16 APPENDIX

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16.2 APPENDIX 1. LAND ENVIRONMENT NEW ZEALAND (LENZ) LEVEL 1 & LEVEL 2 CHARACTERISTICS FOR ECOLOGICAL DISTRICTS FOUND IN THE KAIPARA CATCHMENT

	Ecological District								
	Tutamoe	**Tangihua**	**Whangaruru**	**Whangarei**	**Kaipara**	**Tokatoka**	**Waipu**	**Otamatea**	**Rodney**
Bioclimatic zones	Hill Country	Hill Country	Lowland	Lowland	Coastal-Estuarine	Lowland	Coastal-Lowland	Coastal	Coastal-lowland
Reference	**Miller & Holland 2008**	**Goldwater *et al*. 2009**	**Booth 2005**	**Manning 2001**	**Smale *et al*. 2009** **Davis 2002**		**Lux *et al*. 2007**	**Lux & Beadal 2006** **Davis 2002**	**Davis 2002** **Julian *et al*. 2000** **Ayres *et al*. 1984**
LENZ Level 1	**Northern Lowlands** Age = Old Particle Size = Sand **Northern Hill Country** Age = Old Particle Size = Coarse gravel Drainage = moderate	**Northern Hill Country** Age = Old Particle Size = Coarse gravel Drainage = moderate	**Northern Lowlands** Age = Old Particle Size = Sand **Recent Soils** Age = Recent Particle Size = Sand Drainage = Moderate	**Northern Lowlands** Age = Old Particle Size = Sand **Recent Soils** Age = Recent Particle Size = Sand Drainage = Moderate	**Northern Lowlands** Age = Old Particle Size = Sand **Recent Soils** Age = Recent Particle Size = Sand Drainage = Moderate	**Northern Lowlands** Age = Old Particle Size = Sand	**Northern Lowlands** Age = Old Particle Size = Sand **Recent Soils** Age = Recent Particle Size = Sand Drainage = Moderate	**Northern Lowlands** Age = Old Particle Size = Sand	**Northern Lowlands** Age = Old Particle Size = Sand
LENZ Level 2	**A4** Landform = flats in estuaries & inlets Parent Material = estuarine alluvium Fertility = moderate	**A6** Elevation = 93m Landform – undulating hills Parent Material = deeply weathered		**A6** Elevation = 93m Landform – undulating hills Parent Material = deeply weathered	**A5** Landform = very gently undulating plains Parent Material = Alluvium from estuarine	**A5** Landform = very gently undulating plains Parent Material = Alluvium from estuarine		**A6** Elevation = 93m Landform – undulating hills Parent Material = deeply weathered	**A6** Elevation = 93m Landform – undulating hills

	Ecological District								
	Tutamoe	**Tangihua**	**Whangaruru**	**Whangarei**	**Kaipara**	**Tokatoka**	**Waipu**	**Otamatea**	**Rodney**
	Drainage = poor	sandstone & greywacke Fertility = very low Drainage = moderate		sandstone & greywacke Fertility = very low Drainage = moderate	sediments, rhyolitic & andesitic tephra, peat, older sands Fertility = low Drainage = very poor to poor **A6** Elevation = 93m Landform – undulating hills Parent Material = deeply weathered sandstone & greywacke Fertility = very low Drainage = moderate	sediments, rhyolitic & andesitic tephra, peat, older sands Fertility = low Drainage = very poor to poor		sandstone & greywacke Fertility = very low Drainage = moderate	Parent Material = deeply weathered sandstone & greywacke Fertility = very low Drainage = moderate
			G3 Landform = gently undulating floodplains Parent Material = fine textured alluvium, some rhyolitic tephra,	**G3** Landform = gently undulating floodplains Parent Material = fine textured alluvium, some rhyolitic tephra,	**G1** Landform = gently undulating dunes Parent material = dune sands predominant				

	Ecological District								
	Tutamoe	**Tangihua**	**Whangaruru**	**Whangarei**	**Kaipara**	**Tokatoka**	**Waipu**	**Otamatea**	**Rodney**
			dune sand & loess Fertility = low Drainage = moderate	dune sand & loess Fertility = low Drainage = moderate	Fertility = very low Drainage = poor				
	D1 Landform = Rolling Hills Parent Material = Deeply weathered basalts, andesites, rhyolites, with greywacke, argillite & sandstaone locally important Fertility = moderate Drainage = moderate	**D1** Landform = Rolling Hills Parent Material = Deeply weathered basalts, andesites, rhyolites, with greywacke, argillite & sandstaone locally important Fertility = moderate Drainage = moderate							
Physical area			• Estuarine Flats • Freshwater Wetlands • Coastal Cliffs • Lakes • Headlands & Peninsulas • Estuarine Wetlands		• Estuarine flats • Freshwater wetlands • Coastal cliffs • Lakes • Islands • Terraces • Low young-age shifing dunelands • Low mid-age stable duneland • High mid-age stable duneland			• Estuarine Flats • Freshwater Wetlands • Coastal Cliffs • Lakes • Headlands & Peninsulas • Estuarine Wetlands	• Mobile sand • Stablished marine sands • Podsolised marine sands • Headlands & peninsulas • Saline wetlands • Freshwater wetlands • Valley alluvium • Hill country • Cliffs & gorges

	Ecological District								
	Tutamoe	**Tangihua**	**Whangaruru**	**Whangarei**	**Kaipara**	**Tokatoka**	**Waipu**	**Otamatea**	**Rodney**
					• Older-age stable dunelands • Old weathered consolidated sand • Volcanic outcrops				
Vegetation Type	• Freshwater wetlands • Shrubland & Shrubland association Including coastal) • Fernland • Forest • Coastal Forest • Broadleaf Forest • Podocarp Forest • Broadleaf-Podocarp Forest • Kauri Forest			• Forest • Shrubland • Freshwater wetland • Estuarine wetlands • Other	• Forest • Shrubland • Scrubland • Freshwater wetland • Estuarine wetlands • Treeland • Tussock land • Rush/reed/sedgeland • Grassland • Herbfield • Sandfield • Algal/fern mat • Open water • Open tidal flats		• Forest • Shrubland • Scrubland • Freshwater wetland • Estuarine wetlands • Treeland • Tussock land • Rush/reed/sedgeland • Grassland • Herbfield • Sandfield • Algal/fern mat • Open water • Open tidal flats	• Forest • Shrubland • Freshwater wetland • Estuarine wetlands • Other	• Forest • Scrub • Treeland • Reedland • Sedgeland • Shrubland • Sandfield

16.3 APPENDIX 2. CRITERIA FOR ASSESSING HABITAT SIGNIFICANCE FOR THE PROTECTED NATURAL AREA PROGRAM.

Protected Natural Areas (PNAs) surveyed and qualified as so during a Protected Natural Area Program (PNAP), must meet at least one of the following criteria:

1. They are predominantly indigenous characteri, by virtue of physical dominance or species composition in the canopy;
2. They provide habitat for a threatened indigenous plant or animal species;
3. They include an indigenous vegetation community or ecological unit, in any condition, that is nationally uncommon or much reduced from its former extent.

The conservation values of the PNA are then assessed using a two-level classification of habitat significance based on the PNAP ecological criteria outlined in Table XX.

Ecological characteristics of **Level 1 sites** include:

1. Contains or is regularly used by critical, endangered, vulnerable, declining, recovering or naturally uncommon taxa (ie. species or subspecies), or taxa of indeterminate threatened status nationally.
2. Contains or is regularly used by indigenous or endemic taxa that are of regional significance or in the Ecological District (ED).
3. Contains the best representative examples in the ED of a particular ecological unit or combination of ecological units
4. Has high diversity of taxa or habitat types for the ED.
5. Forms ecological buffers, linkages or corridors to other areas of significant vegetation or significant habitats of indigenous fauna.
6. Contains habitat ypes that are rare or threatened in the ED or regionally or nationally.
7. Supports good populations of taxa which are endemic to Northland or Northland-Auckland.
8. Is important for indigenous or endemic migratory taxa.
9. Covers a large geographic area relative to other similar habitat types within the ED.

Ecological characteristics of **Level 2 sites** include:

1. Supports populations of indigenous flora and fauna not identified as meeting Level 1 critieria.

2. Contains common indigenous species or ecological units and are not the best representative examples of their type.
3. May be small and isolated from other habitats.
4. May contain high proporation of pest species.
5. May be structurally modified (e.g. the forest understorey is grazed)
6. Has not been surveyed sufficiently to determine whether it meets the critiera for Level 1 sites.

TABLE A. LINKS BETWEEN THE PNAP CRITERIA AND LEVELS 1 AND 2

PNAP CRITERIA	LEVEL 1	LEVEL 2
Representativeness[1]	Contains the best representative examples in the Ecological District of a particular ecological unit or combination of ecological units. (3) Supports good populations of taxa which are endemic to Northland or Northland-Auckland. (7)	Not one of the best examples of its type in the Ecological District.
Rarity and special features	Contains or is regularly used by critical, endangered, vulnerable or declining or naturally uncommon taxa (i.e. species and subspecies), or taxa of indeterminate threatened status nationally (1). Contains or is regularly used by indigenous or endemic taxa that are are of regional significance in Northland or in the Ecological District (2). Contains habitat types that are rare or threatened in the Ecological District or regionally or nationally (6). Is important for endemic and indigenous migratory taxa (8).	Does not regularly contain, or there is no currently known threatened or regionally significant species, Contains common habitat types. No currently known special features.
Diversity and pattern	Has a high diversity of taxa or habitat types for the Ecological District. (4).	May contain only one habitat type and/or have a low diversity of taxa relative to other areas of a similar type.
Naturalness	Exhibits a higher level of naturalness than other examples of its type in the Ecological District.	Exhibits a lower level of naturalness than other examples of its type in the Ecological District..
Buffering/corridors and linkages	Forms ecological buffers, linkages or corridors to other areas of significant vegetation or significant habitats of indigenous fauna.(5)	May be heavily impacted by external influences or may be fragmented and isolated from other natural areas.
Size and shape	Covers a large geographic area relative to other similar habitat types within the Ecological District. (9)	Is likely to be small relative to other similar examples of its type, or if large, is not the best example of its type and meets no other criteria for a Level 1 site.
Long-term ecological viability	If the long-term viability of the site is high or medium, it is likely to meet one or more of the other criteria above, or if low, may nevertheless be the best or only example of its type in the Ecological District.	May require a high degree of management to achieve viability or may never be viable under present circumstances or if viable, may not meet any other criteria for a Level 1 site.

1 Best representative examples include sites with the highest level of naturalness, diversity, in the best condition, and with values other than ecological values such as cultural and amenity values (where known).

16.4 APPENDIX 3. SOIL TYPES REPRESENTED IN PROTECTED AREAS OF THE KAIPARA CATCHMENT

Soil Types Represented in the Protected Areas system contained within the Kaipara catchment (adapted from Arand et al 1993; Davis 2002; Lux & Beadal 2006; Molloy 1988)

Site name	Statement of significance	Importance	Regional Council district	Area (ha)	Altitude (m):	Topo:	Parent Material:	Vegetation:	Soils:	Reserve status
Waipoua Forest Sanctuary	An extensive area containing a very wider range of brown granular clays under a moderate range of native vegetation. Only example of Parataiko & Waimamaku soils in this inventory. Good examples of Hihi, Waipoua, & Katui soils are uncommon. Most Katui soils have been developed for sheep & dairy farming. Most Waimamuku soils have been developed for sheep farming.	International	Kaipara/Far North	12803	180-610	Plateau; gentle to steep hillslopes & broad ridges; gullies & valleys; waterfalls	Basalt with interbedded tuff, scoria & breccia, dervied colluvium & alluvium	Kauri forest; broadleaved-podocarp forst; manuka scrubland; beech forest; wetland vegetation	Brown granular clary (Waimatenui Waipoua Te-Kiet Hihi Katui Tutamoe Parataiko) Waimamaku	Reserve
Trounson Kauri Park Scenic Reserve	Outstanding example of undisturbed soil-kauri forest associations. Trees area very large, presumed very old. Only example ofd Whatoro soils in this inventory.	International	Kaipara	586	150-275	Undulating to moderately steep hillslopes.	Basalt, limestone, sandstone & siltsteon & dervied colluvium	Virgin kauri forest; podocarp forest; podocarp/broadleaved forset; karaka/nikau treeland; scrub; introduced grassland; exotic pine forest	Brown grandular clay (Whatoro Waimatenui)	DoC scenic reserve
Muriwai pillow lavas, Maori Bay	Among the best exposed & preseved pillow lavas in the world, interbedded with fossiliterous sediments that give an indisputable bathyal depth.	International	Rodney							Muriwai Beach Regional Reserve
Muriwai volcaniclastic sediments	Well exposed in coastal cliff and intertidal platforms. Best exposures in NZ of submarine cayons & channels filled with volcaniclastic sediments	International	Rodney							Muriwai Beach Regional Reserve
Kai Iwi dune dammed lakes	Several large dune dammed lakes, inlcuding the two deepest dune lakes in NZ, Lake Taharoa at 37m and Lake Waikeri at 30m. None have any surface inlet or outlet. Classified as an extremely well defined landform of scientific/educational and scenic value.	National	Kaipara DC							Reserve
Maunganui Bluff basalt	Best exposure of Waipoua Basalt	National	Kaipara DC							Public Conservation Land
Maungatapere volcanic cone	An almost perfect, steep sided volcanic cone, not farmed or quarried. Largest & best preserved in Whangarei field.	National	Whangarei							Scenic Reserve at top of cone
Wilson Open Sapce Covenant	Red loams are uncommon in NZ. Good examples of Papakauri soils are uncommon.	National	Whangarei	8.6	200-380	Volcanic cones; steep hillslopes	Basalt & derived colluvium	Podocarp-Kauri/Broadleaved forest	Red loam (Papakauri)	QEII Covenant
Awakino Government Purpose Reserve	Lowland recent soils under original forest are now nationally uncommon. Good examples of Mangakahia soils are uncommon.	National	Kaipara DC	29	21-40	Valley floor, mod steep hillslopes	Alluvium	Raupo-flas-rush wetland; manuka shrubland	Recent soil (Mangakahia)	DoC government purpose reserve (Wildlife management)
Taraire Scenic Reserve	Lowland recent soils under original forest are now nationally uncommon. Only example of Waipuna soils in this inventory. Most Waipuna soils have been developed for dairy farming.	National	Kaipara DC	3.4	60	Flat terrace	Alluvium	Nikau-podocarp-broadleaved treeland	Recent soil (Mangakahia)	DoC scenic reserve

Site name	Statement of significance	Importance	Regional Council district	Area (ha)	Altitude (m):	Topo:	Parent Material:	Vegetation:	Soils:	Reserve status
Pouto sand dunes	An excellent, unmodified example of the North Kaipara Head active dunelands system. Classified as a moderately well defined landform of scientific/educational and scenic value.	National	Kaipara DC							Public Conservation Land
Pouto Point Wildlife Reserve/ TUOH Land	A very large area of relatively undisturbed lowland coastal soils	National	Kaipara DC	6789	0-91	Sand dunes, lakes & swamps	Aeolian sand, alluvium & peat	Sandfiled, rushland		TUOH Land (At date of inventory was DoC wildlife reserve)
Mataraua Forest	A good example of a very large area containing a moderate range of brown granular clays under native vegetation. Good examples of Waipoua soils are uncommon.	Regional	Kaipara/Far North	5411	380-696	Broad tableland; steep-sided valleys	Basalt, tuff, scoria, breccia, mudstone, sandstone, & derived colluvium & alluvium	Broadleaved-podocarp forest; shrubland	Brown granular clay (Tutamoe Te-Kie Waimatenui Waipoua)	Conservation land
Opouteke Scenic Reserve	Only example of Kaimaro soils in this inventory	Regional	Whangarei	5	90	Peninsula with gently sloping hillslopes	Alluvium	Podocarp-broadleaved forest	Brown grandular clay (Kaimaro)	DoC Scenic Reserve
Hikurangi Scenic Reserve	Only example of Tautoro & Tokawhero soils in this inventory. Tokawhero soils have mostly been developed for extensive sheep farming.	Regional	Far North	1065	100-632	Steep hillslopes & rides; gullies	Basalt; dolerite & tuff, & minor sandstone, mudstone, limestone, micaceous sandstone, & derived colluvium	Broadleaved-podocarp forest	Yellow-brown earth (Tautoro)	DoC Scenic Reserve
Waimata Settlement Scenic Reserve	Good examples of Omu soils are uncommon. Most Omu soils have been developed sheep & dairy farming	Regional	Kaipara DC	154	90	Mod steep hillslopes	Concretionary sandstone	Totara-broadleaved forest; broadleaved-fernland	Yellow-brown loam (Waiotira Omu)	DoC scenic reserve
Tangowahine Scenic Reserve	Good example of Northland yellow-brown earths. Many Riponui soils have been developed for dairying.	Regional	Kaipara DC	23.6	60	Steep hillslopes	Concretionary sandstone	Podocarp-broadleaved kauri forest	Yellow-brown earth (Waiotira Riponui)	Scenic Reserve
Manganui River Government Purpose Reserve	Good examples of Whakapara soils are uncommon	Regional	Kaipara DC	102	20-30	Moderate steep hillslopes	Sandstone & dervied colluvium & alluvium	Podocarp-broadleaved foerst; wetland vege	Yellow-brown loam (Whakapara)	Govt purpose reserve (Wildlife management)
Mamaranui Farm Settlement Scenic Reserve	Only example of Takitu soils in this inventory. Most Takitu soils have been developed for sheep & dairy farming	Regional	Kaipara DC	44	90-275	Rolling to steep hillslopes	Calcareous shales & argillaceous limestone, & derived colluvium	Broadleaved forest; podocarp-(Kauri)/broadleaved forest	Brown gradular clay (Takitu Waimatenui)	DoC scenic reserve
Montgomerys Memorial Bush Scenic Reserve	Only example of Rockvale soils in this inventory. Most Rockvale soils have been developed for dairying. Good example of Waikara soils.	Regional	Kaipara DC	11	30	Steep hillslope	Limestone	Broadleaved forest; kauri-tanekaha forest	Yellow-brown earth (Rockvale)	DoC Scenic Reserve
Pukenui Forest	Contains mod range little-modified soil-vegetation associations. Good examples of Kara soils are uncommon. Most Kara soils have been developed for dairying.	Regional	Whangarei	592	140-385	Rolling to mod steep hillslopes	Greywacke, argillite & basalt, & dervied colluvium & alluvium	Kauri forest, broadleaved-podocarp forest	Podzol (kara)	Public Conservation Land
Q10 Lake Ototoa dune lake										Public Conservation Land
Flexman Scenic Reserve	Good examples of Omu soils are uncommon. Most Omu soils been developed for sheep & dairy farming.	Regional	Rodney	4.9	20-60	Gentle hillslopes; alluvial terraces	Alluvium, sandstone & mudstone	Podocarp-broadleaved-treefern forest	Yellow-brown earth (Aponga Omu)	Scenic Reserve
Thomson Kauri Grove Scenic Reserve	Only example of Okaka soils in this inventory	Regional	Rodney	2	30	Flatland	Siltstone to sandstone	Kauri forest	Yellow-brown earth (Okaka)	Scenic Reserve

Site name	Statement of significance	Importance	Regional Council district	Area (ha)	Altitude (m):	Topo:	Parent Material:	Vegetation:	Soils:	Reserve status
Papakanui dune field, Kaipara South Head	A large area of mobile dune fields & 3km long active sandspit.	Regional	Rodney							Stewardship land/DoC
Parahi Scenic Reserve	Good examples of Omu soils are uncommon. Most Omu soils been developed for sheep & dairy farming	Regional	Kaipara DC	39	90	Moderate steep hillslopes	Sandstone	Podocarp-kauri-broadleaved forest	Yellow-brown earth (Omu Aponga)	DoC Scenic Reserve
Maungaturoto Scenic Reserve	Good examples of Parakiore soils are uncommon	Regional		83	90-275	Undulating to very steep hillslopes; gullies	Limestone & dacite, & derived colluvium	manuka-kanuka treeland; kauri forest; kauri-podocarp-broadleaved forest; treefern fernland	Yellow-browh earth (Parakiore)	DoC Scenic Reserve
Pukekohe Hill Scenic Reserve	Contains little-disturbed soil-forest associations. Good examples of White-Cone soils are uncommon	Regional	Kaipara DC	103	155	Steep hillslopes & ridges; gullies	Argillaceous limestone & derived colluvium	Kahikatea foerst; kauri forest; kauri-podocarp-broadleaved forest	Yellow-brown earth (Aponga White-Cone)	DoC Scenic Reserve
Pukekaroro Scenic Reserve	Only example of Pukekaroro soils in this inventory.	Regional	Kaipara DC	145	30-275	Steep hillslopes	Dacite & derived colluvium	Podocarp-broadleaved forest; kanuka treeland	Yellow-brown earth (Pukekaroro)	DoC Scenic Reserve; Top Te Uri o Hau land.
Maungatapere Hill Scenic Reserve	Good examples Papakauri soils are uncommon	Regional	Whangarei	21	180-365	Volcanic cones; steep rocky slopes	Basalt & derived colluvium	Podocarp-broadleaved forest; scrubland; fernland	Red loam (Papakauri)	DoC Scenic Reserve
Muriwai Miocene fauna, Maori Bay	Unusual, bathyal molluscan fauna and also a conglomerate bed with redposited shalow water reef corals.	Regional	Rodney							Muriwai Beach Regional Reserve
Lower Puhipuhi Flats basalt flows	A basalt plateau formed from ponded lava overlying greywacke.	Regional	Whangarei							Forest Reserve
Waro Limestone Karst	Excellent example of karst pinnacles close to highway	Regional	Whangarei							Waro Scenic Reserve

16.5 APPENDIX 4. LIST OF FLORA & FAUNA SPECIES FROM KAIPARA CATCHMENT

Kaipara Catchment Flora: Species List

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
bamboo	(not named)	Introduced	
black wattle	*Acacia mearnsii*	Introduced	
Tasmanian blackwood	*Acacia melanoxylon*	Introduced	
bidibidi	*Acaena anserinifolia*	Indigenous	
bidibidi	*Acaena novae-zelandiae*	Indigenous	
yarrow	*Achillea millefolium*	Introduced	
orchid	*Acianthus sinclairii*	Indigenous	
turoa onamata	*Ackama nubicola*	Indigenous	
makamaka	*Ackama rosifolia*	Indigenous	
	Adelopetalum tuberculatum	Indigenous	
maidenhair	*Adiantum aethiopicum*		
common maidenhair	*Adiantum cunninghamii*	Indigenous	
	Adiantum diaphanum	Indigenous	
	Adiantum fulvum	Indigenous	
rosy maidenhair	*Adiantum hispidulum*	Indigenous	
	Adiantum viridescens	Indigenous	
agapanthus	*Agapanthus praecox*	Introduced	
kauri	*Agathis australis*	Indigenous	
Mexican devil	*Ageratina adenophora*	Introduced	
browntop	*Agrostis capillaris*	Introduced	
silvery hairy grass	*Aira caryophyllea*	Introduced	
titoki	*Alectryon excelsus*	Indigenous	
titoki	*Alectryon excelsus* var. *excelsus*	Indigenous	
three-cornered garlic	*Allium triquetrum*	Introduced	
meadow foxtail	*Alopecurus pratensis* (WELT SP062659)	Introduced	
karapapa	*Alseuosmia macrophylla*	Indigenous	
	Alseuosmia quercifolia	Indigenous	
	Alsueosmia × quercifolia	Indigenous	
toropapa	*Alsueosmia banksii* var. *banksii*	Indigenous	
	Alsueosmia macrophylla	Indigenous	
alligator weed	*Alternanthera philoxeroides*	Introduced	
scarlet pimpernel	*Anagallis arvensis*	Introduced	
	Anaphaioides trinervis	Indigenous	
lance fern	*Anarthropteris lanceolata*	Indigenous	
	Androstoma empetrifolia	Indigenous	
sweet vernal	*Anthoxanthum odoratum*	Introduced	
sea celery	*Apium australe*		
water celery	*Apium nodiflorum*	Introduced	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
NZ celery	*Apium prostratum*	Indigenous	
	Apium prostratum subsp. *prostratum* var. *filiforme*	Indigenous	
oioi	*Apodasmia similis*	Indigenous	
aristea	*Aristea ecklonii*	Introduced	
makomako, wineberry	*Aristotelia serrata*	Indigenous	
rengarenga, rengarenga lily	*Arthropodium cirratum*	Indigenous	
	Arthropteris tenella	Indigenous	
giant reed grass	*Arundo donax*	Introduced	
hutu	*Ascarina lucida*	Indigenous	
Asplenium fern	*Asp flabellifolium*		
smilax	*Asparagus asparagoides*	Introduced	
climbing asparagus	*Asparagus scandens*	Introduced	
hen and chicken fern, manamana	*Asplenium bulbiferum*	Indigenous	
hanging spleenwort, raukatauri	*Asplenium flaccidum*	Indigenous	
	Asplenium gracillimum	Indigenous	
	Asplenium lamprophyllum	Indigenous	
shining spleenwort, huruhuruwhenua	*Asplenium oblongifolium*	Indigenous	
sickle spleenwort, petako	*Asplenium polyodon*	Indigenous	
coastal astelia, kowharawhara	*Astelia banksii*	Indigenous	
	Astelia nervosa	Indigenous	
perching astelia, perching lily	*Astelia solandri*	Indigenous	
kauri grass	*Astelia trinervia*	Indigenous	
sea aster	*Aster subulatus*	Introduced	
	Atriplex sp.	Introduced	
	Australina pusilla	Indigenous	
	Austrostipa stipoides	Indigenous	
slender oat	*Avena barbata*	Introduced	
mangrove	*Avicennia marina*		
mangrove, manawa	*Avicennia marina* subsp. *australasica*	Indigenous	
narrow-leaved carpet grass	*Axonopus fissifolius* (Wright & Beever 1990)	Introduced	
nini, lance fern, Pacific azolla	*Azolla filiculoides*	Indigenous	
Azolla	*Azolla* sp.		
banksia	*Banksia* sp.	Introduced	
jointed twig rush	*Baumea articulata*	Indigenous	
	Baumea complanata	Indigenous	
Hutton's baumea	*Baumea huttonii*	Indigenous	
swamp twig rush	*Baumea juncea*	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Baumea rubignosa	*Baumea rubiginosa*	Indigenous	
Baumea sedge	*Baumea* sp.		
sedge	*Baumea tenax*	Indigenous	
	Baumea teretifolia	Indigenous	
taraire	*Beilschmiedia tarairi*	Indigenous	
tawa	*Beilschmiedia tawa*	Indigenous	
barberry	*Berberis glaucocarpa*	Introduced	
silver birch	*Betula pendula*	Introduced	
kiokio	*Ble* sp. 1		
lance fern, rereti, nini	*Blechnum chambersii*	Indigenous	
	Blechnum colensoi	Indigenous	
piupiu, crown fern	*Blechnum discolor*	Indigenous	
thread fern, panako	*Blechnum filiforme*	Indigenous	
ray water fern	*Blechnum fluviatile*	Indigenous	
	Blechnum fraseri	Indigenous	
lance fern	*Blechnum lanceolata*		
fern	*Blechnum membranaceum*	Indigenous	
swamp kiokio	*Blechnum minus*		
	Blechnum nigrum	Indigenous	
kiokio	*Blechnum novae-zelandiae*	Indigenous	
kiokio	*Blechnum procerum*	Indigenous	
Blechnum fern	*Blechnum* sp.		
marsh clubrush	*Bolboschoenus fluviatilis*	Indigenous	
	Brachyglottis kirkii var. *angustoir*	Indigenous	
Kirk's tree daisy, kohurangi	*Brachyglottis kirkii* var. *kirkii*	Indigenous	
rangiora	*Brachyglottis repanda*	Indigenous	
	Breutelia pendula	Indigenous	Most records are from Beever (1990)
large quaking grass	*Briza maxima*	Introduced	
sand brome	*Bromus arenarius* (WELT SP076361)	Indigenous	Not recorded in Otamatea ED Northland since 1867
piripiri	*Bulbophyllum pygmaeum* (Wright & Beever 1990)	Indigenous	
starwort	*Callitriche muelleri*	Indigenous	
starwort	*Callitriche stagnalis*	Introduced	
	Calomnion complanatum	Indigenous	Most records are from Beever (1990)
	Calystegia marginata (WELT SP004696)	Indigenous	
pink bindweed, pohue	*Calystegia sepium*	Indigenous	
bindweed	*Calystegia sepium* subsp. *roseata*	Indigenous	
shore bindweed, nihinihi, panahi	*Calystegia soldanella*	Indigenous	
	Calystegia tugoriorum	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Camptochaete arbuscula	Indigenous	Most records are from Beever (1990)
	Camptochaete pulvinata	Indigenous	Most records are from Beever (1990)
	Campylopus clavatus	Indigenous	Most records are from Beever (1990)
	Campylopus introflexus	Indigenous	Most records are from Beever (1990)
	Campylopus pyriformis	Indigenous	Most records are from Beever (1990)
canna lily	*Canna indica*	Introduced	
bitter cress	*Cardamine* sp.	Introduced	
native cress	*Cardimine debilis* agg.	Indigenous	
	Carex breviculmis	Indigenous	
	Carex breviculmis	Indigenous	
sedge	*Carex dipsacea*		
	Carex dissita (Wright & Beever 1990)	Indigenous	
	Carex divulsa	Introduced	
	Carex fascicularis	Indigenous	
manaia	*Carex flagellifera*	Indigenous	
	Carex forsteri	Indigenous	
	Carex geminata	Indigenous	
	Carex lambertiana (Wright & Beever 1990)	Indigenous	
rautahi	*Carex lessoniana*	Indigenous	
cyperus sedge	*Carex maorica*		
	Carex ochrosaccus (Wright & Beever 1990)	Indigenous	
sand sedge	*Carex pumila*		
purei	*Carex secta*	Indigenous	
	Carex solandri	Indigenous	
Carex	*Carex* sp.		
	Carex spinirostris	Indigenous	
	Carex subdola	Indigenous	
	Carex testacea	Indigenous	
purei, swamp sedge	*Carex virgata*	Indigenous	
tree broom	*Carmichaelia arborea*		
NZ broom	*Carmichaelia australis*	Indigenous	
Ice plant	*Carpobrotus edulis*	Introduced	
putaputaweta	*Carpodetus serratus* (AK 296537)	Indigenous	
tauhinu	*Cassinia leptophylla*		
centella	*Centella uniflora*	Indigenous	
	Cheilanthes sieberi (SSBI Q08/H057)	Indigenous	
	Chionochloa conspicua subsp.	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	cunninghamii		
California thistle	*Cirsium arvense*	Introduced	
Scotch thistle	*Cirsium vulgare*	Introduced	
clematis	*Clematis cunninghamii*	Indigenous	
	Clematis forsteri	Indigenous	
puawhananga, white clematis	*Clematis paniculata*	Indigenous	
	Colensoa physaloides	Indigenous	
kahakaha, perching lily	*Collespermum hastatum (Collospermum hastatum)*	Indigenous	
	Collespermum microspermum (Collospermum microspermum)	Indigenous	
Hemlock	*Conium maculatum*	Introduced	
fleabane	*Conyza albida*	Introduced	
sand coprosma	*Coprosma acerosa*	Indigenous	
mamangi	*Coprosma arborea*	Indigenous	
thin-leaved coprosma	*Coprosma areolata*	Indigenous	
thick-leaved coprosma	*Coprosma crassifolia*		
kanono	*Coprosma grandifolia*	Indigenous	
karamu, shining karamu	*Coprosma lucida*	Indigenous	
large-seeded coprosma	*Coprosma macrocarpa*	Indigenous	
	Coprosma macrocarpa C. propinqua	Indigenous	
	Coprosma parviflora	Indigenous	
Cop propinqua x robusta	*Coprosma propingua* var. *propingua × C. robusta*	Indigenous	
mingimingi	*Coprosma propinqua*		
	Coprosma propinqua subsp. *Propinqua* (Wildland Consultants 2004)	Indigenous	
taupata	*Coprosma repens*	Indigenous	
small coprosma	*Coprosma rhamnoides*	Indigenous	
	Coprosma rigida (SSBI Q08/H038& Q08/H063)	Indigenous	Recorded in 1996 at two locations, Whakapirau River Scenic Reserve (Q08/128) and Kohatutahi Forest and Wetland (Q08/178), but no herbarium specimen collected. During the current survey C. rigida was not found amongst the coprosmas growing at Kohatuahi.
karamu	*Coprosma robusta*	Indigenous	
	Coprosma spathulata (Wright & Beever 1990)	Indigenous	
	Coprosma tenuicaulis (Julia Walker, pers. comm.)	Indigenous	
	Coprosma waima	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
ti-kouka, cabbage tree	*Cordyline australis*	Indigenous	
ti ngahere, forest cabbage tree	*Cordyline banksii* (Wildland Consultants 2004)	Indigenous	
ti rauriki	*Cordyline pumilio*	Indigenous	
tutu, tree tutu	*Coriaria arborea*	Indigenous	
tutu	*Coriaria arborea* var. *arborea*	Indigenous	
korokio	*Corokia buddleioides*	Indigenous	
toetoe	*Cortaderia fulvida*	Indigenous	
pampas	*Cortaderia selloana*	Introduced	
coastal toetoe	*Cortaderia splendens*	Indigenous	
orchid	*Corunastylis pumila*	Indigenous	
	Corybas cheesemanii	Indigenous	
	Corybas oblongus (Wright & Beever 1990)	Indigenous	
karaka	*Corynocarpus laevigatus*	Indigenous	
cotoneaster	*Cotoneaster glaucophyllus*	Introduced	
bachelor's button	*Cotula coronopifolia*	Indigenous	
hawthorn	*Crataegus monogyna*	Introduced	
montbretia	*Crocosmia ´ crocosmiiflora*	Introduced	
	Ctenopteris heterophylla	Indigenous	
macrocarpa	*Cupressus macrocarpa*	Introduced	
gully tree fern, puunui	*Cyathea cunninghamii*	Indigenous	
ponga, silver fern, silver tree fern	*Cyathea dealbata*	Indigenous	
mamaku, black tree fern	*Cyathea medullaris*	Indigenous	
katote, soft tree fern, Smith's treefern	*Cyathea smithii*	Indigenous	
mingimingi, prickly mingimingi	*Cyathodes juniperina*	Indigenous	
	Cyathophorum bulbosum	Indigenous	Most records are from Beever (1990)
marsh fern	*Cyclosorus interruptus*		
umbrella sedge	*Cyperus eragrostis*	Introduced	
giant umbrella sedge, upokotangata	*Cyperus ustulatus*	Indigenous	
	Cyrtopus setosus	Indigenous	Most records are from Beever (1990)
broom	*Cytisus scoparius* (AK 296480)	Introduced	
kahikatea	*Dacrycarpus dacrydioides*	Indigenous	
rimu	*Dacrydium cupressinum*	Indigenous	
cocksfoot	*Dactylis glomerata*	Introduced	
wild carrot	*Daucus carota*	Introduced	
hanging orchid	*Dendrobium cunninghamii*		
	Deparia petersenii	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Deparia tenuifolia (Wright & Beever 1990)	Indigenous	Otherwise not recorded in Northland; only confirmed records are from Waikato, Bay of Plenty and Nelson area (Brownsey and Smith-Dodsworth 2000)
pingao	*Desmoschoenus spiralis*	Indigenous	
sand wind grass	*Deyeuxia billardierei*		
	Deyeuxia quadriseta	Indigenous	
	Dianella lattissima	Indigenous	
turutu, blueberry, NZ blueberry	*Dianella nigra*	Indigenous	
short-hair plume grass, long-hair plume grass	*Dichelachne crinita*	Indigenous	
short-hair plume grass	*Dichelachne inaequiglumis* (WELT SP067113)	Indigenous	Not recorded in Otamatea ED Northland since 1903
	Dichelachne micrantha	Indigenous	
Mercury Bay weed	*Dichondra repens*	Indigenous	
	Dicksonia lanata	Indigenous	
wheki	*Dicksonia squarrosa*	Indigenous	
	Dicranoloma fasciatum	Indigenous	Most records are from Beever (1990)
	Dicranoloma menziesii	Indigenous	Most records are from Beever (1990)
rain daisy	*Dimorphotheca pluvialis*	Introduced	
	Diplazium australe	Indigenous	
orchid	*Diplodium brumalis*	Indigenous	
orchid	*Diplodium trullifolium*	Indigenous	
native iceplant, horokaka	*Disphyma australe* (SSBI Q08/H056)	Indigenous	
	Distichophyllum microcarpum	Indigenous	Most records are from Beever (1990)
	Distichophyllum pulchellum	Indigenous	Most records are from Beever (1990)
akeake	*Dodonaea viscosa*	Indigenous	
rasp fern, pukupuku	*Doodia australis*	Indigenous	
rasp fern	*Doodia media*		
	Doodia mollis (SSBI Q08/H047)	Indigenous	
	Doodia squarrosa	Indigenous	
neinei	*Dracophyllum latifolium* (Wright & Beever 1990)	Indigenous	
	Dracophyllum lessonianum	Indigenous	
	Dracophyllum sinclairii	Indigenous	
sundew	*Drosera auriculata* (SSBI Q08/H057)	Indigenous	
sundew orchid	*Drosera binata*	Indigenous	
sundew orchid	*Drosera peltata*	Indigenous	
	Drymoanthus adversus	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Indian strawberry	*Duchesnea indica*	Introduced	
kohekohe	*Dysoxylum spectabile*	Indigenous	
Easter orchid, raupeka	*Earina autumnalis*	Indigenous	
peka-a-waka, NZ bamboo orchid	*Earina mucronata*	Indigenous	
	Echinodium hispidum	Indigenous	Most records are from Beever (1990)
	Echinopogon ovatus	Indigenous	
elaeagnus	*Elaeagnus ´ reflexa*	Introduced	
hinau	*Elaeocarpus dentatus*	Indigenous	
pokaka	*Elaeocarpus hookerianus*	Indigenous	
paritaniwha	*Elatosema rugosum*	Indigenous	
sharp spike sedge	*Eleocharis acuta*	Indigenous	
slender spike rush	*Eleocharis gracilis*	Indigenous	
bamboo spike rush	*Eleocharis sphacelata*		
mistletoe	*Elytranthe tetrapetala*		
whau	*Entelea arborescens*	Indigenous	
	Epacris pauciflora	Indigenous	
	Epilobium billardiereanum	Indigenous	
hairy willowherb	*Epilobium hirtigerum* (WELT SP042470)	Indigenous	Not recorded in Otamatea ED Northland since 1924
	Epilobium nerteroides	Indigenous	
	Epilobium nummulariifolium	Indigenous	
	Epilobium pallidiflorum	Indigenous	
	Epilobium pedunculare	Indigenous	
	Epilobium pubens	Indigenous	
	Epilobium rotundifolium	Indigenous	
Epilobium	*Epilobium* sp.	Introduced	
Mexican daisy	*Erigeron karvinskianus*	Introduced	
loquat	*Eriobotrya japonica*	Introduced	
coral tree	*Erythrina ´ sykesii*	Introduced	
	Euchiton collinus	Indigenous	
milkweed	*Euphorbia peplus*	Introduced	
	Eurhynchium muriculatum	Indigenous	Most records are from Beever (1990)
knobby clubrush	*Ficinia nodosa*	Indigenous	
	Fissidens asplenioides	Indigenous	Most records are from Beever (1990)
	Fissidens humilis	Indigenous	Most records are from Beever (1990)
	Fissidens leptocladus	Indigenous	Most records are from Beever (1990)
	Fissidens pallidus	Indigenous	Most records are from Beever (1990)

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Fissidens pungens	Indigenous	Most records are from Beever (1990)
	Fissidens rigidulus	Indigenous	Most records are from Beever (1990)
	Fissidens sp.	Indigenous	Most records are from Beever (1990)
	Fissidens tenellus	Indigenous	Most records are from Beever (1990)
fennel	*Foeniculum vulgare*	Introduced	
kiekie	*Freycinetia banksii*	Indigenous	
kiekie	*Freycinetia baueriana*		
kotukutuku, tree fuchsia	*Fuchsia excorticata*	Indigenous	
	Fuchsia procumbens	Indigenous	
gahnia, bamboo gahnia, cutty grass, tarangarara	*Gahnia lacera*	Indigenous	
gahnia, cutting gahnia, takahikahi	*Gahnia pauciflora*	Indigenous	
gahnia, cutty grass, mapere	*Gahnia setifolia*	Indigenous	
toikiwi	*Gahnia xanthocarpa*	Indigenous	
cleavers	*Galium aparine*	Introduced	
	Galium propinquum	Indigenous	
	Gastrodia cunninghamii	Indigenous	
snowberry	*Gaultheria antipoda*	Indigenous	
hangehange	*Geniostoma rupestre*	Indigenous	
hangehange	*Geniostoma rupestre* var. *ligustrifolium*	Indigenous	
	Geranium homeanum	Indigenous	
dove's foot	*Geranium molle*	Introduced	
	Geranium potentilloides	Indigenous	
	Geranium solanderi	Indigenous	
tangle fern	*Gleichenia dicarpa*	Indigenous	
waewaekaka, carrier tangle fern, swamp umbrella fern	*Gleichenia microphylla*	Indigenous	
Glossostigma	*Glossostigma elatinoides*		
piripiri	*Gonocarpus incanus*	Indigenous	
	Gonocarpus micranthus	Indigenous	
	Gonocarpus montanus	Indigenous	
fern	*Grammitis billardierei*	Indigenous	
	Grammitis ciliata	Indigenous	
	Grammitis pseudociliata	Indigenous	
	Grammitis rawlingsii	Indigenous	
	Grammitis sp.	Indigenous	
	Gratiola sexdentata	Indigenous	
	Griselina littoralis	Indigenous	
puka	*Griselina lucida*	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Gunnera monoica	Indigenous	
willow-leaved hakea	*Hakea salicifolia*	Introduced	
prickly hakea	*Hakea sericea*	Introduced	
monoao	*Halocarprus kirkii*	Indigenous	
shrubby haloragis	*Haloragis erecta*		
toatoa	*Haloragis erecta* subsp. *erecta*	Indigenous	
	Hebe diosmifolia	Indigenous	
	Hebe flavida	Indigenous	
	Hebe ligustrifolia	Indigenous	
Hebe macrocarpa	*Hebe macrocarpa*		
kokomuka	*Hebe macrocarpa* var. *macrocarpa* (SSBI Q08/H070)	Indigenous	
Bartlett's hebe	*Hebe perbella*	Indigenous	
	Hebe sp. (*H. parviflora* agg.)	Indigenous	
koromiko	*Hebe stricta*		
koromiko	*Hebe stricta* var. *stricta*	Indigenous	
pigeonwood, porokaiwhiri	*Hedycarya arborea*	Indigenous	
kahili ginger; wild ginger	*Hedychium gardnerianum*	Introduced	
	Helichrysum lanceolatum	Indigenous	
waterfern, matata	*Histiopteris incisa*	Indigenous	
houhere, lacebark	*Hoheria populnea*	Indigenous	
Yorkshire fog	*Holcus lanatus*	Introduced	
	Holomitrium perichaetiale	Indigenous	Most records are from Beever (1990)
	Homalia falcifolia	Indigenous	Most records are from Beever (1990)
	Homalia punctata	Indigenous	Most records are from Beever (1990)
hanging clubmoss, iiwituna, matukutuku	*Huperzia varia* (Wright & Beever 1990)	Indigenous	
	Hydrocotyle dissecta	Indigenous	
	Hydrocotyle elongata	Indigenous	
	Hydrocotyle moschata	Indigenous	
	Hydrocotyle novae-zelandiae	Indigenous	
	Hymenodon pilifer	Indigenous	Most records are from Beever (1990)
filmy fern	*Hymenophyllum armstrongii*	Indigenous	
filmy fern	*Hymenophyllum atrovirens*	Indigenous	
filmy fern	*Hymenophyllum cupressiforme*	Indigenous	
filmy fern, irirangi	*Hymenophyllum demissum* (Wright & Beever 1990)	Indigenous	
filmy fern, matua mauku	*Hymenophyllum dilatatum* (Wright & Beever 1990)	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
rusty filmy fern	*Hymenophyllum ferrugineum*	Indigenous	
filmy fern	*Hymenophyllum flabellatum*	Indigenous	
	Hymenophyllum flexuosum	Indigenous	
	Hymenophyllum lyallii	Indigenous	
filmy fern	*Hymenophyllum multifidum*	Indigenous	
filmy fern	*Hymenophyllum rarum*	Indigenous	
filmy fern	*Hymenophyllum revolutum* (Wright & Beever 1990)	Indigenous	
filmy fern, piripiri	*Hymenophyllum sanguinolentum* (Wright & Beever 1990)	Indigenous	
filmy fern	*Hymenophyllum scabrum*	Indigenous	
tutsan	*Hypericum androsaemum*	Introduced	
	Hypericum japonicum	Indigenous	
	Hypnodendron arcuatum	Indigenous	Most records are from Beever (1990)
	Hypnodendron colensoi	Indigenous	Most records are from Beever (1990)
	Hypnodendron kerrii	Indigenous	Most records are from Beever (1990)
	Hypnum chrysogaster	Indigenous	Most records are from Beever (1990)
catsear	*Hypochoeris radicata*	Introduced	
	Hypolepis ambigua	Indigenous	
Hypolepis fern	*Hypolepis distans*	Indigenous	Not recorded in Otamatea ED Northland since 1867
	Hypolepis rufobarbata	Indigenous	
pygmy orchid	*Ichthyostomum pygmaeum*	Indigenous	
	Ileostylus micranthus	Indigenous	
green mistletoe	*Ileostylus micranthus* (AK 11264)	Indigenous	Not recorded in Otamatea ED Northland since 1867
shrub balsam	*Impatiens sodenii*	Introduced	
busy lizzie	*Impatiens walleriana*	Introduced	
swamp millet	*Isachne globosa*	Indigenous	
slender clubrush	*Isolepis cernua*	Indigenous	
	Isolepis inundata	Indigenous	
knobby clubrush	*Isolepis nodosa*		
sedge	*Isolepis prolifera*	Indigenous	
sedge	*Isolepis reticularis*	Indigenous	
	Isolepis sepulcralis	Introduced	
tawari	*Ixerba brexioides*	Indigenous	
jasmine	*Jasminum polyanthum*	Introduced	
sharp rush	*Juncus acutus*	Introduced	
jointed rush	*Juncus articulatus* (Wright & Beever	Introduced	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	1990)		
rush	*Juncus australis*		
toad rush	*Juncus bufonius*	Introduced	
	Juncus edgariae	Indigenous	
soft rush	*Juncus effusus*	Introduced	
leafless rush	*Juncus gregiflorus*		
sea rush	*Juncus kraussii*		
sea rush	*Juncus kraussii* subsp. *australiensis*	Indigenous	
giant rush	*Juncus pallidus*	Indigenous	
rush	*Juncus pauciflorus*		
grass-leaved rush	*Juncus planifolius*	Indigenous	
	Juncus prismatacarpus	Indigenous	
	Juncus sarophorus	Indigenous	
Juncus sp., rush	*Juncus* sp.		
rush	*Juncus usitatus*		
rewarewa	*Knightia excelsa*	Indigenous	
red hot poker	*Kniphofia uvaria*	Introduced	
kanuka	*Kunzea ericoides*	Indigenous	
long-hair plume grass	*Lachnagrostis billardieri*	Indigenous	
	Lachnagrostis filiformis	Indigenous	
coastal wind grass	*Lachnagrostis littoralis*	Indigenous	Not recorded in Otamatea ED Northland since 1867.
	Lagenifera lanata	Indigenous	
	Lagenifera pumila	Indigenous	
nipplewort	*Lapsana communis*	Introduced	
smooth shield fern	*Lastreopsis glabella* (Wright & Beever 1990)	Indigenous	
hairy shield fern, hairy fern	*Lastreopsis hispida*	Indigenous	
	Lastreopsis microsora subsp. *petangularis* (Wright & Beever 1990)	Indigenous	
	Lastreopsis velutina	Indigenous	
pukatea	*Laurelia novae-zelandiae*	Indigenous	
mairehau	*Leionema nudum*	Indigenous	
duckweed	*Lemna minor*	Indigenous	
hawkbit	*Leontodon taraxacoides*	Introduced	
sqaure-stemmed sedge	*Lepidosperma australe*	Indigenous	
sword sedge	*Lepidosperma laterale*	Indigenous	
prickly mingimingi	*Leptecophylla juniperina* subsp. *juniperina*	Indigenous	
	Leptinella tenella (AK 233971)	Indigenous	
jointed wire rush	*Leptocarpus similis*		
	Leptolepia novae-zelandiae	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Leptopteris hymenophylloides	Indigenous	
heruheru	*Leptopteris superba*	Indigenous	
manuka	*Leptospermum scoparium*	Indigenous	
	Leptostigma setulosa	Indigenous	
	Leptostomum macrocarpum	Indigenous	Most records are from Beever (1990)
	Leucobryum candidum	Indigenous	Most records are from Beever (1990)
mingimingi, tall mingimingi	*Leucopogon fasciculatus*	Indigenous	
dwarf mingimingi, patotara	*Leucopogon fraseri*	Indigenous	
	Libertia grandiflora	Indigenous	
NZ iris	*Libertia ixioides* (SSBI Q08/H056)	Indigenous	Unconfirmed 1993 record from Kaiwhitu Island (Q08/175).
	Libertia micrantha	Indigenous	
kawaka	*Libocedrus plumosa* (Julia Walker pers. comm.)	Indigenous	
tree privet	*Ligustrum lucidum*	Introduced	
Chinese privet	*Ligustrum sinense*	Introduced	
	Lilaeopsis novae-zelandiae	Indigenous	
	Lindsaea linearis	Indigenous	
	Lindsaea trichomanoides	Indigenous	
mangeao	*Litsea calicaris*	Indigenous	
shore lobelia, punakuru	*Lobelia anceps*	Indigenous	
rye grass	*Lolium perenne*	Introduced	
Japanese honeysuckle	*Lonicera japonica*	Introduced	
ramarama	*Lophomyrtus bullata*	Indigenous	
NZ myrtle	*Lophomyrtus obcordata*		
	Lopidium concinnum	Indigenous	Most records are from Beever (1990)
lotus	*Lotus pedunculatus*	Introduced	
hairy birdsfoot trefoil	*Lotus suaveolens*	Introduced	
	Loxsoma cunninghamii	Indigenous	
painted woodrush	*Luzula picta* var. *picta* (Wright & Beever 1990)	Indigenous	
	Lycopodiella cernua	Indigenous	
	Lycopodium deuterodensum	Indigenous	
	Lycopodium lateralis	Indigenous	
club moss, waewaekoukou	*Lycopodium volubile*	Indigenous	
mangemange, bushmans mattress	*Lygodium articulatum*	Indigenous	
	Machaerina sinclairii	Indigenous	
	Macrocoma tenue	Indigenous	Most records are from Beever (1990)
	Macromitrium gracile	Indigenous	Most records are from Beever

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
			(1990)
	Macromitrium ligulare	Indigenous	Most records are from Beever (1990)
kawakawa	*Macropiper excelsum*		
kawakawa	*Macropiper excelsum* subsp. *excelsum* f. *excelsum*	Indigenous	
kawakawa	*Macropiper excelsum* var. *excelsum*	Indigenous	
silver pine	*Manoao colensoi*	Indigenous	
para	*Marattia salicina*		
poataniwha	*Melicope simplex*	Indigenous	
wharangi	*Melicope ternata*	Indigenous	
large leaved mahoe	*Melicytus macrophyllus* (Wright & Beever 1990)	Indigenous	
	Melicytus micranthus (Wright & Beever 1990)	Indigenous	
mahoe	*Melicytus ramiflorus*	Indigenous	
mahoe	*Melicytus ramiflorus* subsp. *ramiflorus*	Indigenous	
white rata, aka	*Metrosideros albiflora*	Indigenous	
carmine rata	*Metrosideros carminea* (AK 11444)	Indigenous	Not recorded in Otamatea ED Northland since 1867
	Metrosideros colensoi	Indigenous	
white rata	*Metrosideros diffusa*	Indigenous	
pohutukawa	*Metrosideros excelsa*	Indigenous	
pohutukawa × northern rata hybrid	*Metrosideros excelsa* × *M. robusta*	Indigenous	
scarlet rata vine, orange-flowered rata, akatawhiwhi	*Metrosideros fulgens*	Indigenous	
aka, clinging rata	*Metrosideros perforata*	Indigenous	
northern rata	*Metrosideros robusta*	Indigenous	
southern rata	*Metrosideros umbellata*	Indigenous	
bush rice grass	*Microlaena avenacea*	Indigenous	
	Microlaena carsei	Indigenous	
rice grass	*Microlaena polynoda*		
meadow rice grass, patiti	*Microlaena stipoides*	Indigenous	
hound's tongue, hound's tongue fern, kowaowao	*Microsorum pustulatum*	Indigenous	
mokimoki, fragrant fern	*Microsorum scandens*	Indigenous	
onion orchid	*Microtis parviflora*	Indigenous	
onion orchid, maikaika	*Microtis uniflora*	Indigenous	
willow-leaved maire, sandelwood, mida	*Mida salicifolia* (Wright & Beever 1990)	Indigenous	
	Morelotia affinis	Indigenous	
moss	*Moss* sp.		
large -leaved pohuehue	*Muehlenbeckia australis*	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
pohuehue, small-leaved phuehue	*Muehlenbeckia complexa*	Indigenous	
ngaio	*Myoporum laetum*	Indigenous	
forget-me-not	*Myosotis laxa* var. *caespitosa*	Introduced	
ngaio	*Myporum laetum*	Indigenous	
	Myriophyllum propinquum (AK 243770)	Indigenous	
water milfoil	*Myriophyllum triphyllum*		
mapou	*Myrsine australis*	Indigenous	
mapou	*Myrsine australis* agg.	Indigenous	
weeping matipo	*Myrsine divaricata*		
toro	*Myrsine salicina*	Indigenous	
watercress	*Nasturtium officinale*	Introduced	
orchid	*Nematoceras acuminatum*	Indigenous	
orchid	*Nematoceras cryptanthus*	Indigenous	
orchid	*Nematoceras macrantha*	Indigenous	
orchid	*Nematoceras macranthum*	Indigenous	
orchid	*Nematoceras oblonga*	Indigenous	
orchid	*Nematoceras orbiculatum*	Indigenous	
orchid	*Nematoceras rivulare*	Indigenous	
orchid	*Nematoceras trilobum*	Indigenous	
rohutu	*Neomyrtus pedunculata*	Indigenous	
native ladder fern	*Nephrolepis flexuosa* (DOC Bioweb)	Indigenous	Unconfirmed 2001 record from Hukatere Hall Recreation Reserve (grid ref: Q08 156 575); unlikely to be a natural population
	Nertera depressa	Indigenous	
hairy nertera	*Nertera dichondrifolia*	Indigenous	
black maire, white maire	*Nestegis cunninghamii*	Indigenous	
white maire	*Nestegis lanceolata*	Indigenous	
narrow-leaved maire	*Nestegis montana*	Indigenous	
	Olearia albida	Indigenous	
	Olearia crebra	Indigenous	
akepiro, heketara	*Olearia furfuracea*	Indigenous	
heketara	*Olearia rani*	Indigenous	
coastal tree dairy	*Olearia solandri* (AK 233985)	Indigenous	
	Olearia waima	Indigenous	
stalked adder's tongue	*Ophioglossum petiolatum* (DOC Bioweb)	Indigenous	Supposed T. Kirk collection from 1867, but no herbarium specimen noted
bamboo grass	*Oplismenus hirtellus*		
native grass	*Oplismenus hirtellus* subsp. *hirtellus*	Indigenous	
native grass	*Oplismenus hirtellus* subsp. *imbecillis*	Indigenous	
broomrape	*Orobanche minor*	Introduced	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
orchid	*Orthoceras novae-zeelandiae*	Indigenous	
	Orthorrhynchium elegans	Indigenous	Most records are from Beever (1990)
creeping oxalis	*Oxalis exilis*	Indigenous	
	Oxalis magellanica	Indigenous	
oxalis	*Oxalis* sp.	Introduced	
tauhinu	*Ozothamnus leptophyllus*	Indigenous	
hard fern, matata, carpet fern	*Paesia scaberula*	Indigenous	
brush wattle	*Paraserianthes lophantha*	Introduced	
tarweed	*Parentucellia viscosa*	Introduced	
NZ jasmine, akakiore	*Parsonsia capsularis*	Indigenous	
native jasmine, kaihua	*Parsonsia capsularis* var. *capsularis*	Indigenous	
native jasmine, NZ jasmine, kaihua	*Parsonsia heterophylla*	Indigenous	
native jasmine, kaihua	*Parsonsia* sp.	Indigenous	
paspalum	*Paspalum dilatatum*	Introduced	
saltwater paspalum	*Paspalum vaginatum*	Introduced	
	Passiflora tarminiana (AK 296544)	Introduced	
NZ passionfruit, kohia	*Passiflora tetrandra*	Indigenous	
banana passionfruit	*Passiflora tripartita* var. *mollissima*	Introduced	
	Pelargonium inodorum	Indigenous	
tarawera, button fern	*Pellaea rotundifolia*	Indigenous	
kaikomako	*Pennantia corymbosa* (SSBI Q08/H038 & Q08/H015)	Indigenous	
kikuyu	*Pennisetum clandestinum*	Introduced	
	Peperomia urvilleana (SSBI Q08/H056)	Indigenous	
NZ peperomia	*Peperomia urvilleana urv*	Indigenous	
native willow weed	*Persicaria decipiens*	Indigenous	
orchid	*Petalochilus chlorostylus*	Indigenous	
orchid	*Petalochilus saccastus*	Indigenous	
mairehau	*Phebalium nudum*		
	Philonotis tenuis	Indigenous	Most records are from Beever (1990)
whaririki, mountain harakeke, mountain flax	*Phormium cookianum*	Indigenous	
harakeke, flax	*Phormium tenax*	Indigenous	
toatoa	*Phyllocladus toatoa*	Indigenous	
tanekaha	*Phyllocladus trichomanoides*	Indigenous	
tanekaha	*Phyllocladus trichomanoides* var. *trichomanoides*	Indigenous	
hound's tongue fern	*Phymatosorus diversifolius*		
fragrant fern	*Phymatosorus scandens*		

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Picris burbidgeae (AK 11814)	Indigenous	Not recorded in Otamatea ED Northland since 1867
oxtongue	*Picris echioides*	Introduced	
pinatoro, NZ daphne	*Pimelea prostrata* (SSBI Q08/H057)	Indigenous	
	Pimelea tomentosa	Indigenous	
maritime pine	*Pinus pinaster*	Introduced	
radiata pine	*Pinus radiata*	Introduced	
perching pittosporum	*Pittosporum cornifolium* (Wright & Beever 1990)	Indigenous	
karo	*Pittosporum crassifolium*		
	Pittosporum ellipticum	Indigenous	
tarata, lemonwood	*Pittosporum eugenioides*	Indigenous	
	Pittosporum kirkii	Indigenous	
	Pittosporum pimeleoides subsp. *pimeleoides*	Indigenous	
kohuhu	*Pittosporum tenuifolium* (WELT SP031346)	Indigenous	Kohuhu was noted as the host plant for Tupeia antartica by T. Kirk in 1867
umbrella matipo	*Pittosporum umbellatum*		
saltmarsh ribbon-wood, makaka, marsh ribbonwood	*Plagianthus divaricatus*	Indigenous	
manatu, ribbonwood	*Plagianthus regius* (SSBI Q08/H074 & Q08/H062)	Indigenous	Unconfirmed 2003 record from Donaldson's Forest (Q08/157)
Planchonella	*Planchonella costata*		
buck's-horn plantain	*Plantago coronopus*	Introduced	
narrow-leaved plantain	*Plantago lanceolata*	Introduced	
broad-leaved plantain	*Plantago major*	Introduced	
gully fern, pakau-roharoha	*Pneumatopteris pennigera*	Indigenous	
	Poa anceps	Indigenous	
annual poa	*Poa annua*	Introduced	
	Poa pusilla	Indigenous	Not recorded in Otamatea ED Northland since 1867.
Hall's totara	*Podocarpus hallii*	Indigenous	
totara, lowland totara	*Podocarpus totara*	Indigenous	
tutanawai	*Polygonum salicifolium*	Indigenous	
willow weed	*Polygonum* sp.	Introduced	
black shield fern	*Polystichum neozelandicum*	Indigenous	
common shield fern	*Polystichum richardii*		
	Pomaderris aff. *phylicifolia*	Indigenous	
	Pomaderris ericifolia	Indigenous	
kumarahou	*Pomaderris kumeraho*	Indigenous	
Pomaderris	*Pomaderris phylicifolia*	Indigenous	
	Pomaderris prunifolia var. *edgerleyi*	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
poplar	*Populus* sp.	Introduced	
	Porotrichum oblongifolium	Indigenous	Most records are from Beever (1990)
red pondweed	*Potamogeton cheesmanii*	Indigenous	
tawapou	*Pouteria costata*	Indigenous	
Pratia	*Pratia angulata*	Indigenous	
miro	*Prumnopitys ferruginea*		
matai	*Prumnopitys taxifolia*	Indigenous	
selfheal	*Prunella vulgaris*	Introduced	
jersey cudweed	*Pseudognaphalium luteoalbum* agg.	Indigenous	
five finger	*Pseudopanax arboreus*	Indigenous	
five finger, whauwhaupaku	*Pseudopanax arboreus* var. *arboreus*	Indigenous	
five finger x coastal five finger	*Pseudopanax arboreus x lessonii*		
lancewood, horoeka	*Pseudopanax crassifolius*	Indigenous	
lancewood x coastal five finger	*Pseudopanax crassifolius x lessonii*		
houpara	*Pseudopanax lessonii*	Indigenous	
horopito	*Pseudowintera axillaris*	Indigenous	
mountain horopito	*Pseudowintera colorata*	Indigenous	
dally pine, cut-leaf psoralea	*Psoralea pinnata*	Introduced	
bracken, rarahu	*Pteridium esculentum*	Indigenous	
coastal brake	*Pteris comans*	Indigenous	
sweet fern	*Pteris macilenta* (of NZ authors)	Indigenous	
fine-cut brake	*Pteris saxatilis*	Indigenous	
shaking brake, turawera	*Pteris tremula*	Indigenous	
tutukiwi, green hooded orchid, greenhood orchid	*Pterostylis banksii*	Indigenous	
orchid	*Pterostylis graminea* agg.	Indigenous	
	Ptychomnion aciculare	Indigenous	Most records are from Beever (1990)
leather-leaf fern	*Pyrrosia eleagnifolia*	Indigenous	
tawheowheo	*Quintinia serrata*	Indigenous	
	Racopilum convolutaceum	Indigenous	Most records are from Beever (1990)
waoriki	*Ranunculus acaulis*	Indigenous	
native buttercup, waoriki	*Ranunculus amphitrichus*	Indigenous	
hairy buttercup, maruru	*Ranunculus reflexus*	Indigenous	
creeping buttercup	*Ranunculus repens*	Introduced	
	Ranunculus urvilleanus	Indigenous	
	Raukaua anomalus	Indigenous	
raukawa	*Raukaua edgerleyi*	Indigenous	
taurepo, NZ gloxinia	*Rhabdothamnus solandri*	Indigenous	
	Rhizogonium novae-hollandiae	Indigenous	Most records are from Beever

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
			(1990)
nikau	*Rhopalostylis sapida*	Indigenous	
	Rhynchostegium tenuifolium	Indigenous	Most records are from Beever (1990)
supplejack, kareao	*Ripogonum scandens*	Indigenous	
false acacia	*Robinia pseudacacia*	Introduced	
bush lawyer, tataramoa	*Rubus australis*	Indigenous	
bush lawyer	*Rubus australis* × *R. cissoides*	Indigenous	
bush lawyer, tataramoa	*Rubus cissoides*	Indigenous	
blackberry	*Rubus* sp. (*R. fruticosus* agg.)	Introduced	
bush lawyer	*Rubus squarrosus*	Indigenous	
leafless lawyer	*Rubus squarrosus* (AK 252397)	Indigenous	
clustered dock	*Rumex conglomeratus*	Introduced	
dock	*Rumex obtusifolius*	Introduced	
leathery shield fern	*Rumorha adiantiformis*	Indigenous	
	Rytidosperma biannulare (Wright & Beever 1990)	Indigenous	
	Rytidosperma gracile	Indigenous	
	Rytidosperma sp.	Indigenous	
grass	*Rytidosperma unarede*	Indigenous	
crack willow	*Salix fragilis*	Introduced	
sea primrose	*Samolus repens*	Indigenous	
sea primrose	*Samolus repens* var. *repens*	Indigenous	
glasswort	*Sarcocornia quinqueflora*	Indigenous	
tall fescue	*Schedonorus phoenix*	Introduced	
pate	*Schefflera digitata*	Indigenous	
fan fern	*Schizaea bifida*	Indigenous	
fan fern	*Schizaea dichotoma*	Indigenous	
fan fern	*Schizaea fistulosa*	Indigenous	
	Schizeilema trifoliolatum	Indigenous	
lake clubrush, kuta, kapungawha	*Schoenoplectus tabernaemontani*	Indigenous	
sedge	*Schoenus apogon*	Indigenous	
sedge	*Schoenus brevifolius*	Indigenous	
sedge	*Schoenus maschalinus*	Indigenous	
sedge	*Schoenus* sp.		
Schoenus tendo, wiwi	*Schoenus tendo*	Indigenous	
Selaginella	*Sellaginella kraussiana*	Introduced	
remuremu, selliera	*Selliera radicans*	Indigenous	
	Sematophyllum amoenum	Indigenous	Most records are from Beever (1990)
	Senecio glomeratus	Indigenous	
fireweed	*Senecio hispidulum*	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
ragwort	*Senecio jacobaea*	Introduced	
shore groundsel	*Senecio lautus*	Indigenous	
	Senecio lautus var. *lautus*	Indigenous	
German ivy	*Senecio mikanioides*	Introduced	
	Senecio minimus	Indigenous	
velvet groundsel	*Senecio petasitis*	Introduced	
	Senecio quadridentatus	Indigenous	
	Senecio scaberulus	Indigenous	
buttercup bush	*Senna multiglandulosa*	Introduced	
orchid	*Simpliglottis cornuta*	Indigenous	
orchid	*Singularybas oblongus*	Indigenous	
	Solanum americanum	Indigenous	
	Solanum americanum	Indigenous	
poroporo	*Solanum aviculare*		
poroporo	*Solanum aviculare* f. *aviculare*	Indigenous	
woolly nightshade	*Solanum mauritianum*	Introduced	
black nightshade	*Solanum nigrum*	Introduced	
Jerusalem cherry	*Solanum pseudocapsicum*	Introduced	
prickly sow thistle	*Sonchus asper*	Introduced	
sow thistle, puha	*Sonchus oleraceus*	Introduced	
kowhai	*Sophora chathamica*	Indigenous	
kowhai	*Sophora microphylla*	Indigenous	
	Sparganium subglobosum	Indigenous	
spartina	*Spartina alterniflora*	Introduced	
	Spergularia media	Indigenous	
spinifex	*Spinifex sericeus*		
ratstail	*Sporobolus africanus*	Introduced	
miro	*Stachypitys ferruginea* (SSBI Q08/H015 & Q08/H037)	Indigenous	
	Stellaria parviflora	Indigenous	
buffalo grass	*Stenotaphrum secundatum*	Introduced	
umbrella fern	*Sticherus cunninghamii*	Indigenous	
	Sticherus flabellatus	Indigenous	
needle grass	*Stipa stipoides*		
large-leaved milk tree	*Streblus banksii*	Indigenous	
small-leaved milk tree	*Streblus heterophyllus* (AK 296539)	Indigenous	
sea blite	*Suaeda novae-zelandiae* (AK 294674 and AK 294744)	Indigenous	
swamp maire, maire tawake	*Syzygium maire* (Wright & Beever 1990)	Indigenous	
dandelion	*Taraxacum officinale*	Introduced	
NZ spinach	*Tetragonia implexicoma*	Indigenous	
NZ climbing spinach	*Tetragonia trigna*		

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
	Tetraria capillaris	Indigenous	
	Thamnobryum pandum	Indigenous	Most records are from Beever (1990)
marsh fern	*Thelpteris confluens*		
orchid	*Thelymitra ? carnea*	Indigenous	
orchid	*Thelymitra aemula*	Indigenous	
orchid	*Thelymitra longifolia*	Indigenous	
orchid	*Thelymitra pauciflora*	Indigenous	
orchid	*Thelymitra pulchella*	Indigenous	
	Thelymitra sp.	Indigenous	
	Thismia rodwayi	Indigenous	
	Thuidium furfurosum	Indigenous	Most records are from Beever (1990)
	Thuidium laeviusculum	Indigenous	Most records are from Beever (1990)
	Thuidium sparsum	Indigenous	Most records are from Beever (1990)
fork fern	*Tmesipteris elongata*	Indigenous	
fork fern	*Tmesipteris lanceolata*	Indigenous	
fork fern	*Tmesipteris sigmatifolia*	Indigenous	
chain fern	*Tmesipteris* sp.		
fork fern	*Tmesipteris tannensis*	Indigenous	
	Todea barbara	Indigenous	
toru	*Toronia toru*	Indigenous	
tradescantia	*Tradescantia fluminensis*	Introduced	
bristle fern	*Trichomanes elongatum*	Indigenous	
	Trichomanes endlicherianum	Indigenous	
kidney fern, raurenga	*Trichomanes reniforme*	Indigenous	
	Trichomanes strictum	Indigenous	
	Trichomanes venosum	Indigenous	
white clover	*Trifolium repens*	Introduced	
arrow grass	*Triglochin striata*	Indigenous	
Adam's mistletoe	*Trilepidea adamsii* (WELT SP031299)	Indigenous	Not recorded in Otamatea ED Northland since 1867, now presumed extinct
	Trisetum arduanum	Indigenous	Not recorded in Otamatea ED Northland since 1867
garden nasturtium	*Tropaeolum majus*	Introduced	
white mistletoe	*Tupeia antarctica* (AK 11268) (WELT SP031346)	Indigenous	Not recorded in Otamatea ED Northland since 1867
raupo	*Typha orientalis*	Indigenous	
gorse	*Ulex europaeus*	Introduced	
hook sedge	*Uncinia banksii*	Indigenous	
	Uncinia distans	Indigenous	

Common name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
hook sedge, hooked sedge grass	*Uncinia uncinata*	Indigenous	
hook sedge, fine hooked sedge grass	*Uncinia zotovii* (Wright & Beever 1990)	Indigenous	
ongaonga	*Urtica ferox*	Indigenous	
	Utricularia delicatula	Indigenous	
vervain	*Verbena officinalis*	Introduced	
field speedwell	*Veronica arvensis*	Introduced	
vetch	*Vicia sativa*	Introduced	
periwinkle	*Vinca major*	Introduced	
	Viola filicaulis	Indigenous	
puriri	*Vitex lucens*	Indigenous	
grape	*Vitis vinifera*	Introduced	
hair grass	*Vulpia* sp.	Introduced	
	Wahlenbergia sp.	Indigenous	
	Wahlenbergia violacea	Indigenous	
watsonia	*Watsonia meriana*	Introduced	
towai	*Weinmannia silvicola*	Indigenous	
	Weymouthia cochlearifolia	Indigenous	Most records are from Beever (1990)
	Wijkia extenuata	Indigenous	Most records are from Beever (1990)
	Winika cunninghamii	Indigenous	
wisteria	*Wisteria sinensis*	Introduced	
arum lily	*Zantedeschia aethiopica*	Introduced	
	Zoysia pauciflora	Indigenous	
	Zygodon gracillimus	Indigenous	Most records are from Beever (1990)
	Zygodon intermedius	Indigenous	Most records are from Beever (1990)

Kaipara Catchment Fauna: Species List

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
MAMMALS				
New Zealand fur seal	Kekeno	*Arctocephalus forsteri*	Indigenous	
Goat		*Capra hircus*	Introduced	
Long-tailed bat		*Chalinolobus tuberculata*	Indigenous	
European hedgehog		*Erinaceus europaeus*	Introduced	
Cat		*Felis catus*	Introduced	
Brown hare		*Lepus europaeus*	Introduced	
House mouse	Kiore-iti	*Mus musculus*	Introduced	
Stoat		*Mustela erminea*	Introduced	
Ferret		*Mustela furo*	Introduced	
Weasel		*Mustela nivalis*	Introduced	
Northern short-tailed bat		*Mystacina tuberculata aupourica*	Indigenous	
European rabbit		*Oryctolagus cuniculus*	Introduced	
Norway rat		*Rattus norvegicus*	Introduced	
Ship rat		*Rattus rattus*	Introduced	
Pig		*Sus scrofa*	Introduced	
Brushtail possum		*Trichosurus vulpecula*	Introduced	
BIRDS				
Common myna		*Acridotheres tristis*	Introduced	
Skylark		*Alauda arvensis*	Introduced	
Wrybill	Ngutuparore	*Anarhynchus frontalis* (OSNZ)	Endemic	Nationally vulnerable
Brown teal	Pateke	*Anas chlorotis*	Indigenous	
Grey teal	Tete	*Anas gracilis*	Indigenous	
Mallard		*Anas platyrhynchos*	Introduced	
Australasian shoveler	Kuruwhengi	*Anas rhynchotis* (SSBI Q08/H031)	Indigenous	
Grey duck	Parera, karakahia	*Anas superciliosa* ssp. *superciliosa*	Indigenous	Serious decline
New Zealand pipit		*Anthus novaeseelandiae*	Indigenous	
New Zealand pipit	Pihoihoi	*Anthus novaeseelandiae* ssp. *novaeseelandiae*	Indigenous	
North Island brown kiwi		*Apteryx australis mantelli*	Endemic	Serious decline
North Island brown kiwi		*Apteryx mantelli*	Endemic	Serious decline

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
White-faced heron	Matuku-moana	*Ardea novaehollandiae*	Indigenous	
Turnstone		*Arenaria interpres* (OSNZ)	Indigenous	
Australasian bittern	Matuku	*Botaurus poiciloptilus*	Indigenous	Nationally endangered
North Island fernbird	Matata	*Bowdleria punctata* ssp. *vealeae*	Indigenous	Sparse
Cattle egret		*Bubulcus ibis*	Indigenous	
Lesser knot	Huahou	*Calidris canutus*	Indigenous	
North Island kokako	Blue-wattled crow	*Callaeas cinerea wilsoni*	Indigenous	
California quail		*Callipepla californica*	Introduced	
Goldfinch		*Carduelis carduelis*	Introduced	
Greenfinch		*Carduelis chloris*	Introduced	
Redpoll		*Carduelis flammea*	Introduced	
Banded dotterel	Tuturiwhatu	*Charadrius bicinctus* ssp. *bicinctus*	Endemic	Gradual decline
Northern New Zealand dotterel	Tutriwhatu	*Charadrius obscurus* ssp. *aquilonius*	Endemic	Sparse
Shining cuckoo	Pipiwharauroa	*Chrysococcyx lucidus* ssp. *lucidus*	Indigenous	
Australasian harrier	Kahu	*Circus approximans*	Indigenous	
Red-crowned parakeet	Kararíki	*Cyanoramphus novaeseelandiae*	Indigenous	
Black swan		*Cygnus atratus*	Introduced	
Yellow-nosed mollymawk		*Diomedea chlororhynchos*	Indigenous	Wreck of juvenile found between South Hokianga Head-Waipoua River coast (SSBI O06/H014)
White heron	Kotuku	*Egretta alba* ssp. *modesta* (Veitch 1979)	Indigenous	Nationally critical
Little egret		*Egretta garzetta* (Veitch 1979)	Indigenous	May be extinct
Reef heron	Matuku-moana	*Egretta sacra* ssp. *sacra* (OSNZ)	Indigenous	Nationally endangered
Cirl bunting		*Emberiza cirlus*	Introduced	
Yellowhammer		*Emberiza citrinella*	Introduced	
Long-tailed cuckoo	Koekoea	*Eudynamys taitensis*	Indigenous	
Northern little blue penguin	Korora, little blue penguin	*Eudyptula minor* ssp. *iredalei*	Endemic	Gradual decline
Chaffinch		*Fringilla coelebs*	Introduced	
Banded rail	Moho-pereru	*Gallirallus philippensis* ssp. *assimilis* (Wildland Consultants Ltd 2004)	Indigenous	Sparse
Grey warbler	Riroriro	*Gerygone igata*	Indigenous	

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Australian magpie		*Gymnorhina tibicen*	Introduced	
Pied oystercatcher	Torea	*Haematopus ostralegus*	Indigenous	
Pied oystercatcher	Torea	*Haematopus ostralegus finschi*	Indigenous	
Variable oystercatcher	Torea; toreapango	*Haematopus unicolor* (OSNZ)	Endemic	Regionally significant
New Zealand pigeon	Kukupa, kereru	*Hemiphaga novaeseelandiae*	Endemic	Gradual decline
Pied stilt	Poaka	*Himantopus himantopus* ssp. *leucocephalus*	Indigenous	
Black stilt	Kaki	*Himantopus novaezelandiae* (OSNZ)	Endemic	Nationally critical
Welcome swallow		*Hirunda tahitica* ssp. *neoxena*	Indigenous	
Southern black-backed gull	Karoro	*Larus dominicanus*	Indigenous	
Black-backed gull	Karoro	*Larus dominicanus* ssp. *dominicanus*	Indigenous	
Red-billed gull	Tarapunga	*Larus novaehollandiae* ssp. *scopulinus*	Indigenous	
Bar-tailed godwit		*Limosa lapponica*	Indigenous	
Wild turkey		*Meleagris gallopavo*	Introduced	
Australasian gannet	Takapu	*Morus serrator*	Indigenous	
Australasian gannet	Takapu	*Morus serrator* ssp. *serrator*	Indigenous	
North Island kaka		*Nestor meridionalis* ssp. *septentrionalis* (Richard Gillies, pers. comm.)	Endemic	Nationally endangered
Morepork	Ruru	*Ninox novaeseelandiae*	Indigenous	
Morepork	Ruru	*Ninox novaeseelandiae* ssp. *novaeseelandiae*	Indigenous	
Fairy prion	Titi wainui	*Pachyptila turtur*	Indigenous	Two dead birds found on South Hokianga Head-Waipoua River Coast (SSBI O06/H014)
House sparrow		*Passer domesticus*	Introduced	
Peafowl		*Pavo cristatus*	Introduced	
North Island robin	Toutouwai, pitoitoi	*Petroica australis longipes*	Indigenous	
North Island tomtit	Miromiro, pied tit	*Petroica macrocephala toitoi*	Endemic	Regionally significant
Black shag	Kawau	*Phalacrocorax carbo* ssp. *novaehollandiae*	Indigenous	Sparse
Little shag	Kawaupaka	*Phalacrocorax melanoleucos* ssp. *brevirostris*	Indigenous	
Little black shag		*Phalacrocorax sulcirostris*	Indigenous	Sparse

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
		(OSNZ)		
Pied shag	Karuhiruhi	*Phalacrocorax varius* ssp. *varius*	Indigenous	Sparse
Pheasant		*Phasianus colchicus*	Introduced	
Royal spoonbill	Kotuku-ngutupapa	*Platalea regia*	Indigenous	
Eastern rosella		*Platycercus eximius*	Introduced	
New Zealand dabchick	Weweia	*Poliocephalus rufopectus*	Indigenous	
Pukeko	Purple swamphen	*Porphyrio porphyrio* ssp. *melanotus*	Indigenous	
Spotless crake	Puweto	*Porzana tabuensis plumbea*	Indigenous	Sparse
Black petrel	Taiko	*Procellaria parkinsoni*	Indigenous	Historic
Tui		*Prosthemadera novaeseelandiae* ssp. *novaeseelandiae*	Indigenous	
Dunnock	Hedge sparrow	*Prunella modularis*	Introduced	
Grey-faced petrel	Oi	*Pterodroma macroptera gouldi*	Indigenous	
Buller's shearwater		*Puffinus bulleri*	Indigenous	Sighted off shore on South Hokianga Head-Waipoua River coast (SSBI O06/H014)
Fluttering shearwater	Pakaha	*Puffinus gavia*	Indigenous	One dead bird found on South Hokianga Head-Waipoua River coast (SSBI O06/H014)
Sooty shearwater	Titi	*Puffinus griseus*	Indigenous	Three dead birds found on South Hokianga Head-Waipoua River coast (SSBI O06/H014)
North Island fantail	Piwakawaka	*Rhipidura fuliginosa* ssp. *placabilis*	Indigenous	
Arctic skua		*Stercorarius parasiticus*	Indigenous	
Black-fronted tern	Tarapiroe	*Sterna albostriata*	Indigenous	
Caspian tern	Taranui	*Sterna caspia*	Indigenous	Nationally vulnerable
New Zealand fairy tern		*Sterna nereis* ssp. *davisae*	Endemic	Nationally critical
White-fronted tern	Tara	*Sterna striata* ssp. *striata*	Endemic	Gradual decline
Starling		*Sturnus vulgaris*	Introduced	
Brown quail		*Synoicus ypsilophorus*	Introduced	
Australian little grebe		*Tachybaptus novaehollandiae* ssp. *novaehollandiae*	Indigenous	
Paradise shelduck	Putangitangi	*Tadorna variegata*	Indigenous	

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Kingfisher	Kotare	*Todiramphus sanctus*	Indigenous	
New Zealand kingfisher	Kotare	*Todiramphus sanctus vagans*	Indigenous	
Blackbird		*Turdus merula*	Introduced	
Song thrush	Piopio	*Turdus philomelos*	Introduced	
Spur-winged plover		*Vanellus miles*	Indigenous	
Spur-winged plover	Masked lapwing	*Vanellus miles novaehollandiae*	Indigenous	
Silvereye	Tauhou	*Zosterops lateralis*	Indigenous	
Silvereye	Tauhou, whiteye	*Zosterops lateralis* ssp. *lateralis*	Indigenous	
Bellbird				
Marsh crake			Indigenous	Sparse
Coot			Indigenous	
Duck spp.			Indigenous	
Harrier hawk			Indigenous	
Scaup			Indigenous	
Shag spp.			Indigenous	
Shoveller			Indigenous	
Spurwing plover			Indigenous	
Canada geese			Introduced	
Red poll			Introduced	
AMPHIBIANS				
Hochstetter frog				
FISH AND FRESHWATER INVERTEBRATES				
Yelloweye mullet		*Aldrichetta forsteri*	Indigenous	
Catfish		*Ameiurus nebulosus*	Introduced	
Shortfin eel		*Anguilla australis*	Indigenous	
Longfin eel		*Anguilla dieffenbachii*	Indigenous	
Goldfish		*Carassius auratus*	Introduced	
Torrentfish		*Cheimarrichthys fosteri*	Indigenous	
European (koi) carp		*Cyprinus carpio*	Introduced	
Koaro		*Galaxias brevipinnis*	Indigenous	
Banded kokopu		*Galaxias fasciatus*	Indigenous	
Inanga		*Galaxias maculatus*	Indigenous	

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Short-jawed kokopu		*Galaxias postvectis*	Indigenous	
Mosquitofish		*Gambusia affinis*	Introduced	
Lamprey		*Geotria australis*	Indigenous	
Crans bully		*Gobiomorphus basalis*	Indigenous	
Common bully		*Gobiomorphus cotidianus*	Indigenous	
Giant bully		*Gobiomorphus gobioides*	Indigenous	
Red finned bully		*Gobiomorphus huttoni*	Indigenous	
Giant bully		*Gobiomorphus maculatus*	Indigenous	
Grey mullet		*Mugil cephalus*	Indigenous	
Rainbow trout		*Oncorhynchus mykiss*	Introduced	
Native caddisfly		*Oxythira waipoua*	Indigenous	
Freshwater crayfish	Koura	*Parenephrops planifrons*		
Common smelt		*Retropinna retropinna*	Indigenous	
Brown trout		*Salmo trutta*	Introduced	
Rudd		*Scardinius erythrophthalmus*	Introduced	
Black mudfish				
Bully				
Tench				
Goldfish				
Eel				
OTHER INVERTEBRATES				
Land snail		*Amborhytida dunniae* (Brook, pers. comm.)		
Land snail		*Amborhytida forsythi*	Indigenous	
Northland tusked weta		*Anisonra nicobarica*	Indigenous	
Slug		*Athoracophorus* sp. 7	Indigenous	
Land snail		*Austroiotula arewa*		
Land snail		*Basimocella* 'Nth maculata'		
Land snail		*Charopidae* sp. 12	Indigenous	
Land snail		*Charopidae* sp. 13	Indigenous	
Land snail		*Charopidae* sp. 8	Indigenous	
Land snail		*Delos coresia*		
Forest ringlet butterfly		*Dodonidia helmsii*	Indigenous	
Land snail		*Egestula egesta*		
Beetle		*Euconnus microcilipes*	Indigenous	
Beetle		*Euconnus paracilipes*	Indigenous	

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Land snail		*Flammulina perdita*		
Ground weta		*Hemiandrus* "Otekauri"	Indigenous	
Black katipo spider		*Latrodectus atritus*	Indigenous	
Argentine ant		*Linepithema humile*	Introduced	
Beetle		*Maorinus hunuaeformis*	Indigenous	
Beetle		*Maorinus sp.*	Indigenous	
Beetle		*Maorinus toronouii*	Indigenous	
Weevil		*Megacolabus bifurcatus*	Indigenous	
Weevil		*Megacolabus obesus*	Indigenous	
Darkling beetle		*Menimus clarkei*	Indigenous	
Land snail		*Mocella eta*		
Peace's weevil		*Nothaldonus peacei*	Indigenous	
Land snail		*Paralaoma caputspinulae*		
Stag beetle		*Paralissotes mangonuiensis*	Indigenous	
kauri snail		*Paryphanta busbyi busbyi*	Indigenous	
Land snail		*Phenacohelix giveni*		
Land snail		*Phenacohelix pilula*		
Land snail		*Phrixgnathus moellendorffi*		
Land snail		*Phrixgnathus murdochi*	Indigenous	
Land snail		*Phrixgnathus waipoua*	Indigenous	
Land snail		*Punctidae* sp. 21	Indigenous	
Land snail		*Punctidae* sp. 28	Indigenous	
Land snail		*Punctidae* sp. 29	Indigenous	
Land snail		*Punctidae* sp. 31	Indigenous	
Land snail		*Punctidae* sp. 32	Indigenous	
Land snail		*Punctidae* sp. 33	Indigenous	
Land snail		*Punctidae* sp. 34	Indigenous	
Land snail		*Punctidae* sp. 4	Indigenous	
Land snail		*Punctidae* sp. 5	Indigenous	
Earthworm		*Rhododrilus agathis*	Indigenous	
Beetle		*Sciacharis yakasensis*	Indigenous	
Land snail		*Sinployea parva*		
Beetle		*Strphetodes sp.* "Waipoua"	Indigenous	
Land snail		*Thalassohelix ziczag*		
Land snail		*Therasiella cehnde*		
Land snail		*Tornatellides subperforata*		
Land snail		*Tornatellinops novoseelandica*		
REPTILES				
Copper skink		*Cyclodina aenea*	Indigenous	
Ornate skink		*Cyclodina ornata*		

Common name	Other name	Scientific name	Endemic, Indigenous, or Introduced?	Notes
Shore skink		*Oligosoma smithi*	Indigenous	
Auckland green gecko		*Naultinus elegans elegans*	Indigenous	

16.6 APPENDIX 5. CUSTOMARY MANAGEMENT TOOLS PROVIDED FOR UNDER NEW ZEALAND FISHERIES LEGISLATION

Customary Tool	Purpose	Legislation	Effects	Provides for: Bylaws to exclude commercial fishing	Inshore and offshore areas	Prerequistes:
Mātaitai Reserve	Recognising & providing for customary management practices & food gathering	Customary Fishing Regulations (Kaimoana Customary Fishing Regulations 1998)	• Does not exclude recreational fishing • Does not require rec fishers to obtain permits or prevent non-Māori from fishing • Does not prevent access to beaches or rivers not on private land • Allows for bylaws for fishing	√		• Nominated Kaitiaki • Identify traditional fishing grounds • Aim of management • Boundaries of proposed Mataitai • Consultation

Taiapure Reserve	Local management, provide for rangitiratanga & Article II of Treaty of Waitangi	s174-185 Fisheries Act 1996	• All fishing (include commercial) can continue in a taiapure
			• Management committee (members nominated by Tangata Whenua)
			• Make recommendations to Minister of Fisheries on regulations s186, s297, s298, s331 on the conservation and management of aquatic life, fish and seaweed in taiapure area.
			• Regulations can be made on:
			  ○ Size, species taken, quantity
			  ○ Seasons
			  ○ Methods
			  ○ Areas
					Estuarine Coastal	• Why need taiapure
						• Objectives of taiapure management
						• Location and boundaries
						• Users
						• Consultation

16.7 APPENDIX 6. MANAGEMENT/GOVERNANCE STRUCTURES IN PLACE FOR KAIPARA IWI/HAPŪ

Memorandum of Understandings (MOU) & Protocol Agreements*	Ngā marae O Kaipara Catchment	Taumata Councils
• **MOU between TUOHST and NRC** • **MOU between NWNROK and RDC** • **MOU between TUOHST and RDC** • **MOU between TUOHST and KDC** • **MOU between TUOHST and ARC** • **Protocol Agreement between TUOHST and DoC** • **Protocol Agreement between Te Roroa and Mfish** • **Protocol Agreement between TUOHST and Mfish** • **Protocol agreement with TUOHST and MED** • **Protocol Agreement between Te Roroa and MED** • **MOU between TUOHST and Fonterra (Maungatoroto Branch)** • **MOU between NWNROK and Carter Holt Harvey (Riverhead Forest, Woodhill Forest))** • **MOU between TUOHST and Carter Hold Harvey** • **Antiquites Protocol between Te Roroa and Ministry of Culture & Heritage** • **Antiquities Protocol between TUOHST and Ministry of Culture & Heritage**	Ngāti Whatua: • Ōrakei Takiwa (Uringutu, Ngaoho, Te Taou) • Haranui (Ngāti Ronga, Ngāti Rango, Te Tao U, Ngāti Whatua Tuturu) • Puatahi (Ngāti Ronga, Te Tao U) • Reweti (Te Tao U, Te Uringutu, Te Uri o Hau) • Te Aroha Pa (Ngāti Rango, Te Tao U, Te Uringutu, Ngāti Mauku) • Te Kia Ora (Ngāti Rango, Ngāti Ronga,) • Nga Tai Whakarongorua (Te Uri o Hau) • Ōruawharo (Te Uri o Hau, Ngāti Hinga, Ngāti Rongo, Ngāti Mauku) • Ōtamatea (Te Uri oHau, Te Uringutu) • Ōtuhianga (Te Uri o Hau, Te Popoto, Te Tao U) • Parirau (Te Uri o Hau) • Pouto/Waikeratu (Te Uri o Hau, Te Uringutu, Te Tao U) • Rawhitiroa (Te Uri o Hau) • Te Kowhai (Te Uri o Hau) • Te Pounga (Te Uri o Hau) • Te Whetu Marama (Te Parawhau) • Waihaua (Te Uri o Hau) • Waiohau (Te Uri o Hau) • Waiotea (Te Uri o Hau, Te Uringutu) • Ahikiwi (Ngāti Hinga, Te Tao U, Te Roroa) • Kapehu (Te Uri o Hau, Te Roroa) • Naumai (Te Uri o Hau) • Ōturei (Te Popoto, Te Parawhau, Te Uriroroi, Te Uri o Hau)	• Te Uri O Hau Taumata Council • Ngāti Whatua Runanga Taumata Council • Ngā Rima o Kaipara Taumata Council

Memorandum of Understandings (MOU) & Protocol Agreements*	Ngā marae O Kaipara Catchment	Taumata Councils
	• Pahinui (Te Roroa) • Ripia (Te Uri o Hau, Te Popoto) • Taita (Ngāti Torehina, Te Roroa) • Tama Te Uaua (Te Roroa, Te Tao U) • Te Houhanga (Te Kuihi, Te Parawhau, Te Uriroroi, Te Tao U) • Waikara (Te Roroa) • Waikaraka (Te Roroa, Ngāti Hinga)	

*Acroynms used: MOU (Memorandum of Understanding); TUOHST (Te Uri o Hau Settlement Trust); NWNROK (Ngāti Whatua Ngā Rima o Kaipara); RDC (Rodney District Council); ARC (Auckland Regional Council); DoC (Department of Conservation); Mfish (Minstry of Fisheries); KDC (Kaipara District Council); MED (Ministry of Economic Development)

16.8 APPENDIX 7. EMISSION TRADING SCHEME BILL RISK ASSESSMENT

(Source: Cabinet Policy Committee 2007).

Risk	Mitigation
High levels of volatility in the price of emissions result in increased uncertainty (and thus cost) for business	The NZ government will play an active role in International agreements to help ensure that the global carbon market develops in an orderly manner. Enable the development of financial instruments to allow firms to reduce their exposure to the volatility in the price of emissions. Consider measures to reduce the initial volatility that may be present during the establishment of a new market. Ensure as much liquidity as possible by linking to international markets. Consider the effects of government allocation decisions on market volatility.
There is a gap in international agreements after 2012	The NZ government will actively participant in international negotiations with a view to reaching international agreement on arrangements post-2012. Ensure flexibility in the design so that the operation of the scheme is not directly linked to any particular international agreement and can operate as a stand alone scheme if needed. Need to ensure adequate liquidity in the case of a stand alone scheme or maybe look at a price cap or floor.
Potential for market failure in certain sectors resulting in less emission reduction occurring then should given the price.	Complementary measures (e.g. energy efficient homes) can be targeted at areas where the price signal does achieve the desired level of emission reduction.
Businesses have difficulty accessing the emissions market	Ensure that the registry is "business friendly" including low transaction fees. Enable competition between a range of emission markets both within NZ and overseas (as a result of the scheme being internationally linked). Consider the nature of the firm when setting points of obligation (e.g. large firms, who have established trading desks should find it easier to participate in the market then a Small to Medium Business).
The international price of emissions rises to very high levels causing significant harm to NZ economy	Governments will need to make ongoing decisions about what further international commitments NZ is prepared to sign up to post-2012, including the stringency of emission reductions. New Zealand's position on this could consider factors such as the extent and nature of participation by other countries.

Transitioning to the new regime will be difficult/expensive	Have a transitional period and different dates of entry to recognise different levels of readiness.
Increased uncertainty and market volatility during the start up phase of the scheme.	Signal policies in advance as much as practical. Education and training for participants. Link to international markets to increase market liquidity.
Loss of firms with long term regrets	Governments will need to make ongoing decisions about what further international commitments NZ is prepared to sign up to post-2012, including the stringency of emission reductions. New Zealand's position on this could consider factors such as the extent and nature of participation by other countries. Government will look to provide an industry assistance package to reduce risk of firms shifting operations offshore as a result of the ETS.
Future international agreements are based around a carbon tax.	Ensure the ETS is easily modified to act as a tax (this would simply require the govt to provide unlimited units at a particular price – points of obligation, reporting and monitoring etc could remain unchanged) if this becomes necessary given global developments. Establish a regular review process for the scheme to take into account international developments.
Future international agreements move towards an intensity base approach.	Ensure the ETS can easily be modified to adopt an intensity based approach. Establish a regular review process for the scheme to take into account international developments.
Breach of commitment period reserve (a requirement under the Kyoto Protocol that all party nations retain at least 90% of their initial assigned amount of AAUs within their emissions unit register).	Breach is unlikely due to the expected net inflow of Kyoto units over CP1 and can be managed by allocation decisions and staggered sectoral entry into the NZ ETS
Required systems, processes or the administering agency are not fully functioning by the commencement of the scheme	Implementation issues will be an active area for engagement with sectors, especially for those first into the scheme e.g. forestry. Some implementation details will be worked on in parallel to the engagement process

16.9 APPENDIX 8. SUMMARY OF BIODIVERSITY OBJECTIVES STATED IN CURRENT LEGISLATION, POLICY TOOLS AND MECHANISMS.

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
Resource Management Act 1991	The RMA provides for indigenous biological diversity in the following sections: s.2: A definition of biological diversity is defined in Section 2: 'Biological diversity means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems'. s.30: (1)(c)(iiia) states that it is a function of regional councils to control the use of land for the purpose of "maintaining and enhancing ecosystems in water bodies and coastal water. (1)(ga) states that it is a function of regional councils to establish, implement and review objectives policies and methods for maintaining indigenous biodiversity. s.31: Section 31(b)(iii) states that it is the function of territorial councils to control the effects of the use of land on the maintenance of indigenous biological diversity. s.6: a) the preservation of the natural character of the coastal environment, wetlands, and lakes and rivers and their margins from inappropriate subdivision, use and development b) the protection of outstanding natural features and landscapes from inappropriate subdivisio, 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 alon the CMA, lakes and rivers; s.7: d) intrinsic values of ecosystems; g) the finite characteristics of natural and physical resources

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
New Zealand Biodiversity Strategy 2000	**Goal One** – Enhance community and individual understanding about biodiversity, and inform, motivate and support widespread and coordinated community action to conserve and sustainably use biodiversity; and Enable communities and individuals to equitably share responsibility for, and benefits from, conserving and sustainably using New Zealand's biodiversity, including the benefits from the use of indigenous resources. **Goal Two** – Actively protect iwi and hapu interests in indigenous biodiversity, and build and strengthen partnerships between government agencies and iwi and hapu in conserving and sustainably using indigenous biodiversity. **Goal Three** – Maintain & restore a full range of remaining natural habitats and ecosystems to a healthy functioning state, enhance critically scarce habitats, and sustain the more modified ecosystems in production and urban environments; and do what else is necessary to Maintain & restore viable populations of all indigenous species & subspecies across their natural range & maintain their genetic diversity. **Goal Four** – Maintain the genetic resources of introduced species that are important for economic, biological & cultural reasons by conserving their genetic diversity.

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
Auckland Regional Council Regional Policy Statement	**Objectives** 6.3.1) to preserve or protect a diverse and representative range of the Auckland Region's heritage resources 6.3.3) to protect & restore ecosystems & other heritage resources, whose heritage value and/or viability is threatened 6.3.4) to maintain the overall quality and diversity of character of the landscapes of the Auckland region **Methods:** 1. The significance of natural and physical resources in the Auckland Region which are of value as heritage resources will be established by reference to the criteria set out in Policies 6.4.7-1 & 2, 6.4.13-1, & 6.4.16-1. 2. Subdivision of land, & use & development of natural & physical resources shall be controlled in such a manner that the values of heritage resources of international, national or regional significance are preserved or protected from significant adverse effects. 3. Where preservation or protection & avoidance of significant adverse effects on the values of such significant heritage resources is not practicably achievable, such significant adverse effects shall be remedied, or mitigated. 4. In the context of this Policy, significant adverse effects would include: • Destruction of state & physical integrity of significant heritage resources or of a significant physical or biological process to the level where the maintenance of that process cannot be assured;
Northland Regional Council	**Biodiversity & Ecosystem Objectives:**

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
Regional Policy Statement	1. Maintenance of the biodiversity of the Northland region. 2. Protection of the life supporting capacity of ecosystems through avoiding, remedying or mitigating (in that order of priority) the adverse effects of activities, substances and introduced species on the functioning of natural ecosystems. 3. Protection of areas of significant indigenous vegetation and the significant habitats of indigenous fauna. "*In order to maintain the current biodiversity of the Northland region, it is essential that ecosystems, indigenous vegetation and fauna and their habitats are protected. There are two elements to this objective. Firstly, it requires maintaining the quality of all ecosystems and the environment generally, as promoted in the purposes and principles of the Resource Management Act, in particular Sections 5(2)(b), 5(2)(c), 7(d) and 7(f). The Council has chosen an hierarchical approach to the means by which adverse effects are managed. Adverse effects are to be avoided, remedied or mitigated in that order of priority.* *Secondly, it recognises that it is not feasible to actively protect all ecosystems, indigenous vegetation and fauna, and their habitats within the region. The direction taken in this section of the Policy Statement is to identify and protect those areas and habitats that are significant. Such areas will largely be made up of those areas* *identified using the already established and scientifically tested approaches set up in the Department of Conservation Sites of Special Biological Interest (SSBI) and Protected Natural Area programmes and tend to fall into the categories of Moderate, (of District significance), Moderate-High (of Regional Significance); High (of National Significance); or Outstanding (of International Significance).*" Outstanding Natural Features & Landscapes: 1. The identification of outstanding natural features and outstanding landscapes and their protection of from inappropriate subdivision, use and development. 2. To recognise, in the identification and protection of outstanding natural features and outstanding landscapes, that their values include intrinsic values of ecosystems, ecological, heritage, cultural, spiritual, and amenity aspects. 3. Any adverse effects of human activities on natural and physical resources are avoided, remedied or mitigated so

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
	that the qualities and values of any outstanding natural features and outstanding landscapes are maintained. Cultural Heritage: 1. Protection and where possible, enhancement of the cultural, historic and amenity values of heritage features.
New Zealand Coastal Policy Statement (1994)	NZCP (1994) biodiversity objectives are addressed under Policy 1.1.4 : *It is a national priority for the preservation of natural character of the coastal environment to protect the integrity, functioning and resilience of the coastal environment in terms of:* *(a) the dynamic processes and features arising from the natural movement of sediments, water and air;* *(b) natural movement of biota;* *(c)natural substrate composition;* *(d) natural water and air quality;* *(e) natural bio diversity, productivity and biotic patterns; and* *(f) intrinsic values of ecosystems.*
New Zealand Coastal Policy Statement Proposed Statement (2008)	Biodiversity objectives are covered under: ***Objective 3*** *– the natural character of the coastal environment is preserved, through the protection or restoration of natural landscapes, features, processes and indigenous biological diversity.* **Policy 31** Indigenous biological diversity *To preserve the natural character of the coastal environment, it is a national priority to protect indigenous biological diversity in that environment, including* *by:* *(a) avoiding adverse effects of activities on:* *(i) areas containing indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification*

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
	System lists; *(ii) areas containing taxa that are listed as threatened by the International Union for Conservation of Nature and Natural Resources;* *(iii) indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare;* *(iv) habitats of populations of indigenous species that are at the limit of their natural range, or are naturally rare; and* *(v) areas containing regionally or nationally significant examples of indigenous community types; and* *(b) avoiding significant adverse effects, and otherwise avoiding, remedying or mitigating adverse effects of activities on:* *(vi) areas of predominantly indigenous vegetation in the coastal environment;* *(vii) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;* *(viii)indigenous ecosystems and habitats that are unique to the coastal environment and particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, rocky reef systems, eelgrass and saltmarsh;* *(ix) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;* *(x) habitats, including areas and routes, important to migratory species; and* *(xi) ecological corridors and buffer zones that are important for linking or maintaining areas identified under this policy.*
Rodney District Council District Plan 2000 [Proposed][1]	Biodiversity Objectives: **1. To manage Highly Valued Natural Resources so that they are preserved or protected or enhanced now & in the future** Highly Valued Natural Resources, such as SNAs, should be maintained, protected, enhanced & managed in a manner

[1] In November 2000 the Rodney District Council (RDC) released its Proposed District Plan which was publicly notified. This Plan is a review of the Operative Rodney District Plan (1993). Whilst the Proposed Plan has legal effect from the date of notification, the existing Operative Transitional Plan continues to have legal effect until the Proposed Plan becomes fully operative. This will happen once all submissions and appeals have been settled.

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
	that ensures that: a) Habitats & ecosystems remain stable & resilient, b) Species which occur naturally within the habitat or ecosystem, including sensitive species, are able to survive & thrive, c) A wide representation of highly valued habitats & vegetation is maintained, d) Species diversity is maintained or enhanced by avoiding the adverse effects of noise, vibration, lighting, vegetation removal, earthworks, potential weed invasion, & domestic animals & other animal pests. Enhancement & restoration of SNAs should be undertaken when it would provide the following: a) Linkages between highly valued natural areas, such as SNAs (i.e. ecological corridors) b) Enhancement of highly valued natural areas, such as SNA c) Mitigation or remediation to offset the adverse effects of subdivision or development. Enhancement should include increasing plant diversity through plantings, where natural species diversity has been reduced, increasing the size of SNAs & reintroducing species likely to have occurred naturally in the area. **2. To maintain, manage, protect & enhance highly valued vegetation & wildlife habitats.** Objectives & policies for SNAs to be maintained, enhanced, managed in a manner that ensures habitats & ecosystems remain resilient to stress, a wide representation of highly valued habitats & vegetation maintained. RDC has undertaken a survey of vegetation & wildlife habitats to identify those of high ecological value – SNAs are identified on planning maps & ranked based on the Rodney Ecological District Protected Natural Areas Program. A zoning approach is taken for protecting these features: Open Space 1 (Conservation), Inland Waters Protection Zone, Low Intensity Landscape Protection Zone. **3. To protect highly valued landscapes & geologically significant sites from inappropriate or insensitive building, development, subdivision & other landuses, & to enhance highly valued landscapes where practicable.** Objectives & policies to managed 'Highly Valued Natural Resources' so they are preserved or protected or enhanced now & in the future, for their natural amenity, scenic & intrinsic values.

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
	'Highly Valued Natural Resources' have been identified & represent the 'best' in the District, they include SNAs, landscapes & geologically significant sites. The coastline, dune lakes & sand dunes on the South Head Peninsula are given as examples of areas with special character that contribute to Rodney's identity. The Plan identifies areas of highly valued landscapes by way of zones/policy areas, & applies limits to the activities which can occur, & applies controls on location of structures within the landscape. The activities permitted in each zone are based o landscape values present. For geologically significant sites such as South Head sand dunes at the northern end of South – a scheduled Activity status has been applied for protection of sites. **4. To ensure natural character of the coastal environment, & to protect land areas within the coastal environment form inappropriate subdivision, use & development.** The Plan identifies the Kaipara Harbour coastal environment as being 'predominantly unmodified'. The policies to preserve natural character and to protect from inappropriate subdivision, landuse & development activities so they remain in a relatively unmodified state. However, policy is not specific to the Kaipara Harbour coastal environment.
Kaipara District Plan	Objectives includes: **1. To recognise the special character of land in the coastal environment & control development activities within it.**
Northland Department of Conservation Conservation Management Strategy	**Protection Management Objectives**: *"To achieve protection of the most threatened, rare, and/or representative natural areas."* Implementation: *(3) Work with iwi, landowners, other government agencies, the Northland Regional Council, district councils and other interested organisations to identify priority areas for protection and apply appropriate mechanisms to achieve protection, including those practiced by Maori, according to priorities set out in Table 3 and mechanisms described in Appendix One* [e.g. land acquistion, Nga Whenua Rahui, Conservation Covenants]. Six Priorities for Protection of Habitats on Land

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
Auckland Department of Conservation Conservation Management Strategy	**Key Area 9: South Kaipara Head** ***Heritage Protection Ojectives:*** *9.2.3. Enhance the protection of exsiting areas administered by the Department by providing a single protective status. Include representative habitats, features and processes, which contribute to the distinctive biodiversity, landforms and landscape of the vicinity.*
Conservation Act 1987	**Section 3:** *"ensuring as far as possible, the survival of all indigenous species of flora and fauna, both rare and commonplace, in their natural communities and habitats, and the preservation of representative samples of all classes of natural ecosystems and landscape which in their aggregate originally gave New Zealand its own recognisable character."* **Section 6:** *(a) To manage for conservation purposes, all land….other natural and historic resources…* *(ab) To preserve so far as is practicable all indigenous freshwater fisheries, and protect recreational fisheries and freshwater fish habitats;* **Section 17D:** *"…to implement general policies and establish objectives for the integrated management of natural and historic resources, including any species managed by the Department under the: Wildlife Act 19853, Marine Reserves Act 1971, Reserves Act 1977, Wild Animal Control Act 1977, Marine Mammals Protection Act 1978, National Parks Act 1980, NZ Walkways Act 1990, Conservation Act 1987;* *"and for recreational, tourism and other conservation purposes."*
Reserves Act 1977	**Purpose of the Act**, is to ensure the: *"…preservation of representative samples of all classes of natural ecosystems and landscapes which in the aggregate*

Legislation, policy tool & other instruments	***Biodiversity Objectives & Policies***
	originally gave New Zealand its own recognizable character"

16.10 APPENDIX 9. RESOURCE MANAGEMENT ACT (1991) PROVISIONS FOR MAORI

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:

(e) The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga.

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:

8. Treaty of Waitangi — In achieving the purpose of the Resource Management Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

33. Transfer of powers — (1) A local authority that has functions, powers, or duties under this Act may transfer any one or more of those functions, powers, or duties to another public authority in accordance with this section, except that it may not transfer any of the following:

(a) The approval of a policy statement or plan or any changes to a policy statement or plan:

(b) The issuing of, or the making of a recommendation on, a requirement for a designation or a heritage order under Part VIII:

(c) This power of transfer.

(2) For the purposes of this section, ``public authority'' includes any local authority, iwi authority, Government department, statutory authority, and joint committee set up for the purposesof section 80.

34. Delegation of functions, etc., by local authorities — (1) A local authority may delegate to any committee of the local authority established in accordance with the Local Government Act 1974 any of its functions, powers or duties under this Act.

(2) A territorial authority may delegate to any community board established in accordance with the Local Government Act 1974 any of it functions, powers, or duties under this Act in respect of any matter of significance to that community, other than the approval of a plan or any change to a plan.

(3) A local authority may delegate to any hearings commissioner or commissioners appointed by the local authority for this purpose, who may or may not be a member of the local authority, any of its functions, powers, or duties under this Act, other than —

(a) The approval of a policy statement or plan or any change to a policy statement or plan:

(b) This power of delegation.

(4) A local authority may delegate to any of its officers any of its functions, powers or duties under this Act, other than —

(a) The approval of a policy statement or plan or any change to a policy statement or plan:

(b) The making of a recommendation on a requirement for a designation or a heritage order under Part VIII:

(c) The granting of a resource consent for a non-complying activity in respect of any application which is notified in accordance with section 93:

(d) This power of delegation.

35. Duty to gather information, monitor, and keep records — (1) Every local authority shall gather such information, and undertake or commission such research, as is necessary to carry out effectively its functions under this Act.
(2) Every local authority shall monitor —

(a) The state of the whole or any part of the environment of its region or district to the extent that is appropriate to enable the local authority to effectively carry out its functions under this Act; and
(b) The suitability and effectiveness of any policy statement or plan for its region or district; and
(c) The exercise of any functions, powers, or duties delegated or transferred by it; and
(d) The exercise of the resource consents that have effect in its region or district, as the case may be — and take appropriate action (having regard to the methods available to it under this Act) where this is shown to be necessary.

74. Matters to be considered by territorial authority — (1) A territorial authority shall prepare and change its district plan in accordance with its functions under section 31, the provisions of Part II, its duty under section 32, and any regulations.
(2) In addition to the requirements of section 75 (2), when preparing or changing a district plan, a territorial authority shall have regard to —

(b) Any —

(ii) Relevant planning document recognised by an iwi authority affected by the district plan;

93. Notification of Applications — (1) Once a consent authority is satisfied that it has received adequate information, it shall ensure that notice of every application for a resource consent made to it in accordance with this Act is **—**

(f) Served on such local authorities, iwi authorities, and other persons or authorities it considers appropriate;

First Schedule, 3. Consultation — (1) During the preparation of a proposed policy statement or plan, the local authority concerned shall consult —

(d) The tangata whenua of the area who may be so affected, through iwi authorities and tribal runanga.

16.11 APPENDIX 10. LEGISLATION RECOGNISING KAITIAKITANGA

Legislation/Policy	Description
Fisheries Act 1996	PART 3 - SUSTAINABILITY MEASURES **12. Consultation—** *1. Before doing anything under any of sections 11(1), 11(4), 11A(1), 13(1), 13(4),* *13(7), 14(1), 14(3), 14(6), 14B(1), 15(1), and 15(2) or recommending the making of* *an Order in Council under section 13(9) or section 14(8) or section 14A(1), the* *Minister **shall—*** *a. **consult** with such persons or organisations as the Minister considers are* *representative of those classes of persons having an interest in the stock or* *the effects of fishing on the aquatic environment in the area concerned,* *including Maori, environmental, commercial, and recreational interests; and* *b. **provide for** the **input and participation** of tangata whenua having—* *i. A non-commercial interest in the stock concerned; or* *ii. An interest in the effects of fishing on the aquatic environment in the* *area concerned—* ***and have particular regard to kaitiakitanga.***
	Section 5b: directs any person making decisions under the Act in a manner consistent with the provisions of the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 and New Zealand's international obligations relating to fishing.
Treaty of Waitangi (Fisheries Claims) Settlement Act 1992	Section 10(a): **Effect of Settlement on non-commercial Māori fishing rights and interests** *It is herby declared that claims by Māori in respect of non-commercial fishing for species or classes of fish, aquatic fish, or seaweed that are subject to the Fisheries Act 1983 –* *(a) Shall, in accordance with the principles of the Treaty of Waitangi, continue to give rise to Treaty obligations on the Crown; and in pursuance thereto* *(b) The Minister, acting in accordance with the principles of the Treaty of Waitangi, shall –*

Legislation/Policy	Description
	(i) Consult with tangata whenua about; and *(ii) Develop policies to help recognise –* *use and management practices of Māori in the exercise of non-commercial fishing rights.*
Treaty of Waitangi (Fisheries Claims) Deed of Settlement (1992)	The Preamble to the Deed of Settlement (23 September 1992) sets out the background for the Deed of Settlement Act 1992: *A: By the Treaty of Waitangi the Crown confirmed and guaranteed to the Chiefs, tribes and individual Māori full exclusive and undisturbed possession and te tino rangatiratanga of their fisheries.* *K: The Crown recognises that traditional fisheries are of importance to Māori and that the Crown's Treaty duty is to develop policies to help recognise use and management practices and provide protection for and scope for exercise of rangitiratanga in respect of traditional fisheries.*
Reource Management Act 1996	Section 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:*
Te Uri o Hau (Treaty of Waitangi) Settlement Act 2002 ***Te Uri o Hau Deed of Settlement 2000***	Provisions outlined in the Act and Deed of Settlement to give effect to Te Uri o Hau status as Treaty partner and practical effect to future management of natural and physical resources within their rohe.
Te Roroa (Treaty of Waitangi) Settlement Act 2008 ***Te Roroa Deed of Settlement 2008***	Provisions outlined in the Act and Deed of Settlement to give effect to Te Roroa status as Treaty partner and practical effect to future management of natural and physical resources within their rohe.