland), but is contiguous with indigenous forest and shrubland.</td>
<td>3</td>
<td>Bordered by indigenous vegetation and pasture.</td>
<td>4</td>
<td>Better Protected and Loss Reduced</td>
</tr>
<tr>
<td>178</td>
<td>Wetland located at Turntable Hill Bush</td>
<td>Swamp</td>
<td>N</td>
<td>Karkar</td>
<td>Small mineralised wetland dominated by raupo reedland.</td>
<td>2</td>
<td>Only one wetland vegetation type present but contiguous with indigenous forest and shrubland.</td>
<td>3</td>
<td>Hydrologically unmodified and in a well-vegetated catchment.</td>
<td>5</td>
<td>Under-protected</td>
</tr>
<tr>
<td>179</td>
<td>Punaruku Riverine Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Whanganu</td>
<td>Good quality example of a valley floor freshwater wetland.</td>
<td>2</td>
<td>Only one wetland vegetation type listed as present, but contiguous with indigenous forest on alluvium and hilltops.</td>
<td>2</td>
<td>No evidence of drainage. Most of the wetland is buffered by forest and scrub, but the wetland and buffering vegetation both appear to be grazed.</td>
<td>4</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>180</td>
<td>Ngahahaua Stream</td>
<td>Swamp</td>
<td>N</td>
<td>Karkar</td>
<td>Good quality example of raupo reedland in the Karkar ED.</td>
<td>2</td>
<td>Raupo reedland and crack willow forest, contiguous with indigenous forest and scrub on adjoining hillside.</td>
<td>3</td>
<td>No evidence of drainage. Buffered on eastern side by indigenous forest and scrub.</td>
<td>4</td>
<td>At Risk</td>
</tr>
<tr>
<td>181</td>
<td>North Whanganui wetlands</td>
<td>Swamp</td>
<td>N</td>
<td>Whanganui</td>
<td>Presumably good quality raupo reedland and harakeke-tikouka shrubland, as the wetlands are remote and within entirely forested catchments.</td>
<td>2</td>
<td>Two freshwater wetland vegetation types contiguous with, and buffered by, an extensive area of indigenous forest and scrub.</td>
<td>3</td>
<td>No evidence of drainage.</td>
<td>4</td>
<td>At Risk</td>
</tr>
<tr>
<td>182</td>
<td>Omahuta Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Puketi</td>
<td>Representative of a freshwater wetland type, manuka shrubland, not recorded elsewhere in the Puketi ED.</td>
<td>3</td>
<td>Most of the wetland is surrounded by a recently felled pine plantation. The western, lower end is contiguous with indigenous forest and scrub.</td>
<td>2</td>
<td>No evidence of drainage. The wetland is bisected by a road and may have minor localised effects.</td>
<td>4</td>
<td>At Risk</td>
</tr>
<tr>
<td>183</td>
<td>Omahuta Road Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Maungalanikia</td>
<td>Good quality examples of Baumea reedland and manuka shrubland with frequent maire tawaake.</td>
<td>2</td>
<td>Freshwater wetland with two vegetation types grading into indigenous forest and scrub.</td>
<td>3</td>
<td>No drainage, and site may be wetter than previously due to impounding effect of adjacent road. Wetland buffered by indigenous vegetation.</td>
<td>4</td>
<td>Critically Under-protected</td>
</tr>
<tr>
<td>184</td>
<td>Lake Rotokawau and Wetland</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Kaipara</td>
<td>Dune lake ranked as &quot;High&quot; (Weeks et al. 2007), probably for its wildlife and botanical values. Degraded by grazing and weed invasion.</td>
<td>1</td>
<td>Contains three vegetation types. Ecological sequence from open water to reedland on alluvium, although this is degraded by the presence of weeds. Surrounded by pasture.</td>
<td>1</td>
<td>The margins of the lakes are grazed.</td>
<td>3</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>185</td>
<td>Glenrohot Rd Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Waipu</td>
<td>Largest and best example of raupo reedland in gully in the dunefield. Degraded by weed invasion and grazing. Habitat for five &quot;Threatened&quot;, eight &quot;At Risk&quot; and three regionally significant species. Weed control and fencing would improve the site's ecological values. Partially protected as Lake Rotokawau/ Mataparua.</td>
<td>3</td>
<td>Only one indigenous wetland type present. Surrounded by</td>
<td>3</td>
<td>Crossed by farm accessways and one</td>
<td>3</td>
<td>Raupo reedland in gully. Representative for raupo reedland, the largest example of this vegetation</td>
</tr>
<tr>
<td>Rank</td>
<td>Contract No</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Vegetation Diversity and Plantation</td>
<td>Representation Score</td>
<td>Vegetation Diversity and Plantation Score</td>
<td>Hydrological Integrity Score</td>
<td>HI Score</td>
<td>Dominance Native</td>
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</tr>
<tr>
<td>156</td>
<td>250043</td>
<td>Hauakakima South Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Otamaea</td>
<td>2.00</td>
<td>One of the best representative examples of raupo reedland in the Otamaea ED and one of the largest freshwater wetlands within the Otamaea ED.</td>
<td>A string of raupo dominated wetlands, with small areas contiguous with indigenous forest and shrubland.</td>
<td>Most if not all of the catchment is grazed, and small areas have been affected by drainage. Most of wetlands bordered by pasture.</td>
<td>3 4 Chronically Threatened</td>
<td>0.00</td>
</tr>
<tr>
<td>157</td>
<td>250089</td>
<td>Tangonge Wetland</td>
<td>Bog</td>
<td>N</td>
<td>Aupouri</td>
<td>73.00</td>
<td>A degraded example of two habitat types. Weed control and improved hydrological integrity would improve the site's ecological values.</td>
<td>Contains two vegetation types. Ecological sequence from open water to rushland to shrubland on peat, although this is degraded by the presence of raupo</td>
<td>Affected by drains and stock.</td>
<td>2 3 Acutely Threatened</td>
<td>1.25</td>
</tr>
<tr>
<td>158</td>
<td>250124</td>
<td>Moho Stream Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>23.00</td>
<td>Representative site for raupo reedland. Surrounded by pasture.</td>
<td>No evidence of drainage, but heavily grazed by livestock.</td>
<td>Valley floor wetland dominated by raupo reedland. Representative site for raupo reedland. Most of surrounding catchment is pasture and the margins of the wetland are intensively grazed. An artificial pond in the upper reaches is habitat for pateke (At Risk-Recovering), and spotless crake (At Risk-Relift) have been recorded in the past.</td>
<td>3 5 Chronically Threatened</td>
<td>0.25</td>
</tr>
<tr>
<td>159</td>
<td>250402</td>
<td>Toatoa Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Maungatanewha</td>
<td>4.30</td>
<td>Representative site for raupo reedland. Raupo reedland adjoining pasture and kanuka shrubland.</td>
<td>No evidence of drainage, but mostly surrounded by pasture and grazed.</td>
<td>Freshwater wetland representative for raupo reedland. Partly buffered by kanuka shrubland but grazed. Habitat for one &quot;Threatened&quot; and one &quot;At Risk&quot; wetland bird species. Spotted crake still present in 2009. No evidence of drainage and few weed species present.</td>
<td>4 5 At Risk</td>
<td>0.50</td>
</tr>
<tr>
<td>160</td>
<td>250169</td>
<td>Akarana Bridge Riverine Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Whangarei</td>
<td>4.77</td>
<td>Only known site for harakeke-ki kiwina shrubland on alluvium in the Whangarei ED</td>
<td>Seven wetland vegetation types, of which six are dominated by indigenous species. However several parts of the site are degraded by weed invasion, with frequent crack willow.</td>
<td>Wetland lies between two constructed highpoints (road and rail) and may be wetter than prior to modification. However water levels appear to be reasonably stable.</td>
<td>3 3 Chronically Threatened</td>
<td>0.33</td>
</tr>
<tr>
<td>161</td>
<td>250283</td>
<td>Puweharakiri Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Kaikohe</td>
<td>8.20</td>
<td>The wetland comprises raupo reedland that is likely to be degraded by stock and drainage.</td>
<td>Only one wetland vegetation type present (raupo reedland), although this forms part of an ecological sequence with indigenous shrubland and forest. Most of the wetland is surrounded by pasture.</td>
<td>Drains present. Adversely affected by stock.</td>
<td>3 5 Critically Under protected</td>
<td>0.00</td>
</tr>
<tr>
<td>Ranking</td>
<td>Ward/Parc No.</td>
<td>Name</td>
<td>Ecological District</td>
<td>On Shore</td>
<td>Vegetation Diversity and Pattern</td>
<td>Indigenous Plant Dominance Score</td>
<td>Measures of Protective Intactness</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
<td></td>
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<tr>
<td>192</td>
<td>250104</td>
<td>Blackridge Road Swamp</td>
<td>N</td>
<td>Kerikeri</td>
<td>A large part of the wetland has been infilled, but the remaining part is relatively unmodified. Representative for raupo-flax forest in ED.</td>
<td>2</td>
<td>A good example of two indigenous wetland vegetation types.</td>
<td>3</td>
<td>Remaining part largely unmodified but substantial recent loss of area due to quarry.</td>
<td>Chronically Threatened</td>
<td>0.33</td>
</tr>
<tr>
<td>193</td>
<td>250103</td>
<td>Huiahe Forest and Maungakaiwakawaka Forest</td>
<td>N</td>
<td>Tangihua</td>
<td>Good quality examples of raupo-forest and Juncus paludosus-flax-spikelet rushland.</td>
<td>2</td>
<td>Contains a range of swamp vegetation types, which forms an ecological sequence with terrestrial shrubland and forest.</td>
<td>3</td>
<td>Wetlands are likely to be grazed. Southern wetland may be affected by drains.</td>
<td>Chronically Threatened</td>
<td>0.25</td>
</tr>
<tr>
<td>194</td>
<td>250157</td>
<td>Vujjak Road Swamp</td>
<td>N</td>
<td>Hokitika</td>
<td>Representative of a mineralised wetland with brackish influence. Contains the only recorded swamp association of harakeke-raupo-flax in Kaikoo ED.</td>
<td>3</td>
<td>Only one wetland vegetation type present. Surrounded by pasture and is likely to be degraded by stock.</td>
<td>1</td>
<td>Drains adjacent to site. Grazed.</td>
<td>5</td>
<td>Acutely Threatened</td>
</tr>
<tr>
<td>195</td>
<td>250347</td>
<td>Tahuna Channel Wetlands</td>
<td>N</td>
<td>Te Paki</td>
<td>Likely to contain good quality association of Juncus spp. in swamp.</td>
<td>2</td>
<td>Contains one wetland vegetation type, although this forms part of a sequence with adjacent indigenous shrubland.</td>
<td>3</td>
<td>Unmodified and in a well-vegetated catchment.</td>
<td>5</td>
<td>Better Protected and Less Reduced</td>
</tr>
<tr>
<td>196</td>
<td>250018</td>
<td>Bream Tail Coastal Headland</td>
<td>N</td>
<td>Waipu</td>
<td>Representative site for all four wetland vegetation types present in the only record of Baumea-Juncus reedland, Cypresis ustulatus tussockland, and manuka-harakeke-flax shrubland in the Waipu ED.</td>
<td>3</td>
<td>Four wetland vegetation types present. Some of the upper arms are discontinuous with forested mainland.</td>
<td>4</td>
<td>Small ponds have been dug within the wetland. Most of the margins are grazed.</td>
<td>4</td>
<td>Better Protected and Less Reduced</td>
</tr>
<tr>
<td>197</td>
<td>250563</td>
<td>Rualoto Bush</td>
<td>N</td>
<td>Tangihua</td>
<td>The site contains a representative example of harakeke-manuka-flaxland in swamp. Harakeke-dominated wetlands are uncommon in Northland.</td>
<td>4</td>
<td>The site only contains one wetland vegetation type, which grades into forest on alluvium and swamp.</td>
<td>1</td>
<td>The site is well-buffered by indigenous and plantation forest. Harvesting may affect hydrology.</td>
<td>Under-protected</td>
<td>0.08</td>
</tr>
<tr>
<td>198</td>
<td>250126</td>
<td>Kaurututahi Stream Wetland</td>
<td>N</td>
<td>Whanganui</td>
<td>Good quality example of raupo reedland.</td>
<td>2</td>
<td>Raupo reedland contiguous with areas of open water and grazed kahikatea-trees.</td>
<td>2</td>
<td>No evidence of drainage but some wetland margins intensively grazed.</td>
<td>Chronically Threatened</td>
<td>0.00</td>
</tr>
<tr>
<td>199</td>
<td>250126</td>
<td>Bland Bay Wetland</td>
<td>N</td>
<td>Whanganui</td>
<td>Representative site for raupo reedland.</td>
<td>2</td>
<td>Only one wetland vegetation type present. Contiguous with small areas of indigenous scrub adjacent to upper arms, otherwise surrounded by pine.</td>
<td>2</td>
<td>Catchment almost entirely covered with pine plantation. No evidence of drainage.</td>
<td>Critically Under-protected</td>
<td>0.00</td>
</tr>
<tr>
<td>Ranking</td>
<td>Workunit No.</td>
<td>Main Wetland Type</td>
<td>Ecological District</td>
<td>Vegetation Diversity and Pattern</td>
<td>HI Score</td>
<td>Total Weighted Score</td>
<td></td>
<td></td>
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<tr>
<td>200</td>
<td>250055</td>
<td>Swamp</td>
<td>N/Otamutara</td>
<td>1.10 Representatives site for raupo-Baumea articulata-pink bindweed reedland.</td>
<td>3</td>
<td>41.85</td>
<td></td>
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<tr>
<td>201</td>
<td>250239</td>
<td>Swamp</td>
<td>N/Kaikohe</td>
<td>9.50 No units listed as representative in PNAP report, but freshwater wetlands abutting a saline or brackish vegetation type and riparian forest have nearly been completely lost within the Hokianga Harbour.</td>
<td>2</td>
<td>41.77</td>
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<tr>
<td>202</td>
<td>250509</td>
<td>Wetland</td>
<td>Y/Kapara</td>
<td>8.76 Degraded example of a dune lake wetland within the Kapara ED.</td>
<td>1</td>
<td>41.64</td>
<td></td>
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<tr>
<td>203</td>
<td>250035</td>
<td>Swamp Remnants</td>
<td>N/Tutamoe</td>
<td>0.60 Represents site for maire tawake swamp forest, and one of two sites within the Tutamoe ED.</td>
<td>4</td>
<td>41.56</td>
<td></td>
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<tr>
<td>204</td>
<td>250429</td>
<td>Swamp Remnants</td>
<td>N/Hokianga</td>
<td>9.00 Contains degraded examples of alluvial kahikatea forest and kahikatea-pukatea forest, both of which are a rare and diminishing forest types in Northland. The latter is recorded elsewhere in the ED.</td>
<td>1</td>
<td>41.42</td>
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<tr>
<td>205</td>
<td>250058</td>
<td>Swamp</td>
<td>N/Otamutara</td>
<td>2.16 Represents site for raupo-E kouka reedland in the Otamutara ED.</td>
<td>2</td>
<td>41.27</td>
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<tr>
<td>206</td>
<td>250404</td>
<td>Swamp</td>
<td>N/Maungataniwha</td>
<td>5.60 Represents site for raupo reedland.</td>
<td>2</td>
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<tr>
<td>207</td>
<td>250242</td>
<td>Swamp</td>
<td>N/Kaikohe</td>
<td>8.00 Represents for raupo-</td>
<td>3</td>
<td></td>
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<tr>
<td>Status</td>
<td>Only wetland on dunes in the Ahipara ED.</td>
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<tr>
<td>Vegetation</td>
<td>Baumea association, Pasture. Vulnerable to grazing and drainage.</td>
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<tr>
<td>Representativeness</td>
<td>Only one wetland vegetation type (raupo reedland) present.</td>
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<td>HI Score</td>
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<tr>
<td>Presence</td>
<td>Dominance of Native species</td>
<td>4</td>
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<td>Wetland Character</td>
<td>Only wetland on dunes in the Ahipara ED.</td>
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<td>Total Weighted Score</td>
<td>4.09</td>
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209 250502  
Lake Rototoaauru  
Lacustrine  
Y  
Kapara  
19.73  
Freshwater wetland (predominantly open water with raupo reedland on the fluvial margins) within the Kapara ED.  
1  
Ecological sequence from open water to raupo reedland to Glossostigma elatinoides herbfield or kanuka forest. Degraded by stock access and weed invasion.  
2  
Unfenced with cattle intrusion.  
1.83  
Chronically Threatened  
40.91

210 250060  
Te Mira Road Swamp  
Swamp  
N  
Otamatea  
1.40  
One of the best representative examples of raupo reedland in a gully system within Otamatea ED.  
5  
No structures affect wetland but highly modified catchment.  
5  
4  
Chronically Threatened  
40.75

211 250450  
Te Hihi Stream  
Swamp  
N  
Whanganui  
2.72  
Good quality example of raupo reedland, pursi-sedge-gland, swamp mlf-tauekawa grassland, Eleocharis australis sedge-gland. Degraded example of kahotūtā-maile-tauekawa swamp forest (invaded by Glyceria maxima).  
2  
Four wetland vegetation types dominated by indigenous species, grading into swamp forest and podocarp-broadleaved forest on an adjacent hillside. The wetland vegetation types occur along a gradient from wet soils to areas of satureted soils and shallow water.  
2  
Buffered on all sides by plantation forestry. No evidence of drainage.  
3  
3  
Chronically Threatened  
40.78

212 250385  
Selwyn Flat Wetland  
Swamp  
Y  
Aupouri  
11.70  
Representative site for Baumea articulata-raupo reedland.  
2  
Contains only one vegetation type (reedland). Surrounded by kanuka, eucalyptus, and pine plantation (as at the date of the aerial photography).  
1  
Largely unmodified; no drains, although future harvesting of pine may have adverse impacts on wetland vegetation.  
4  
5  
At Risk  
40.64

213 250129  
Akerama Wetland  
Swamp  
N  
Whanganui  
2.40  
Representative site for raupo reedland.  
2  
Raupo reedland contiguous with secondary forest and scrub. Degraded on the margins by grazing.  
2  
No evidence of drainage but some wetland margins intensively grazed.  
4  
4  
Chronically Threatened  
40.63

214 250408  
Whatakau Wetland  
Swamp  
N  
Maungataniwha  
2.00  
Representative site for raupo reedland.  
2  
Only one wetland vegetation type present. Grazed. Grades into kanuka forest in upper reaches.  
2  
Grazed and mostly surrounded by pasture. No evidence of drainage.  
3  
4  
Acutely Threatened  
40.40

215 250505  
Lake Reihiau and Wetland  
Lacustrine  
Y  
Kapara  
5.20  
Representative site for Eleocharis sphacelata reedland on edge of dune lake within the Kapara ED.  
2  
Open water in dune lake with a fringe of reedland. Lake surrounded by pasture.  
1  
Fenced but surrounded by pasture. No evidence of drainage.  
4  
4  
Acutely Threatened  
2.17

216 250636  
Lake Reihiau and Wetland  
Lacustrine  
Y  
Kapara  
10.00  
Representative site for Eleocharis sphacelata reedland on edge of dune lake within the Kapara ED.  
2  
Open water in dune lake with a fringe of reedland. Lake surrounded by pasture.  
1  
Fenced but surrounded by pasture. No evidence of drainage.  
4  
4  
Acutely Threatened  
2.17

The vegetation is dominated by raupo-Baumea association, which is representative for its type in Kaikohe ED. Also contains frequent ti kouka, Carex sp., and occasional crack willow and harakeke. Despite its size and isolation, the site is well-placed as a stepping stone between Hokanga Harbour and Lake Omāpere. No information on fauna. Further survey work required to determine the full ecological values of the site.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Contract No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>On Dunes</th>
<th>Ecological District</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>216</td>
<td>250135</td>
<td>Te Warahi / Tapautu Stream Riverine Habitat</td>
<td>Swamp</td>
<td>N</td>
<td>Whanganui</td>
<td>4.00</td>
<td>Small umbrellla sedge-reaupo wetland invaded by Mexican devil.</td>
<td>3</td>
</tr>
<tr>
<td>217</td>
<td>250401</td>
<td>Te Puti Swamp &amp; Bush</td>
<td>Swamp</td>
<td>N</td>
<td>Maungataniwha</td>
<td>10.99</td>
<td>Valley floor wetlands of varying quality, mostly grazed but some areas without grazing are representative.</td>
<td>2</td>
</tr>
<tr>
<td>218</td>
<td>250435</td>
<td>Cabbage Tree Remnant</td>
<td>Swamp</td>
<td>N</td>
<td>Kerkari</td>
<td>1.20</td>
<td>The best, if not the only, remaining example of kouka forest on alluvium in the Kerkari ED. A regionally under-represented vegetation type.</td>
<td>4</td>
</tr>
<tr>
<td>219</td>
<td>250579</td>
<td>Tempe Road Wetland South</td>
<td>Swamp</td>
<td>N</td>
<td>Monāka</td>
<td>22.10</td>
<td>A mosaic of up to four indigenous vegetation types, bounded by pasture along most of the margins.</td>
<td>2</td>
</tr>
<tr>
<td>220</td>
<td>250132</td>
<td>Ngahau Remnant</td>
<td>Swamp</td>
<td>N</td>
<td>Whanganui</td>
<td>8.00</td>
<td>Representative site for raupo reedland.</td>
<td>1</td>
</tr>
<tr>
<td>221</td>
<td>250046</td>
<td>Kerikeri Creek Forest and Wetlands</td>
<td>Swamp</td>
<td>N</td>
<td>Oiwhalasa</td>
<td>1.50</td>
<td>Good example of raupo reedland as part of the site is fenced to exclude cattle.</td>
<td>2</td>
</tr>
<tr>
<td>222</td>
<td>250447</td>
<td>Waitangi River</td>
<td>Swamp</td>
<td>N</td>
<td>Whangarei</td>
<td>7.50</td>
<td>Only record in Whangarei ED of raupo-soft rush reedland.</td>
<td>3</td>
</tr>
<tr>
<td>223</td>
<td>250064</td>
<td>Pukekotara Forest Remnants 3</td>
<td>Swamp</td>
<td>N</td>
<td>Oiwhalasa</td>
<td>2.90</td>
<td>Good representative example of raupo reedland in gully.</td>
<td>2</td>
</tr>
</tbody>
</table>

This site is partially protected as a conservation Area and administered by DOC.

This area has been degraded by weeds and stock incursions, but retains significant natural areas, including two representative vegetation types. Further survey is required to determine the full fauna values of the site.

This wetland comprises a meandering, narrow wetland that follows the c.4 km length of Waitare Creek, the longest watercourse in Manaia ED. The site has been degraded by weeds and stock incursions, but retains significant natural areas, including two representative vegetation types. Further survey is required to determine the full fauna values of the site.

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<table>
<thead>
<tr>
<th>Ranking</th>
<th>Warrant No.</th>
<th>Name</th>
<th>Main Wetland Type</th>
<th>Ecological District</th>
<th>Str. (ha) (d)</th>
<th>Vegetation Diversity and Pattern</th>
<th>Hydrological integrity</th>
<th>HI Score</th>
<th>Dominance of Native Vegetation</th>
<th>LER_Cat</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>224</td>
<td>250497</td>
<td>Scotty's Camp Road Swamp</td>
<td>Shrubland</td>
<td>N</td>
<td>Kaipara</td>
<td>21.58</td>
<td>Maluka shrubland, with some weed invasion, contiguous with manuka shrubland on hillslope.</td>
<td>2</td>
<td>Part of the wetland has been drained and converted to pasture, and the remaining area is still partially drained and grazed.</td>
<td>1</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>0.00</td>
</tr>
<tr>
<td>225</td>
<td>250062</td>
<td>Tinopai Road Swamp</td>
<td>Wetland</td>
<td>N</td>
<td>Omapara</td>
<td>1.50</td>
<td>One of the best representative examples of raupo reedland on alluvium within Omapara ED.</td>
<td>3</td>
<td>Contains one vegetation type of raupo reedland. Surrounded on three sides by plantation forestry, and on its western edge is bordered by Tinopai Road. The raupo reedland is diverse with patches of other indigenous species such as bracken lake clubrush, Baumea sp., and kikoi.</td>
<td>1</td>
<td>No evidence of drainage, however bordered by pine plantation and road.</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>226</td>
<td>250375</td>
<td>Ta Ahu Rd Swamp</td>
<td>N</td>
<td>Aupouri</td>
<td>15.00</td>
<td>Two small areas of raupo reedland.</td>
<td>2</td>
<td>Raupo reedland is the only wetland vegetation type present, although this grades into surrounding shrubland.</td>
<td>2</td>
<td>No structure views evident, though southern wetland is grazed.</td>
<td>3</td>
<td>3</td>
<td>Under-protected</td>
</tr>
<tr>
<td>227</td>
<td>250345</td>
<td>Waihekeu Catchment Wetlands</td>
<td>Swamp</td>
<td>N</td>
<td>To Paki</td>
<td>32.20</td>
<td>Representative example of raupo reedland in swamp within the To Paki ED.</td>
<td>2</td>
<td>Contains only one wetland vegetation type (raupo reedland).</td>
<td>1</td>
<td>Buffered by plantation forestry.</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>228</td>
<td>250397</td>
<td>Ta Rore Wetland Swamp</td>
<td>N</td>
<td>Maungakainawa</td>
<td>2.00</td>
<td>Representative site for raupo reedland and harakeke-ti Kouka shrubland on alluvium.</td>
<td>2</td>
<td>Two wetland vegetation types surrounded by pasture. Grazed.</td>
<td>2</td>
<td>Heavily grazed with little or no buffering vegetation. Some sections of the stream have been channelised.</td>
<td>3</td>
<td>4</td>
<td>Critically Under-protected</td>
</tr>
<tr>
<td>229</td>
<td>250136</td>
<td>Hugh Crawford Memorial Scenic Reserve Swamp</td>
<td>Shrubland</td>
<td>N</td>
<td>Whanganui</td>
<td>2.00</td>
<td>Representative site for harakeke-karuku/moruka-raupo association on alluvium.</td>
<td>2</td>
<td>Only one wetland vegetation type present. Contiguous with indigenous shrubland and forest.</td>
<td>1</td>
<td>Hydrologically unmodified and in a well-vegetated catchment.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>230</td>
<td>250367</td>
<td>Paparoa Wetland and Shrubland Swamp</td>
<td>Freshwater wetland at the head of Rangarum Harbour. Weed control and improved hydrological integrity would improve site’s ecological values.</td>
<td>N</td>
<td>Aupouri</td>
<td>20.50</td>
<td>Contains two wetland vegetation types: ecological sequence from reedland shrubland. Weeds frequent. Some saline influence.</td>
<td>1</td>
<td>Drains present throughout. Cut off from inland wetland areas by Paparoa Road. Partially buffered by shrubland, but likely to be grazed.</td>
<td>2</td>
<td>3</td>
<td>Under-protected</td>
<td>0.92</td>
</tr>
<tr>
<td>231</td>
<td>250538</td>
<td>Airua North - Manganui River Complex Swamp</td>
<td>N</td>
<td>Tokatoka</td>
<td>5.50</td>
<td>Contains a good example of kahikatea forest on alluvium. Presumably the 5.5 ha of the site that is mapped as wetland is this vegetation type.</td>
<td>2</td>
<td>Contains only one wetland vegetation type, which does not form part of an ecological sequence.</td>
<td>1</td>
<td>Grazed. Some drains present.</td>
<td>3</td>
<td>4</td>
<td>Acutely Threatened</td>
</tr>
<tr>
<td>232</td>
<td>250550</td>
<td>Roto Rottenock Forest Swamp</td>
<td>N</td>
<td>Kaipara</td>
<td>9.70</td>
<td>Representative example of kahikatea-houhere-kowhai-ka Kouka forest on alluvium.</td>
<td>2</td>
<td>Only one indigenous vegetation type present, and surrounded by pasture.</td>
<td>1</td>
<td>Bordered by three deep drains, and adjacent to channelised river. Flooding regime likely to be highly modified, and site much drier</td>
<td>1</td>
<td>3</td>
<td>Chronically Threatened</td>
</tr>
<tr>
<td>Rank</td>
<td>Contract Report No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>Onshore</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Representativeness</td>
<td>Vegetation Diversity and Pattern</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Dominance of Native Vegetation</td>
<td>LUC Cat</td>
<td>Threatened Species Score</td>
</tr>
<tr>
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</tr>
<tr>
<td>233</td>
<td>250475</td>
<td>Waikawa Road Swamp Forest</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>1.00</td>
<td>Representative site for kahikatea forest on alluvium. Presence of maire tawake is indicative of swamp forest, and swamp forest on alluvium is regionally under-represented. However the site is not a good example of this vegetation type.</td>
<td>2 Only one wetland vegetation type present, and bordered by pasture and road.</td>
<td>1 Modified by drainage.</td>
<td>0 5 Chronically Threatened</td>
<td>0.08</td>
<td>Small, drained remnant of kahikatea swamp forest, with occasional maire tawake (regionally significant). Representative of an uncommon forest type despite its degraded condition. Fauna not surveyed.</td>
<td>35.80</td>
</tr>
<tr>
<td>234</td>
<td>250141</td>
<td>Campbell Road Remnants</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>4.00</td>
<td>Representative site for raupo-Baumea articulata reedland. Also listed as representative for raupo-sweet reed grass reedland, but sweet grass is an exotic.</td>
<td>2 Two wetland vegetation types present. Degraded by presence of sweet reed grass.</td>
<td>2 Drainage channels affect several parts of the site.</td>
<td>3 2 Chronically Threatened</td>
<td>0.50</td>
<td>Small wetland in a gully comprising raupo-Baumea articulata reedland, or raupo in association with the exotic sweet grass. Representative for one wetland vegetation type, and habitat for one &quot;Nationally Threatened&quot; species (Australasian bittern) and one &quot;At Risk&quot; species (spotless crake). Partly modified by drainage.</td>
<td>35.32</td>
</tr>
<tr>
<td>235</td>
<td>250061</td>
<td>Parry Road Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Otamatea</td>
<td>1.68</td>
<td>Representative site for raupo-braekken reedland, and the only record of this vegetation type in Otamatea ED.</td>
<td>3 Contains one wetland vegetation type of raupo-braekken reedland surrounded by plantation forestry.</td>
<td>1 No evidence of drainage. Catchment is entirely pine plantation.</td>
<td>4 3 Chronically Threatened</td>
<td>0.00</td>
<td>Freshwater wetland within a pine plantation. Representative site for raupo-braekken reedland, and the only record of this vegetation type within Otamatea ED.</td>
<td>34.98</td>
</tr>
<tr>
<td>236</td>
<td>250134</td>
<td>Mimiwhangata South Wetland and Stream</td>
<td>Swamp</td>
<td>N</td>
<td>Whangaruru</td>
<td>12.00</td>
<td>No wetland vegetation type common or dominant.</td>
<td>1 Three of five wetland vegetation types are dominated by indigenous species.</td>
<td>2 No evidence of drainage, but probably grazed by livestock.</td>
<td>4 2 Chronically Threatened</td>
<td>0.83</td>
<td>Gully floor wetland in grazed catchment with five wetland vegetation types, of which three are dominated by indigenous species. The primary value of this wetland is the habitat it provides for Australasian bittern and pateke.</td>
<td>34.19</td>
</tr>
<tr>
<td>237</td>
<td>250561</td>
<td>Mangaroa Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Tanghua</td>
<td>11.50</td>
<td>The site contains a representative sample of harakeke-kahikatea-ti kouka swamp forest on alluvium, although this ecological unit is likely to be degraded by weeds.</td>
<td>1 The site contains four vegetation types, three of which are dominated by invasive weeds such as Glycera maxima and pampas.</td>
<td>2 The site is largely surrounded by farmland and is thus vulnerable to degradation by stock. No evidence of drains.</td>
<td>3 3 Critically Under protected</td>
<td>0.25</td>
<td>The site comprises a narrow freshwater wetland and swamp forest near the headwaters of the Mangaroa Stream. Most of the site is dominated by indigenous swamp forest, although weeds are more prevalent in wetter areas. Representative for one vegetation type and supports one &quot;At Risk&quot; bird (North Island fernbird). Margins are likely to be grazed and trampled.</td>
<td>33.92</td>
</tr>
<tr>
<td>238</td>
<td>250365</td>
<td>Northern Tokerau Swamp</td>
<td>Swamp</td>
<td>Y</td>
<td>Aupouri</td>
<td>86.00</td>
<td>A degraded example of raupo reedland in peaty dune hollow.</td>
<td>1 Only one wetland vegetation type (raupo reedland) present, which is degraded by weeds.</td>
<td>1 Some farm drains present. Wetlands have no buffering and are likely to be degraded by stock.</td>
<td>2 2 Chronically Threatened</td>
<td>1.17</td>
<td>A mineralised swamp on peat adjoining Tokerau Beach which supports one &quot;Threatened&quot; and one &quot;At Risk&quot; birds, and one &quot;Threatened&quot; and one &quot;At Risk&quot; plants (although the record for Lycoptelia aequina (&quot;Threatened-Decreasing&quot;) is from 1967). Partially buffered by pine plantation and sandfields. When the site was last surveyed in 1995, the wetland was described as raupo reedland, with pampas present. Pampas is now common, highlighting its rapid spread within the site over the past 15 years. 96.3% protected (administered by DOC).</td>
<td>33.43</td>
</tr>
<tr>
<td>239</td>
<td>250085</td>
<td>Frenchman's Bay Forest &amp; Wetland</td>
<td>Swamp</td>
<td>N</td>
<td>Otamatea</td>
<td>0.70</td>
<td>Wetland habitats are in mediocre condition as they continue to be grazed and are poorly connected.</td>
<td>1 Wetland grades into indigenous terrestrial forest. Floral diversity is average and areas of forest are being browsed by possums.</td>
<td>2 Likely to be affected by farm activities within catchment.</td>
<td>3 4 At Risk</td>
<td>0.00</td>
<td>The site comprises a very small raupo-dominated swamp buffered by 25 ha of indigenous forest. The wetland does not contain any representative vegetation types. Grazing is adversely affecting the wetland. Unconfirmed report of Australasian bittern (Nationally Endangered). Further survey is recommended to determine the site's current ecological values.</td>
<td>32.44</td>
</tr>
<tr>
<td>240</td>
<td>250587</td>
<td>Whangarei Lawrence Road Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Kidnley</td>
<td>9.80</td>
<td>A degraded example of swamp habitat. Weeds and cattle adversely affect the site.</td>
<td>1 Two wetland vegetation types present (raupo reedland and Baumea sp. reedland), although these are patchy throughout. Upper wetland is contiguous with a small area of indigenous shrubland.</td>
<td>2 Wetland severely grazed and trampled in parts. Drains present downstream.</td>
<td>2 2 At Risk</td>
<td>0.00</td>
<td>The site comprises scattered wetland vegetation occupying a series of highly modified, narrow gully arms, converging at the valley floor. The site is surrounded by pasture and significantly impacted by stock and weeds. A small proportion of wetland habitat is contiguous with native shrubland in the gully heads. The site was observed from a distance thus the presence of threatened and/or</td>
<td>32.40</td>
</tr>
<tr>
<td>Ranking</td>
<td>Contract No.</td>
<td>Name</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Ecological District</td>
<td>Pattern</td>
<td>V D &amp; P Score</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Dominance Native</td>
<td>Total Weighted Score</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>241 250406</td>
<td>250406</td>
<td>Blue Gorge Swamp</td>
<td>N Maungataniwha</td>
<td>6.10</td>
<td>Representative site for raupo reedland.</td>
<td>2</td>
<td>Only one indigenous wetland vegetation type present and surrounded by pasture.</td>
<td>1</td>
<td>Heavily grazed with some areas flooded by farm dams.</td>
<td>3</td>
<td>At Risk</td>
<td>31.33</td>
<td></td>
</tr>
<tr>
<td>242 250498</td>
<td>250498</td>
<td>Mosquito Gully Swamp</td>
<td>N Kaipara</td>
<td>18.00</td>
<td>Valley floor wetland with manuka-pampas shrub tussocdominant on alluvium.</td>
<td>1</td>
<td>The site has one vegetation type and has been extensively invaded by pampas. Surrounded by pine forest.</td>
<td>1</td>
<td>Modified by roadcutting at downstream end. Buffered by pine forest.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>30.07</td>
<td></td>
</tr>
<tr>
<td>243 250453</td>
<td>250453</td>
<td>Heaton Road Bush</td>
<td>N Whangarei</td>
<td>4.20</td>
<td>Representative site for raupo reedland in Whangarei ED.</td>
<td>2</td>
<td>Only one wetland vegetation type (raupo reedland) present.</td>
<td>1</td>
<td>No evidence of drainage. Lower reaches possibly grazed.</td>
<td>4</td>
<td>Critically Under-protected</td>
<td>29.72</td>
<td></td>
</tr>
<tr>
<td>244 250540</td>
<td>250540</td>
<td>Parkers Road Bush</td>
<td>N Tokotokoa</td>
<td>3.80</td>
<td>A degraded example of alluvial swamp forest. Threatened by wilows and cattle.</td>
<td>1</td>
<td>Contains one wetland vegetation type, although this forms part of a sequence with adjacent Nikau forest.</td>
<td>1</td>
<td>Raupo reedland on alluvium.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>29.66</td>
<td></td>
</tr>
<tr>
<td>245 250503</td>
<td>250503</td>
<td>Babylon Smith Swamp</td>
<td>N Kaipara</td>
<td>5.50</td>
<td>A small example of raupo reedland in Kaipara ED.</td>
<td>1</td>
<td>One wetland vegetation type (raupo reedland) present at this site.</td>
<td>1</td>
<td>Western end dammed to create small area of open water. Stock excluded by steep relief surrounding wetland.</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>29.43</td>
<td></td>
</tr>
<tr>
<td>246 250473</td>
<td>250473</td>
<td>Owai Stream Riverine Habitat</td>
<td>N Whangaruru</td>
<td>0.67</td>
<td>Small area of mai-tawa-kahikatea swamp forest and manuka-baumea shrubland. Degraded by grazing and likelihood of strong edge effects.</td>
<td>1</td>
<td>Raupo reedland with exotic grasses within pasture.</td>
<td>1</td>
<td>No evidence of drainage but most if not all of the wetland is grazed.</td>
<td>4</td>
<td>Better Protected and Less Reduced</td>
<td>29.32</td>
<td></td>
</tr>
<tr>
<td>247 250155</td>
<td>250155</td>
<td>Herbert Road Swamp</td>
<td>N Hokianga</td>
<td>2.00</td>
<td>Representative site for kahikatea-pukatea-ti kouka forest on alluvium. Although the site is severely degraded, this is only one of two examples in Hokianga ED.</td>
<td>1</td>
<td>Only one indigenous wetland vegetation type present at the site.</td>
<td>1</td>
<td>Grazed by cattle; peripheral drains present.</td>
<td>3</td>
<td>Critically Under-protected</td>
<td>29.21</td>
<td></td>
</tr>
<tr>
<td>248 250128</td>
<td>250128</td>
<td>Tutanetamia Stream Riverine Forest</td>
<td>N Whangaruru</td>
<td>2.00</td>
<td>Two small areas of raupo reedland on alluvium.</td>
<td>1</td>
<td>Only one wetland vegetation type present.</td>
<td>1</td>
<td>Drainage channel passes through smaller southern part of site.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>28.56</td>
<td></td>
</tr>
<tr>
<td>249 250443</td>
<td>250443</td>
<td>Kaka Rd Wetland</td>
<td>N Whangarei</td>
<td>5.00</td>
<td>Example of harakeke flaxland within a stream bed, degraded by weed invasion and damming.</td>
<td>1</td>
<td>Only one indigenous wetland vegetation type present. Surrounded by pasture.</td>
<td>1</td>
<td>Bisected into three parts by roads, with a dam and drainage channels in the lower reaches.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>27.11</td>
<td></td>
</tr>
<tr>
<td>Ranking</td>
<td>Worksite No.</td>
<td>Name</td>
<td>Main Wetland Type</td>
<td>On Shore</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>---------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>251</td>
<td>250589</td>
<td>Garbolino Road Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Rodney</td>
<td>1.20</td>
<td>Degraded swamp along gully floor. Lower reaches of wetland has swamp mire grassland and Baumea spp. sedgeland, but Glyceria maxima has become invasive.</td>
<td>27.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>252</td>
<td>250594</td>
<td>Cove Road Swamp</td>
<td>Swamp</td>
<td>N</td>
<td>Rodney</td>
<td>3.00</td>
<td>Freshwater wetland at toe of slope between Cove Road and the Mangawhai River. Possibly partially planted. Buffered on one side by small area of shrubland.</td>
<td>28.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>253</td>
<td>250596</td>
<td>The Heads Subdivision Gumland-Swamp</td>
<td>Swamp</td>
<td>Y</td>
<td>Rodney</td>
<td>0.40</td>
<td>Small freshwater wetland bisected by subdivision. Gumland in valley head.</td>
<td>25.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>254</td>
<td>250582</td>
<td>Ti kouka Way Riverine Forest Remnants and Lake</td>
<td>Lacustrine</td>
<td>N</td>
<td>Rodney</td>
<td>7.90</td>
<td>Good quality example of an uncommon habitat type, although it is man-made.</td>
<td>20.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>255</td>
<td>250010</td>
<td>Ruakaka Dunelands</td>
<td>Lacustrine</td>
<td>Y</td>
<td>Waiuku</td>
<td>4.70</td>
<td>Open water in constructed pond. Raupo reedland on margins recently removed.</td>
<td>7.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RANK AND ASSESSMENT FOR THE 'TOP 49' ESTUARINE WETLANDS IN NORTHLAND
### Rank and Assessments for the 'Top 49' Estuarine Wetlands in Northland

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksmart No.</th>
<th>Name</th>
<th>Ecological District</th>
<th>Size (ha)</th>
<th>Representativeness Score</th>
<th>Vegetation Diversity and Pattern Score</th>
<th>VI &amp; P Score</th>
<th>Hydrological Integrity Score</th>
<th>HI Score</th>
<th>Overall Summary</th>
<th>Threatened Species Score</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250316</td>
<td>Waipu River (Sandspit)</td>
<td>N Waipu</td>
<td>144.6</td>
<td>10.00</td>
<td>Ten wetland types dominated by indigenous species forming sequences and mosaics according to level of tidal inundation.</td>
<td>3.83</td>
<td>4.00</td>
<td>4.25</td>
<td>4.00</td>
<td>Acutely Threatened</td>
<td>5.00</td>
</tr>
<tr>
<td>2</td>
<td>250439</td>
<td>Whangarei Harbour</td>
<td>N Whangarei</td>
<td>72.14</td>
<td>4.00</td>
<td>A particularly good representative example of a mangrove-dominated estuarine system and the only site in the Whangarei ED for saltmarsh vegetation.</td>
<td>4.00</td>
<td>4.00</td>
<td>3.83</td>
<td>3.83</td>
<td>Chronically Threatened</td>
<td>3.83</td>
</tr>
<tr>
<td>3</td>
<td>250370</td>
<td>Rangaunu Harbour</td>
<td>N Aupouri</td>
<td>101.85</td>
<td>4.00</td>
<td>Likely to contain one of the best remaining salt grass-saltmeadow-mangrove sequences in Northland.</td>
<td>3.83</td>
<td>4.00</td>
<td>4.00</td>
<td>3.83</td>
<td>Acutely Threatened</td>
<td>3.83</td>
</tr>
<tr>
<td>4</td>
<td>250462</td>
<td>Eastern Bay of Islands estuary</td>
<td>N Whangaruru</td>
<td>112.9</td>
<td>4.00</td>
<td>Extensive example of coastal vegetation with sequences from coastal forest to intertidal wetlands.</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
<td>No Threat Category</td>
<td>4.00</td>
</tr>
<tr>
<td>5</td>
<td>250418</td>
<td>Hokianga Harbour</td>
<td>N Hokianga</td>
<td>2900</td>
<td>27%</td>
<td>Best example within Hokianga ED. Large areas grazed, some weed invasion.</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>Chronically Threatened</td>
<td>3.00</td>
</tr>
<tr>
<td>6</td>
<td>250466</td>
<td>Ngunguru Estuary</td>
<td>N Whangaruru</td>
<td>543</td>
<td>4.00</td>
<td>Extensive sequences of coastal vegetation from hillocks to forest to estuarine communities. Sixteen &quot;Threatened&quot; or &quot;At Risk&quot; bird species. Best or only example of many vegetation types within ED. Possibly best example within Northland of estuarine vegetation but this would require an assessment of regional significance.</td>
<td>3.00</td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>At Risk</td>
<td>4.00</td>
</tr>
<tr>
<td>7</td>
<td>250466</td>
<td>Whananaki Estuary</td>
<td>N Whangaruru</td>
<td>225</td>
<td>4.00</td>
<td>A good example of coastal vegetation sequences. Five estuarine wetland vegetation types, including mangroves and saltmarsh, which form an ecological sequence with</td>
<td>3.00</td>
<td>3.00</td>
<td>4.00</td>
<td>4.00</td>
<td>Chronically Threatened</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Largest estuarine wetland in the Waipu ED. Representative site for nine wetland vegetation types and a very important site for threatened bird species. Habitat for 11 "Threatened" species, six "At Risk" species, and two regionally significant species. Highly modified catchment but the long, isolated barrier spit means that parts of the site are remote.

Largest estuarine wetland with a high diversity of wetland vegetation types, and extensive ecological sequences. Some parts highly modified by reclamation and drainage, but many less modified areas remain. Very high fauna values. Harbour is habitat for a high diversity of wetland bird species, including 12 "Threatened" or "At Risk" species and many migrant bird species. At times the harbour provides feeding and roosting habitat for over 10,000 waders and shorebirds.

The Rangaunu Harbour is a large harbour with extensive mangrove forest, eelgrass, saltmarsh, and mudflats and islands. It contains the largest mangrove area in NZ. It has been nominated for RAMSAR status as a wetland of international significance. It supports seven threatened and two at risk bird species. There are historical records of Pacific gecko (Gradual Decline) and shore shrike. Representative site for five ecological units. Approximately 198 ha of the site are protected (administered by DOC). Threats to the harbour include habitat loss due to the establishment of marine farms, the spread of spartina, and surrounding land use (i.e. farm run-off and sedimentation).

Extensive intertidal wetlands supporting a wide range of common and threatened avifauna. Parity grazed, some weed invasion, significant areas reclamed.
<table>
<thead>
<tr>
<th>Ranking</th>
<th>Worksheet No.</th>
<th>Name</th>
<th>Ecological District</th>
<th>Vegetation Diversity and Pattern</th>
<th>VD &amp; P Score</th>
<th>Hydrological Integrity</th>
<th>HI Score</th>
<th>HIF Dominance of Native Plant Cover</th>
<th>LEC Cut</th>
<th>Total Weighted Score</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>250497</td>
<td>Kaipara Harbour Estuary</td>
<td>N Kaipara</td>
<td>manuka-raupo association in estuary.</td>
<td>coastal forest and shrubland.</td>
<td>3 Adjacent to farmland.</td>
<td>3</td>
<td>4 Acutely Threatened</td>
<td>3.00</td>
<td>70.99</td>
<td>8</td>
<td>Saltmarsh arms are affected by causeways and drainage. Habitat for 17 &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species.</td>
<td>70.99</td>
</tr>
<tr>
<td>9</td>
<td>250142</td>
<td>Taiharuru Estuary</td>
<td>N Whangaruru</td>
<td>mangrove forest, manuka-raupo association, and oioi-sea rush saltmarsh. Only example of manuka raupo association in the Whangaruru ED.</td>
<td>3 Some areas of saltmarsh and mangroves in upper tidal arms affected by drainage channels and causeways</td>
<td>3</td>
<td>4 Chronically Threatened</td>
<td>4.35</td>
<td>70.64</td>
<td>9</td>
<td>Estuary with complete ecological sequences from tidal flats to mangroves to saltmarsh to indigenous forest and shrubland. Habitat for five &quot;Nationally Threatened&quot; and nine &quot;At Risk&quot; bird species. Representative for three wetland vegetation types, and the only locality for manuka-raupo association in the Whangaruru ED. Upper reaches modified by grazing, drainage, and causeways, with ongoing loss of saltmarsh habitats.</td>
<td>70.64</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>250139</td>
<td>Herahoa Estuary</td>
<td>N Whangaruru</td>
<td>Four wetland vegetation types with ecological sequences from coastal forest to saltmarsh to mangroves.</td>
<td>3 Causeways cross some of the upper estuarine arms of the wetland.</td>
<td>4</td>
<td>5 Chronically Threatened</td>
<td>3.08</td>
<td>70.09</td>
<td>10</td>
<td>Estuarine (153 ha) and freshwater wetland (93 ha) in the catchment of the Horahora Estuary. Representative for all four wetland vegetation types, and the only record of oioi-sea rush-saltmarsh and manuka swamp shrubland in Whangaruru ED. The largest freshwater wetland in the north of the site is well buffered by indigenous scrub from surrounding land uses. The upper western and southern estuarine arms are more modified, affected by causeways and grazing. Habitat for 11 &quot;Threatened&quot; or &quot;At Risk&quot; bird species and black mudfish (Gradual Decline).</td>
<td>70.09</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>250409</td>
<td>Upper Whangaroa Harbour</td>
<td>N Whangaroa</td>
<td>Complete ecological sequences from intertidal flats to mangroves to saltmarsh to freshwater wetland to indigenous forest and scrub. Best example of estuarine-terrestrial sequences in Whangaroa ED.</td>
<td>4 Upper arms crossed often crossed by causeways that impede tidal flow. Loss of saltmarsh from drainage, reclamation, and grazing.</td>
<td>4</td>
<td>3 Chronically Threatened</td>
<td>1.42</td>
<td>69.00</td>
<td>11</td>
<td>Largest and best estuarine-wetland in the Whangaroa ED, and the best example of estuarine-terrestrial ecological sequences in the ED. Habitat for five &quot;Threatened&quot; or &quot;At Risk&quot; plant species. Upper reaches affected by drainage, causeways, and grazing. Exotic plants (Juncus acutus and Spartina) locally common or dominant.</td>
<td>69.00</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>250507</td>
<td>Kelly's Bay/Punahaire Creek Estuary</td>
<td>N Kaipara</td>
<td>Contains four wetland vegetation types and includes an ecological sequence from oioi-Baumea juncea rushland and manuka swamp shrubland through to kanuka forest. Possibly the best sequences of coastal vegetation, with a wetland component, in the Kaipara ED.</td>
<td>4 Some drainage and development has occurred in the past.</td>
<td>4</td>
<td>4 Acutely Threatened</td>
<td>3.42</td>
<td>68.37</td>
<td>12</td>
<td>A large and important site with sequences from estuarine to freshwater wetlands and kanuka forest. Habitat for five &quot;Threatened&quot; and eight &quot;At Risk&quot; species. Almost half of this site is protected and administered by DOC.</td>
<td>68.37</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>250425</td>
<td>Whangapie Harbour</td>
<td>N Hokonui</td>
<td>Contains five saltmarsh vegetation types, includes ecological sequence of mangrove forest grading into manuka and oioi-sea rush saltmarsh associations and then into low manuka shrubland.</td>
<td>3 Largely unmodified.</td>
<td>5</td>
<td>5 Acutely Threatened</td>
<td>1.42</td>
<td>87.81</td>
<td>13</td>
<td>The site comprises tidal flats and saltmarsh within a deeply penetrating drowned river valley, into which feed two rivers (Awaroa and Rotoitiakahi). Although only c.6% of the area retains significant riparian vegetation, the high proportion of intertidal area in this harbour contributes to its value as an ecosystem, supporting three &quot;Threatened&quot; and two &quot;At Risk&quot; bird species. Representative for five vegetation types, including two types which have only ever been recorded once before in the ED. The Awaroa arm retains a considerable degree of naturalness, particularly in the Rotorowena River, Kohu and Humanga Streams, and upper reaches. Activities on surrounding farmland may adversely affect water quality and may contribute to excessive siltation.</td>
<td>87.81</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>250097</td>
<td>Upper Te Punatotara Inlet</td>
<td>N Kerikeri</td>
<td>Complete sequences from intertidal mudflats to mangroves to saltmarsh to raupo reedland to indigenous forest and scrub.</td>
<td>3 Most of wetland well buffered by indigenous forest and scrub. Some areas of saltmarsh drainage and grazing</td>
<td>4</td>
<td>5 At Risk</td>
<td>2.08</td>
<td>66.86</td>
<td>14</td>
<td>Estuarine wetland with complete ecological sequences from estuary (mangroves and saltmarsh) to raupo reedland to indigenous forest and scrub. Representative for all wetland vegetation types. Most of the wetland is well buffered by indigenous vegetation, but there is some loss.</td>
<td>66.86</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Rank</th>
<th>Contract No.</th>
<th>Name</th>
<th>Ecological District</th>
<th>Representativeness</th>
<th>Vegetation Diversity and Pattern</th>
<th>VD &amp; P Score</th>
<th>Hydrological Integrity</th>
<th>HII Score</th>
<th>Dominance Relative Pest Score</th>
<th>LENC Cat</th>
<th>Threatened Species Score</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>250364</td>
<td>Houhora Harbour</td>
<td>N Aupouri</td>
<td>1315</td>
<td>Representative site for mangrove-oioi association, oioi saltmarsh, glasswort herbfield, Baumea sp.-manuka swamp shrubland, and eelgrass beds.</td>
<td>2</td>
<td>Contains five estuarine vegetation types. Ecological sequence of eelgrass on tidal flats grading into mangrove-oioi and indigenous shrubland on sand flats.</td>
<td>3</td>
<td>Upper saltmarsh reaches affected by drainage and grazing.</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>3.83</td>
<td>of habitat through drainage and grazing in the southern-most arm. Habitat for five &quot;Threatened&quot; and four &quot;At Risk&quot; bird species.</td>
</tr>
<tr>
<td>16</td>
<td>250516</td>
<td>Arapaoa River</td>
<td>N Omatātea</td>
<td>4957.5</td>
<td>Large site that contains the best representative example of saltmarsh ribbonwood shrubland within Omatātea ED.</td>
<td>3</td>
<td>Contains a good example of a suite of seven indigenous estuarine habitat types. Some weed species including Spartina alterniflora and saltwater paspalum are present.</td>
<td>3</td>
<td>Mostly bordered by pastures, with some areas of plantation and indigenous forest.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>2.83</td>
<td>Large area of estuarine habitat that covers 1,729 km of coastline. Best example of saltmarsh ribbonwood shrubland in Omatātea ED. This site is of particular importance to migrant birds and contains almost half of the wading bird habitat for Omatātea ED as well as providing habitat for five &quot;Threatened&quot;, four &quot;At Risk&quot;, and one regionally significant species. Small portions of this site are protected under Stewardship, Scenic Reserve (DOC administered), and QER covenants.</td>
</tr>
<tr>
<td>17</td>
<td>250315</td>
<td>Ruakaika River Estuary</td>
<td>N Waipu</td>
<td>813</td>
<td>Representative site for all nine estuarine wetland vegetation types present.</td>
<td>2</td>
<td>High diversity of estuarine vegetation types. Small areas of the site are continuous with indigenous forest on a coastal scarp.</td>
<td>3</td>
<td>Catchment increasingly modified by urban development. Historical loss of saltmarsh in upper reaches due to drainage and grazing.</td>
<td>3</td>
<td>At Risk</td>
<td>4.33</td>
<td>Second largest estuarine wetland in the Waipu ED and representative for nine wetland vegetation types. Situated in an increasingly urbanised catchment. Habitat for nine &quot;Threatened&quot;, six &quot;At Risk&quot;, and two regionally significant species.</td>
</tr>
<tr>
<td>18</td>
<td>250601</td>
<td>King Road Saltmarsh</td>
<td>N Rodney</td>
<td>1113</td>
<td>Good quality examples of estuarine wetland vegetation types.</td>
<td>2</td>
<td>Contains a mosaic of different vegetation types: mangrove forest grading into saltmarsh ribbonwood shrubland. May also form sequence with freshwater wetland in the northern arm, but this could not be determined in the survey. Weeds are large absent from the site, with species such as Sydney golden wattle and pampas being restricted to the saltmarsh margins.</td>
<td>3</td>
<td>Causeway breaches upper esuary. Some drains also present in upper reaches. South west margins likely to be grazed.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>1.17</td>
<td>The site comprises a relatively large area of estuarine habitat along the Mangawhai River, which supports pied shag (Threatened-Nationally Vulnerable), North Island fernbird (At Risk-Dearing) (footprints observed during survey), black shag (At Risk-Naturally Uncommon), littie shag (At Risk-Naturally Uncommon), pied stilt (At Risk-Dearing), and Coromera propea (regionally significant). The site contains a range of different wetland types, including mangrove forest, saltmarsh ribbonwood shrubland, and oioi saltmeadow. It also forms an ecological sequence with terrestrial indigenous shrubland. Weeds are largely absent from the site. Hydrological integrity may be threatened by future development along the true left of the river, close to the mouth.</td>
</tr>
<tr>
<td>19</td>
<td>250031</td>
<td>Waipoua Coastal Strip and Taha Moana Scenic Reserve</td>
<td>Y Tutamaro</td>
<td>7.6</td>
<td>Representative site for Carex herbfield, marsh clubrush-raupo reedland, oio-kokobly clubrush rushland, and Glischneria-manuka-seodge gurland, all of which are not found elsewhere in the Tutamaro ED.</td>
<td>3</td>
<td>Four wetland vegetation types which are continuous with indigenous vegetation on dunes. Site includes gurland vegetation, saltmarsh, and freshwater wetland in a lagoon. Best example of this sequence in the ED.</td>
<td>4</td>
<td>Hydrologically unmodified and well buffered by indigenous shrubland.</td>
<td>5</td>
<td>Chronically Threatened</td>
<td>2.50</td>
<td>Small wetland within an extensive area of coastal habitats on dunes. The only site in the Tutamaro ED for all four wetland vegetation types present. The wider site is habitat for a range of &quot;Threatened&quot; or &quot;At Risk&quot; bird species, and several of these are likely to utilise the wetlands present. This site is identified as an important wetland plant species, one of which is &quot;At Risk-Naturally Uncommon&quot; (Myriophyllum voschii).</td>
</tr>
<tr>
<td>20</td>
<td>250515</td>
<td>Otamaeta River</td>
<td>N Omatātea</td>
<td>2790.9</td>
<td>Representative site for sea primrose-arrow grass-saltwater paspalum herbfield and Baumea articulata reedland in the Omatātea ED.</td>
<td>2</td>
<td>Contains a good example of a suite of eight indigenous habitat types within an esuary. Some weed species including Spartina alterniflora and saltwater paspalum are present.</td>
<td>3</td>
<td>Mostly bordered by pasture, with some areas of plantation and indigenous forest.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>4.83</td>
<td>A large representative estuarine wetland within the Karapia Harbour that provides habitat for 10 &quot;Threatened&quot; and five &quot;At Risk&quot; species as well as a quarter of the wading habitat within Omatātea ED. Partially protected by QER covenants and DOC administered blocks.</td>
</tr>
<tr>
<td>21</td>
<td>250463</td>
<td>Malapouri</td>
<td>N Whangaruru</td>
<td>81</td>
<td>Representative site for</td>
<td>2</td>
<td>Two estuarine wetland</td>
<td>3</td>
<td>Upper arms of esuary</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>3.33</td>
<td>Estuarine wetland representative for mangrove-sea rush</td>
</tr>
</tbody>
</table>

Houhora Harbour provides excellent wader habitat with extensive shellbanks and mud flats. It is an important feeding area for international migratory waders, internal migrants and sedentary species, and is a vital link in the chain of estuaries from Rangaunu to Parengarenga. More than 3,000 waders have been recorded at high-site roosts. The site supports seven "Threatened" and six "At Risk" birds, and one "At Risk" gecko. Representative site for all five ecological units and contains good example of a saltmarsh-terrestrial shrubland sequence. Canada geese have increased over the years and pose a potential threat to the dune/takurune communities (R. Pierce pers. comm.). Upper reaches are affected by drainage and grazing.

66.41

66.36

65.98

65.28

65.10

64.64

64.48
<table>
<thead>
<tr>
<th>Rank</th>
<th>Worksite No.</th>
<th>Name</th>
<th>On Dune</th>
<th>Ecological District</th>
<th>Site (vis. D.)</th>
<th>Representation Score</th>
<th>Vegetation Diversity and Pattern Score</th>
<th>VGI &amp; F Score</th>
<th>Hydrological Integrity Score</th>
<th>HI Score</th>
<th>Dominance Relative Risk</th>
<th>LEC Cut Score</th>
<th>Total Weighted Score</th>
<th>Overall Summary</th>
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<tr>
<td>22</td>
<td>250374</td>
<td>Manaia</td>
<td>Y</td>
<td>Ocean Beach Recreation Reserve &amp; Surrounds</td>
<td>9</td>
<td>The most extensive estuarine and freshwater wetlands on dunes in the Manaia ED. Representative site for sea rush saltmarsh and Baumea articulata-kuta-raupo sedgeland.</td>
<td>3</td>
<td>One freshwater wetland vegetation type (Baumea articulata-kuta-raupo sedgeland in dune slack) and sea rush saltmarsh on Holocene alluvium. The wetland components are separated from other indigenous vegetation (herbfield and shrubland) on dunes by narrow bands of pasture, but still the best example of wetland vegetation types on dunes in the ED.</td>
<td>4</td>
<td>Saltmarsh encircled by drains or channelised streams. All wetland areas probably grazed.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>2.08</td>
<td>Estuarine wetland with two small freshwater wetlands in dune slacks. Modified by drainage and grazing, but the only area of wetlands on dunes in the Manaia ED. High avifauna values, with three Threatened and six &quot;At Risk&quot; wetland bird species.</td>
</tr>
<tr>
<td>23</td>
<td>250424</td>
<td>Aupouri</td>
<td>N</td>
<td>Parengarenga Harbour</td>
<td>6449</td>
<td>Contains good quality examples of mangrove forest, oioi-sea rush saltmarsh, and eelgrass beds.</td>
<td>2</td>
<td>Contains a good example of mangrove forest-saltmarsh-eelgrass sequence, though it's not known if this is the best in the Region or ED.</td>
<td>3</td>
<td>The whole northern side of the harbour catchment is vegetated, although farming activity is more predominant on the harbour's southern margins. The harbour has very high water quality due to several factors including a considerable exchange of water between the harbour and outside ocean.</td>
<td>4</td>
<td>Under-protected</td>
<td>4.25</td>
<td>The site comprises a harbour with an extensive sandspit and large intertidal flats. Parengarenga Harbour is of international significance due to high numbers of migratory birds and high numbers of threatened species, including seven &quot;Threatened&quot; and seven &quot;At Risk&quot; fauna species, and one &quot;Threatened&quot; plant species. It probably has the greatest bird diversity of any habitat in Northland (Ogle 1984) and is one of the least modified warm temperate/subtropical harbours in the world (Sewell 1985). Extensive areas of eelgrass indicate a low silt and high oxygen content, which contribute to the pristine water quality. Threatened by habitat loss due to the spread of Spartina, local modification from aquaculture, and silting, particularly in the southern catchments.</td>
</tr>
<tr>
<td>24</td>
<td>250371</td>
<td>Aupouri</td>
<td>N</td>
<td>Herekino Harbour</td>
<td>490</td>
<td>Good examples of mangrove forest, sea rush saltmarsh, and oioi-sea rush saltmarsh in Hinuera ED.</td>
<td>2</td>
<td>Contains three estuarine vegetation types, with an ecological sequence of mangrove forest grading into saltmarsh rushland.</td>
<td>3</td>
<td>Affected by drainage, causeway, and grazing.</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>2.25</td>
<td>The site comprises a small, narrow harbour within a drowned river valley with dune areas bounding the harbour entrance. It is a high quality estuarine habitat that supports four &quot;Threatened&quot; and five &quot;At Risk&quot; birds, as well as migratory bird species. The PNA report mentions that the habitat has been incompletely surveyed for fauna. Representative site for all ecological units and contains a good example of oioi and sea rush-mangrove ecological sequence. Surrounding land use may adversely affect water quality.</td>
</tr>
<tr>
<td>25</td>
<td>250326</td>
<td>Aupouri</td>
<td>N</td>
<td>Tapotupotu Stream Wetland and Estuary</td>
<td>70.3</td>
<td>Contains a good example of sea rush saltmarsh, which is the only record in Aupouri ED.</td>
<td>3</td>
<td>Contains mangrove-sea rush ecological sequence. Largely surrounded by pasture.</td>
<td>3</td>
<td>Farms drains present, particularly in upper reaches of estuary. Vulnerable to grazing and nutrient run-off.</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>2.25</td>
<td>This site comprises estuarine vegetation in the lower catchment of the Aurea Stream and Parapara Stream, extending approximately 4.5 km inland from Tokerau Beach. The site supports a range of waders and seabirds, including five &quot;Threatened&quot; and two &quot;At Risk&quot; species. Representative for sea rush saltmarsh, which has only been recorded once in Aupouri ED, and is contiguous with Lake Ohia. Threats include weeds, grazing, drainage, and run-off from surrounding farmland.</td>
</tr>
<tr>
<td>26</td>
<td>250396</td>
<td>Maungataniwha</td>
<td>N</td>
<td>Mangonui Harbour</td>
<td>625.1</td>
<td>Representative site for oioi saltmarsh and mangrove forest.</td>
<td>3</td>
<td>Estuarine wetland grades from intertidal flats to mangroves to</td>
<td>3</td>
<td>Upper reaches crossed by causeways,</td>
<td>3</td>
<td>Better Protected</td>
<td>1.92</td>
<td>Large area of estuarine habitat within the context of the ED. Representative for two vegetation types. Contains</td>
</tr>
</tbody>
</table>

Note: The values and scores are based on the assessment of ecological attributes such as representation, vegetation diversity, hydrological integrity, and overall summary. The sites are ranked based on their weighted scores, with the highest score being 64.44 for Parengarenga Harbour.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Worksheet No.</th>
<th>Name</th>
<th>On Shore</th>
<th>Ecological District</th>
<th>Representative</th>
<th>Represenativeness Score</th>
<th>Vegetation Diversity &amp; Pattern Score</th>
<th>V &amp; P Score</th>
<th>Hydrological Integrity</th>
<th>Habitat Value</th>
<th>Significant Component of Mid 2004</th>
<th>Threatened Species</th>
<th>Overall Summary</th>
<th>Total Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>250518</td>
<td>Otamatea River</td>
<td>N</td>
<td>Otamatea</td>
<td>Representative site for four estuarine vegetation types within the Otamatea ED.</td>
<td>2</td>
<td>Contained estuarine habitat sequences including mudflats and sandflats, sea primrose-remuera-saltwater paspalum-sharp rush herbfield, oioi-sea rush marshland, mangrove shrubland, and saltmarsh ribbonwood shrubland.</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>2.15</td>
<td>Large estuarine site with fast flowing water, sandy beaches, mudflats and rocky platforms, and littoral marginal vegetation. However, it provides habitat for NZ shorebirds and migratory species and identified as a site of importance (Dowding &amp; Moore 2006). Four &quot;Threatened&quot;, eight &quot;At Risk&quot;, and two regionally significant species have been recorded here.</td>
</tr>
<tr>
<td>29</td>
<td>250474</td>
<td>Patikaa Estuary</td>
<td>N</td>
<td>Whangaruru</td>
<td>Good quality example of estuarine vegetation types.</td>
<td>2</td>
<td>Several wetland vegetation types present (not listed separately in PNAP report). Continuous with coastal forest on adjoining hilltops.</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>Bettter Protected and Less Reduced</td>
<td>3.50</td>
<td>Estuarine wetland with mangroves grading into small areas of saltmarsh. Middle and lower reaches less modified and partly buffered by indigenous forest and scrub on adjacent hilltops. Significant loss of saltmarsh through drainage and grazing. Habitat for six &quot;Threatened&quot; and eight &quot;At Risk&quot; bird species.</td>
</tr>
<tr>
<td>30</td>
<td>250006</td>
<td>Onewharo River</td>
<td>N</td>
<td>Otamatea</td>
<td>Representative site for glasswort-Sueda novae-zelandiae-sharp rush herbfield on sand bank.</td>
<td>2</td>
<td>A good example of a suite of eight indigenous estuarine habitat types. Some weed species including Spartina alterniflora and saltwater paspalum are present.</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>1.00</td>
<td>Large estuarine site within the Kaiwara Harbour. Representative site for glasswort-Sueda novae-zelandiae-sharp rush herbfield on shelf bank. The site comprises 14% of the wading habitat within the Otamatea ED, and is classified as a site of particular importance (Dowding &amp; Moore 2006). Although not recorded the site provides habitat for banded rail. Two Marginal Strips (10.1 ha in total) are administered by DOC.</td>
</tr>
<tr>
<td>31</td>
<td>250502</td>
<td>Kiteone Road</td>
<td>N</td>
<td>Manaia</td>
<td>Representative for all six vegetation types, five of which have only been recorded once in Manaia ED. Most notably, this site contains the only mangrove forest in Manaia ED.</td>
<td>3</td>
<td>Although relatively small, the site contains the best example of a mangrove-saltmarsh-freshwater wetland sequence remaining in Manaia ED, comprising five wetland vegetation types.</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>At Risk</td>
<td>0.42</td>
<td>The site comprises a relatively intact saltmarsh and small freshwater wetland east of Kitekite Point, near the northern boundary of Manaia ED. It contains the best example of a salt-marsh-freshwater wetland sequence remaining in the ED, and is representative for all six vegetation types present. Supports at least one &quot;At Risk&quot; bird species and two regionally significant plant species. One dead Northern little blue penguin (&quot;At Risk&quot;) was found on the shelf bank near beach access track. Weeds are present but are mainly confined to the margins. The site is protected within a WDC reserve.</td>
</tr>
<tr>
<td>32</td>
<td>250009</td>
<td>Blacksmiths Creek Estuary</td>
<td>N</td>
<td>Waipu</td>
<td>Representative site for marsh clubshrub sedgeland on alluvium</td>
<td>2</td>
<td>Five wetland vegetation types, including a small sequence from mangroves to saltmarsh to freshwater wetland. Continuous with kanuka shrubland on alluvium.</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.58</td>
<td>Third largest area of estuarine habitat in the Waipu ED. Four vegetation types and representative sites for marsh clubshrub sedgeland, Habitat for Australasian bittern and banded rail. Threatened by increased urbanisation of catchment, and dumping of fill and garden refuse.</td>
</tr>
<tr>
<td>33</td>
<td>250096</td>
<td>Wetlands located at Tapuaetahi</td>
<td>Y</td>
<td>Kauri</td>
<td>Representative site for mangrove and oioi associations in estuary.</td>
<td>2</td>
<td>Two estuarine wetland vegetation types (mangrove and oioi) grading into freshwater wetlands dominated by raupo and then indigenous forest on adjoining hilltops.</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>At Risk</td>
<td>1.08</td>
<td>Small estuarine wetland that grades into freshwater wetlands and indigenous forest and scrub. Size of freshwater component estimated from PNAP map. Well buffered by indigenous vegetation with good water quality. Some drainage of saltmarsh on western edge. Habitat for several &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species.</td>
</tr>
<tr>
<td>34</td>
<td>250491</td>
<td>Okaro Creek/Wakere Creek Duneland, Whangaroa and Whangaroa</td>
<td>Y</td>
<td>Kaipara</td>
<td>Representative site in the Kaipara ED for two freshwater and two estuarine vegetation types.</td>
<td>2</td>
<td>Contains six wetland vegetation types and a good example of ecological sequence of oioi-sea rush marshland grading into manuka shrubland.</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>Acutely Threatened</td>
<td>2.58</td>
<td>Okaro Creek estuary is one of the most important roosting sites for migratory waders in the Northland portion of the Kaipara ED. It contains excellent ecological sequences including freshwater and estuarine wetlands, and is habitat for four &quot;Threatened&quot; and seven &quot;At Risk&quot; species.</td>
</tr>
<tr>
<td>35</td>
<td>250517</td>
<td>Peninsula West Coast</td>
<td>N</td>
<td>Otamatea</td>
<td>Good quality example of estuarine habitat. Mostly open water and intertidal flats in estuary, with small areas of mangroves.</td>
<td>2</td>
<td>Contains two estuarine habitat types (intertidal flats and mangroves).</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>Chronically Threatened</td>
<td>0.92</td>
<td>Large estuarine site dominated by sandy beaches and open water. Although two &quot;Threatened&quot; and one &quot;At Risk&quot; bird species have been recorded, data for avifauna at this site is lacking. A recreation reserve and marginal strip (administered by DOC) protect a small portion of this site.</td>
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<tr>
<td>Rank</td>
<td>Worksheet No.</td>
<td>Name</td>
<td>Ecological District</td>
<td>Size (ha)</td>
<td>Vegetation Diversity and Pattern</td>
<td>Total Weighted Score</td>
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<tr>
<td>36</td>
<td>204046</td>
<td>Taipa Estuary</td>
<td>N</td>
<td>142.3</td>
<td>Representative site for oioi saltmarsh and mangrove forest.</td>
<td>36</td>
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<td>37</td>
<td>20488</td>
<td>Waamakau Estuary</td>
<td>Y</td>
<td>102</td>
<td>Good quality example of mangrove shrubland, sea rush, rushland and manuka shrubland within the ED.</td>
<td>250405</td>
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<td>38</td>
<td>20486</td>
<td>Tangleki Estuary</td>
<td>N</td>
<td>196</td>
<td>Good quality example of mangrove shrubland on estuarine alluvium, and manuka shrubland on the ED.</td>
<td>142.3</td>
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<td>39</td>
<td>20591</td>
<td>Topuni Saltmarsh</td>
<td>N</td>
<td>115.2</td>
<td>Good quality examples of saltmarsh and freshwater associations.</td>
<td>32.0</td>
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<td>40</td>
<td>20594</td>
<td>Takou Bay Estuary and Environs</td>
<td>N</td>
<td>53</td>
<td>Representative site for two estuarine and two freshwater wetland vegetation types.</td>
<td>32.0</td>
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<tr>
<td>41</td>
<td>20464</td>
<td>Ngunguru Sandspit</td>
<td>N</td>
<td>4</td>
<td>Good example of saltmarsh on dunes.</td>
<td>32.0</td>
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<tr>
<td>42</td>
<td>20514</td>
<td>Ongarue Creek Estuary and Environs</td>
<td>Y</td>
<td>35.8</td>
<td>Good quality saltmarsh sequence from the coast inland. Recently retired from farming and has vegetation dominated by indigenous species.</td>
<td>20464</td>
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<tr>
<td>43</td>
<td>20516</td>
<td>Clasens / Duddys Bush</td>
<td>N</td>
<td>23</td>
<td>Good quality example of raupo reedland in swamp and oioi saltmarsh in estuary.</td>
<td>32.0</td>
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<td>Worksheet No</td>
<td>Name</td>
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<td>Ecological District</td>
<td>Site (Ref. D)</td>
<td>Representativeness Score</td>
<td>Vegetation Diversity and Pattern</td>
<td>Hydrological Integrity</td>
<td>HI Score</td>
<td>Dominance of Native Plant Score</td>
<td>LENZ Cat</td>
<td>Threatened Species Score</td>
<td>Overall Summary</td>
<td>Total Weighted Score</td>
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<tr>
<td>44</td>
<td>250412</td>
<td>Tuatangi Bay Estuary</td>
<td>N</td>
<td>Whangaraoa</td>
<td>4</td>
<td>2</td>
<td>Mangrove forest grading into saltmarsh dominated by oioi in the upper estuary. Separated from indigenous forest and shrubland by Tuatangi Bay Road.</td>
<td>3</td>
<td>Crossed by road on causeway, with drainage of upper saltmarsh reaches.</td>
<td>4</td>
<td>5</td>
<td>Acutely Threatened</td>
<td>0.42</td>
<td>Small good quality example of a stream mouth estuary in the Whangaraoa ED. Two estuarine vegetation types (mangroves and oioi saltmarsh, contiguous with sand dunes. Upper reaches crossed by causeway, and some areas of saltmarsh degraded by drainage and grazing. Habitat for one &quot;Threatened&quot; and one &quot;At Risk&quot; bird species. Area of wetland estimated from aerial photography.</td>
</tr>
<tr>
<td>45</td>
<td>250038</td>
<td>Takahiwai Stream Estuary</td>
<td>N</td>
<td>Waipu</td>
<td>9.1</td>
<td>2</td>
<td>Good example of ecological sequence from manuka shrubland to saltmarsh to mangroves.</td>
<td>3</td>
<td>Landward edge highly modified by causeway drainage, and grazing. Formerly much greater in extent.</td>
<td>2</td>
<td>4</td>
<td>Acutely Threatened</td>
<td>0.33</td>
<td>Small estuarine wetland that is contiguous with the extensive estuarine habitats at Takahiwai, Whangaraoa Harbour. Representative for two estuarine vegetation types, which form an ecological sequence with manuka shrubland. Historically modified by causeway construction and drainage, and terrestrial margins increasingly invaded by weed species. Site is habitat for band-tailed rail and possibly supports the only population of North Island regarding in the Waipu ED.</td>
</tr>
<tr>
<td>46</td>
<td>250161</td>
<td>Rangi Point Remnants</td>
<td>N</td>
<td>Hokianga</td>
<td>26</td>
<td>2</td>
<td>Contains two wetland vegetation types, with a sequence from estuarine saltmarsh/mangrove association to raupo-dominant freshwater wetland grading into an estuarine saltmarsh/mangrove association. Representative for two vegetation types. The wetland is likely to support several &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species, although further survey is required to determine the current ecological values of the site. Surrounding forest supports at least one &quot;At Risk&quot; species (Northland green gecko). Parts of the site are threatened by stock incursions. One hectare of the site is protected (DOC-administered).</td>
<td>2</td>
<td>Good buffering from pine plantation, but stock damage, drainage and causeway have reduced hydrological integrity.</td>
<td>2</td>
<td>5</td>
<td>Acutely Threatened</td>
<td>0.17</td>
<td>The site is situated on the margins of the Hokianga Harbour and comprises a small raupo-dominant freshwater wetland grading into an estuarine saltmarsh/mangrove association. Representative for two vegetation types. The wetland is likely to support several &quot;Threatened&quot; or &quot;At Risk&quot; wetland bird species, although further survey is required to determine the current ecological values of the site. Surrounding forest supports at least one &quot;At Risk&quot; species (Northland green gecko). Parts of the site are threatened by stock incursions. One hectare of the site is protected (DOC-administered).</td>
</tr>
<tr>
<td>47</td>
<td>250510</td>
<td>Tuhurua Creek Estuary</td>
<td>Y</td>
<td>Kaipara</td>
<td>23.8</td>
<td>1</td>
<td>Diverse but fragmented and degraded estuarine wetland.</td>
<td>1</td>
<td>History of cattle intrusion. Formerly more extensive, with areas of fringing saltmarsh lost through drainage and grazing.</td>
<td>2</td>
<td>4</td>
<td>Chronically Threatened</td>
<td>0.63</td>
<td>Estuarine habitat within the Kaipara Harbour that despite weed invasion and grazing, supports a range of estuarine vegetation types and is habitat for four &quot;At Risk&quot; and two regionally significant species.</td>
</tr>
<tr>
<td>48</td>
<td>250469</td>
<td>Mokau Bay Estuary</td>
<td>N</td>
<td>Whanganuuru</td>
<td>5</td>
<td>1</td>
<td>Saltmarsh that has been highly modified by drainage and grazing.</td>
<td>1</td>
<td>Only one wetland vegetation type present. Surrounded by pasture.</td>
<td>1</td>
<td>4</td>
<td>Critically Under-protected</td>
<td>1.08</td>
<td>Small and highly modified estuarine wetland. Possibly smaller than extent mapped in 1997, due to ongoing loss from drainage and grazing. Surrounded by pasture. Habitat for two &quot;Threatened&quot; and two &quot;At Risk&quot; bird species.</td>
</tr>
<tr>
<td>49</td>
<td>250415</td>
<td>Taupo Bay Estuary</td>
<td>Y</td>
<td>Whangaroa</td>
<td>1.4</td>
<td>1</td>
<td>Small stream-mouth estuary with a narrow fringe of indigenous saltmarsh and reedland. Lawns or rank exotic grassland or gorse scrub extend to the waters edge in most places.</td>
<td>1</td>
<td>Narrow patches of saltmarsh and freshwater reedland form a broken band along the waters edge. No intact sequences with terrestrial vegetation remain.</td>
<td>2</td>
<td>Some of the adjacent alluvial flats have been drained, and the narrow wetland fringe would have formerly been more extensive.</td>
<td>3</td>
<td>4</td>
<td>No Threat Category</td>
</tr>
</tbody>
</table>