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REPORT ON WETLAND GUIDELINES FOR THE NORTHLAND REGION

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Report on Wetland Guidelines for the Northland Region

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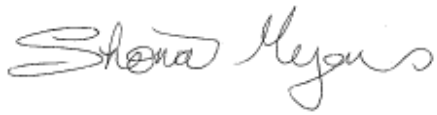

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1. INTRODUCTION

Wetlands contribute almost half the world's ecosystem services, including flood control and the filtering of pollutants and sediments (Barbier *et al.* 1997). They maintain water quality and supply, regulate atmospheric gases, sequester carbon, protect shorelines, sustain unique indigenous plants and animals, and provide cultural, recreational, and educational resources (Millennium Ecosystem Assessment 2005). Wetland services have been valued at US$3,274 per hectare per year (Finlayson *et al.* 2005), making wetlands one of the most valuable global ecosystems (Costanza *et al.* 1997; Woodward and Wui 2001).

Over 20% of the Northland Region was historically wetland with vast swamps and gumland heaths dominating landscapes from the edges of the Kaipara Harbour in the south to Spirits Bay in the North (Ausseil *et al.* 2008). However, today wetlands cover only 1% of the Northland Region having been cleared, drained and converted to other land uses (Ausseil *et al.* 2008). This degree of wetland loss is echoed elsewhere in New Zealand and the legislative response has been to identify the protection of wetlands as a matter of national importance in the Resource Management Act (1991).

Northland Regional Council (NRC) has developed a range of regulatory and non-regulatory methods to protect and enhance Northland's wetlands, including some of the strongest regional plan rules in New Zealand (Myers *et al.* in press). The Regional Soil and Water Plan for Northland (the Plan) distinguishes between wetlands, indigenous wetlands and significant indigenous wetlands, applying different policies and rules to each status. However while 'wetlands', 'indigenous wetlands' and 'significant indigenous wetlands' are all defined in the Plan there remains a degree of confusion on how to interpret these definitions 'on the ground' particularly in regards to certain types of wetlands (e.g. gumland heaths, ephemeral wetlands, artificial and heavily modified wetlands) that are typically difficult to delineate.

2. PROJECT BRIEF

Northland Regional Council has engaged Wildland Consultants to help develop a plain language guideline on wetlands in Northland for landowners, staff and practitioners which will clarify and explain:

- What is a significant indigenous wetland under the Plan and Sections 5, 6, and 7 of the Resource Management Act (Appendix 1);
- The criteria in the Plan in relation to a range of wetland types including ephemeral, gumland, bogs, marshes, wet pasture, artificial wetlands, wetlands dominated by exotic vegetation and permanently wet wetlands; and
- Identify gaps in the Plan which require clarification or decisions.

3. METHODS

A literature review was conducted of research in NZ and overseas on wetland delineation, ecological significance assessment, regional plans and RMA case law. This was complimented by site visits to a range of wetland types on 26 and 27 June 2012. The site visits were undertaken with staff from NRC to gain a better understanding of the difficulties staff were experiencing interpreting wetland rules in the Plan.

The guidelines and indicator species list (Appendix 3) were based on the June site visits and previous field experience of Wildlands staff of wetlands in Northland.

4. WHAT IS A WETLAND?

Wetlands are difficult to define precisely because of the wide variety of hydrologic conditions in which they are found (Mitsch 2007). Wetlands are often transitional zones between terrestrial and aquatic ecosystems and while they exhibit characteristics of both they have their own unique characteristics (Tiner 1999).

While there are a range of definitions for the word 'wetland' they almost always include reference to the presence of water, and biota that is adapted to or tolerant of saturated soils. In New Zealand, a wetland is defined in the Resource Management Act 1991 (RMA) as follows:

> *Wetland includes permanently or intermittently wet areas, shallow water, and land and water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions*.

A key part of the RMA definition is 'support a natural ecosystem of plants and animals that are adapted to wet conditions'. Wetlands can be permanently or intermittently wet i.e. they may not always appear wet. They occur within land and water margins, can contain shallow water, and occur on the margins and floodplains of lakes, rivers and the sea.

While the RMA definition provides some good guidance on answering the question "What is a wetland?" it still raises questions when applying it in a regulatory context. Key questions include; "Are all wetlands natural?", "What plants and animals are adapted to wet conditions?" and 'When does a wetland become dryland, lake, river or sea?', "How do you define where the boundary of a wetland lies'? There are no definitive answers to these questions in the New Zealand context however progress has been made in recent years by wetland scientists/managers, and from case law.

4.1 Are all wetlands natural?

The concept of 'naturalness' or its equivalent 'natural character' has been the subject of much debate in New Zealand being a key term used in environmental law, and policy documents but not defined in any statute. The Environment Court in *Harrison v Tasman District Council* (1994) stated that '*the word natural is a word*

indicating a product of nature……as opposed to man-made structures, roads, machinery etc.'

Many councils, including Northland Regional Council, have excluded all man-made wetlands from regulations in planning documents. However in *Minister of Conservation (Wetlands) vs Otago Regional Council* (2002) the Environment Court concluded that artificial wetlands created by water storage dams (e.g. for hydroelectric, stock water, community water, irrigation purposed or farm effluent management purposes) should be identified as regionally significant if they fulfill certain values (see Appendix 2). Significant wetlands can develop in association with artificial structures such as dams and can provide significant habitat for indigenous wetland flora and fauna. Naturally formed wetlands can also be affected by modified hydrology and artificial structures.

Froude *et al.* (2010) have defined the concept of 'natural character' for the New Zealand context that is generally consistent with court decisions on appeals lodged under the Resource Management Act. They concluded that 'natural character' occurs along a continuum and that when applied to a site will depend on the degree to which the site:

- is part of nature, particularly indigenous nature;
- is free from the effects of human constructions and non-indigenous 'biological artefacts'(e.g. pasture, plantation forestry);
- exhibits fidelity to the geomorphology, hydrology, and biological structure, composition, and pattern of the reference conditions chosen; and
- exhibits ecological and physical processes comparable with reference conditions.

4.2 What plants and animals are adapted to wetland conditions?

There is no definitive list of plants and animals adapted to wetland conditions for New Zealand although there are several guide books available for identifying wetland plants and animals (e.g. Johnson and Brooke 1989; Moon 2009). There are inherent problems in creating such a list as many species that occur in wetlands also occur elsewhere, particularly animal species that may only spend part of their lifecycle in a wetland. Despite this it can be a useful tool for determining if an area is a wetland. In the USA over 7000 plants have been classified according to how frequently they occur in wetlands and this list is used along with indicators of hydric soils and wetland hydrology to delineate wetlands for regulatory purposes (U.S. Army Corps of Engineers 1987; U.S. Army Corps of Engineers 2009).

A similar tool is being developed for New Zealand by Landcare Research that will adapt the USA approach to New Zealand wetlands (Bev Clarkson, Landcare Research, *pers. comm.).*

4.3 When does a wetland become dryland, lake, river or sea?

There is no prescribed method for delineating the boundaries of wetlands in New Zealand, although limited guidance is provided in Ward and Lambie (1999) and Johnson and Gerbeaux (2004). Johnson and Gerbeaux (2004) describe the full range

of wetland types present in New Zealand and the differences between them. This provides useful guidance on what fits the definition of a wetland however it does not provide precise limits between wetland and other ecosystem types.

The wetland delineation manual used in the USA (US Army Corps of Engineers 1987) has approached this issue by defining non-wetlands and deep-water aquatic habitats in the following way:

> ***Non-wetlands*** *include uplands and lowland areas that are neither deep-water aquatic habitats, wetlands, nor other special aquatic sites. They are seldom or never inundated, or if frequently inundated, they have saturated soils for only brief periods during the growing season, and, if vegetated, they normally support a prevalence of vegetation typically adapted for life only in aerobic soil conditions.*
>
> ***Deep-water aquatic habitats*** *are areas that are permanently inundated at mean annual water depths >2 m or permanently inundated areas ≤2 m in depth that do not support rooted-emergent or woody plant species.*

The zone of rushes and sedges, and floating aquatic plants, on the fringe of a permanent open water body delineates the zone of wetland vegetation. In New Zealand this could extend to >2 m as some emergent reeds such as *Eleocharis sphacelata* are known to occur at depths of up to 3 m in Northland (Sorrell and Tanner 1999).

Natural wetlands form when the landscape and hydrology of an area leads to "an excess availability of water or water convergence" (Campbell 2010). Natural wetlands rely on water tables that fluctuate seasonally and in response to pulses of water input (Campbell 2010). In contrast artificial water control structures (e.g. dams) often result in unnaturally stable or high water tables.

5. REGIONAL SOIL AND WATER PLAN FOR NORTHLAND

5.1 Wetland definitions

Rules relating to wetlands are contained in the Plan. The rules cover a wide range of activities including: land disturbance, earthworks, vegetation clearance, building of structures, discharges to water, burning, coastal stock grazing and water takes (Northland Regional Council 2004; 2009). The Plan distinguishes between wetlands, indigenous wetlands and significant indigenous wetlands and defines each type (Table 1). Rules in the Plan primarily relate to 'indigenous wetlands' and 'significant indigenous wetlands', with more restrictive rules for significant indigenous wetlands. For example, under Rule 27.4 the drainage of any significant indigenous wetland is a non-complying activity. Under Rule 16.1 the discharge of animal effluents is a permitted activity if it is not within 20 m of an indigenous wetland.

Table 1: Wetland definitions in the Regional Soil and Water Plan for Northland.

Wetland Type	Definition
Wetland (Section 41)	Includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.
Indigenous wetland (Appendix 13A)	An indigenous wetland is any naturally occurring wetland of 50 m² or more (with a minimum width of 5 metres) which is permanently or seasonally wet (in that the water table is at or near the ground surface during high water table conditions), and which is dominated by indigenous wetland plant species including all or some of the following: (a) Raupo (b) Flax (c) Sedge associations (d) Kahikatea (e) Cabbage tree (f) Manuka/kanuka on peatlands (g) Mangrove and saltmarsh (h) Kuta For the purposes of this Plan indigenous wetlands that have been created for conservation purposes, as a requirement of a resource consent, are included within the definition of "indigenous wetlands". The definition excludes wetlands created and subsequently maintained principally for or in connection with: (a) Effluent treatment and disposal systems; or (b) Stormwater management; or (c) Water storage; or (d) Other artificial wetlands, water courses or open drains. The definition also excludes: (a) Trees with a pasture understorey; or (b) Exotic rush/pasture communities; or (c) Land which was modified prior to 27 October 2001 to the extent that it is no longer ecologically viable.
Significant Indigenous Wetland (Appendix 13B)	An indigenous wetland which meets one or more of the following criteria; 1. Contain critical, endangered, vulnerable, or rare taxa, taxa of indeterminate threatened status (sensu International Union for Conservation of Nature definitions). 2. Contain indigenous or endemic taxa that are threatened or rare in Northland. 3. Contain the best representative examples in an ecological district of a particular habitat type. 4. Have high density of taxa or habitat types for the ecological district. 5. Form ecological buffers, linkages or corridors to other areas of significant vegetation or significant habitats of indigenous fauna. 6. Contain habitat types that are rare in the ecological district. 7. Support good populations of taxa which are endemic to the Northland or Northland-Auckland regions. 8. Are important for indigenous or endemic migratory taxa. 9. Support viable populations of species, which are typical of that habitat type within an ecological district and retain a high degree of naturalness. Significant indigenous wetlands are a subset of indigenous wetlands.

The definition for 'wetland' is the same as the definition in the Resource Management Act 1991 (RMA) and is similar to definitions used internationally.

It is important to note that the Plan states that significant indigenous wetlands are a subset of indigenous wetlands therefore the relationship between all three types is nested as shown in Figure 1.

Figure 1: Relationship between the types of wetlands defined in the Regional Soil and Water Plan for Northland. (Not to scale.)

In determining if a wetland is significant under the Plan there are a number of steps that must be taken. These are summarized in Figure 2.

5.2 Clarification

The wetland definitions and significance criteria in the Plan are easy to follow although they do require multiple steps to determine if an area is subject to rules in the Plan. Some rules in the Plan relate to indigenous wetlands while others relate to significant indigenous wetlands. Restrictive non complying rules relate primarily to significant indigenous wetlands.

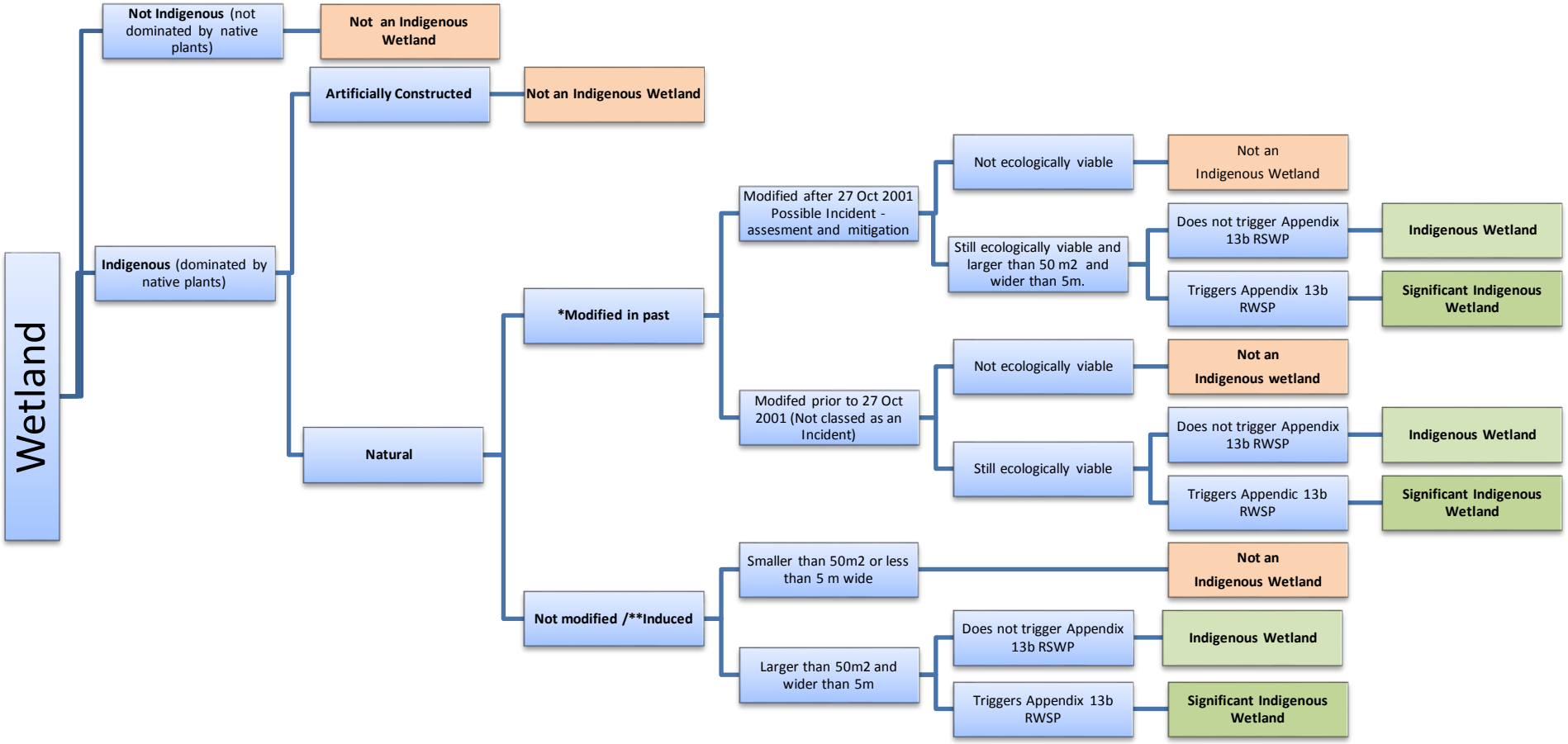

Figure 2: Steps required to determine whether a wetland is an indigenous or signicant indigenous wetland in the Regional Plan for Water and Soil for Northland.

* Modified wetlands sometimes regenerate as a result of deliberate actions such as blocking of drains or passively from land use changes (e.g. farming to forestry) or lack of maintenance actions such as drain cleaning.

** Induced wetlands occur where wetlands may not have existed previously but have formed as a result of actions such as roading, culverts etc.

Source: Lisa Forester, Northland Regional Council (some minor changes have been made to the original figure).

One of the main difficulties in applying the definitions to develop guidelines (Section 6) was in interpreting the exclusion clause *'Land which was been modified prior to 27 October 2001 to the extent that it is no longer ecologically viable'*. If an area is no longer ecologically viable as a wetland (i.e. does not function as a wetland) then it is very unlikely to meet the definition of a wetland under the Plan (or the RMA) making this clause redundant. It would improve the clarity of the Plan if this clause was removed.

5.3 Wetland size

The current definition of indigenous wetland contains a minimum size threshold of 50 m^2 (0.005 ha). Very few regional plans contain size thresholds for wetlands. The Proposed Horizons Regional Council One Plan[1] sets size thresholds for rare (0.05 ha) and threatened (0.1 ha) wetland habitat types. The Proposed West Coast Regional Land and Water Plan (November 2012) sets a minimum threshold size only for representative pakihi wetlands (40 ha). Some District Councils contain minimum size thresholds for protecting/restoring wetlands in lieu of transferable development rights. The former Rodney and Franklin District Councils have set a minimum threshold of 0.5 ha and the Western Bay of Plenty District Council has a minimum threshold of 1 ha. There is very little guidance on setting minimum wetland size in the literature for management and/or protection. In our opinion it would be difficult to maintain the ecological integrity of a wetland 0.005 ha in size particularly in a highly modified landscape. We would therefore recommend increasing the size threshold to a minimum of 0.1 ha. The smallest wetland included in the Top Wetlands in Northland project (Wildland Consultants 2011) was 0.15 ha.

5.4 Gaps

The current nested relationship between wetland definitions (Figure 1) does not recognise that wetlands dominated by exotic wetland plants (e.g. *Salix fragilis, Zizania latifolia, Glyceria maxima*) can be important habitat for significant indigenous fauna. Section 6(c) of the RMA requires councils to protect areas of significant habitats of indigenous fauna and does not limit habitat to areas dominated by indigenous vegetation. There are also wetlands that are dominated by exotic species that are the best representative examples in an ecological district of a particular habitat type (e.g. Doctor's Hill wetland dominated by *Glyceria maxima* is the best swamp in the Waipu Ecological District) that would not be considered an indigenous or significant indigenous wetland under the current wetland definitions in the Northland Plan. Wetlands dominated by exotic species may still have an understorey that is largely comprised of indigenous plants and/or contain threatened plants which may otherwise qualify the site as being a significant indigenous wetland. This could be remedied by not making significant wetlands a subset of indigenous wetlands.

The exclusion of all artificial wetlands (except those created specifically for conservation purposes or as part of a consent) from being considered indigenous wetlands or significant indigenous wetlands is likely to exclude wetlands that have a

[1] Proposed Horizons Open Plan as Amended by Decisions August 2010.

high degree of naturalness (e.g. self-assembled wetland plant communities dominated by indigenous species) and would meet one or more of the criteria for being a significant indigenous wetland.

The definition of a significant indigenous wetland in the plan contains criteria such as representativeness, naturalness and rarity which are similar to those used in other plans in New Zealand (Section 7, Appendix 2). However, the criteria are also very limited to restricting activities in the "best representative examples" and wetlands containing rare or endemic species. This will rule out more common and typical wetland types that are important for protecting the full range of diversity within an ecological district and the region. It is noted that recent case law directs that a broad approach be taken to significance assessment so that the full range and diversity of biodiversity is addressed and not just the top level sites.

6. GUIDELINES FOR DEFINING WETLANDS AND WETLAND TYPES IN NORTHLAND

In this section guidance is provided for determining whether an area is a wetland, indigenous wetland, or significant indigenous wetland. This guidance is provided for wetlands in general, and a range of wetland types that occur in Northland. The guidance is based on the current definitions and criteria in the Plan.

6.1 Guidelines for determining whether an area is a wetland

The following guidelines use plants as the main indicator for determining whether an area is a wetland. Indicators of wetlands soils and hydrology are also useful indicators but have not been well developed for New Zealand.

The dominance of indigenous and exotic plants adapted to wet conditions is used as the key diagnostic for determining whether an area is a wetland. While it requires some botanical knowledge to identify wetland plants, plants are good indicators as they are almost always present at a site and can be rapidly surveyed. The more common plants that may occur in wetlands in Northland are classified according to how frequently they occur in wetlands, using the same categories used for wetland delineation in the USA (Table 2, Appendix 3).

Table 2: Plant indicator categories used to classify plants according to how frequently they occur in wetlands.

Indicator Category	Definition
Obligate Wetland Plants **OBL**	Plants that occur almost always (estimated probability >99 %) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 %) in non-wetlands. e.g. raupo, mangrove.
Facultative Wetland Plants **FACW**	Plants that occur usually (estimated probability >67-99 %) in wetlands, but also occur (estimated probability 1-33 %) in non-wetlands. e.g. oioi, harakeke.
Facultative Plants **FAC**	Plants with a similar likelihood (estimated probability 33-67%) of occurring in both wetlands and non-wetlands. e.g. manuka, cabbage tree.
Facultative Upland Plants **FACU**	Plants that occur sometimes (estimated probability 1 - <33%) in wetlands, but occur more often (estimated probability >67-99%) in non-wetlands. e.g. mahoe, totara.

Indicator Category	Definition
Obligate Upland Plants **UPL**	Plants that occur rarely (estimated probability <1%) in wetlands, but occur almost always (estimated probability >99%) in non-wetlands under natural conditions. e.g. kanuka, miro.

In general, the following guidance can be used to define if an area is a wetland:

- It is dominated (>50%) by plants listed as obligate wetland (OBL) or facultative wetland (FACW).
- If an area is dominated by facultative (FAC) species, e.g. cabbage tree (*Cordyline australis*), manuka (*Leptospermum scoparium*), or kahikatea (*Dacrycarpus dacrydioides*), then the remainder of the plant species present should be primarily OBL and/or FACW species.
- The presence of a few individuals of wetland plants in an area dominated by facultative upland (FACU) and obligate upland species (UPL) is not a wetland.
- The landward edges of a wetland will be defined where the vegetation type changes and becomes dominated by FACU and UPL species. In areas where wetland is mixed with non-wetland (e.g. ridge and swale topography, pit and mound relief) then the ratio of wetland to non-wetland should be 51:49 or greater than 51% wetland.
- Hydrology is a critical element in the functioning of a wetland. Natural hydrological processes are more likely to support indigenous wetland ecosystems, in particular endemic species. However, if a wetland has been modified by artificial structures (e.g. dams, drains, ponds) or changes in land use management, an area can be defined as an indigenous wetland if it is dominated by indigenous OBL and FACW species and meets the size thresholds in the Plan.
- Soils can also be good indicators of wetlands as they develop distinctive characteristics (e.g. organic matter accumulation, redox concentrations) that persist during both wet and dry periods. They can also be used to indicate the presence of a wetland if vegetation has been cleared. As there is currently little guidance on determining wetland soils for New Zealand then assistance from a soil expert is likely to be required to identify whether wetland soils are present at a site.

6.2 Guidelines for wetland types

The guidelines are organised according to wetland type using the New Zealand wetland classification system developed by Johnson and Gerbeaux (2004). The guidelines include information about their general characteristics to help recognise the wetland type. This includes:

- where in the landscape the are found and examples of specific localities in Northland;
- general hydrology; and
- common animals and common OBL and FACW plants.

The guidelines list all OBL, FACW and FAC indigenous species in **bold** to assist in identifying whether an area meets the Plan criteria for being an indigenous wetland. Introduced species are indicated with an *.

The final row in the guidelines provides some guidance on when a wetland is likely to be a significant indigenous wetland. It is not definitive as it is not possible to come up with guidelines that capture all significant indigenous wetlands that adhere to the criteria in the Plan. The most definitive way to do this would be to assess all wetlands in Northland against the criteria and provide a schedule or maps. Instead data from the Top Wetlands in Northland project (Wildland Consultants 2011) was used to determine the typical size of significant wetlands of each wetland type and which rare species are associated with each wetland type. Regionally threatened plant species were in accordance with Department of Conservation (2006), nationally threatened plant species were in accordance with de Lange *et al.* (2009), and nationally threatened fauna were in accordance with Hitchmough *et al.* (2007) and Miskelly (2008).

6.2.1 Saltmarsh

Where do you find them?	Adjacent to the sea. Common locations include Kaipara Harbour, Whangarei Harbour, east coast estuaries, Rangaunu Harbour, Bay of Islands.
How wet do they get?	Their lower limits include shallow water below the level of the lowest tide while their upper limit includes area above the highest tide level that is influenced by splash and spray and inundated by storm surges.
What plants and animals are common?	**Mangroves (*Avicennia marina* subsp. *australasica*), sea rush (*Juncus kraussii* var. *australiensis*), oioi (*Apodamsia similis*), saltmarsh ribbonwood (*Plagianthus divaricatus*), seagrass (*Zostera muelleri* subsp. *novozelandica*), *Selliera radicans*, *Samolus repens* var. *repens,* glasswort (*Sarcocornia quinqueflora*).** Wading birds, shags, gulls, crabs, shellfish.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50 m^2 and wider than 5 m and dominated by any combination of plant species in **bold** above or below and contain other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contains any of the following rare species; banded rail, Australasian bittern, North Island fernbird, royal spoonbill, wrybill, black stilt, pied stilt, black-billed gull, black shag, little shag, little back shag, pied shag, New Zealand shoreplover, ***Mimulus repens, Triglochin striata*.** **or** If it is larger than 10 hectares and has not been modified by drains and human structures (e.g. seawalls, culverts, causeways etc.) and has <10% cover of introduced species.

6.2.2 Swamp

Where do you find them?	On valley floors, floodplains, depressions, lake edges, volcanic craters, duneslacks and on high altitude plateaus. Swamp forests are rare and mostly found at Puhipuhi, Tutamoe, Warawara, Manganui River floodplain and in the Kaikoke Ecological District. Other types of swamps are quite common all over Northland particularly swamps dominated by raupo and harakeke.
How wet do they get?	Swamps will usually have standing water above the ground surface for most of the year but may occasionally dry out during a drought.
What plants and animals are common?	<u>Swamp Forests</u> **Kahikatea, pukatea (*Laurelia novae-zelandiae*), cabbage tree,**

	Astelia grandis, ***Gahnia xanthocarpa*****,** supplejack (*Ripogonum scandens*), ***Carex secta, Carex virgata***. <u>Swamp Shrublands</u> **Manuka**, **harakeke (*Phormium tenax*), cabbage tree, swamp kiokio (*Blechnum minus*), *Coprosma propinqua,*** *Coprosma areolata*, putaputaweta (*Carpodetus serratus*)**, *Gahnia xanthocarpa.*** <u>Herbaceous Swamps</u> **Raupo (*Typha orientalis*), *Machaerina articulata, M. teretifolia, M. rubiginosa,* kuta (*Eleocharis sphacelata*), *Schoenoplectus tabernaemontanii, Carex virgata, Carex lessoniana,* wheki (*Dicksonia squarrosa*)**, swamp millet (*Isachne globosa*), swamp willow weed (*Persicaria decipiens*),** water pepper (*Persicaria hydropiper*)*, ***Isolepis prolifera*, *Epilobium ciliatum****, Nasturtium officinale*, Galium palustre*, ***Azolla filiculoides***, pampas (*Cortaderia selloana*, C. jubata**), ***Cotula coronopifolia****, Juncus articulatus**, Mercer grass (*Paspalum distichum*)*, Yorkshire fog (*Holcus lanatus*)*, creeping buttercup (*Ranunculus repens*)* and water buttercup (*Ranunculus flammula*)*. Pukeko, harrier hawk, golden bell frog, eel, banded kokupu.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50 m^2 and wider than 5 m and dominated by any combination of plant species in **bold** above or below and contain other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it a likely to be a significant indigenous wetland under the RWSPN?	Swamp <u>forest</u> dominated by indigenous species is a rare habitat type in Northland and therefore all swamp forests would be significant indigenous wetland. Any indigenous swamp that contains any of the following rare plants and animals: **Swamp maire (*Syzgium maire*), *Coprosma tenuicaulis, Amphibromus fluitans, Centipeda minima* subsp. *minima, Cyclosorus interruptus , Korthasella salicornioides, Thelypteris confluens,*** Australasian bittern, banded rail, black mudfish, North Island fernbird, inanga, long-finned eel, spotless crake. **or** If it is larger than 5 hectares, has not been grazed by farmed livestock, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced plant species.

6.2.3 Marsh

Where do you find them?	Valley bottoms associated with streams and rivers. Not common in Northland.
How wet do they get?	Marshes usually have a highly fluctuating water table with water sometimes up to 2 m above the surface but can also be well below the surface for long periods.
What plants and animals are common?	Crack willow*, **swamp willow weed,** water pepper*, *Juncus effusus**, ***Eleocharis acuta*, *Juncus edgariae***, ***Myriophyllum propinquum***, creeping buttercup*, water buttercup*, water purslane (*Ludwigia palustris*)*, *Cyperus eragrostis**, ***Cyperus ustulatus***, ***Isolepis prolifera*****,** *Juncus articulatus**, Mercer grass*, Yorkshire fog*, creeping bent (*Agrostis stolonifera*)*, tall fescue*, pampas*. <u>Pukeko, harrier hawk, golden bell frog, eel, banded kokopu.</u>
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50 m^2 and wider than 5 m and dominated by any combination of plant species in **bold** above or indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the	Marsh dominated by indigenous species is a rare ecosystem type in Northland therefore all indigenous wetlands of this type would be a significant indigenous wetland.

RWSPN?	

6.2.4 Seepage/flush

Where do you find them?	Usually on hillslopes where groundwater comes to the surface. Small seepages are common at gully heads on farmland and beside watercourses. Shrubland seepages are common on the Pouto Peninsula.
How wet do they get?	Often wet most of the time although water may be sitting just below the surface. Can dry out during a drought.
What plants and animals are common?	<u>Shrubland Seepages</u> **Manuka, cabbage tree, *M. articulata*, *M. rubiginosa, M. arthrophylla*, harakeke, kahikatea, swamp kiokio, raupo**. <u>Herbaceous Seepages</u> **Raupo**, *Juncus effusus*,* ***Eleocharis acuta, Juncus edgariae***, ***Myriophyllum propinquum***, creeping buttercup*, water buttercup*, water purslane*, *Cyperus eragrostis*,* ***Cyperus ustulatus*, swamp millet, *Isolepis prolifera*,*** *Juncus articulatus**, Mercer grass*, Yorkshire fog*, creeping bent *, tall fescue (*Schedenorous arundinaceus*)*, pampas*. Fantail, grey warbler.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50 m^2 and wider than 5 m and dominated by any combination of plant species in **bold** above or below, or other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contained any of the following rare plants and animals: ***Cyclosorus interruptus , Korthasella salicornioides, Thelypteris confluens, Coprosma tenuicaulis***, Australasian bittern, banded rail, North Island fernbird, spotless crake, marsh crake. **or** If it is has not been grazed, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced species.

6.2.5 Fen

Where do you find them?	Usually on level or gently sloping ground on the edges of bogs and swamps and sometimes on hillside toe slopes. They accumulate peat so will almost always have peat underlying them. Very uncommon in Northland, mostly found on the Aupouri and Pouto peninsulas and on the plains south of Whangarei.
How wet do they get?	Almost always wet with the water table near the ground surface.
What plants and animals are common?	**Manuka, *Gleichenia dicarpa*, *Machaerina arthrophylla, M. teretifolia*, *Sphagnum cristatum*, *Schoneus brevifolius*.** The regionally uncommon plant species, **Wirerush *(Empodisma robustum)*** and ***Coprosma tenuicaulis,*** may also be present. Fantail, grey warbler.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50m^2 and wider than 5 m and dominated by any combination of plant species in **bold** above or indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	Fen dominated by indigenous species is a rare ecosystem type in Northland therefore all indigenous wetlands of this type would be a significant indigenous wetland.

6.2.6 Bog

Where do you find them?	Usually on level ground or depressions on ridges and basins. They accumulate peat so will always have peat underlying them. Very uncommon in Northland, mostly found in the Far North District.
How wet do they get?	Always wet with the water table usually just below the surface.
What plants and animals are common?	***Gleichenia dicarpa*, *Machaerina teretifolia*, *Sphagnum cristatum*, *Schoeneus brevifolius*, manuka, *Cryptostylis subulata.*** North Island fernbird, black mudfish.
When is it an indigenous wetland under the RWSPN?	The area must be larger than $50m^2$ and wider than 5 m and dominated by any combination of plant species in bold above or below, or other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contains any of the following rare plants and animals; black mudfish, North Island fernbird, **wirerush, *Lycopodiella serpentina, Utricularia australis, Utricularia delicatula, Prasophyllum hectorii, Tetraria capillaris*, *Epacris pauciflora, Lycopodiella lateralis*** and ***Drosera binata*.** **or** If it is larger than 2 hectares, has not been grazed, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced species.

6.2.7 Gumlands

Gumlands are a problematic wetland class that can extend into sites with soils of extreme infertility that are only very intermittently wet. Further work needs to be done to determine whether all gumlands meet the definition of wetland under the RMA and if not, what indicators are most appropriate for determining the boundary between wetland and dryland.

Where do you find them?	Level to sloping land with very infertile soils and impeded drainage. Common on ridges, plateaus and sometimes in old sand dunes. Most common locations in Northland include Aupouri and Karikari Peninsulas.
How wet do they get?	Wetness will depend on where they sit in the landscape. Gumlands on level ground will be frequently water logged with the water table just above or below the surface while gumlands on slopes are unlikely to be waterlogged for more than short periods.
What plants and animals are common?	***Gleichenia dicarpa*, *Schoenus brevifolius*, *Machaerina teretifolia*, manuka, *Dracophyllum lessonianum*, *Lycopodiella lateralis*.** Fantail, silvereye, copper skink, grey warbler.
When is it an indigenous wetland under the RWSPN?	The area must be larger than $50m^2$ and wider than 5 m and dominated by any combination of plant species in **bold** above or below, or other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contains any of the following rare plants and animals; North Island fernbird, North Island brown kiwi, Northland green gecko, black mudfish, ***Anyzbas rotundifolius, Machaerina complanata, Calochilus paludosus, Dianella haematica*, *Lycopodiella serpentina, Kunzea ericoides* var. *linearis, Phylloglossum drummondii, Utricularia delicatula, Tetraria capillaris*, *Prasophyllum hectorii.*** If it is larger than 2 hectares, has not been grazed, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced species.

6.2.8 Ephemeral wetlands

Where do you find them?	Depression which collects rainwater with no outlet. Often found in duneland on the Pouto and Aupouri Peninsulas.
How wet do they get?	Water table can be well above the surface or well below. May not get wet some years.
What plants and animals are common?	**Oioi, *Lilaeopsis novae-zelandiae, Limosella lineata, Isolepis prolifera, Myriophyllum votschii,*** *Juncus articulatus** and ***Cotula coronopifolia*.** Wading birds.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50m^2 and wider than 5 m and dominated by any combination of plant species in bold above or below, or other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contains any of the following rare plants and animals; ***Eleocharis neo-zelandica, Amphibromus fluitans, Centipida minima*** **subsp. *minima, Crassula ruamahanga, , Gunnera arenaria, Sebea ovata, Triglochin striata,***. If it is larger than 0.2 hectares, has not been grazed, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced species.

6.2.9 Shallow water

Where do you find them?	Margins of lakes and rivers. Can occur in water up to 3 m in depth. Defined by the depth to which emergent reeds occur. Occur all over the Northland Region but are particularly common on the Pouto and Aupouri Peninsulas.
How wet do they get?	Almost always wet although water levels may experience large fluctuations depending on the size of the contributing catchment.
What plants and animals are common?	**Raupo, kuta, oioi, *Schoenoplectus tabernaemontanii, Machaerina articulata, Myriophyllum propinquum, Eleocharis acuta, Potomogeton cheesemanii, Azolla filiculoides.*** Waterfowl, wading birds, crakes, galaxids, bullies and eels.
When is it an indigenous wetland under the RWSPN?	The area must be larger than 50m^2 and wider than 5 m and dominated by any combination of plant species in bold above or below, or other indigenous plants listed as obligate or facultative wetland in Appendix 3.
When is it likely to be a significant indigenous wetland under the RWSPN?	If it contains any of the following rare plants and animals; ***Eleocharis neo-zelandica, Amphibromus fluitans, Centipida minima*** **subsp. *minima, Trithuria inconspicua, Isolepis fluitans,*** New Zealand dabchick, Australasian bittern, spotless crake, black mudfish, long-finned eel. If it is larger than 5 hectares, has not been grazed, modified by drains and human structures (e.g. culverts, causeways) and has <10 % cover of introduced species.

7. SIGNIFICANCE ASSESSMENT OF WETLANDS IN NEW ZEALAND

The Northland Regional Water and Soil Plan contains regulations limiting activities in significant indigenous wetlands. Appendix 13B of the plan contains criteria for identifying significant indigenous vegetation, including significant indigenous wetlands.

This section provides guidance and information on approaches to defining significant ecosystems and wetlands under Section 6(c) of the RMA. It provides a brief summary

of criteria developed by other regional councils and for identifying significant wetlands at an international and a national level in New Zealand. Section 8 provides a discussion of relevant case law on defining significance.

It is noted that the process of identifying significant wetlands (a wetland is either significant or not) is a separate process from ranking wetlands for management priority. A list of significant wetlands may not contain all potentially significant wetlands, as additional field work and assessment may identify further areas and values. A schedule of significant wetlands should be used in conjunction with criteria for assessing ecological significance. If a wetland is not in a schedule, it may still be significant and meet criteria for assessing significance. Wetlands not on a schedule / list should be assessed against the significance criteria.

7.1 Ramsar Convention

New Zealand is a signatory to the Ramsar Convention on Wetlands of International Importance. The Ramsar Convention regularly updates criteria for determining wetlands of international significance and provides guidance on their application (Ramsar Convention on Wetlands, 2009). The criteria are listed in Table 3.

Table 3: Criteria for assessing wetlands of international importance. (Ramsar Convention of Wetlands, 2009). A wetland must meet at least one of the following criterion to be designated as internationally significant.

Group A of the Criteria. Sites Containing Representative, Rare, or Unique Wetland Types	
Criterion 1	A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.
Group B of the Criteria. Sites of International Importance for Conserving Biological Diversity	
Criteria Based on Species and Ecological Communities	
Criterion 2	A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
Criterion 3	A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
Criterion 4	A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.
Specific Criteria Based on Waterbirds	
Criterion 5	A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.
Criterion 6	A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

Specific Criteria Based on Fish	
Criterion 7	A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
Criterion 8	A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.
Specific Criteria Based on Other Taxa	
Criterion 9	A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

Six sites within New Zealand have been designated under the Ramsar Convention. Two in 1976 (Farewell Spit and Waituna Lagoon), three in 1989 (Firth of Thames, Whangamarino Wetland, Kopuatai Wetland) and the last in 2005 (Manawatu Estuary). A list of 73 wetlands/wetland complexes in New Zealand that meet the criteria for international importance was compiled (Cromarty and Scott 1996). The list was based on expert opinion and a comprehensive, systematic assessment of all wetlands that might qualify as internationally significant. Five wetland groups in the Northland Region (i.e. Aupouri Peninsula, Muriwhenua Wetlands, Pouto Peninsula Wetlands, Parengarenga Harbour, Whangarei Harbour) were included on the list.

New Zealand wetlands identified as being of international significance under the Ramsar Convention are accorded protection from mining in Schedule 4 of the Crown Minerals Act 1991. There is no other specific legislative protection for wetlands that are designated as internationally significant under the Ramsar Convention. The preservation of wetlands, and the protection of them from inappropriate subdivision, use and development, is identified as a matter of national importance in Section 6(a) of the RMA.

7.2 WERI (Wetlands of Ecological and Representative Importance)

WERI (Wetlands of Ecological and Representative Importance) is a computer database that contains records on approximately 3000 wetlands throughout New Zealand. Information for each wetland includes: size; location; land ownership; classification (hydroclass, geomorphic origin, community class, dominant plant species); modifiers and threats; buffer, wildlife and vegetation values; other ecological values; cultural values; significance; and sources of information (Commission for the Environment National Wetlands Inventory Notes).

The database was prepared in the mid-1980s and was based on SSWI (Sites of Special Wildlife Interest) and other databases, including data from NZ Wildlife Service, Fish and Game NZ, and Catchment Boards. It has been largely replaced by more recent surveys and information. The WERI database identified criteria for assessing the significance of wetlands (Table 4). Criteria for international significance are based on the Ramsar criteria. The WERI database is now over twenty five years old, however it still remains a record of wetlands at the time and the criteria still have some relevance. The criteria include: representativeness, size and shape, rarity, naturalness, and cultural values. The criteria give higher significance value to large unmodified

wetlands. It is noted that current ecological research shows that with the level of loss of wetlands in New Zealand (e.g. Ausseil *et al*. 2008; Myers *et al*. (in press)) small, fragmented and modified wetlands are significant at a national and regional level, not just large and pristine ecosystems.

Table 4: WERI Criteria for assessing significance of wetlands[1].

Level of Significance	Criteria
International	Ramsar criteria (see Table 1)
National	i. Wetlands with 1-4 endangered or vulnerable taxa. ii. Large and unmodified wetlands of a type representative of the country as a whole. iii. Used by internationally uncommon wildlife and vital to the internal migration of threatened taxa. iv. Wetlands which have cultural importance which attract people from throughout the country, such as recreation and education.
Regional (Catchment boundary)	i. Wetlands with regionally rare species or communities or physical qualities. ii. Relatively large wetlands with a high degree of naturalness, representing a wetland type characteristic of the region. iii. Noted as a breeding, moulting or spawning site for taxa common nationally. iv. Noted for cultural values on a regional scale, especially historical, recreational, and economic value.
Local (Ecological District)	i. Wetlands with populations of taxa, communities or features which are rare in the ecological district. ii. Wetlands representative of the characteristic type(s) found in the district. iii. Small to large wetlands, modified or unmodified, sometimes of cultural origin. iv. Wetlands which occupy a site between other important wetlands and forming a linking role for wildlife. v. A locally important cultural site, especially for recreation.

7.3 Sites of Special Wildlife Interest (SSWI)

Sites of Special Wildlife Interest surveys were undertaken in the 1970s and 1980s by New Zealand Wildlife Service throughout most of the country. The surveys identified wildlife habitats of outstanding, high, moderate-high and of potential value. The surveys included identification of wetlands and were used as a basis for the national wetland (WERI) inventory. SSWI criteria are primarily wildlife and species focussed, and include criteria on rarity, naturalness, and size and shape. Sites where fauna species were not found, but provided potential habitat for indigenous fauna, were ranked as potential. Potential ranking sites are described as follows: *May include habitat which functions as a corridor, or is sub-optimal habitat which is necessary for maintaining genetic diversity*. While not specific to wetlands, the SSWI database and criteria has been important in New Zealand for identifying wetlands of ecological and wildlife significance.

[1] Commission for the Environment (no date). National Wetlands Inventory. Notes to assist compilation of information sheets.

7.4 Criteria used by Other Regional Councils

Most Regional Councils have developed criteria for determining significant indigenous vegetation and habitats for fauna, including wetlands, under Section 6(c) of the RMA. Appendix 2 summarises the types of ecological criteria contained in a range of regional plans in New Zealand for assessing natural areas, including wetlands. The New Zealand Quality Planning indigenous biodiversity website[1] also identifies the range of ecological criteria typically used by councils in New Zealand.

7.4.1 Auckland Regional Policy Statement

Policy 6.4.7 the Auckland Council Regional Policy Statement (1999) identifies criteria for evaluating the significance of natural heritage resources including representativeness, rarity, diversity, ecological viability, size and shape, and ecological pattern. Criteria for identifying significant ecological sites for the Unitary Plan have also been developed. A draft will be released for discussion in 2013.

7.4.2 Waikato Regional Council approach

Criteria for determining significant indigenous vegetation and habitats for indigenous fauna are contained in Appendix 3 of the Waikato Regional Policy Statement (2000) and in Section 11A of the Proposed Waikato Regional Policy Statement. The Waikato Regional Council criteria cover rare and distinctive features, representativeness, context, naturalness, size, connectivity and buffering. The criteria cover both terrestrial and freshwater ecosystems, including wetlands. A threshold of 20% remaining is used to determine indigenous vegetation or habitat types which are underrepresented in an ecological district or region.

The criteria exclude wetland habitats that have been created, and maintained for wastewater treatment, water storage, water supply and hydroelectric power stations unless they meet criteria for significance in Whaley *et al.* (1995). Wetland habitats that are exotic rush and pasture are excluded. Artificial water bodies are also excluded, "except for those created for the maintenance and enhancement of biodiversity or as mitigation as part a consented activity".

Regionally significant wetlands are not listed in the plan; however a process is underway in combination with territorial local authorities to determine the level of significance of all wetlands within the Waikato Region and to hold this information within a GIS-based database.

The ecological significance criteria in the Waikato Regional Policy Statement (2000) became operative following an Environment Court Case in relation to the wetlands on the Waikato River (*Mighty River Power Ltd v Waikato Regional Council A146/2001*).

[1] http://www.qualityplanning.org.nz/plan-topics/indigenous-biodiversity.php

7.4.3 Bay of Plenty

Appendix F of the Proposed Bay of Plenty Regional Policy Statement identifies criteria for assessing matters of national importance, including ecological significance. Criteria include: representativeness, rarity, diversity and pattern, naturalness, ecological context and viability and sustainability.

Wetlands are defined in the Operative Bay of Plenty Regional Water and Land Plan (Updated March 2008) using the RMA definition of wetland however it excludes the following;

(a) Wetted pasture and pasture with patches of rushes.
(b) Oxidation ponds.
(c) Artificial water bodies used for wastewater or stormwater treatment. This includes wetlands that have been developed primarily for effluent or stormwater treatment or disposal, but are managed to appear 'natural'.
(d) Artificial Farm dams and detention dams.
(e) Land drainage canals and drains.
(f) Artificial Reservoirs for firefighting, domestic or municipal water supply.
(g) Temporary ponded rainfall over areas that would not otherwise be considered a wetland.

7.4.4 Horizons One Plan

Policy 12-6 of the Proposed Horizons Regional Council One Plan[1] contains ecological significance criteria for terrestrial and freshwater biodiversity. The One Plan does not identify significant wetlands in a schedule but takes a more prescriptive approach by combining lists of specific threatened, rare and at risk wetland habitats with size thresholds.

Wetland habitat types classified as rare or threatened include:

- Dune slack
- Ephemeral
- Bog and fen
- Pakihi
- Seepage and spring
- Swamp and marsh
- Saltmarsh
- Lakes and lagoons and their margins

The size threshold for wetland habitat types classified as threatened include:

- Areas of naturally occurring indigenous wetland habitat covering at least 0.1 ha.

  Or

[1] Proposed Horizons Open Plan as Amended by Decisions August 2010.

- Areas of indigenous vegetation that have been established in the course of wetland habitat restoration.

  Or

- Areas of artificially created indigenous wetland habitat covering at least 0.5 ha.

The size threshold for wetland habitat types classified as rare include habitat types that cover at least 0.05 ha.

Rare and threatened habitats identified in the Plan are significant in terms of Section 6(c) of the RMA[1].

Similar to the Waikato Plan, the One Plan excludes wet pasture dominated by exotic rushes and sedges, ditches and drains, stock ponds, water storage areas and open water created for landscaping or amenity.

7.4.5 Wellington Regional Policy Statement

The proposed Wellington Regional Policy Statement[2] includes ecological criteria for identifying indigenous ecosystems and habitats with significant indigenous biodiversity values. Policy 22 specifies that regional plans will identify significant wetlands, coastal marine areas and beds of lakes and rivers, and district plans will identify significant terrestrial ecosystems.

Criteria include representativeness, rarity, diversity, ecological context and Tangata Whenua values. High representativeness values are given to habitat and ecosystem types where there is less than 30% remaining or where there is less than 20% protected. The ecological condition of a habitat or ecosystem was not included as a criterion.

7.4.6 Canterbury

Appendix 4 of the Proposed Canterbury Regional Policy Statement identifies criteria for assessing significance including representativeness, rarity, diversity, naturalness and ecological context. Areas of representative and rarity are protected to ensure no net loss of biodiversity values (Policy 9.3.1).

In addition to the criteria in the RPS, Appendix WTL1 of the Canterbury Natural Resources Plan identifies criteria for assessing the ecological significance of wetlands. The assessment methodology is being used to identify wetlands for a schedule of moderate to higher value wetlands. Criteria for assessing wetlands are representativeness, rarity/distinctiveness and ecological context.

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1 One Plan Decision Part 3 Indigenous Biological Diversity (Decision No [2012] NZEnvC 182).

2 May 2010 Incorporating changes from decisions.

7.4.7 West Coast Regional Land and Water Plan

Schedule 3 of the Proposed West Coast Regional Land and Water Plan (November 2012) contains ecological criteria for identifying ecologically significant wetlands. The criteria were developed following an Environment Court interim decision[1] and a High Court appeal decision. The case provides direction on the scope and application of significance criteria for assessing regionally significant wetlands.

Table 5: Criteria for assessing the significance of wetlands on the West Coast.

Ecological Context	The ecological context of the wetland has one or more of the following functions or attributes: a. It plays an important role in protecting adjacent ecological values, including adjacent and downstream ecological and hydrological processes, indigenous vegetation, habitats or species populations; or b. is an important habitat for critical life history stages of indigenous fauna, including breeding/spawning, roosting, nesting, resting, feeding, moulting, refugia, migration staging points (as used seasonally, temporarily, or permanently); or c. it makes and important contribution to ecological networks (such as connectivity and corridors for movement of indigenous fauna); or d. it makes an important contribution to the ecological functions and processes within the wetland.
Representative	A representative wetland is one that contains indigenous wetland vegetation types or indigenous fauna assemblages that were typical for, and has the attributes of, the relevant class of wetland as it would have existed prior to 1840. This criterion would be satisfied if the wetland (not including pakihi wetlands) contains indigenous wetland vegetation types that have the following attributes: Either (a): i) The indigenous wetland vegetation types that are typical in plant species composition and structure; and ii) The condition of the wetland is what would have existed prior to 1840 in that: - indigenous species dominate; and - most of the expected species and tiers of the wetland vegetation type(s) are present.for the relevant class of wetland. Or (b): 1. the wetland contains indigenous fauna assemblages that: - are typical of the wetland class; and - indigenous species are present in most of the guilds expected for the wetland habitat type. A pakihi wetland is a representative wetland where: a. it is greater than 40ha in area; and b. is dominated by a mixture of sedges, ferns, restiads, mosses, and manuka (*Leptospermum scoparium*) of which *Baumea* spp, *Sphagnum* spp, *Gleichenia dicarpa*, and *Empodisma minus* are the main species. The representative wetland criterion applies to the whole or part of the wetland irrespective of land tenure. Each wetland is to be assessed at the ecological district or freshwater bio-geographic unit scale.
Rarity	The wetland satisfies this criterion if: a. nationally threatened species are present; or b. nationally at risk species or uncommon communities or habitats are present and the population at this site has an important contribution to the national population and distribution of a species or number of at risk species or distribution and extent of threatened species or uncommon communities or habitats. c. Regionally uncommon species are present; or d. Is a member of a wetland class that is now less than 30% of its original extent

[1] Decision No. [2010] Friends of Shearer Swamp Incorporated and others v West Coast Regional Council.

	as assessed at the ecological district and the freshwater bio-geographic unit scales; or Excluding pakihi, it contains wetland ecosystems that are identified as historically rare by Williams *et al.* (2007).
Distinctiveness	The wetland satisfies the distinctiveness criterion if it has special ecological features of importance at the international, national, freshwater biogeographic unit or ecological district scale, including: a. intact ecological sequences such as estuarine wetland systems adjoining tall forest; or b. an unusual characteristic (for example an unusual combination of species, wetland classes, wetland structural forms, or wetland landforms). c It contains species dependent on the presence of that wetland and at their distribution limit or beyond known limit.

7.5 Otago Regional Plan

Policy 10.4.1 of the Otago Regional Water Plan (Regionally Significant Wetlands)[1] contains criteria for identifying regionally significant wetlands. Criteria include diversity, rarity and naturalness. Also included are wetlands scarce in Otago in terms of ecological or physical character and wetlands with significant hydrological values including maintaining water quality or low flows or reducing flood flows.

7.6 Comparison of Criteria in Regional Plans

All plans assessed contain ecological significance criteria which are similar and in common with each other including representativeness, rarity, diversity and ecological context. Some plans (e.g. West Coast and Otago) have criteria and assessment process specific for assessing the significance of wetlands. The Canterbury Plan provides a process for assessing wetlands and the Horizons Plan contains habitat type and size thresholds for rare and threatened ecosystems.

The types of criteria which are not contained in all plans include naturalness, size and shape and ecological viability/sustainability. Case law advises that condition and viability of ecosystems should not be used as a threshold for significance, i.e. ecosystem and habitats which are small and fragmented may still be highly significant due to the extent of loss. The Canterbury Plan puts emphasis on ensuring no net loss in biodiversity of representativeness and rarity value.

Some plans contain thresholds for the level of loss of indigenous habitat and ecosystem types, e.g. Wellington (30% remaining), Canterbury (less than 20% of original extent remaining), One Plan (less than 20% remaining). Most provide criteria only for assessing indigenous vegetation and habitats for indigenous fauna, i.e. not just indigenous wetlands but wetlands which may be dominated by exotic vegetation but provide habitats for indigenous fauna.

[1] Proposed Plan Change 2 (Regionally Significant Wetlands) to the Regional Plan: Water for Otago 2 July 2011.

8. RELEVANT CASE LAW ON ECOLOGICAL SIGNIFICANCE

8.1 Western Bay of Plenty and Central Otago cases

Several Environment Court cases have provided guidance on the scale at which significance is assessed and the scope of significance criteria. In the decision Minister of Conservation v Western Bay of Plenty District Council (EnvC A071/01) the Environment Court determined that for a district council the context of 'significant' is the district. The Court directed that the assessment of significance is *an informed judgement as to those natural resources of the district [in this case region] that need to be protected*[1] and including the extent to which biodiversity has already been diminished in the district.

In Royal Forest and Bird Protection Society Inc and others v Central Otago District Council (A128/2004) the Environment Court observed that a non-regulatory approach had not been effective, especially in lowland and montane areas and that biodiversity decline was continuing. The application of the following criteria was endorsed as a means for addressing loss of biodiversity in this case.

(a) Representativeness (extent of range of genetic and ecological diversity);
(b) Diversity and pattern (in relation to ecosystems, species, and land forms);
(c) Rarity factors and/or special features;
(d) Naturalness/intactness; size and shape (affecting the long-term viability of species, communities and ecosystems, and amount of diversity);
(e) Inherent ecological viability/long-term sustainability;
(f) Relationship between natural areas and other areas of more modified character; and
(g) Vulnerability of site; management input required to maintain or enhance the significance of an area.

8.2 West Coast wetlands case

A 2009 Environment Court appeal on a proposed Buller District Plan change (Decision No. [2010] NZEnvC 345 Friends of Shearer Swamp Incorporated and others v West Coast Regional Council) provides direction on the assessment of the representativeness and rarity of wetlands. The Norton & Roper-Lindsay (2005 criteria were rejected as part of this appeal, and the Court identified criteria to be included in the plan: representativeness, rarity, distinctiveness, and ecological context (see Section 5.5.4). Key aspects of the definition of representativeness were debated in this case and conclusions that can be derived from this court case include:

- *the purpose of the representativeness criterion is to provide for the maintenance and persistence of biological diversity [in the West Coast];*
- Typical and commonplace vegetation types and the full range of biodiversity in the West Coast region are important aspects of representativeness;

[1] As referenced in Decision No [2010] NZEnvC 345.

- Representativeness examines vegetation types and fauna assemblages (as in Section 6(c)) and concerns the value(s) ascribed to those features or attributes that are shared by members of a class, and not the size of a class;

- Representativeness assesses wetland quality, as defined by current structure and composition compared to baseline structure and composition;

- Representativeness and Rarity are separate significance criteria, and the extent of a wetland class remaining is an element of the Rarity criterion;

- Thresholds for significance can differ depending on the issues and the state of biodiversity in a region or district. A higher threshold of significance was proposed in this case however it was noted that *other regions and districts have recognised all wetlands irrespective of their condition as being significant in terms of Section 6(c).*

A recent High Court judgment on the same case (CIV-2010-409-002466) provided further useful guidance on significance:

- Council is required in its plan to recognize and provide for the specified matters of national importance, including the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;

- The national state of a resource (e.g. wetlands) must be a relevant consideration of a Regional Council;

- Must have regard to national policy documents even if those documents did not have status under the Act;

- Defining significance of wetlands took into account the state of wetlands on the West Coast, the specific ecological values of the West Coast wetlands, the implications for the West Coast of the proposed criteria and how the criteria could be applied in a practical way in a West Coast setting;

- Significance is not an absolute term and what might qualify as significant in one region would not necessarily qualify as such in another;

- Significance should not be determined by reference to numbers or class size but rather value;

- Case law does not support the addition of gloss such as "very" or "highly" to the word significant, e.g. in Minster of Conservation vs. Western Bay of Plenty District Council, the Court held it was inappropriate to exclude moderate sites which were still considered to warrant protection by the expert ecologists.

8.3 Horizons One Plan Decision[1]

Conclusions from this decision include the following:

- Rare and threatened habitats should, by definition, be significant in terms of Section 6(c);
- Representativeness should have functioning ecosystem processes as an alternative criterion and not a prerequisite;
- Condition should not be a criterion for significance;
- Biodiversity offset principles are a sound basis for policy;
- Non complying activity status is the correct approach for rare and threatened habitats.

8.4 Other cases

Ecological evaluation criteria have been presented in evidence to the Environment Court in various cases, including the following examples:

- A proposed subdivision in the Waitakere Ranges (*Waitakere Ranges Protection Society Inc. v Waitakere City Council and Ors A89/2000*);
- Schedule of significant natural areas in the Western Bay of Plenty District Plan (*Minister of Conservation v Western Bay of Plenty District Council A71/2001*);
- Assessing the significance of wetlands on the Waikato River (*Mighty River Power Ltd v Waikato Regional Council A146/2001*);
- Avoiding development in areas of significant ecological value in Countryside Living zones, Plan Change 6 Regional Policy Statement (*Wairoa River Canal Partnership, Te Arai Coastal Lands Ltd vs. Auckland Regional Council. Decision 2010 EnvC309*).

In all cases, the criteria sets presented have included a 'standard' set of evaluation criteria, similar to those used in PNAP methodology and in the Bay of Plenty case (*Minister of Conservation v Western Bay of Plenty District Council A7/2001).*

8.5 Summary of case law

Direction on recent case law including the West Coast Wetlands case (Decision No. 2011 EnvC 345) and the One Plan decision provides the following direction on assessment of significance and representativeness:

- The full range of biodiversity in a region needs to be addressed;

[1] One Plan Decision Part 3 Indigenous Biological Diversity (Decision No [2012] NZEnvC 182).

- Representativeness includes the typical and commonplace, and viability and sustainability should not be used as a threshold; it is noted that the recent One Plan Decision[1] (2012) has also agreed with this approach and concluded that due to the depleted state of indigenous biodiversity, "functioning ecological processes" should not be a part of the assessment of representativeness, and that "condition" should not be a criterion for "significance").

- Significance can be assessed at a regional or district level;

- In depleted and or acutely threatened land environments the protection of all remaining indigenous vegetation and habitats for indigenous fauna should be addressed;

- Requires recognition and provision for the specified matters of national importance, including the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;

- The national state of a resource (e.g. wetlands) must be a relevant consideration of a Regional Council;

- Must have regard to national policy documents even if those documents did not have status under the Act;

- Defining significance should take into account the state of biodiversity in a region or district, the specific ecological values of a district or region, and the implications for the proposed criteria and how the criteria could be applied in a practical way;

- Significance is not an absolute term and what might qualify as significant in one region would not necessarily qualify as such in another;

- Significance should not be determined by reference to numbers or class size but rather value;

- It is inappropriate to exclude moderate sites which were still considered to warrant protection by the expert ecologists.

9. SUMMARY OF RECOMMENDATIONS

9.1 Wetland definitions

The following changes are recommended to the current definitions of wetlands in the Plan:

- Increase the minimum wetland size of 'indigenous wetlands' to at least 0.1 ha.

[1] One Plan Decision Part 3 Indigenous Biological Diversity (Decision No [2012] NZEnvC 182).

- Remove the clause ' *(c) Land which was modified prior to 27 October 2001 to the extent that it is no longer ecologically viable'* from the definition of 'indigenous wetland'.

- Remove the clause 'Other artificial wetlands' from the definition of 'indigenous wetland'.

- Reconsider whether significant wetlands in Northland should be restricted to wetlands dominated by indigenous vegetation.

9.2 Principles for determining significant wetlands in Northland

The following principles are recommended for determining significant wetlands in Northland:

- Ensuring criteria are stand alone , e.g. condition, ecological viability and sustainability should not be used as a qualifier of significance or representativeness;
- Management and protection issues are separate to assessment of significance (e.g. ranking or prioritising wetlands for protection, management or pest control);
- A broad approach to significance assessment is taken so that the full range and diversity of biodiversity is addressed and not just the top level sites;
- The importance of ecosystem processes is recognised. The preservation of only one or more samples is often inadequate for maintaining ecological processes and species in a healthy functioning state (Walker and Lee 2004);
- The value of small wetlands in depleted landscapes is recognised. Rare and threatened habitats such as wetlands, are significant in terms on Section 6(c);
- The value of ecological connections, linkages, buffers and ecotones is recognised and assessed.

9.3 Further work

The wetland guidelines in this report focus mainly on plants to identify and delineate wetlands and have not been tested in the field. It is recommended that the guidelines are revised and updated as new information becomes available through the wetland delineation work currently being undertaken by Landcare Research or any field testing of the wetland guidelines.

Further work is also recommended to determine whether all gumlands meet the definition of wetland under the RMA and if not, what indicators are most appropriate for determining the boundary between wetland and dryland.

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SECTIONS 5, 6, AND 7 OF THE RESOURCE MANAGEMENT ACT

5. Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

6. Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights.

7. Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:
(ba) the efficiency of the end use of energy:
(c) the maintenance and enhancement of amenity values:
(d) intrinsic values of ecosystems:
(e) *[Repealed]*
(f) maintenance and enhancement of the quality of the environment:
(g) any finite characteristics of natural and physical resources:
(h) the protection of the habitat of trout and salmon:
(i) the effects of climate change:
(j) the benefits to be derived from the use and development of renewable energy.

COMPARISON OF ECOLOGICAL SIGNIFICANCE CRITERIA IN REGIONAL POLICY STATEMENTS AND REGIONAL PLANS IN NEW ZEALAND

	Representativeness	Naturalness	Diversity	Rarity	Size and Shape	Intactness/ Viability	Naturally Rare Ecosystems	Ecological Context	Habitat Values	Wetland Specific Criteria	Other
Regional Water and Soil Plan for Northland	Contain the best representative examples in an ecological district of a particular habitat type.	Support viable populations of species, which are typical of that habitat type within an ecological district and retain a high degree of naturalness.	Have high density of taxa or habitat types for the ecological district.	Contain critical, endangered, vulnerable, or rare taxa, taxa of indeterminate threatened status (sensu International Union for Conservation of Nature definitions). Contain indigenous or endemic taxa that are threatened or rare in Northland. Contain habitat types that are rare in the ecological district. Support good populations of taxa which are endemic to the Northland or Northland-Auckland regions.		Support viable populations of species, which are typical of that habitat type within an ecological district and retain a high degree of naturalness.		Form ecological buffers, linkages or corridors to other areas of significant vegetation or significant habitats of indigenous fauna. Are important for indigenous or endemic migratory taxa.			
Operative Auckland Council Regional Policy Statement 1999	The extent to which an area is representative or characteristic of the natural diversity in an ecological district. The area provides a characteristic example of the ecology of the local area. The area contains an unprotected ecosystem type, or an ecosystem type under-represented within the protected area network of an ecological district.	The extent to which an area is still reflective of its original natural character and quality.	The natural diversity of species of flora and fauna, biological communities and ecosystems, geological or edaphic features such as landforms and land processes, parent material, and records of past processes. The diversity of ecological pattern, such as the change in species composition or communities along environmental gradients.	The presence of a threatened species or uncommon, special or distinctive features. The area contains a Regionally threatened species or a unique or special feature.	The extent to which an area is of sufficient size and shape to maintain its intrinsic values.	The extent to which a natural area can maintain its ecological viability over time. The area is of good quality (e.g. for natural areas it has an intact understorey and is characterised by a low level of invasion from pest species).	The presence of …uncommon, special or distinctive features.	The relationship a natural feature has with its surrounding landscapes, including its role as an ecological corridor or riparian margin, and the extent of buffering or protection from external adverse effects. The area contributes to the ecological viability of surrounding areas and biological communities. The area is a component of, adjoins or provides a buffer to, a significant natural resources, or a watercourse or coastal margin. The area is in a landscape which is depleted of indigenous vegetation. The protection of the area adds significantly to the spatial characteristics of the protected area network (e.g. by improving connectivity or reducing distance to the next protected area)	The extent to which an area provides an important habitat for species at different stages of their life cycle, e.g. breeding, spawning, roosting, feeding, and haul-out areas for the New Zealand fur seal. The area has habitat values, or provides or contributes to a habitat corridor or connection facilitating the movement of fish or wildlife species in the local area.		The importance of an area to Tangata Whenua. There is a community association with, or public appreciation of, the aesthetic values of the landform or feature.
Operative Waikato Regional Policy Statement 2000	It is indigenous vegetation or habitat type that is underrepresented (10% or less of its known or likely original extent remaining) in an Ecological District, or Ecological Region, or nationally. It is an area of indigenous vegetation or habitat that is a healthy, representative example of its type because:-its structure, composition, and ecological processes are largely intact, and • if protected from the adverse effects of plant and animal pests and of adjacent landuse (e.g. stock, discharges, erosion), can			It is vegetation or habitat that is currently habitat for indigenous species or associations of indigenous species that are: • threatened with extinction, or • endemic to the Waikato Region.	It is an area of indigenous vegetation or naturally occurring habitat that is large relative to other examples in the Waikato Region of similar habitat types, and which contains all or almost all indigenous species typical of that habitat type.		It is indigenous vegetation or habitat that is, and prior to human settlement was, nationally uncommon, such as geothermal, Chenier plain, or karst ecosystems.	Is it an area of indigenous vegetation or habitat that forms part of an ecological sequence that is either not common in the Waikato Region or an ecological district, or is an exceptional, representative example of its type. It is an area of indigenous vegetation or habitat for indigenous species (which habitat is either naturally occurring or has been established as a mitigation measure) that forms, either	It is aquatic habitat that is a portion of a stream, river, lake, wetland, intertidal mudflat or estuary, and their margins, that is critical to the self sustainability of an indigenous species within a catchment of the Waikato Region and which	It is wetland habitat for indigenous plant communities and/or indigenous fauna communities that has not been created and subsequently maintained for or in connection with: (a) waste treatment; or (b) wastewater renovation; or (c)	It is indigenous vegetation or habitat that has been specially set aside by statute or covenant for protection and preservation, unless the site can be shown to meet none of Criteria 3-11. It is indigenous vegetation or habitat recommended for protection by the Nature Heritage Fund or Nga Whenua Rahui

	Representativeness	Naturalness	Diversity	Rarity	Size and Shape	Intactness/ Viability	Naturally Rare Ecosystems	Ecological Context	Habitat Values	Wetland Specific Criteria	Other
	maintain its ecological sustainability over time.							on its own or in combination with other similar areas, an ecological buffer, linkage or corridor, and which is necessary to protect any site identified as significant under Criteria 1-10 from external adverse effects.	contains healthy, representative populations of that species.	hydro electric power lakes; or (d) water storage for irrigation; or (e) water supply storage; unless in those instances they meet the criteria in Whaley *et al*. (1995).	committees, or the Queen Elizabeth the Second National Trust Board of Directors, unless the site can be shown to meet none of Criteria 3-11
Environment Bay of Plenty Operative Regional Policy Statement 2006	Indigenous vegetation or habitat of indigenous fauna contains associations of indigenous species representative, typical or characteristic of the natural diversity of the region or any relevant ecological district	Indigenous vegetation or habitat of indigenous fauna is in a natural state or healthy condition, or is in an original condition;	Indigenous vegetation or habitat of indigenous fauna contains a high diversity of indigenous ecosystem or habitat types, or changes in species composition, reflecting the existence of diverse natural features (for example landforms, soil types or hydrology), or communities along an ecological gradient;	Indigenous vegetation or habitat of indigenous fauna supports an indigenous species or associations of indigenous species threatened or are nationally, regionally or within the relevant ecological district; Indigenous vegetation or habitat of indigenous fauna can contribute to the maintenance or recovery of a species threatened or rare nationally, regionally or within the relevant ecological district; Indigenous vegetation or habitat of indigenous fauna is distinctive, of restricted occurrence, or at the limits of its natural distribution range, or has developed as a result of factors such as natural geothermal activity, historical cultural practices, altitude, water table, or soil type; Indigenous vegetation or habitat of indigenous fauna is significantly reduced in area and is degraded but retains key natural ecosystem functions (for example hydrology) and has high potential for restoration;	Indigenous vegetation or habitat of indigenous fauna is one of the largest remaining examples of its type within the region or any relevant ecological district;	Indigenous vegetation or habitat of indigenous fauna is of sufficient size and compact shape and has the capacity to maintain its ecological viability over time; Indigenous vegetation or habitat of indigenous fauna supports intact habitats and healthy functioning ecosystems; Indigenous vegetation or habitat of indigenous fauna is of sufficient size and compact shape to resist changes initiated by external agents;		Indigenous vegetation or habitat of indigenous fauna contributes to the ecological viability of adjoining natural areas and biological communities, by providing or contributing to an important linkage or network, or providing a buffer from adjacent land uses; Indigenous vegetation or habitat of indigenous fauna provides habitat for indigenous species at key stages of their life cycle;			Indigenous vegetation or habitat of indigenous fauna contributes to the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga; Indigenous vegetation or habitat of indigenous fauna is known and valued for its connection to the history of the place; Indigenous vegetation or habitat of indigenous fauna is known and valued by the immediate and wider community for its contribution to sense of place leading to community association with or public esteem for the place, or due to its value for recreation or education;
Horizons Regional Council Proposed One Plan	(a) An area of *rare habitat**, *threatened habitat** or *at-risk habitat** may be recognised as being an area of significant indigenous vegetation or a significant habitat of indigenous fauna if: (i) in terms of representativeness, that habitat: (A) comprises indigenous habitat type that is under-represented (20% or less of known or likely former cover), or (B) is an area of indigenous vegetation that is large relative to other areas of habitat in the Ecological District or Ecological Region, with indigenous species composition, structure and diversity typical of the habitat type, and (C) has functioning ecosystem processes.		(ii) in terms of rarity and distinctiveness, that habitat supports an indigenous species or community that: (A) is classified as threatened (as determined by the *New Zealand Threat Classification System and Lists**), or (B) is distinctive to the Region, or (C) is at a natural distributional limit, or(D) has a naturally disjunct distribution that defines a floristic gap, or (E) was originally (i.e., prehuman) uncommon within New Zealand,	(a) An area of *rare habitat**, *threatened habitat** or *at-risk habitat** may be recognised as being an area of significant indigenous vegetation or a significant habitat of indigenous fauna if: (i) in terms of representativeness, that habitat: … (E) habitat for indigenous species that are dependent on large and contiguous habitats.	(a) An area of *rare habitat**, *threatened habitat** or *at-risk habitat** may be recognised as being an area of significant indigenous vegetation or a significant habitat of indigenous fauna if: (i) in terms of representativeness, that habitat: … (C) has functioning ecosystem processes.	…(E) was originally (i.e., prehuman) uncommon within New Zealand, and supports an indigenous species or community of indigenous species.	(iii) in terms of ecological context, that habitat provides: (A) connectivity (physical or process connections) between two or more areas of indigenous habitat, or (B) an ecological buffer (provides protection) to an adjacent area of indigenous habitat (terrestrial or aquatic) that is ecologically significant, or (C) part of an	…(D) important breeding areas, seasonal food sources, or an important component of a migration path for indigenous species			

	Representativeness	Naturalness	Diversity	Rarity	Size and Shape	Intactness/ Viability	Naturally Rare Ecosystems	Ecological Context	Habitat Values	Wetland Specific Criteria	Other
			and supports an indigenous species or community of indigenous species. or				indigenous ecological sequence or connectivity between different habitat types across a gradient (e.g., altitudinal or hydrological), or (D) important breeding areas, seasonal food sources, or an important component of a migration path for indigenous species, or (E) habitat for indigenous species that are dependent on large and contiguous habitats.				
Proposed Regional Policy Statement for the Wellington Region (Incorporating decisions on submissions May 2010)	High representativeness values are given to particular ecosystems and habitats that were once typical and commonplace in a district or in the region, and: (i) are no longer commonplace (less than about 30% remaining); or (ii) are poorly represented in existing protected areas (less than about 20% legally protected.		The ecosystem or habitat has a natural diversity of ecological units, ecosystems, species and physical features within an area.	The ecosystem or habitat has biological physical features that are scarce or threatened in a local, regional or national context. This can include individual species, rare and distinctive biological communities and physical features that are unusual or rare.				Ecological context of an area: the ecosystem or habitat: (i) enhances connectivity or otherwise buffers representative, rare or diverse indigenous ecosystems and habitats; or (ii) provides seasonal or core habitat for protected or threatened indigenous species.			The ecosystem or habitat contains characteristics of special spiritual, historical or cultural significance to tangata whenua, identified in accordance with tikanga Maori.
Proposed Canterbury Regional Policy Statement 2011	Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district; Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district; Indigenous vegetation or habitat of indigenous fauna that is degraded but retains key natural ecosystem functions (for example hydrology or soil formation processes).	Indigenous vegetation that is in a relatively intact state for the relevant ecological district i.e. has relatively little human modification.	Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous species, or genotypes, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.	Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment; Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district; The site contains indigenous vegetation or an indigenous species at its distributional limit within the Canterbury region or nationally; Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combination of factors.				Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function. A wetland which plays an important hydrological, biological role in the natural functioning of river or coastal system. Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting for indigenous species, either seasonally or permanently.			
West Coast Proposed	**A representative wetland** is one **that** (2) A representative w etland is one			The wetland satisfies this				The ecological context of the The ecological context of the			Distinctiveness The wetland satisfies

	Representativeness	Naturalness	Diversity	Rarity	Size and Shape	Intactness/ Viability	Naturally Rare Ecosystems	Ecological Context	Habitat Values	Wetland Specific Criteria	Other
Regional Land and Water Plan (2012)	that contains indigenous wetland vegetation types or indigenous fauna assemblages that were typical for, and has the attributes of, the relevant class of wetland as it would have existed circa 1840. (3) This criterion will be satisfied if the wetland (not including pakihi wetlands) contains either: (a) Indigenous wetland vegetation types that have the following attributes: (i) The indigenous w etland vegetation types that are typical in plant species composition and structure; and (ii) The condition of the wetland is typical of what would have existed circa 1840 in that: -Indigenous species dominate; and - Most of the expected species and tiers of the wetland vegetation type(s) are present for the relevant class of wetland; or (b) (i) The wetland contains indigenous fauna assem blages that: -Are typical of the wetland class; and - Indigenous species are present in most of the guilds expected for the wetland habitat type. (4) A pakihi wetland is a representative wetland where: (a) It is greater than 40 hectares in area; and (b) It is dominated by a mixture of sedges, ferns, restiads, rushes, mosses and manuka (Leptospermum scoparium) of which Baumea spp, Sphagnum spp, Gleichenia dicarpa, and Empodisma minus are the main species. (5) The representative wetland criterion applies to the whole or part of the wetland irrespective of land tenure; (6) Each wetland is to be assessed at the ecological district and freshwater bio-geographic unit scale .			criterion if: (a) Nationally threatened species are present; or (b) Nationally at risk species or uncommon communities or habitats are present and either: -The population at this site provides an important contribution to the national population and its distribution; -There are a number of at risk species present; or -The wetland provides an important contribution to the national distribution and extent of uncommon communities or habitats; (c) Regionally uncommon species are present; or (d) Is a member of a wetland class that is now less than 30% of its original extent as assessed at the ecological district and the freshwater bio-geographic unit scales; or (4) Excluding pakihi, it contains lake margins, cushion bogs, ephemeral wetlands, damp sand plains, dune slacks, string mires, tarns, seepages and flushes or snow banks which are wetland classes or forms identified as historically rare by Williams *et al.* (2007).				wetland has one or more of the following functions or attributes: (a) It plays an important role in protecting adjacent ecological values, including adjacent and downstream ecological and hydrological processes, indigenous vegetation, habitats or species populations; or (b) Is an important habitat for critical life history stages of indigenous fauna including breeding/spawning, roosting, nesting, resting, feeding, moulting, refugia, or migration staging points (as used seasonally, temporarily or permanently); or (c) It makes an important contribution to ecological networks (such as connectivity and corridors for movement of indigenous fauna); or (d) It makes an important contribution to the ecological functions and processes within the wetland			the distinctiveness criterion if it has special ecological features of importance at the international, national, freshwater biogeographic unit or ecological district scale, including: (a). intact ecological sequences such as estuarine wetland systems adjoining tall forest species distribution limit; or (b). an unusual characteristic (for example an unusual combination of species, wetland classes, wetland structural forms, or wetland landforms). or (c) It contains species dependent on the presence of that wetland and at their distribution limit or beyond known limit.
Proposed Regional Plan Change: Water for Otago (Regionally Significant Wetlands) (Policy 10.4.1)		Wetland with a high degree of naturalness;	High diversity of habitat types; High diversity of indigenous flora and fauna;	Habitat for nationally or internationally rare or threatened species or communities; Wetland scarce in Otago in terms of its ecological or physical character.			;		Regionally significant habitat for waterfowl;	Critical habitat for the life cycles of indigenous fauna which are dependent on wetlands;	Significant hydrological values including maintaining water quality or low flows, or reducing flood flows. Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka

INDICATOR STATUS OF PLANTS FOUND IN NORTHLAND WETLANDS

Plants in **bold** are rare in Northland (de Lange *et al.* 2009 and DOC 2006 in prep.). * Exotic species.

USA Definition	Obligate Wetland Plants that Occur **Almost Always (>99%)** in Wetlands Under Natural Conditions	Facultative Wetland Plants that Occur **Usually (67-99%) in Wetlands** But Also Occur (1-33%) in Non-Wetlands.	Facultative Plants With a **Similar Likelihood (33-67%)** of Occurring in Both Wetlands and Non-Wetlands.	Facultative Upland Plants that Occur **Sometimes (1-33%)** in Wetlands, But Occur More Often in Non-Wetlands	Obligate Upland Plants that Occur **Rarely in (<1%)** in Wetlands but Occur Almost Always in Non-Wetlands Under Natural Conditions
Trees and shrubs					
	Avicennia resinifera ***Coprosma tenuicaulis*** ***Syzygium maire***	*Alnus glutinosa** *Coprosma parviflora* ***Epacris pauciflora*** *Plagianthus divaricatus* *Salix alba* var. *vitellina** *Salix cinerea** *Salix fragilis**	*Coprosma propinqua* var. *propinqua* *Cordyline australis* *Dacrycarpus dacrydioides* *Dracophyllum lessionianum* *Haloragis erecta* ***Kunzea ericoides* var. *linearis*** *Laurelia novae-zelandiae* *Leptospermum scoparium* *Ulex europaeus**	*Acacia longifolia** *Agathis australis* *Ascarina lucida* var. *lucida* *Banksia integrifolia** *Carpodetus serratus* *Coprosma rhamnoides* *Coprosma robusta* *Dacrydium cupressinum* *Erica lusitanica** *Geniostoma ligustrifolium* *Hakea sericea** ***Hebe perbella*** *Hebe stricta* *Leucopogon fasciculatus* *Leucopogon fraseri* *Ligustrum sinense** *Melicytus ramiflorus* *Myrsine australis* *Pennantia corymbosa* *Pinus pinaster** *Pinus radiata** ***Pittosporum obcordatum*** *Pittosporum tenuifolium* ***Plagianthus regius*** *Podocarpus totara* var. *totara* *Pomaderris kumeraho* ***Pomaderris phylicifolia*** *Prumnopitys taxifolia* *Rhopalostylis sapida* *Sophora chathamica* ***Sophora microphylla*** *Streblus heterophyllus*	*Alectryon excelsus* *Beilschmiedia tarairi* *Beilschmiedia tawa* *Coprosma lucida* *Corynocarpus laevigatus* *Dodonea viscosa* *Dysoxylum spectabile* *Hakea gibbosa** *Knightia excelsa* *Kunzea ericoides* *Leptecophylla juniperina* *Macropiper excelsum* *Melicytus macrophyllus* *Metrosideros excelsa* *Myoporum laetum* *Olearia furfuracea* *Olearia rani* *Paraserianthes lophantha** *Phyllocladus trichomanoides* *Pomaderris amoena* *Prumnopitys ferruginea* *Pseudopanax arboreus* *Pseudopanax crassifolius* *Pseudopanax lessonii* *Psoralea pinnata** *Solanum laciniatum* *Solanum mauritanum** *Vitex lucens* *Weinmannia silvicola*
Lianes					
	Urtica linearifolia		*Calystegia sepium* *Cassytha paniculata*	*Freycinetia banksii* *Lonicera japonica** *Muehlenbeckia complexa* *Ripogonum scandens* *Rubus australis* *Rubus aff. fruticosus** *Rubus cissoides*	*Calystegia tuguriorum*

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	Plants that Occur **Almost Always (>99%)** in Wetlands Under Natural Conditions	Plants that Occur **Usually (67-99%) in Wetlands** But Also Occur (1-33%) in Non-Wetlands.	Plants With a **Similar Likelihood (33-67%)** of Occurring in Both Wetlands and Non-Wetlands.	Plants that Occur **Sometimes (1-33%)** in Wetlands, But Occur More Often in Non-Wetlands	Plants that Occur **Rarely in (<1%)** in Wetlands but Occur Almost Always in Non-Wetlands Under Natural Conditions
Lycopods and psilopsids					
	Lycopodiella lateralis ***Lycopodiella serpentina***	***Phylloglossum drummondii***	*Lycopodium fastigiatum*	*Lycopodiella cernua* *Lycopodium deuterodensum* *Lycopodium volubile*	
Ferns					
	Azolla filiculoides *Azolla pinnata** *Blechnum minus* ***Cyclosorus interruptus*** ***Thelypteris confluens***	*Gleichenia dicarpa* *Lindsaea linearis* ***Ophioglossum petiolatum***	*Blechnum novae-zelandiae* ***Christella dentata*** *Dicksonia squarrosa* ***Todea barbara***	*Cyathea dealbata* *Cyathea medullaris* *Histiopteris incisa* *Hypolepis ambigua* *Pteridium esculentum* *Schizaea fistulosa*	
Orchids					
	Anzybas rotundifolius *Cryptostylis subulata* ***Prasophyllum hectorii*** ***Sprianthes sinensis 'Motutangi'*** ***Thelymitra cyanea***	*Thelymitra pulchella*	***Calochilus herbaceus*** ***Calochilis paludosus*** *Microtis parvifolia* *Microtis unifolia* *Thelymitra aemula* *Thelymitra dentata*	***Plumatochilus tasmanicum*** *Prasophyllum colensoi* *Thelymitra longifolia*	
Grasses					
	Amphibromus fluitans *Glyceria fluitans** *Glyceria maxima** *Isachne globosa* *Spartina alterniflora** *Spartina anglica** *Zizania latifolia**	*Alopecurus geniculatus** *Glyceria declinata** *Paspalum distichum** *Paspalum vaginatum**	*Agrostis stolonifera** *Alopecurus pratensis** *Austroderia fulvida* *Cortaderia jubata** *Cortaderia selloana** *Holcus lanatus** *Schedonorus arundinacea**	*Agrostis capillaris** *Cenchrus clandestinum** *Dactylis glomerata** *Paspalum dilatatum** *Poa annua**	*Anthoxanthum odoratum** *Lolium perenne** *Spinifex sericeus*
Sedges (including restiads)					
	Bolboschoenus caldwellii *Bolboschoenus fluviatilis* ***Bolboschoenus medianus*** *Carex maorica* *Carex secta* *Carex subdola* *Carex vulpinoidea** *Eleocharis acuta* *Eleocharis gracilis* ***Eleocharis neozelandica*** *Eleocharis pusilla* *Eleocharis sphacelata* ***Empodisma robustum*** ***Isolepis fluitans* var. *fluitans*** *Isolepis inundata* *Isolepis prolifera* *Machaerina arthrophylla* *Machaerina articulata* *Machaerina rubiginosa*	*Apodasmia similis* *Carex dipsacea* *Carex lessoniana* *Carex pumila* *Carex ovalis** *Carex virgata* *Cyperus eragrostis** *Cyperus ustulatus* *Isolepis cernua* *Lepidosperma australe* ***Lepidosperma filiforme*** ***Machaerina complanata*** *Machaerina juncea* *Machaerina tenax* *Schoenus apogon* *Schoenus brevifolius* *Schoenus carsei* ***Schoenus concinnus*** *Schoenus maschalinus*	*Carex cirrhosa* *Gahnia xanthocarpa* *Schoenus tendo*	*Carex flagellifera* *Gahnia setifolia* *Lepidosperma laterale* *Morelotia affinis*	*Carex testacea* *Ficinia nodosa* ***Ficinia spiralis*** *Gahnia lacera*

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	Machaerina sinclairii *Machaerina teretifolia* *Schoenoplectus pungens* *Schoenoplectus tabernamontanii* ***Schoenus nitens*** ***Tetraria capillaris***				
Rushes					
	*Juncus acutus** *Juncus caespiticus* *Juncus kraussii* var. *australiensis* *Juncus prismatocarpus*	*Juncus articulatus** *Juncus bufonius** *Juncus edgariae* *Juncus effusus** *Juncus microcephalus** *Juncus pallidus* *Juncus pauciflorus* *Juncus planifolius* *Juncus procerus** ***Juncus sarophorus***	*Luzula picta*	*Juncus australis* *Juncus tenuis**	
Monocot herbs (other than orchids, grasses, sedges and rushes)					
	*Alisma plantago-aquatica** *Astelia grandis* *Iris pseudacorus** *Lemna minor* *Potamogeton cheesemanii* *Sparganium subglobosum* *Triglochin striata* ***Trithuria inconspicua*** *Typha orientalis* *Zostera muelleri* subsp. *novozelandica*	***Dianella haematica*** *Phormium tenax*	*Zantedeschia aetheopica**	*Aristea ecklonii** *Blackstonia perfoliata** *Tradescantia fluminensis**	*Dianella nigra*
Dicot herbs					
	*Apium nodiflorum** ***Callitriche petrei* subsp. *petrei*** *Callitriche stagnalis* ***Elatine gratioloides*** ***Epilobium pallidiflorum*** *Galium palustre** *Glossostigma elatinoides* *Gratiola sexdentata* *Hydrocotyle hydrophila* ***Hydrocotyle pterocarpa*** *Lilaeopsis novae-zelandiae* *Limosella lineata* *Ludwiga peploides** *Ludwigia palustris** *Mentha piperita* var. *citrata** ***Mimulus repens*** *Myosotis laxa* subsp. *caespitosa** *Myriophyllum aquaticum** *Myriophyllum propinquum*	*Bidens frondosa** *Cotula coronopifolia* ***Drosera binata*** ***Drosera hookeri*** ***Drosera spatulata*** ***Gonocarpus aggregatus*** *Hydrocotyle novae-zelandiae* *Lobelia anceps* ***Lobelia angulata*** ***Mazus novaezeelandiae* subsp. *novaezealandiae*** *Persicaria hydropiper** *Samolus repens* var. *repens* *Selliera radicans* *Sarcocornia quinqueflora* ***Viola lyallii***	*Ageratina adenophora** *Aster subulatus** *Centella uniflora* *Drosera peltata* subsp. *auriculata* *Epilobium ciliatum** ***Gonocarpus micranthus* subsp. *micranthus*** *Hydrocotyle moschata* *Lotus pedunculatus** *Ranunculus repens** ***Rorippa divaricata***	*Galium aparine**	*Daucus carota** *Lagurus ovatus** *Lotus suaveolens**

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	Myriophyllum robustum ***Myriophyllum triphyllum*** ***Myriophyllum votschii*** *Nasturtium officinale** *Persicaria decipiens* *Ranunculus amphitrichus* *Ranunculus flammula** *Ranunculus glabrifolius* ***Ranunculus limosella*** ***Ranunculus macropus*** *Ranunculus sceleratus** *Rorippa palustris* ***Utricularia australis*** ***Utricularia delicatula*** *Utricularia gibba** *Veronica anagallis-aquatica**				

PHOTOGRAPHS OF WETLAND AND NON-WETLAND TYPES

Plate 1: This wetland is one of the best examples of a swamp wetland in the Waipu Ecological District. It will meet the definition of a wetland under the RMA however the parts of the wetland dominated by reed sweetgrass do not meet the criteria for an indigenous or significant indigenous wetland.

Plate 2: This small wetland is dominated by the obligate indigenous species *Isachne globosa* and would therefore meet the criteria for being an indigenous wetland.

Plate 3: This area of exotic grasses, rushes and crack willow is dominated by obligate and facultative wetland species and is considered a wetland however it does not meet the criteria for being an indigenous wetland.

Plate 4: This small depression in old dunes on the Aupouri Peninsula contains black mudfish, a rare species. It is larger than 50 m^2, wider than 5 m and dominated by indigenous obligate and facultative wetland species and is therefore a significant indigenous wetland.

Plate 5: This area would have originally been a significant indigenous wetland however it has been drained, grazed and invaded by pampas (a facultative species) that mean large parts of the area no longer meet the criteria for an indigenous wetland. It still retains smaller areas that would meet the criteria for an indigenous wetland but they are unlikely to meet the criteria for a significant indigenous wetland.

Plate 6: The area ringed in red in this photo meets the criteria for an indigenous wetland as it is dominated by indigenous obligate and facultative wetland plants.

Plate 7: A large area of gumland at Epakauri that meets the criteria for a significant indigenous wetland as it is dominated by *Schoenus brevifolius*, a facultative wetland plant, is large enough to support viable populations of species which are typical of this wetland type, and retains a high degree of naturalness.

Plate 8: A small area of bog that has been dug up to remove kauri. This area is an indigenous wetland as it is dominated by indigenous obligate and facultative wetland plants.

Plate 9: A small pond which contains a fringe of raupo and *Eleocharis sphacelata* (obligate wetland plants). Only the small area of raupo and *Eleocharis sphacelata* would be considered a wetland but it is not wider than 5 m and therefore does not meet the criteria for an indigenous wetland.

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