SITE NAME	SURVEY NO.	GRID REF.
Puheke Rd Wetland	O03/011	O03 406 027
Moturoa Islands	O03/012	O03 427 145, O03 437 133
		O03 440 128, O03 455 125
		O03 470 138
Waimanoni Creek Shrubland	O04/217	O04 334 873
Paparore Wetland & Shrubland	O04/220	O04 309 901, O04 309 895
Waiparera Creek Wetland	O04/221	N04 303 965, O04 306 964
Awanui River Forest Remnants	O04/222	O04 323 824, O04 327 824
		O04 328 815, O04 322 811
		O04 313 798, O04 312 794
		O04 308 793, O04 309 787
		O04 313 708, O04 313 785
		O04 314 783, O04 333 777
		O04 315 775, O04 315 774
		O04 316 772, O04 315 771
		O04 315 770, O04 322 770
West Coast Rd Shrubland	O04/223	O04 302 873, O04 306 872
		O04 304 871, O04 304 866
Mangatete River Bush	O04/226	O04 406 863
Lake Ohia	O04/227	O04 445 920
Lake Waiporohita	O04/228	O04 428 430
Southern Tokerau Swamp	O04/229	O04 448 956, O04 440 950
Northern Tokerau Swamp	O04/230	O04 441 989
Awapoko Estuary	O04/231	O04 486 907
Tokerau Beach	O04/232	O04 465 944
Rangaunu Harbour	O04/233	O04 360 950
Walker Island	O04/235	O04 375 993, O04 274 987

TE PAKI DUNES

Survey no. N02/013
Survey date 24 August 1995
Grid reference N02 900 395
Area 1,936 ha
Altitude 0–152 m asl

Ecological unit

Sandfield

Landform/geology

Coastal belt of large active unvegetated transverse dunes.

Vegetation

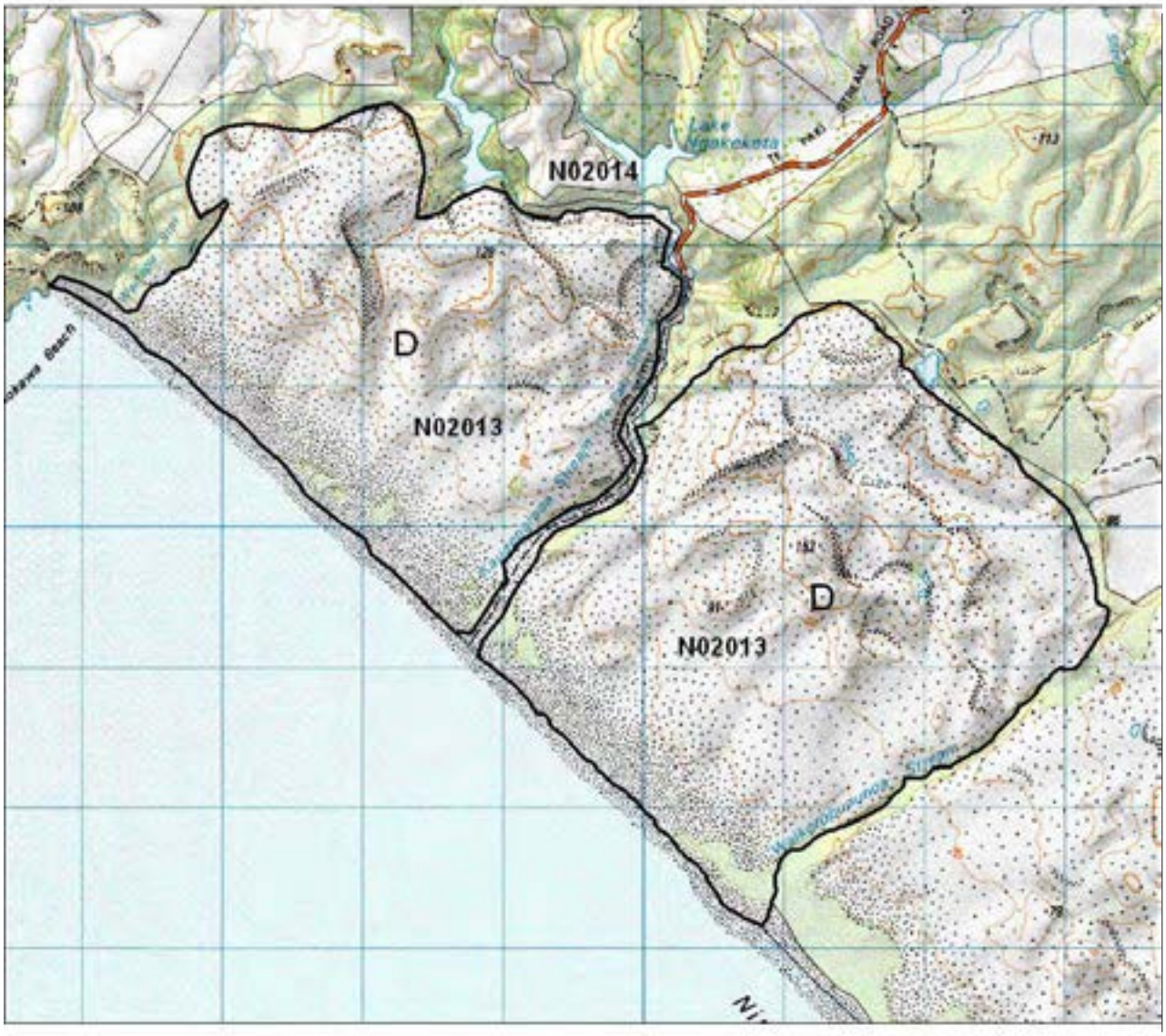
This is primarily a sandfield with scattered toetoe, pingao, tauhinu and sedges.

Significant flora

Pingao (Recovering-Conservation Dependent).

Fauna

Northern NZ dotterel (Category B threatened species), variable oystercatcher (Category C threatened species).



Te Paki Dunes N02/013

Each grid is 1000m x 1000m
and = 100 ha.
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Significance

A large area of mobile dunes which have become increasingly rare as the west coast dune system has been converted into exotic forestry. This area is particularly notable for the absence of adventive species and is a representative site.

Contains the best preserved area of active dunes on the Aupouri Peninsula and is a geopreservation site of national importance (Kenny & Hayward 1996).

Recreation Reserve protects 1,871 ha (96.6%) of this site and it is administered by the Department of Conservation.

TE PAKI STREAM

Survey no.	N02/014
Survey date	25 August 1995
Grid reference	N02 899 407
Area	43 ha
Altitude	0–80 m asl

Ecological unit

(a) Oioi rushland on sandy stream bed

(b) Mixed coastal turf association on damp sandflats

Te Paki Stream N02/014

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Landform/geology

Stream cutting through Holocene coastal dune belt.

Vegetation

(a) On the margin between the stream and the sand dunes, oioi is common with frequent raupo, *Juncus* sp. and kuta. Occurring in small numbers are toetoe, manuka, harakeke, ti kouka and *Eleocharis sphacelata*.

(b) A variety of small herbs occur on the damp sandflats including *Lilaeopsis novae-zelandiae, Limosella lineata, Cotula* sp., *Myriophyllum votschii, Epilobium pallidiflorum.*

Significant flora

Eleocharis neozelandica (Declining). Pingao (Recovering–Conservation Dependent) recorded from Te Paki stream margin in 1999 and *Myriophyllum votschii* (Regionally significant species).

Fauna

Northern NZ dotterel (Category B threatened species), banded dotterel (Category C threatened species), Australasian bittern (Category O threatened species), NI fernbird and Australasian little grebe (both Regionally significant species).

Significance

A freshwater stream with a large sandy bed, which is still in a relatively natural state despite heavy visitor use.

A good example of a dynamic natural system and a representative site for type (a) oioi rushland and type (b), coastal turf association on damp sandflats. Type (b) is one of twp records of thia type in the Ecological District, although likely to occur elsewhere.

Presence of threatened and regionally significant bird species.

Recreation Reserve administered by the Department of Conservation protects 41.5 ha (96%) of this site.

PARENGARENGA HARBOUR

Survey no.	N02/026
Survey date	24 August 1995
Grid reference	N02 055 425
Area	6,449 ha
Altitude	< 2 m asl

Ecological unit

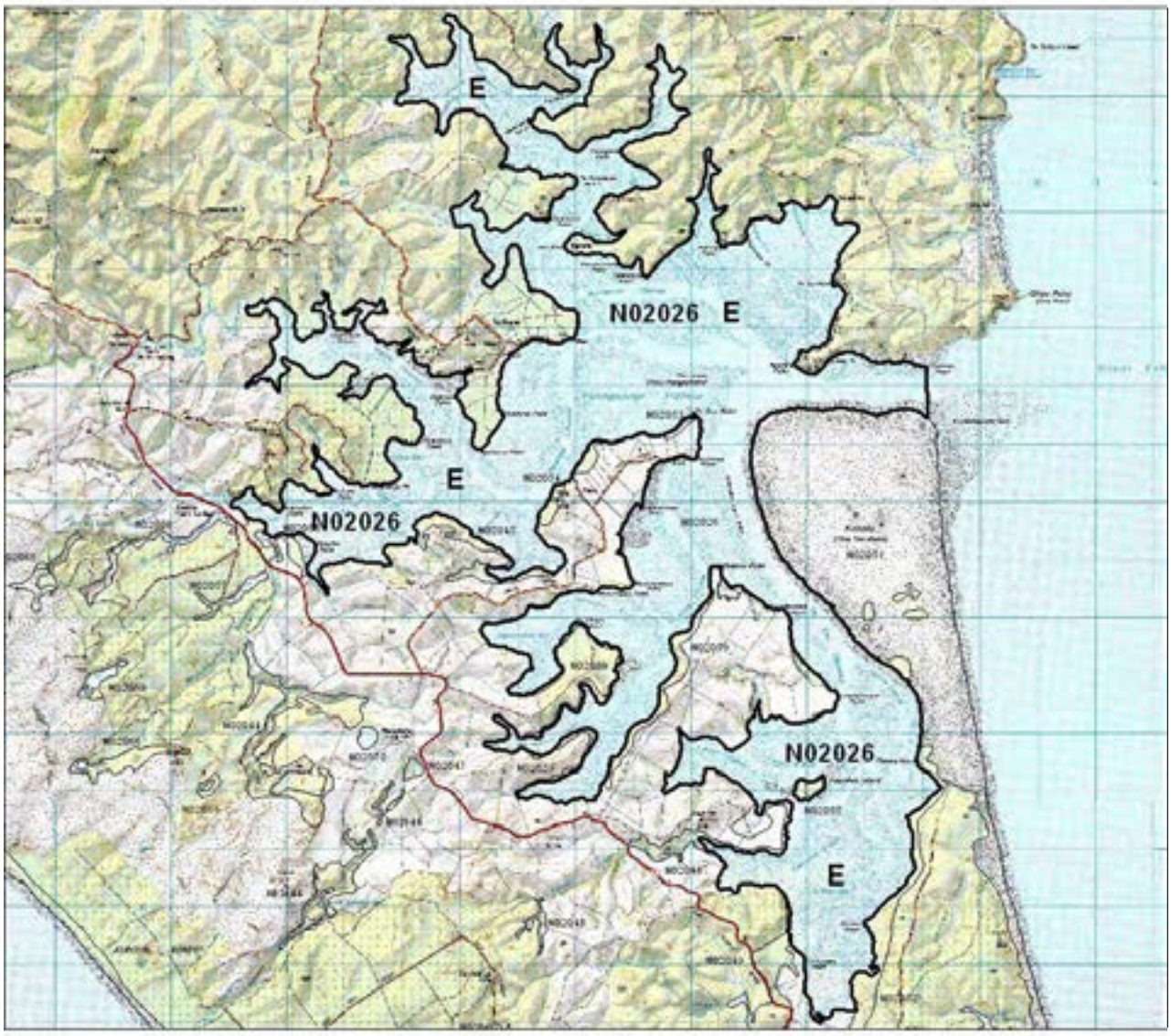
(a) Mangrove forest in estuary

(b) Oioi-sea rush saltmarsh in estuary

(c) Eelgrass beds on estuarine sands

Landform/geology

Harbour with an extensive sandspit controlling flow in drowned river valleys. Large intertidal flats.



Parengarenga Harbour N02/026

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = dunéland

Vegetation

(a) The mangrove forest makes up approximately 11% of the total area of the harbour. Some mangrove trees reach 10m in height (Shaw et al. 1990).

(b) The saltmarsh community is a mosaic of oioi and sea rush and has occasional harakeke, saltmarsh ribbonwood, mangrove, kanuka and ti kouka. *Baumea juncea* is present in the more brackish areas.

(c) Extensive eelgrass (*Zostera capricorni*) beds (covering 50% of the harbour area (Shaw et al. 1990)) occur from upper beaches of sand or silt to the low water level of tidal channels.

Significant flora

The threatened fern, *Todea barbara* (Vulnerable) has been recorded in the past.

Fauna

About 70 species of wetland or aquatic birds have been recorded, some in large numbers (see Section 3.4 and Appendix 8.4). The threatened species are northern NZ dotterel and wrybill (Category B threatened species); three Category C threatened species – variable oystercatcher, white-fronted tern and banded dotterel; five Category O threatened species – Caspian tern, Australasian bittern, white heron, reef heron, and royal spoonbill. Regionally significant species include NI fernbird, and banded rail. Important for many migratory bird species including bar-tailed godwit, SI pied oystercatcher, pied stilt, Pacific golden plover, turnstone, lesser knot, red-necked stint, Asiatic whimbrel, curlew sandpiper, and many others are also present.

Lizards: 1979 record of ornate skink (Regionally significant species).

Significance

Parengarenga Harbour is of international significance due to high numbers of migratory birds and high numbers of threatened species. Many wetland or aquatic birds use Parengarenga Harbour as a stop-off point on their migratory routes (e.g. bar-tailed godwit). Many others utilise the harbour as permanent or seasonal habitat. This harbour probably has the greatest bird diversity of any habitat in Northland (Ogle 1984) and is one of the least modified warm temperature/subtropical harbours in the world (Sewell 1985). The harbour has a very high water quality due to several factors including a considerable exchange of water between the harbour and outside ocean.

The whole northern side of the harbour catchment is vegetated (mostly in native shrubland cover and wetlands, but there are also some pine plantations) with good buffers around much of the remaining area. There is relatively little coastal foreshore development although the small peninsulas in pasture are used for both feeding and roosting by some species. The large Kokota Spit (N02/051) enhances the values of the harbour as a significant high-tide roost.

The extensive areas of eelgrass indicate a low silt and high oxygen content, which contribute to the pristine water quality. Together with the vast areas of mangroves, these factors contribute to a high degree of diversity and richness in the biota.

There are large populations of trevally, schnapper, kahawai, kingfish, grey and yellow-eyed mullet, eagle rays and school sharks with shellfish beds including pipi, Pacific oyster, scallop and especially cockles. Studies in New South Wales, Australia, show that 70% of coastal fisheries rely on estuarine mangroves for food and for protection, which emphasises the importance of Parengarenga Harbour as a nursery for commercial and recreational fish catches (Chapman, 1978).

Threats to the harbour include habitat loss due to the spread of *Spartina*, local modication from aquaculture, and siltation.

Representative site for the three Ecological units recorded at this site, mangrove forest, oioi-sea rush saltmarsh, and eelgrass beds.

The north side of the harbour contains geopreservation sites of national importance (Kenny & Hayward 1996) for:

(i) Sea cliffs containing the most complete early Miocene sequence in the northern half of the North Island, rich in macro and micro fossils.

(ii) Sea cliffs containing diverse, warm-water molluscan fauna.

(iii) Coastal cliff and shore platform containing best exposed sequence through most of the upper Parengarenga group of dipping fossiliferous siltstones and fine sandstones.

Scenic Reserve of 39.2 ha, administered by the Department of Conservation, is protected within this site.

NINETY MILE BEACH & DUNES

Survey no.	N02/042
Survey date	9 August 1995, 15 August 1995, 24 August 1995
Grid reference	Continuous band from: N02 908 372 – 975 300, N03 975 300 – 190 000, N04 190 000 – 245 707
Area	928 ha
Altitude	0–5 m asl

Ecological unit

(a) *Spinifex* grassland on foredunes

(b) Kikuyu-pohuehue association on dunes

(c) Toetoe shrubland association on dunes

(d) Knobby clubrush-oioi association in dune depressions

(e) Toetoe-harakeke-oioi association on dunes

Landform/geology

Holocene coastal foredunes.

Vegetation

A narrow band of dunes seaward of the Aupouri Forest.

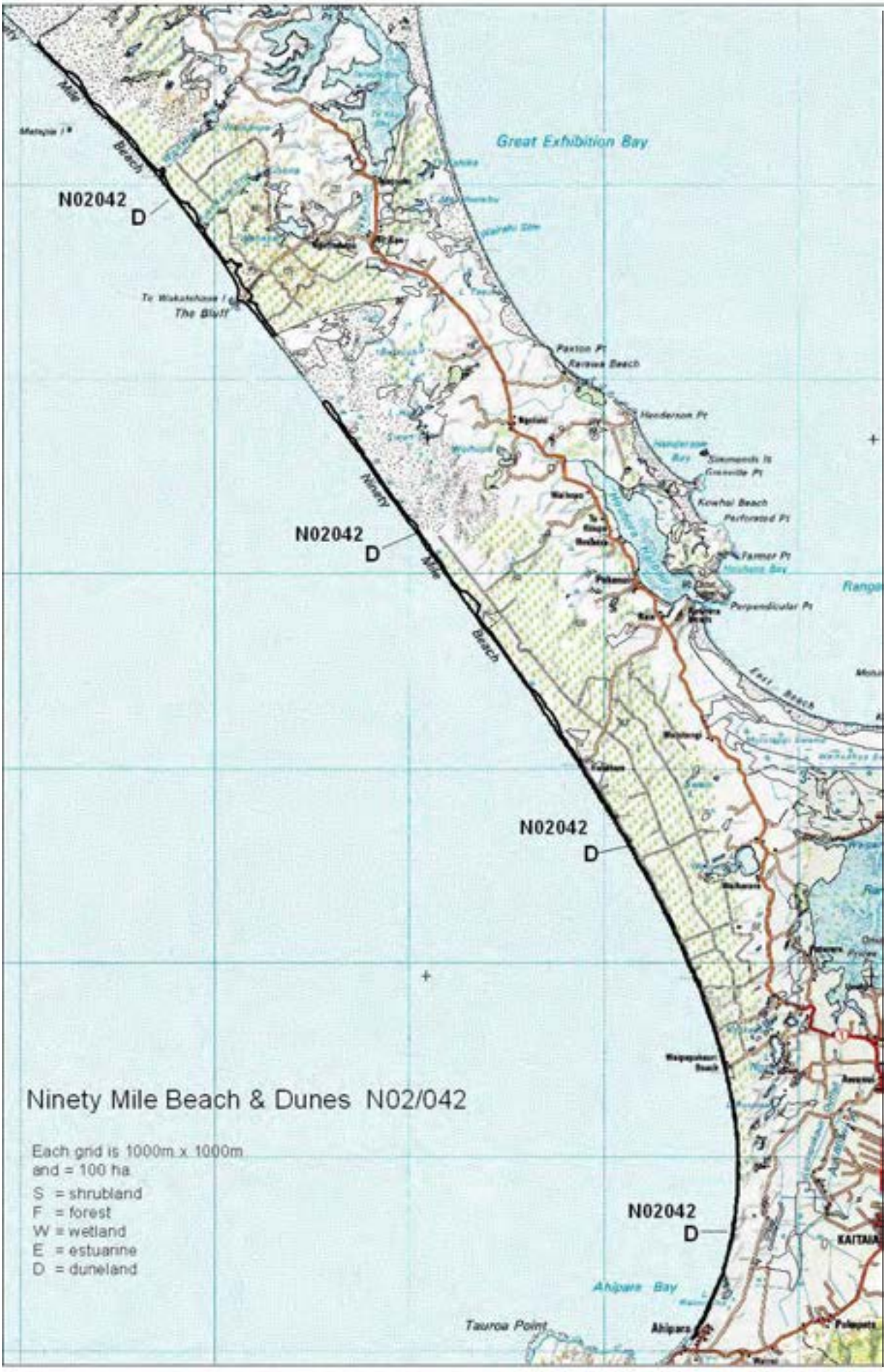
(a) The foredunes are mostly vegetated with abundant *Spinifex.* Harakeke and marram are locally frequent. Other species present are knobby clubrush, oioi, toetoe, pingao, tauhinu, pampas, kikuyu, pohuehue*, Pimelea arenaria,* ngaio, and boneseed. South of Hukatere, *Coprosma acerosa* is locally frequent. A few small pohutukawa occur near the ramp at Hukatere.

(b) Some sheltered areas behind the foredune, e.g. at Hukatere, are dominated by kikuyu and pohuehue intertwined, with occasional shore bindweed, knobby clubrush and *Coprosma acerosa*.

(c) South of Hukatere, toetoe is abundant, *Coprosma acerosa* frequent, and a greater diversity of species is present including karamu, karo, mingimingi, houpara, bracken, native iceplant and the exotics, lupin, pampas, buffalo grass, kikuyu, pine, macrocarpa and flame tree.

(d) In dune depressions, knobby clubrush and oioi are locally abundant, with toetoe locally frequent. Harakeke, giant umbrella sedge, pampas, pohuehue and pohutukawa occur rarely.

(e) Between Te Arai and Waikoropupunoa Stream, toetoe is abundant with harakeke, knobby clubrush and oioi common. Marram and *Spinifex* are locally


Great Exhibition Bay
N02042
D
N02042
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Ninety Mile Beach & Dunes N02/042
Each grid is 1000m x 1000m
and = 100 ha
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

frequent. *Coprosma acerosa,* tauhinu, pohutukawa, pohuehue, lupin and pine are present, as are occasional areas of hard pans.

Significant flora

Amphibromus fluitans (Critically Endangered), *Pimelea arenaria* (Declining) (1999 record), pingao (Recovering–Conservation Dependent).

The original mainland record of *Ipomoea pes-capre* (Regionally signficant species), a tropical species, which in New Zealand grows on the Kermandecs, was recorded from the Bluff area. This is now a modified habitat. The plant was recently rediscovered at Te Paki (L.J. Forester pers. comm.).

Fauna

Birds: Northern NZ dotterel and occasionally wrybill (both Category B threatened species); variable oystercatcher, white-fronted tern and banded dotterel (all Category C threatened species); Caspian tern (Category O threatened species); NI fernbird (Regionally significant species) and bar-tailed godwit.

Marine reptiles: 2000 record of yellow-bellied sea snake. 1991 record of leathery turtle and green turtle and pre-1960 records of hawksbill turtle and loggerhead turtle.

Significance

Habitat for several threatened and uncommon bird species and a dune system between the coast and Aupouri Forest supporting three threatened plants.

Representative site for the following four Ecological units, type (a) *Spinifex* grassland, type (c) toetoe association, type (d) knobby clubrush-oioi association, and type (e) toetoe-harakeke-oioi association. The latter three vegetation types are solely recorded from this site in the Ecological District.

Approximately 207.4 ha (22.3%) of this site is protected, including 103.7 ha Stewardship Land, 63.7 ha Conservation Covenant, and 40 ha Marginal Strip which are all administered by the Department of Conservation.

WAIKANAE STREAM WETLAND

Survey no.	N02/043
Survey date	22 August 1995
Grid reference	N02 973 304
Area	2 ha
Altitude	0–5 m asl

Ecological unit

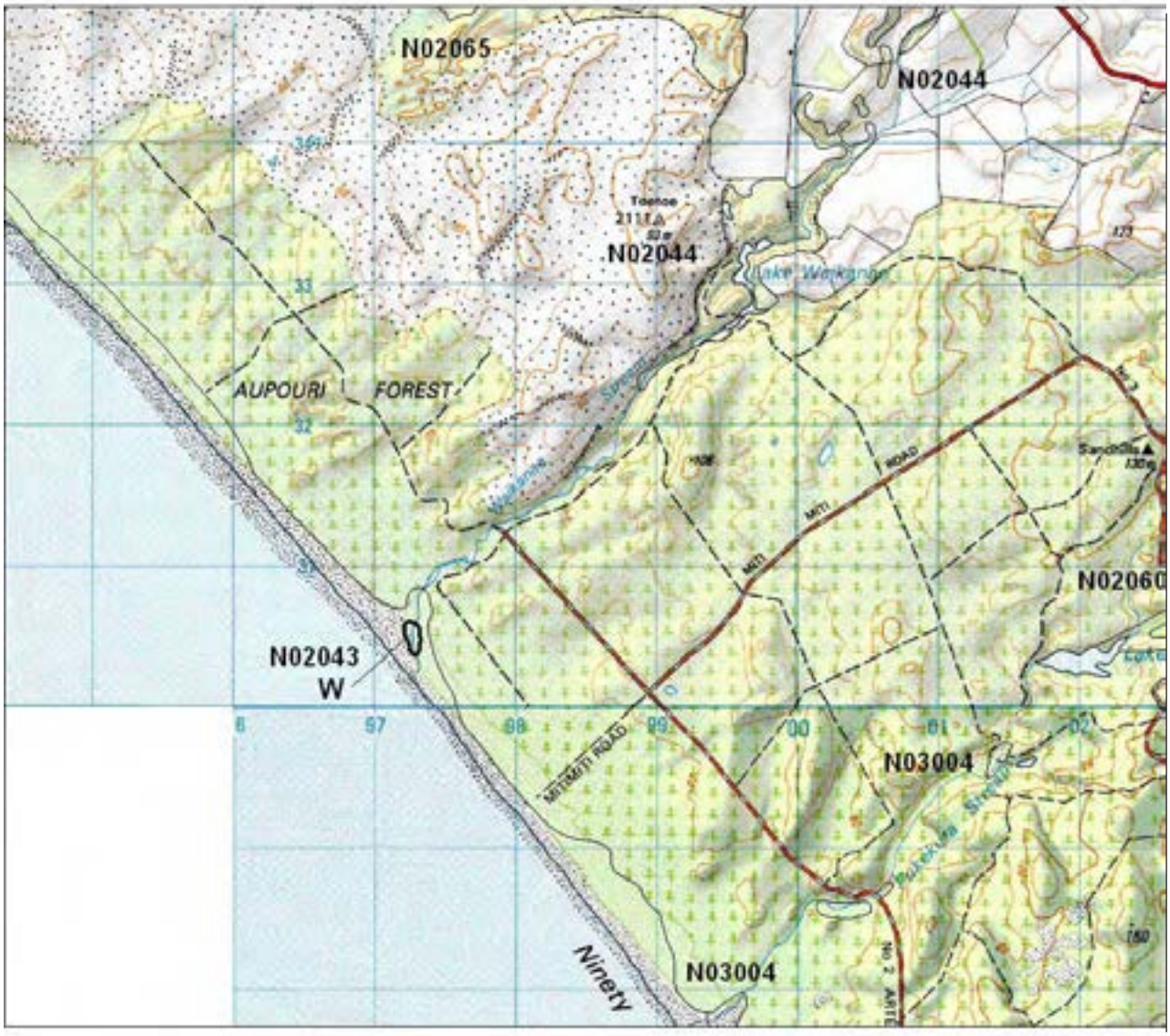
Harakeke-pampas-reed-toetoe wetland association on sandy stream bed

Landform/geology

Freshwater wetland on stream cutting through Holocene coastal foredunes.

Vegetation

Freshwater wetland comprising (100%) harakeke-pampas-reed-toetoe with frequent manuka.



Waikanae Stream Wetland N02/043

Each grid is 1000m x 1000m
and = 100 ha.
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Fauna

Not surveyed.

Significance

A small wetland near the mouth of Waikanae Stream, one of the biggest streams on the western coast of the Ecological Region and linking with Lake Waikanae (N02/044).

LAKE WAIKANAE

Survey no.	N02/044
Survey date	1995–96
Grid reference	N02 000 344, N02 006 348, N02 009 348, N02 987 360, N02 006 346, N02 004 343
Area	252 ha (247 ha shrubland, 5 ha wetland)
Altitude	20–100 m asl

Ecological unit

(a) Open water in dune lake

(b) Kanuka shrubland on flat to gently sloping consolidated dunes

(c) Toetoe-bracken-kanuka association on flat to gently sloping consolidated dunes

(d) *Isolepis prolifer* sedgeland on sand flats

(e) *Eleocharis sphacelata* reedland on sandy lake bed

(f) Raupo reedland on sandy lake bed

(g) Puriri-taraire forest in gully of consolidated dunes

Landform/geology

Lake ponded by Pleistocene consolidated parabolic dunes.

Vegetation

(a) A sheltered lake.

(b) In the northern area, kanuka to 3 m is dominant with occasional *Cassytha* and prickly hakea.

Around Lake Waikanae the shrubland varies between two and five metres and contains frequent manuka. Other species occurring are harakeke, *Cassytha*, native broom, hangehange, bracken, ti kouka, mahoe, karamu, kawakawa, mamaku and prickly hakea.

An extensive area of kanuka dominant shrubland with occasional ti kouka, toetoe and harakeke occurs in the north-west.

(c) Toetoe is abundant, kanuka and bracken are common, and ti kouka and hangehange are occasional.

(d) *Isolepis prolifer* is dominant on the lake shores of Lake Waikanae.

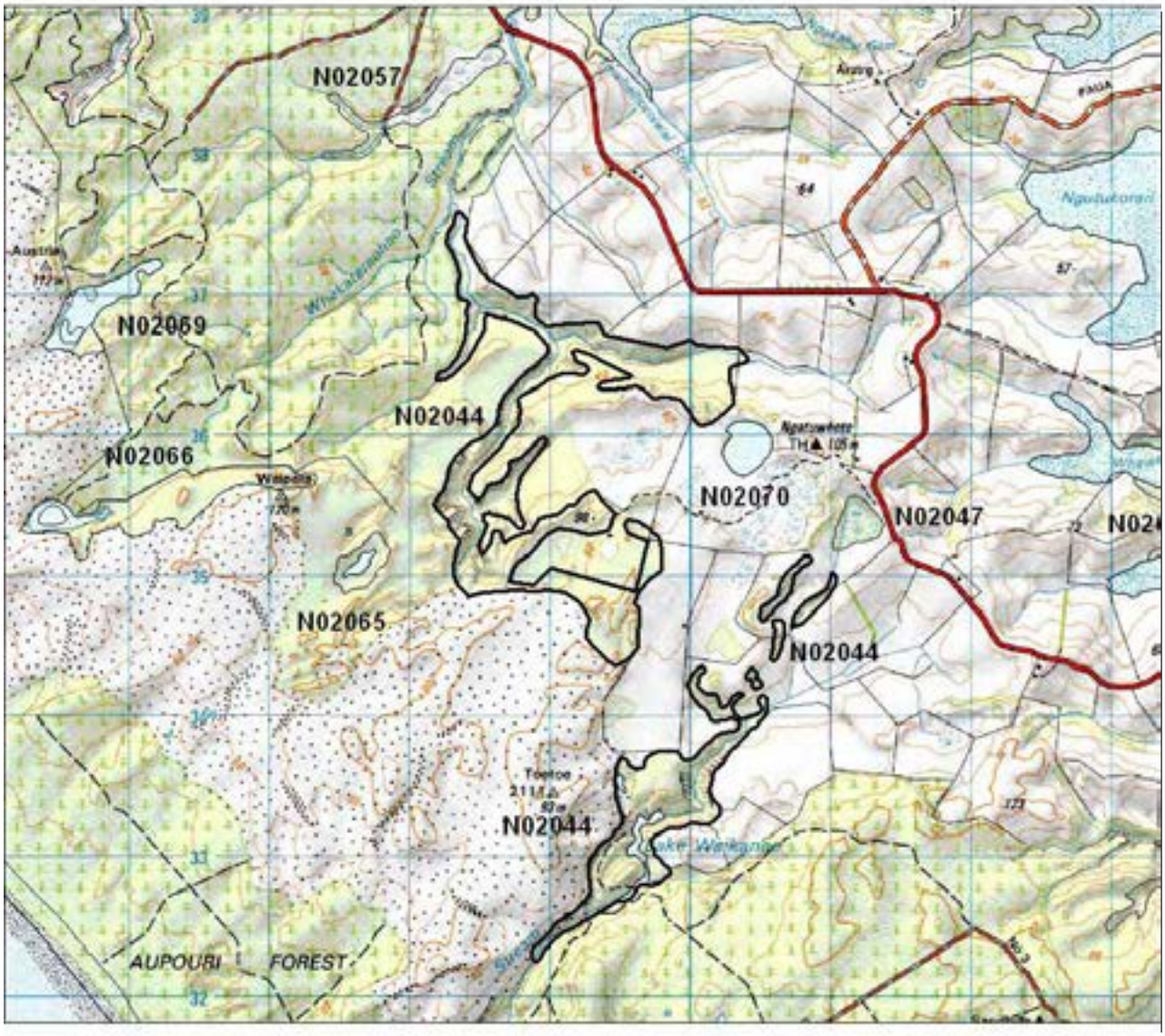
(e) *Eleocharis sphacelata* occurs on the margins of the lake with raupo at the head of the lake. Toetoe and pampas are frequent with occasional ti kouka. In drier areas, pampas and toetoe are common.

(f) A small, deep sided dune lake occurs about 500 m to the north west of Lake Waikanae which is approximately half openwater and half raupo with frequent *Eleocharis sphacelata* and *Baumea articulata*. Harakeke and ti kouka also occur and *Azolla* sp. is present. Marram grows to the water's edge along 10% of the margin.

The stabilised mobile dunes appear to have raised the water level.

In the lower Waikanae Stream, pampas and raupo are dense. *Eucalyptus* sp. are planted to the margins of the wetland.

(g) Bluffs have excluded stock from a small area (approximately 0.5 ha, not mapped) of puriri-taraire forest in which rewarewa and titoki are frequent and ti



Lake Waikanae N02/044

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

kouka, and kohekohe are occasional in the canopy. Other species present are houpara, kanono, kawakawa, hangehange, mahoe, *Coprosma rhamnoides*, ponga, mamaku, shining spleenwort, Hound's tongue and kiokio.

This area is too small to be mapped.

Significant flora

A 1984 record of the Declining *Eleocharis neozelandica.*

Fauna

Birds: NZ dabchick (Category C threatened species), NZ scaup (Regionally signficant species), NZ shoveler, grey duck, paradise shelduck, pukeko, NZ kingfisher and welcome swallow. Past surveys (1978) recorded black shag, pied shag and little shag. Common forest birds have also been recorded.

Aquatic fauna: Freshwater mussel.

Significance

A good quality habitat for the threatened NZ dabchick, and containing a mosaic of vegetation types, including a remnant of broadleaf forest now rare in the Ecological Region.

A representative site for type (a) open water in dune lake, type (c) toetoe-bracken-kanuka association, type (d) *Isolepis prolifer* sedgeland, and type (g) puriri-taraire forest. The latter vegetation type is not recorded elsewhere in the Ecological District.

NGATUWHETE WETLAND

Survey no.	N02/047
Survey date	22 August 1995
Grid reference	N02 012 354
Area	8.7 ha
Altitude	25–35 m asl

Ecological unit

Kanuka/manuka swamp shrubland in dune hollow

Landform/geology

Freshwater wetland ponded on Pleistocene consolidated dunes.

Vegetation

Kanuka/manuka to 2 m is dominant in this wetland with frequent reeds and occasional *Cassytha* and willow.

Fauna

Not surveyed.

Significance

An example of a nationally uncommon habitat type.

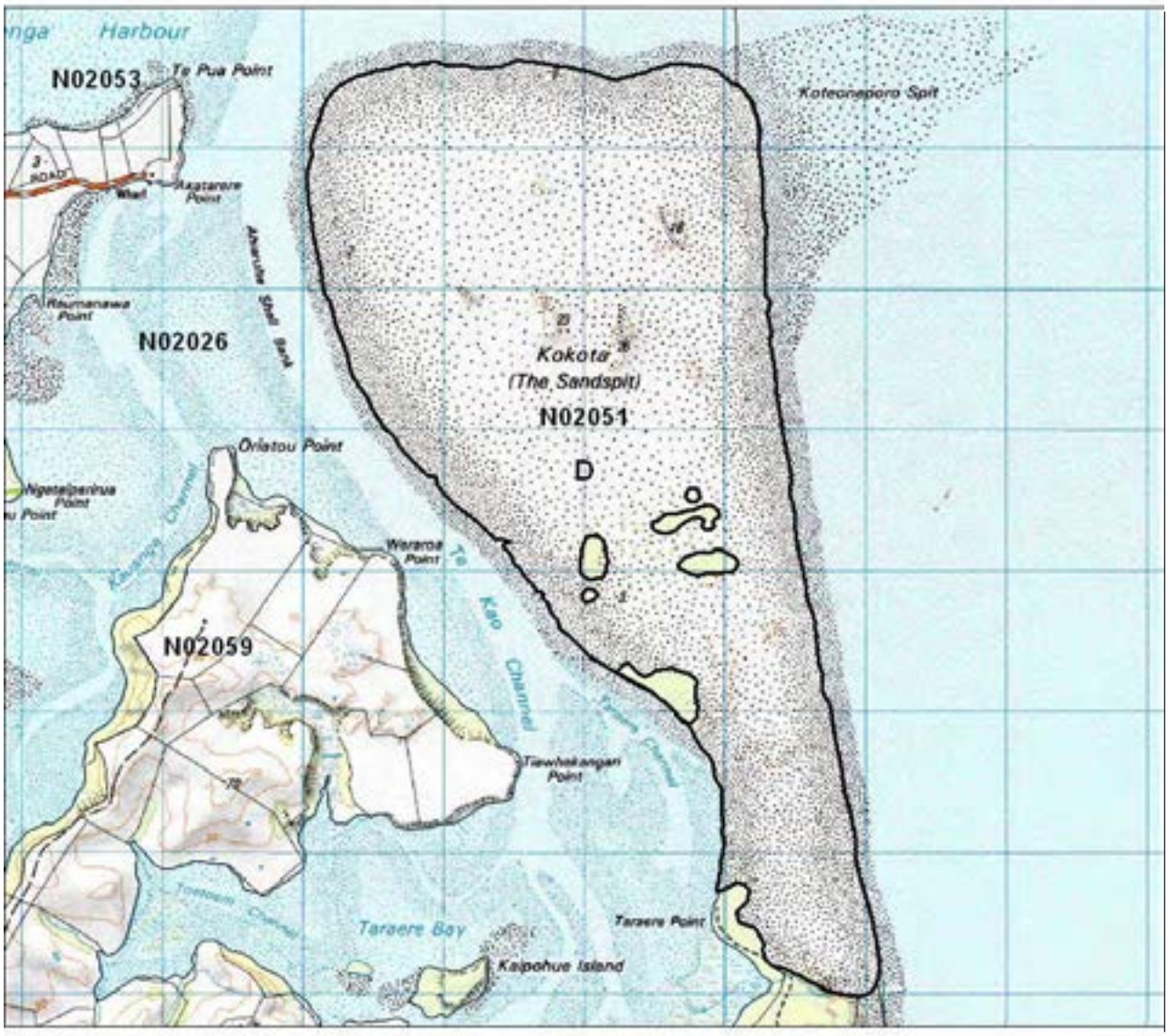
KOKOTA SPIT

Survey no.	N02/051
Survey date	24 August 1995
Grid reference	N02 090 395
Area	1,344 ha
Altitude	0–26 m asl

Ecological unit

(a) Sandfield

(b) Pingao-*Spinifex* association on dunes



Kokota Spit N02/051

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Landform/geology

Sandspit of Holocene transverse dunes overlying a core of eroded Pleistocene consolidated dune sands.

Vegetation

(a) This area is primarily a sandfield.

(b) A band of pingao and *Spinifex* occurs with occasional toetoe and tauhinu on the eastern (outer) side of the spit.

Other species present are sea rocket, glasswort, *Samolus repens,* knobby clubrush, pohutukawa, and mangrove.

Significant flora

Austrofestuca littoralis (Declining) occurs and a population of the Declining *Eleocharis neozelandica* was recorded by Bell in 1984 on the western side of the base of the spit. Presence of pingao (Recovering–Conservation Dependent).

Fauna

Birds: Seven threatened bird species including northern NZ dotterel and wrybill (both Category B threatened species), banded dotterel, white-fronted tern, and variable oystercatcher (all Category C threatened species), Caspian tern and reef heron (both Category O threatened species), bar-tailed godwit. Other avifauna includes Pacific golden plover, Asiatic whimbrel, curlew sandpiper, lesser knot, turnstone, and red-necked stint.

Lizards: shore skink.

Significance

A large sandspit on the south eastern side of Parengarenga Harbour which is a major landscape feature with a notably luxuriant area of pingao.

It is vital as a high tide roost for waders. Kokota Spit is an outstanding site for international wader species, with an estimated 3% of the world wrybill and 2% of the world bar-tailed godwit populations. The large numbers of Pacific golden plover, turnstones and lesser knot are also notable, with some of these birds staging at Parengarenga prior to their northern migration.

A representative site for both Ecological units and only record of type (b) in the Ecological District.

Kokota Spit is remote enough to consider the transfer of the Critically Endangered strand plant *Atriplex hollowayi* now restricted to two beaches at Te Paki.

Kokota sandspit is a geopreservation site of national importance. The sandspit is the largest unvegetated spit in New Zealand and contains the highest grade of silica sand deposit in New Zealand (Kenny & Hayward 1996).

TANGOAKE SHRUBLAND

Survey no.	N02/052
Survey date	23 August 1995
Grid reference	N02 093 327
Area	138 ha
Altitude	0–60 m asl

Ecological unit

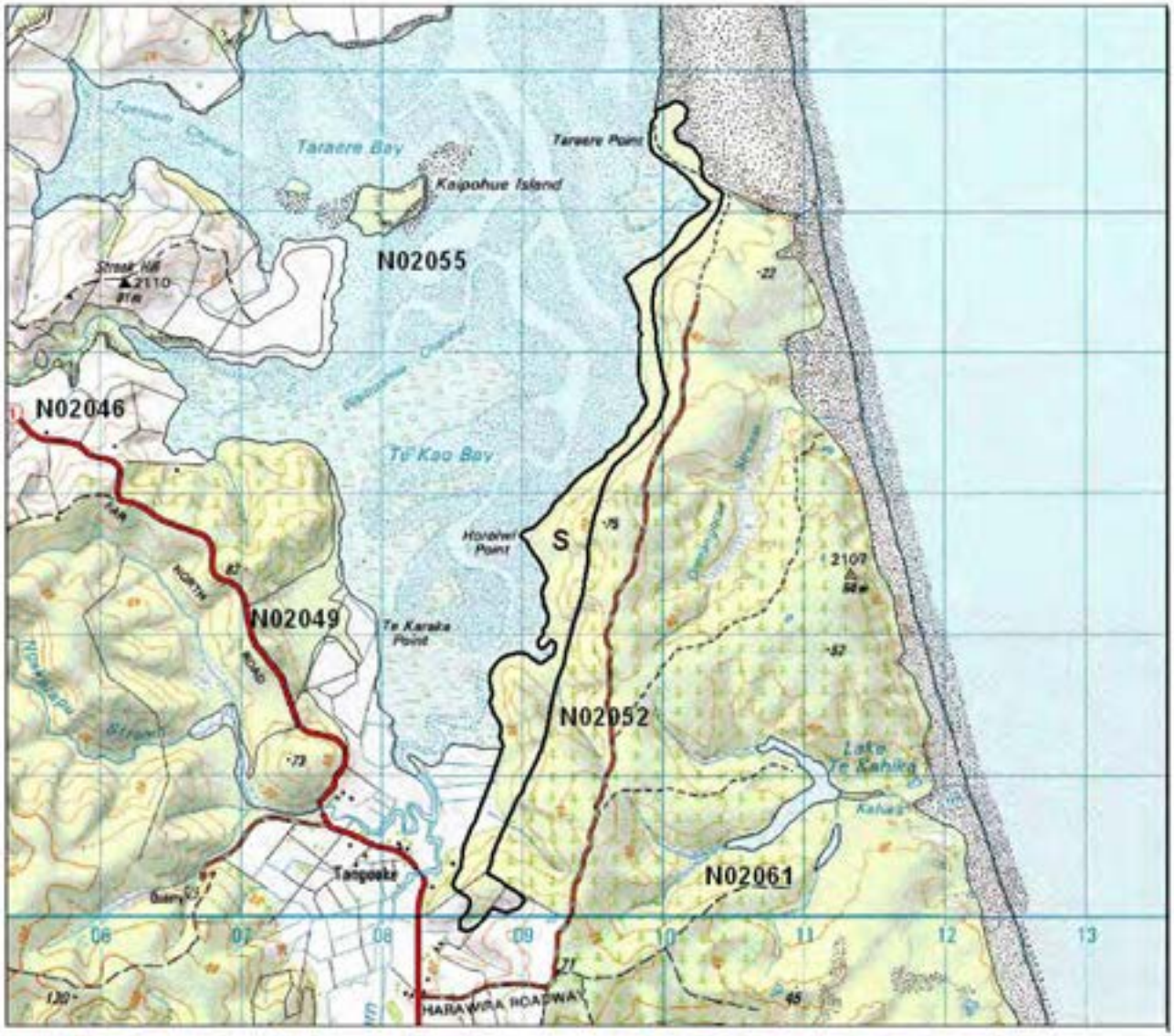
Kanuka-*Callistachys lanceolata* shrubland on coastal hillslope

Landform/geology

Coastal hillslopes of Pleistocene leached consolidated sand. Awhitu complex overlying deeply weathered Parengarenga Group sandstone and conglomerate.

Vegetation

Kanuka is dominant with emergent *Callistachys lanceolata* commonly occurring and prickly hakea and emergent Sydney golden wattle occur occasionally.



Tangoake Shrubland N02/052

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Significant flora

The threatened *Todea barbara* (Vulnerable) was recorded in 1982 and 1983 from gullies near the harbour with bracken.

Fauna

Not surveyed.

Significance

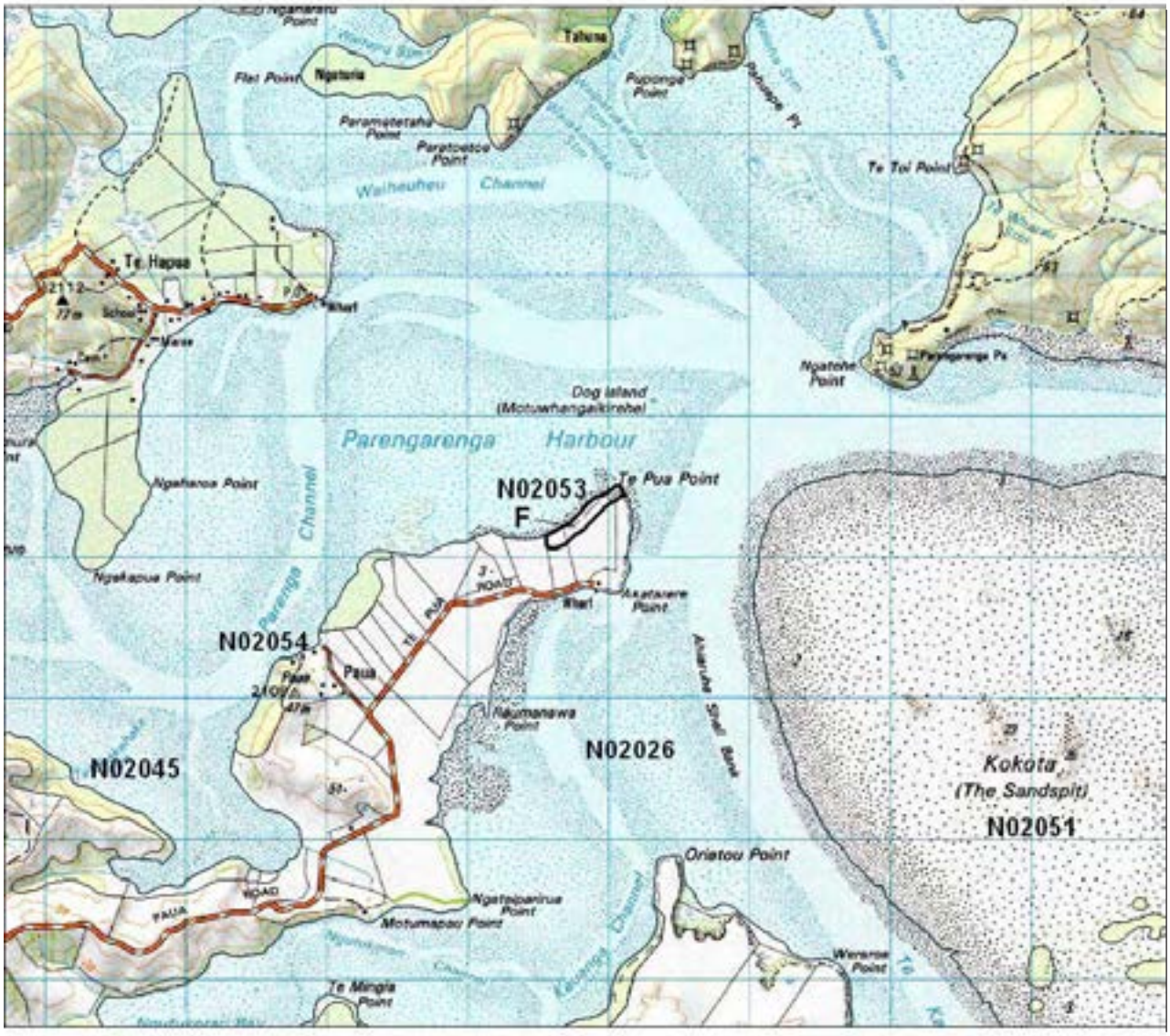
A long band of shrubland that buffers Parengarenga Harbour from exotic forestry plantations.

TE PUA POINT POHUTUKAWA REMNANT

Survey no.	N02/053
Survey date	23 August 1995
Grid reference	N02 058 413
Area	6.3 ha
Altitude	0–3 m asl

Ecological unit

Pohutukawa forest on sand cliffs



Landform/geology
Low coastal cliffs of last interglacial consolidated estuarine sands.

Vegetation
An isolated stand of pohutukawa.

Fauna
Not surveyed.

Significance
A remnant of pohutukawa dominant coastal forest, a very uncommon habitat type which adjoins the Parengarenga Harbour.

This is a representative site for pohutukawa forest.

KAIPOHUE ISLAND

Survey no.	N02/055
Survey date	23 August 1995
Grid reference	N02 080 350
Area	14.5 ha
Altitude	0–20 m asl

Ecological unit
Kanuka shrubland on consolidated sand

Landform/geology
Terraces on last interglacial consolidated estuarine sands.

Vegetation
The island vegetation is mainly kanuka shrubland with emergent wattle occurring only occasionally along with harakeke.

Fauna
High tide roost for many species including white heron, royal spoonbill, Caspian tern (all Category O threatened species), variable oystercatcher (Category C threatened species), banded dotterel (Category C threatened species), bar-tailed godwit, turnstone, lesser knot, whimbrel, and pied stilts (OSNZ 1980s, 1990s and 2000).

NI fernbird (Regionally significant species).

Significance
Kaipohue Island has ecological value as an island habitat.

A representative site for kanuka shrubland, which has not been recorded elsewhere on island habitats in this Ecological District.

Additional surveying is recommended to determine further ecological significance of this site.

Kaipohue Island N02/055

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

KARATIA WETLAND

Survey no.	N02/056
Survey date	28 August 1995, 6 May 1991, 26 April 1991
Grid reference	N02 975 395
Area	44 ha (17 ha shrubland, 27 ha wetland)
Altitude	5–20 m asl

Karatia Wetland N02/056

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Ecological unit

(a) *Eleocharis sphacelata*-wire rush association in valley

(b) *Baumea articulata-Eleocharis sphacelata*-harakeke-manuka association in valley

(c) Raupo reedland on alluvium

(d) Kanuka shrubland on alluvium

(e) Open water

Landform/geology

Valley freshwater wetland.

Vegetation

(a) The top section of the swamp is in a basin surrounded by steep bluffs. *Eleocharis sphacelata* is dominant and wire rush is common. Harakeke, raupo, manuka, *Baumea rubiginosa*, kiokio and the threatened *Todea barbara* all occur occasionally.

(b) The lower section is primarily *Baumea articulata*, *Eleocharis sphacelata*, harakeke and manuka.

(c) About 20% of the lower area is raupo dominant with frequent *Eleocharis*, with an area about half that size being kanuka shrubland, type (d), with frequent *Coprosma propinqua*, ti kouka, bracken and herbaceous weeds.

(e) A small area is open water. Stock presently have access.

Significant flora

A record of the threatened *Todea barbara* (Vulnerable) and *Myriophyllum robustum* (Declining) comes from this site.

Wire rush is a regionally significant species in Northland.

Fauna

Birds: Australasian bittern (Category O threatened species), NI fernbird (Regionally significant species).

Aquatic fauna: 1993 record of giant bully (Regionally significant species).

Significance

A very good quality example of a wetland type which is nationally uncommon and a location for threatened and regionally significant species.

A representative site for type (a) *Eleocharis sphacelata*-wire rush association, type (b) *Baumea articulata-Eleocharis sphacelata*-harakeke-manuka association, type (c) raupo reedland, and type (d) kanuka shrubland. Type (a) and (b) are solely represented in the District at this site.

WHAKATEREOHAO STREAM SWAMP

Survey no.	N02/057
Survey date	26 April 1991
Grid reference	N02 985 386
Area	18.4 ha
Altitude	5–20 m asl

Ecological unit

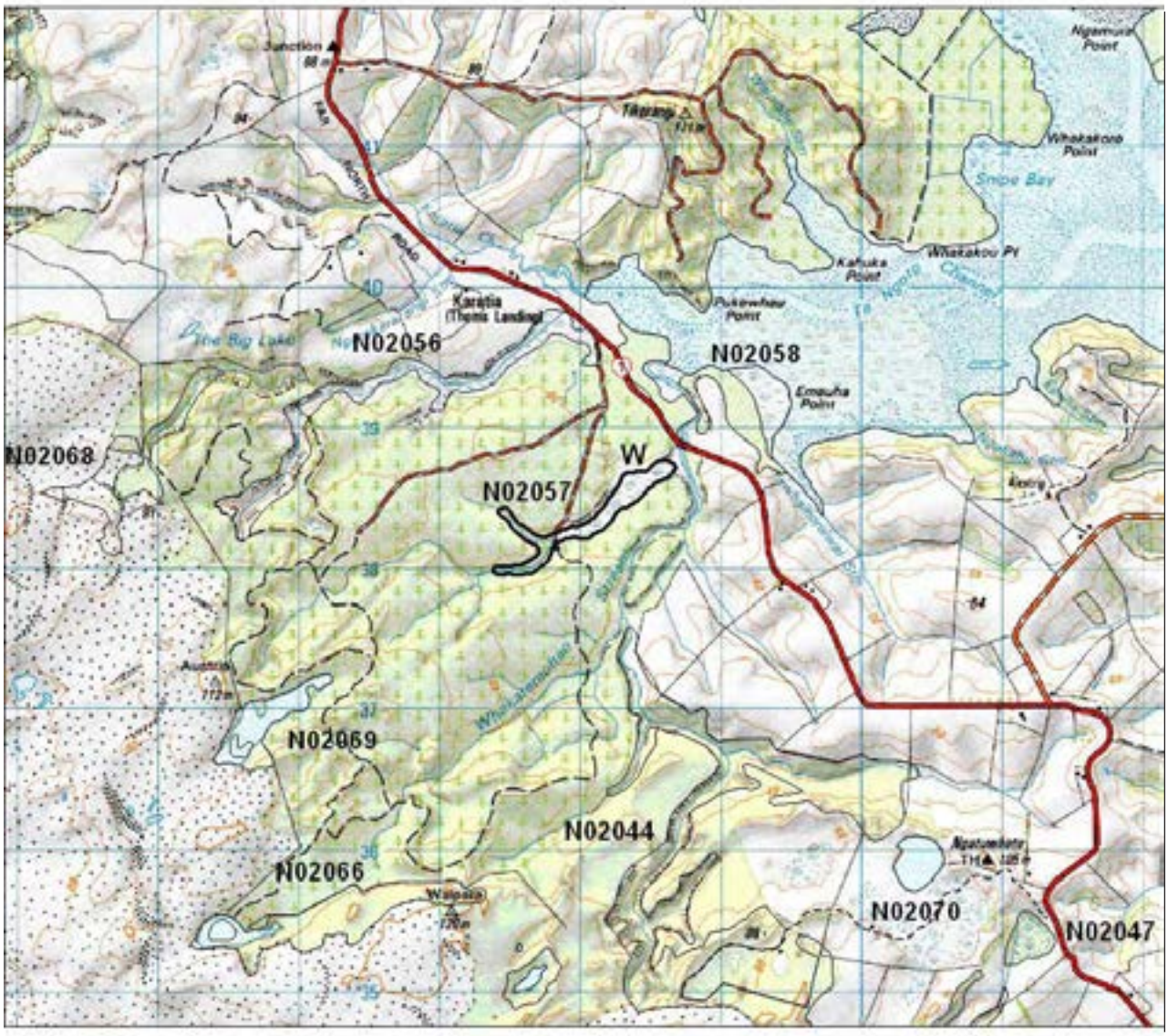
(a) Open water

(b) Manuka swamp shrubland in dune hollow

(c) *Baumea rubiginosa* sedgeland in dune hollow

(d) *Eleocharis sphacelata* reedland in dune hollow

(e) Oioi saltmarsh on estuary



Landform/geology

Dune swamp.

Vegetation

(a) Less than 1% of the area is open water.

(b) The site is primarily (70%) manuka dominant, with *Gleichenia dicarpa, Baumea rubiginosa* and kiokio.

(c) About 20% of the area is *Baumea rubiginosa* dominant with *Gleichenia* sp., manuka. Kiokio and *Lycopodiella cernua* are also present. Upstream of the road causeway the area is wetter, with less manuka and more *Baumea rubiginosa*.

(d) There is a small area of *Eleocharis sphacelata* with frequent *Baumea articulata*.

(e) At the saltwater interface oioi is dominant with frequent mangrove and occasional *Coprosma* sp.

The site is surrounded by pine plantation.

Fauna

Birds: NI fernbird (Regionally significant species).

Aquatic fauna: 2001 fish survey: black mudfish (Category C threatened species) – to date (March 2001) this is the northern most record of black mudfish. Banded kokopu (Category C threatened species) and short-finned eel were also recorded.

Significance

A large, high quality valley ponded wetland containing a variety of vegetation types grading into the upper reaches of the Parengarenga Harbour. Supports two threatened and one regionally significant species.

A representative site for type (a) *Baumea rubiginosa* sedgeland and type (e) oioi saltmarsh. Only record in the Ecological District for type (a).

EMAUHU POINT SHRUBLANDS

Survey no.	N02/058
Survey date	26 February 1996
Grid reference	N02 987 392
Area	31 ha
Altitude	0–10 m asl

Ecological unit

(a) Kanuka shrubland on terrace and gentle hillslope

(b) Saltmarsh on estuary

Landform/geology

Estuarine and alluvial deposits.

Vegetation

(a) Kanuka is abundant with frequent manuka and occasional *Callistachys lanceolata*.

(b) This grades into saltmarsh in which mangroves occur frequently, and manuka occasionally.

Significant flora

The threatened *Christella* aff. *dentata* (Taxonomically Indeterminate–Critically Endangered) was recorded from this site in 1977.

Fauna

Not surveyed.

Emauhu Point Shrublands N02/058

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Significance

A saltmarsh habitat with a shrubland buffer on the upper reaches of the Parengarenga Harbour.

Almost contiguous with Karatia Wetland (N02/056) and Whakatereohao Stream Swamp (N02/057).

LAKE KIHONA & FOREST REMNANTS

Survey no.	N02/060
Survey date	23 August 1995, 26 April 1991, 2 November 1978
Grid reference	N02 021 304
Area	19 ha (3.4 ha forest, 8.3 ha shrubland, 7.3 wetland)
Altitude	40–60 m asl

Ecological unit

(a) Open water in dune lake

(b) Manuka shrubland on gently sloping lake margins

(c) Raupo reedland on lake bed

(d) Manuka-sedge bog association on flats

(e) Kanuka/manuka shrubland on gentle slope

(f) Kanuka forest on gentle slope

(g) Kohekohe-puriri-taraire forest in stream gully

Landform/geology

Gully with Mangakahia Complex sandstone in stream bed and Pleistocene parabolic dunes on gully walls. Lake ponded by Holocene dunes.

Vegetation

(a) Open water.

(b) A buffer strip of manuka shrubland with frequent bracken and hangehange occurs between the lake edge and pines on the northern side.

(c) Raupo occurs as a narrow discontinuous band with *Eleocharis* sp. and occasional harakeke on the fringe.

(d) At the eastern end of the lake manuka occurs with *Gleichenia* sp., kiokio, *Baumea* sp. and other sedges.

(e) About a third of the area is tall kanuka/manuka shrubland with occasional mamaku, Sydney golden wattle and *Cassytha*.

(f) In the east is secondary kanuka forest.

(g) Along the stream bed, kohekohe-puriri-taraire dominant forest between 9 and 12 m tall occurs with occasional karaka, titoki, hinau and rewarewa. Other species present are ti kouka, rangiora, mahoe, mamaku, hangehange, kumarahou, mapou, karamu, *Coprosma rhamnoides,* houpara, and a variety of ferns.

Pines surround the site and are planted to water's edge on the southern side.

Significant flora

The threatened *Todea barbara* (Vulnerable) was previously present (Bellingham 1984).

Fauna

Birds: NI fernbird and NZ scaup (both Regionally significant species), pied shag, black shag, little black shag, little shag, Australasian crested grebe.

Aquatic fauna: grey mullet and eels.

Significance

Excellent quality unmodified dune lake with clear water and good examples of vegetation types uncommon in the Ecological Region.

Lake Kihona & Forest Remnants N02/060

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Potentially excellent habitat for NZ dabchick (Category C threatened species) and crakes. A further survey of waterbirds is recommended.

Representative site for type (b) manuka shrubland, type (d) manuka-sedge bog association, type (f) kanuka forest, and type (g) kohekohe-puriri-taraire forest. Only record of type (d), (f) and (g) in the Ecological District.

LAKE TE KAHIKA

Survey no.	N02/061
Survey date	28 August 1995, 25 April 1991, 27 October 1978
Grid reference	N02 110 308, N02 112 305
Area	17.4 ha
Altitude	0–10 m asl

Ecological unit

(a) Open water in dune lake

(b) *Eleocharis sphacelata* reedland on lake bed

(c) Wire rush-*Gleichenia dicarpa* bog association on sand flats

(d) Raupo reedland on sand flats

(e) *Hakea* sp.-manuka shrubland on sand flats

Landform/geology

Lake ponded by Holocene coastal dunes.

Vegetation

(a) Lake Te Kahika is a large, deep, steep-sided and fairly acid oligotrophic dune lake.

(b) *Eleocharis sphacelata* fringes Lake Te Kahika.

(c) Peat bog of wire rush and *Gleichenia dicarpa* connect the main lake Lake Te Kahika to the small lake nearby. *Baumea articulata, B. teretifolia,* oioi, *Schoenus* sp.*, Morelotia affinis* and *Lepidosperma laterale* are also present.

(d) A raupo swamp extends towards the beach.

(e) A buffer strip of *Hakea* sp. and manuka with sedges occurs between the lakes and the pine forest. The threatened *Todea barbara* is present. Other species occurring are harakeke, mingimingi, kumarahou, *Dracophyllum* sp.*, Pimelea urvilleana* "northern*", Cassytha* and *Callistachys lanceolata.*

Significant flora

Todea barbara (Vulnerable) and wire rush (Regionally significant species).

Fauna

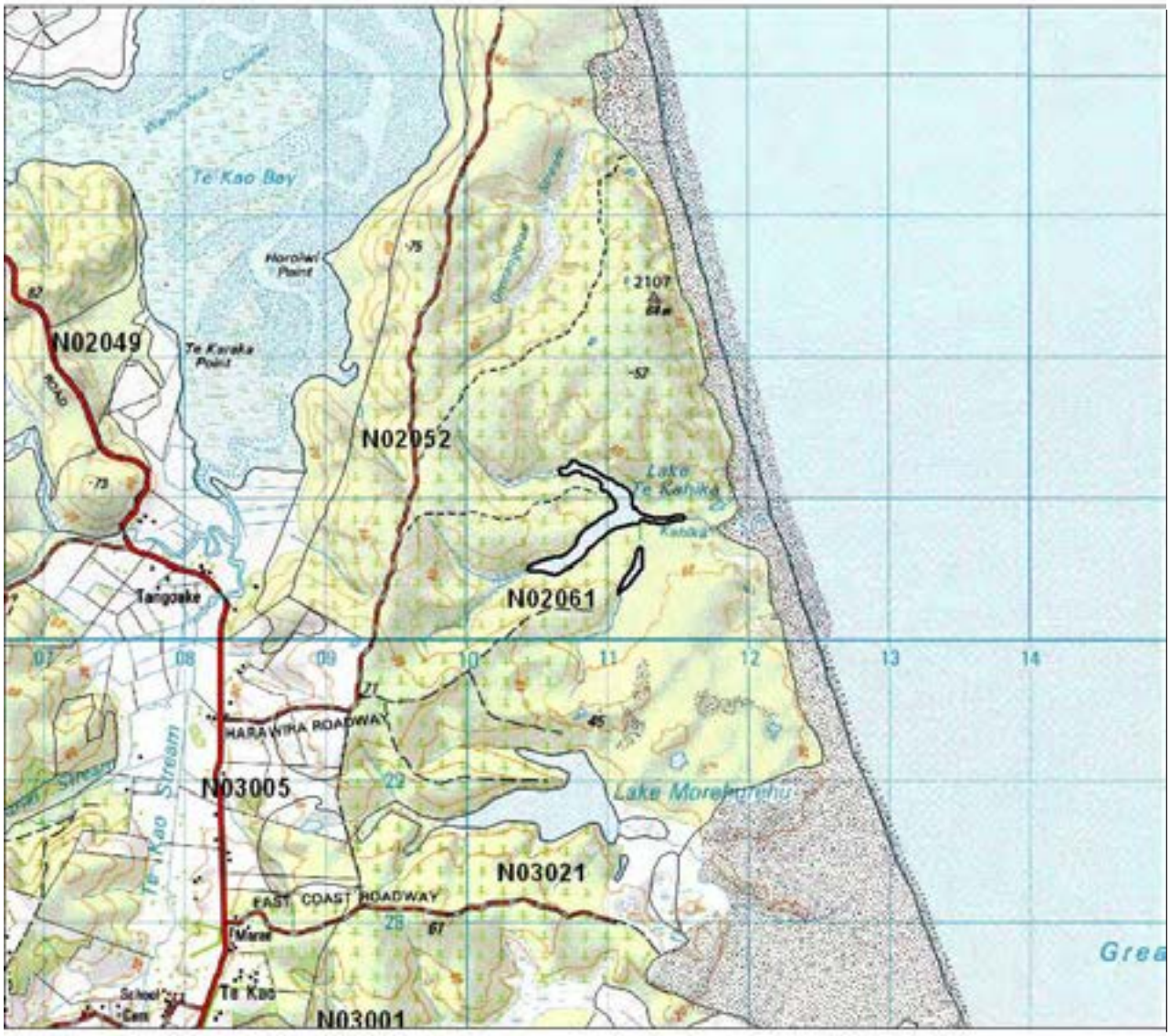
Birds: Caspian tern (Category O threatened species), spotless crake and NI fernbird (both Regionally significant species). The OSNZ have also recorded NZ shoveler in recent surveys.

Significance

An excellent example of an unmodified lake and swamp system being a rare wetland ecosystem in Northland, and linked to the nearby beach.

Representative site for type (a) open water, type (c) wire rush-*Gleichenia dicarpa* bog association, and type (d) raupo reedland. Type (c) is not recorded elsewhere in the Ecological District.

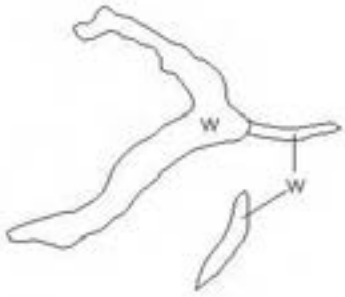
Habitat for threatened species.



Lake Te Kahika N02/061

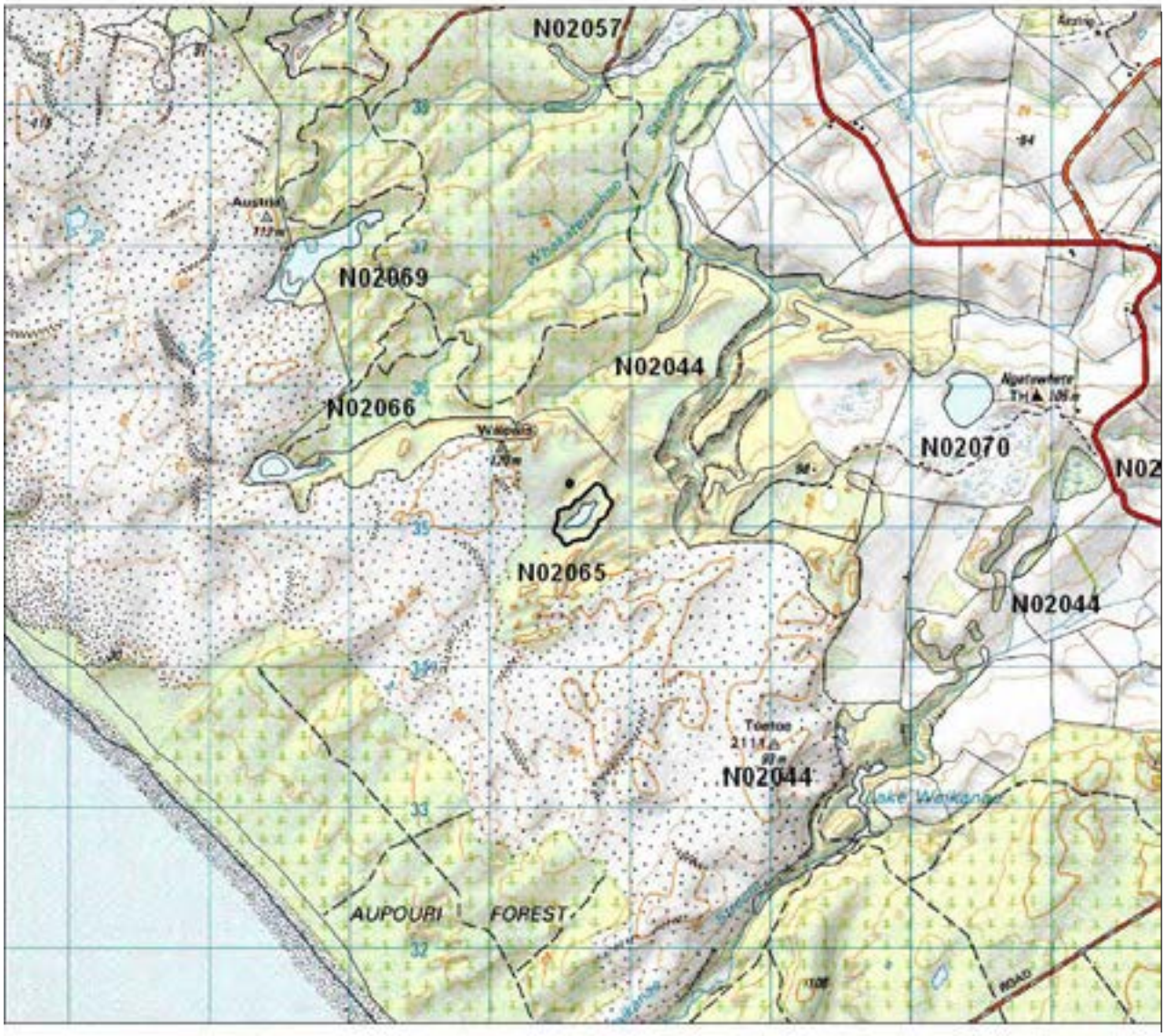
Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland



WAIPARA & DEAD LAKES

Survey no.	N02/065
Survey date	27 February 1996
Grid reference	N02 977 351, N02 977 353
Area	9.8 ha (8 ha shrubland, 1.8 ha wetland)
Altitude	70 m asl



Waipara & Dead Lakes N02/065

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Ecological unit

(a) Open water in dune lake

(b) *Eleocharis sphacelata* reedland on lake bed

(c) *Baumea articulata* reedland on lake bed

(d) Kanuka shrubland on dunes

(e) *Baumea articulata-Juncus pallidus* association on lake bed

(f) *Baumea juncea*-manuka association on dune flats

Landform/geology

Lake ponded by Holocene dunes.

Vegetation

(a) Lake Waipara is a deep sided dune lake (95%).

Small wetland areas occur including (type b) *Eleocharis sphacelata* with occasional giant umbrella sedge and (type c) *Baumea articulata* with occasional *Eleocharis sphacelata*.

Dense water fern occurs on the edges of the wetland.

(d) The surrounding buffer of shrubland is kanuka dominant with scattered *Cassytha*, hangehange, ti kouka, toetoe, tutu, gorse and brush wattle.

A short distance to the north is Dead Lake, type (a), a small deep-sided dune lake surrounded by sedges and shrubland.

(e) Most of the Dead Lake surrounds consists of *Baumea articulata* with *Juncus pallidus* and frequent swamp millet and *Eleocharis sphacelata*. About 5% of the area is *Eleocharis sphacelata*, (type b), and a similar sized area is type (f), *Baumea juncea*-manuka shrubland with *Juncus planifolius* and *Cassytha.*

Fauna

Birds: Common waterbirds and bush birds present.

NI fernbird reported (Regionally significant species).

Significance

Potential habitat for the regionally significant NI fernbird and the regionally significant waterbird NZ scaup which has been reported as present within the chain of dune lakes along the Aupouri Peninsula. Representative site for type (e) *Baumea articulata-Juncus pallidus* association and only record in Ecological District for this association.

PRETTY LAKE

Survey no.	N02/066
Survey date	27 February 1996
Grid reference	N02 964 355
Area	44.8 ha (42.8 shrubland, 2 ha wetland)
Altitude	55 m asl

Ecological unit

(a) Open water in dune lake

(b) Oioi-pampas-water fern association on lake bed

(c) Marram grassland on low dunes

(d) Kanuka shrubland on dunes

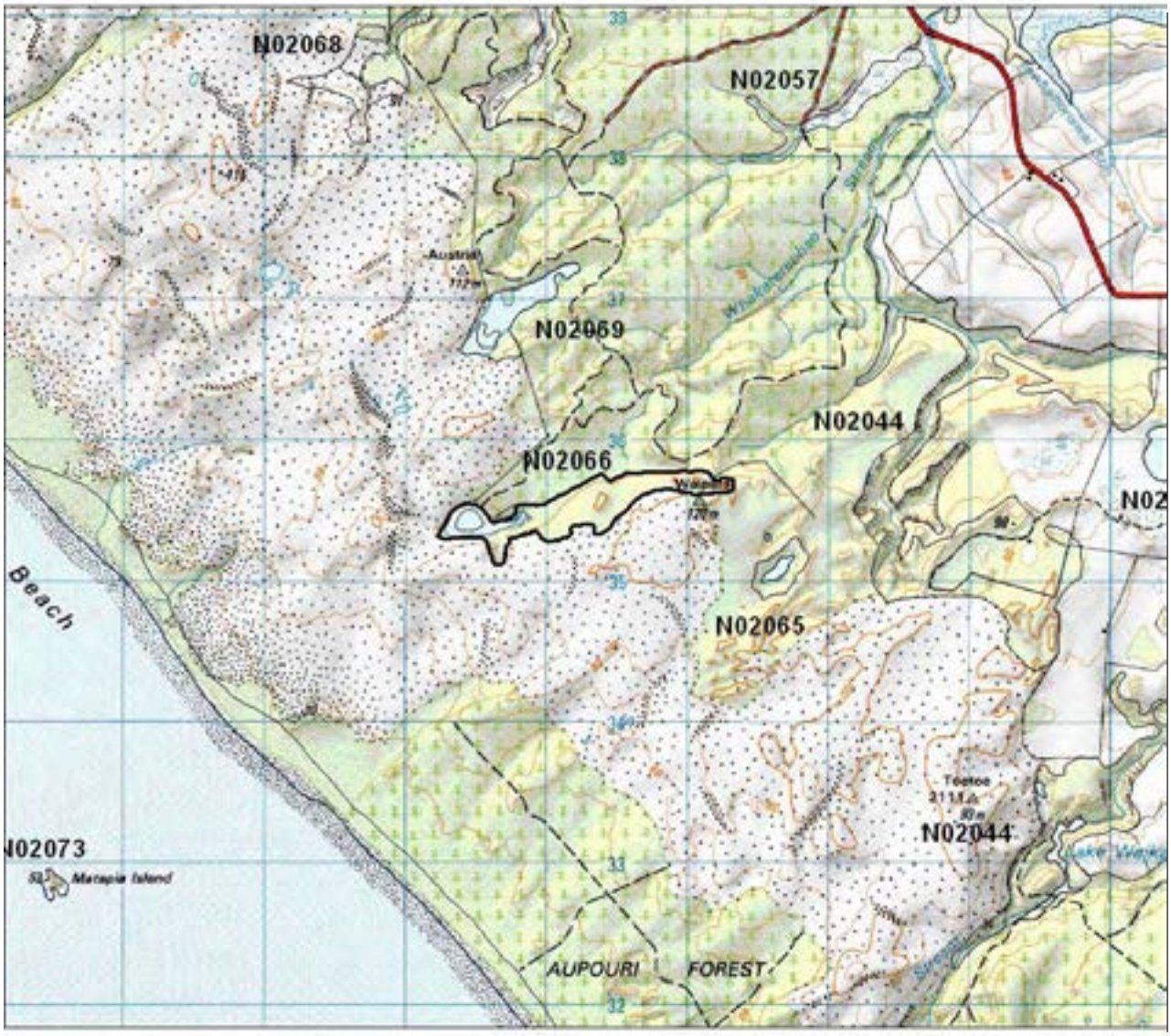
Landform/geology

Holocene dune field with lake in interdune hollow.

Vegetation

(a) The lake is considerably smaller than formerly.

(b) Oioi, pampas, water fern, rushes and sedges occur on the lake edge and part of the now dry lake bed.



Pretty Lake N02/066

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

(c) Marram and fleabane occur at the south west end.

(d) Most of the surrounding vegetation is kanuka dominant with frequent manuka and occasional ti kouka, harakeke, mamaku, toetoe, native broom, *Cassytha*, gorse and brush wattle.

Fauna

Birds: Common waterbirds and bush birds.

Significance

Habitat for waterbirds.

Part of the Aupouri dune lake suite – a nationally uncommon habitat type and representative site and only example of oioi-pampas-water fern association in this Ecological District, albeit with a conspicuous component of adventive pampas.

UPPER KARATIA SWAMP

Survey no.	N02/068
Survey date	1991, 1993
Grid reference	N02 950 390
Area	34 ha (16.5 ha shrubland, 17.5 ha wetland)
Altitude	60 m asl

Ecological unit

(a) *Baumea rubiginosa*-manuka association in dune hollow

(b) Manuka shrubland on dunes

Landform/geology

Swamp ponded by Holocene dunes.

Vegetation

(a) Most of the area is swamp shrubland with *Baumea rubiginosa* dominant and *Eleocharis sphacelata, Baumea articulata, B. juncea,* oioi, kiokio, *Dracophyllum lessonianum* and harakeke under a canopy of manuka and *Cassytha.*

(b) About 10% of the area is manuka dominant with *Dracophyllum lessonianum, Baumea rubiginosa, Gleichenia* sp. and the threatened *Todea barbara.*

Significant flora

Todea barbara (Vulnerable).

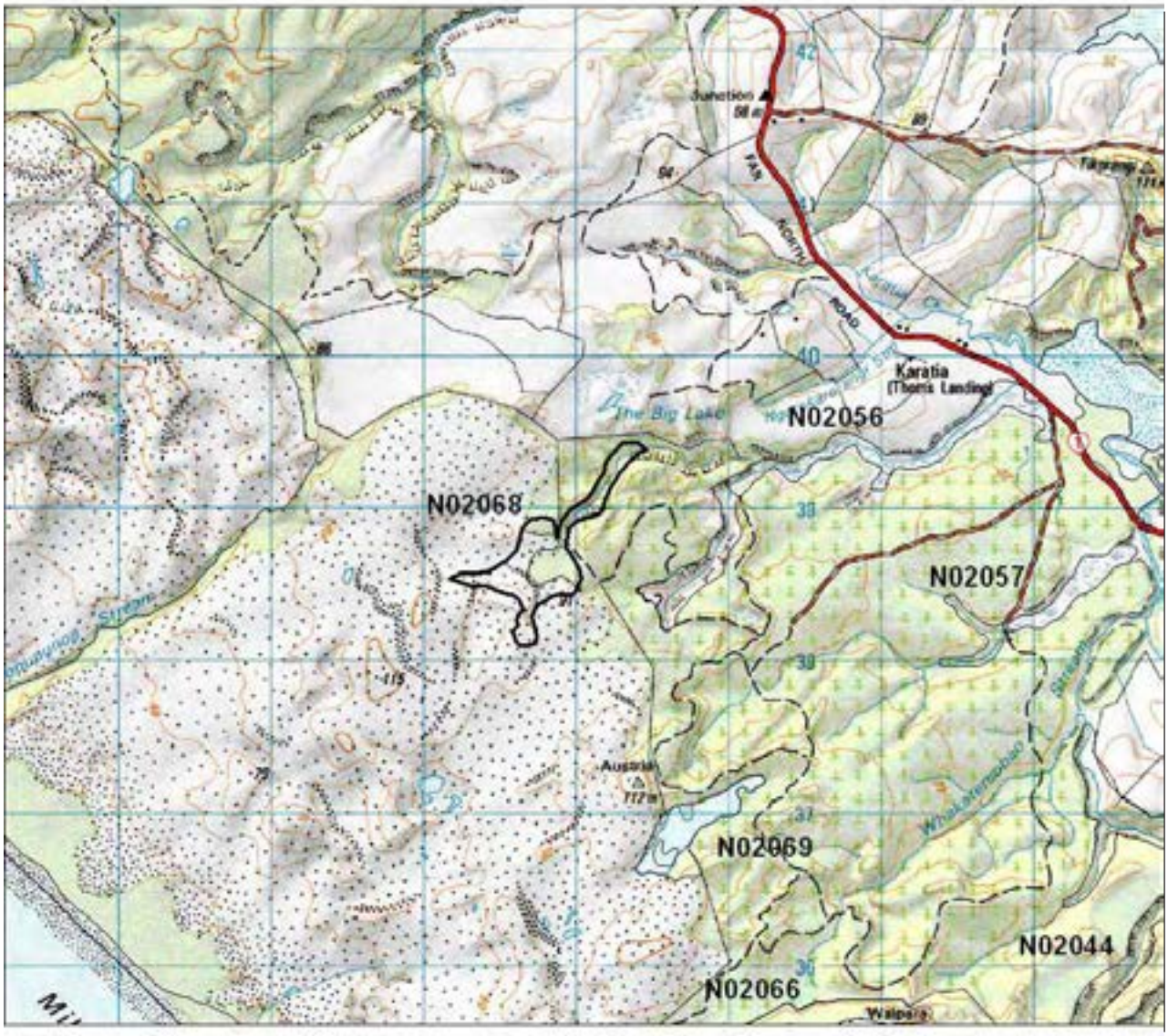
Fauna

Birds: NI fernbird (Regionally significant species).

Significance

Uncommon habitat type and presence of two significant species, *Todea barbara* and NI fernbird.

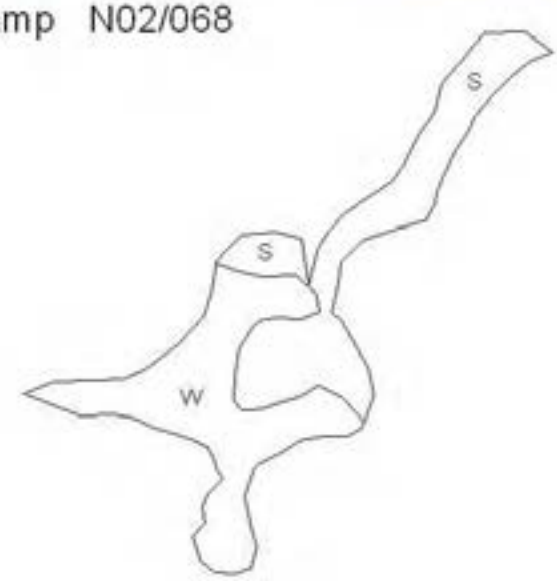
Representative site for both Ecological units.



Upper Karatia Swamp N02/068

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland



LAKE AUSTRIA & SHRUBLAND

Survey no.	N02/069
Survey date	27 February 1996
Grid reference	N02 957 370
Area	19.7 ha (18.2 ha shrubland, 1.5 ha wetland)
Altitude	70 m asl

Lake Austria & Shrubland N02/069

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

Ecological unit

(a) Open water in dune lake

(b) *Eleocharis sphacelata* reedland on lake bed

(c) Oioi rushland on sand flats

(d) Manuka swamp shrubland on sand flats

(e) Kanuka shrubland on dunes

Landform/geology

Lake ponded by Holocene dunes and adjacent to Pleistocene duneland.

Vegetation

(a) The open water area of the lake has reduced over time.

(b) The remainder of the lake bed is mainly *Eleocharis sphacelata* with *Baumea articulata* and kuta.

(c) There is a small area of oioi and type (d) manuka swamp shrubland with kiokio, water fern, bracken and kumarahou.

(e) On the periphery is kanuka shrubland to 3–4 m with frequent manuka and occasional harakeke, mamaku, toetoe, gorse, bracken and water fern.

Fauna

Birds: NZ dabchick (Category C threatened species). Four Regionally significant species: Australasian little grebe, NI fernbird, spotless crake and NZ scaup. Other bird fauna includes NZ pipit, pied stilt and records of little shag roosts.

Significance

A valuable habitat for a wide diversity of waterbirds including threatened and regionally significant species.

Representative site for type (a) open water and type (b) *Eleocharis sphacelata* reedland.

NGATUWHETE LAKE

Survey no.	N02/070
Survey date	1993
Grid reference	N02 003 358
Area	10 ha
Altitude	80 m asl

Ecological unit

(a) Open water in dune lake

(b) Reed-sedge association on lake bed

Landform/geology

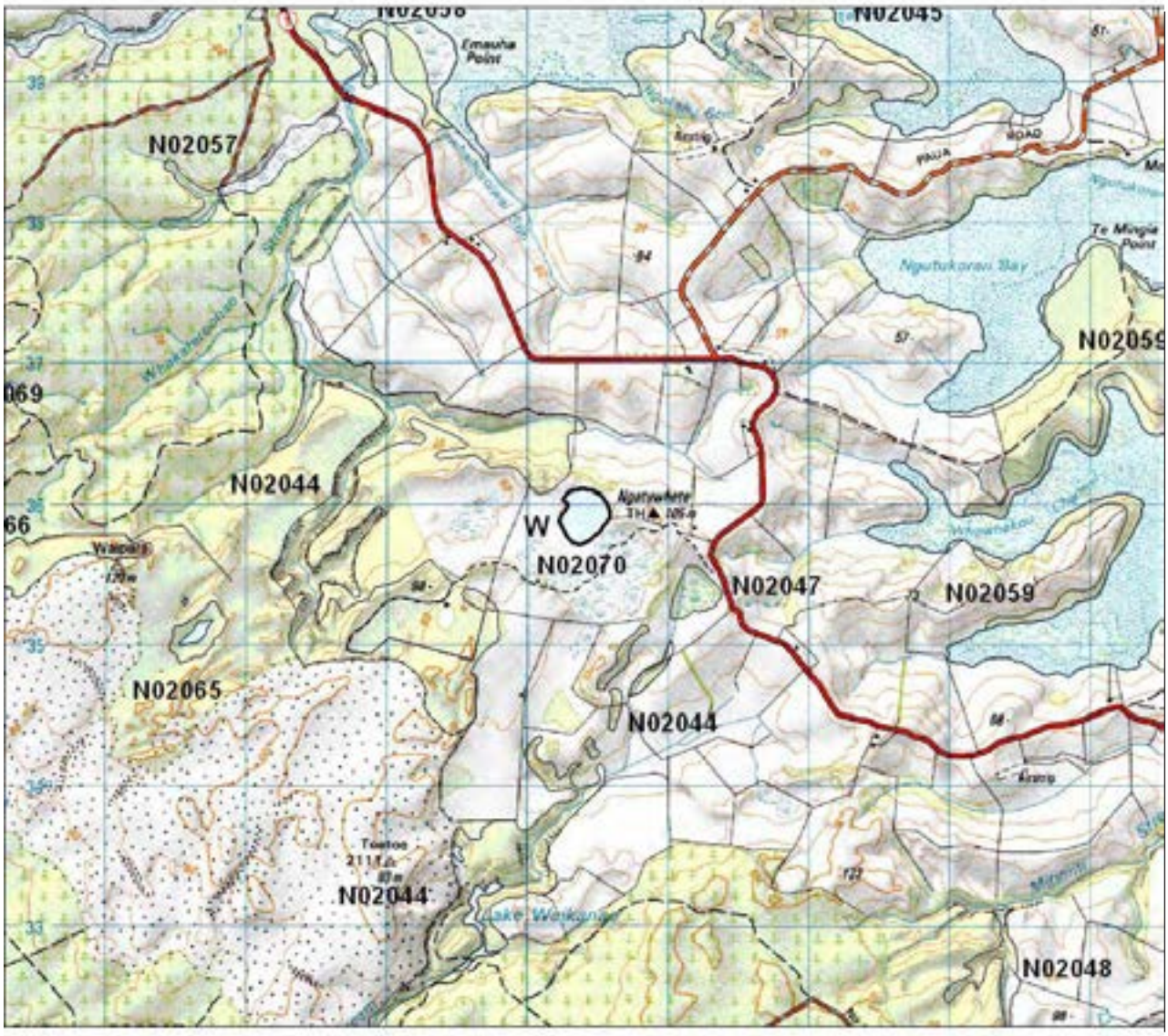
Freshwater lake ponded in interdune flat in Pleistocene parabolic dunefield.

Vegetation

Mostly open water with an island of reeds and sedges near the southern end and some *Eleocharis* sp. on the margins.

Fauna

Birds: Royal spoonbill (Category O threatened species) reported since 1991.



A year 2000 survey by the OSNZ recorded black shag, pied shag, and common waterbirds.

Significance

A large, shallow lake near Parengarenga Harbour suitable for waterbirds and likely to be increasingly used by the threatened royal spoonbill.

MATAPIA ISLAND

Survey no.	N02/073
Survey date	1986, 1993
Grid reference	N02 925 328
Area	2.3 ha
Altitude	0–53 m asl

Ecological unit

(a) Giant umbrella sedge sedgeland on coastal slopes and banks

(b) Native iceplant-knobby clubrush herbfield on coastal slopes

(c) Glasswort-Mercury Bay weed herbfield on coastal banks

(d) Cook's scurvy grass herbfield on coastal bank

(e) Rock platforms

Landform/geology

Pebbly sandstone and sandstone (Matapia Formation) derived from Houhora Volcanic Group and other volcanic units.

Vegetation

(a) Giant umbrella sedge is the dominant species, forming dense swards with occasional taupata with *Parietaria debilis* seedlings underneath.

(b) On steep slope edges, native iceplant and knobby clubrush are dominant with *Chenopodium album* forming a patchy band above the coastal banks.

(c) Glasswort and Mercury Bay weed extend into the splash zone.

(d) Cook's scurvy grass is an endangered species and forms a patchy band around the island above the coastal banks. Associated species include native iceplant, Mercury Bay weed, knobby clubrush, taupata, *Chenopodium album* and isolated giant umbrella sedge.

(e) Solid rocky platform around the perimeter of the island.

Significant flora

Cook's scurvy grass (Endangered) was replanted by Vic Hensley on Matapia Island in the 1980s (Forester & Anderson 1995). It is subject to severe trampling by seals but this has probably always been the case and is cyclical (L.J. Forester pers. comm.).

Fauna

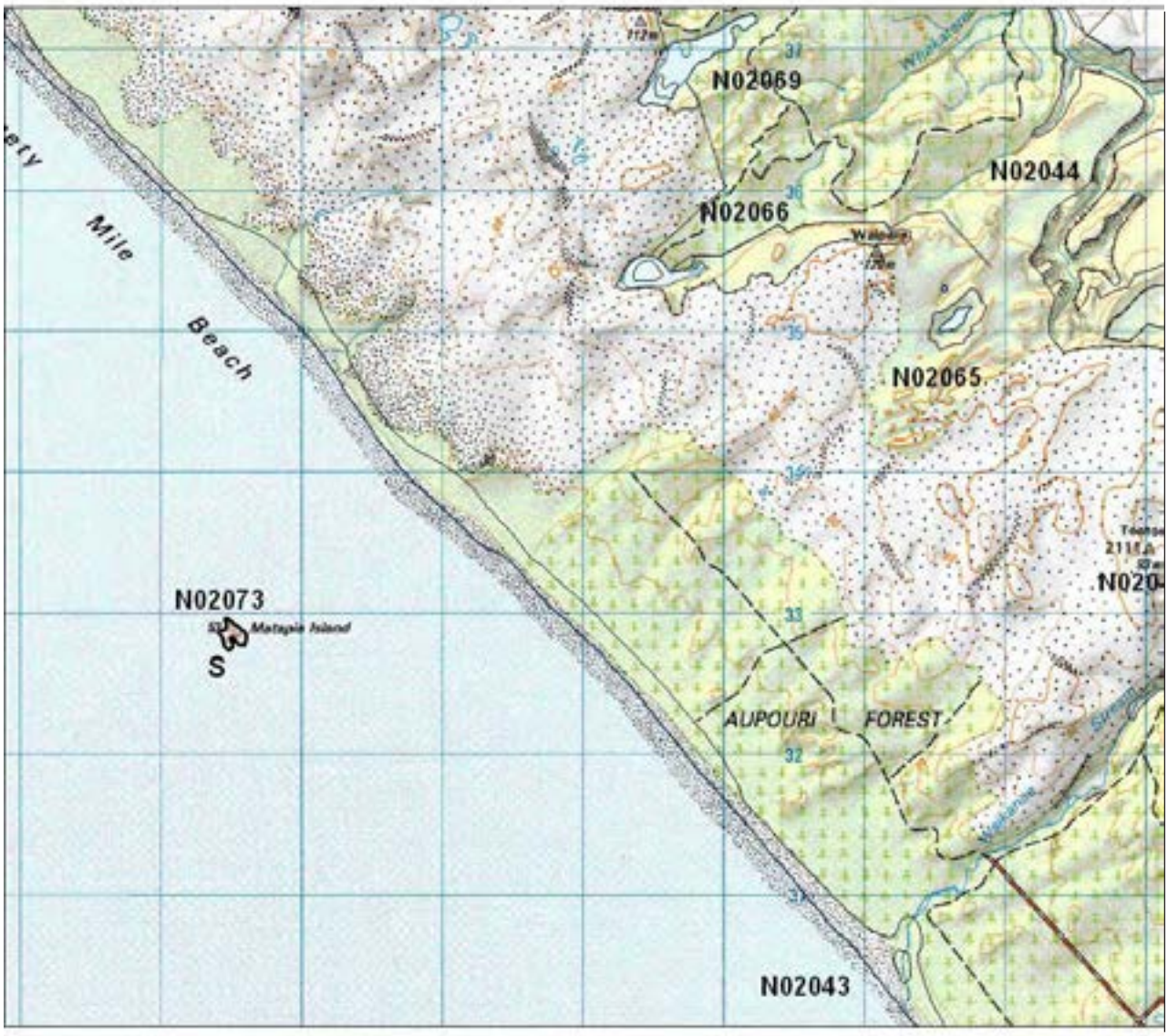
Birds: white-fronted tern (Category C threatened species), breeding black-winged petrels, common diving petrel, blue penguin, NZ pipit, Australasian harrier, paradise shelduck, red-billed gulls and welcome swallow.

The island is a fur seal haul-out site; in excess of 500 seals have been recorded in the months from June to October, making Matapia Island the most significant seal haul-out site in Northland (R. Parrish pers. comm. 2002).

Lizards: The site endemic *Hoplodactylus* "Matapia Island" (Category B threatened species), robust skink (Category B threatened species), ornate skink (Regionally significant species), Pacific gecko, and shore skink.

Significance

As this is one of only two off-shore islands on the West Coast of Northland, this island is a fragile but important biological refuge for relict fauna species including threatened species and a species endemic to the island.



Matapia Island N02/073

Each grid is 1000m x 1000m
and = 100 ha.
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

All Ecological units are representative and are unrecorded elsewhere in the Ecological District.

This is the only known outcrop of Matapia Formation rocks.

This site description is drawn directly from: Forester & Anderson (1995); Parrish & Anderson (1999)

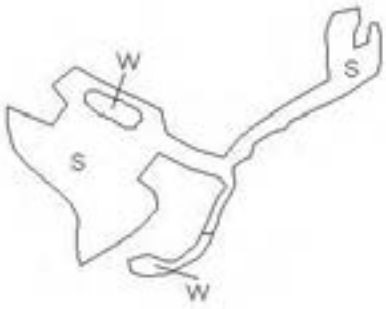
TE AHU RD

Survey no.	N03/002
Survey date	15 August 1995
Grid reference	N03 055 285
Area	179 ha (164 ha shrubland, 15 ha wetland)
Altitude	10–103 m asl

Te Ahu Rd N03/002

Each grid is 1000m x 1000m and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland



Ecological unit

(a) Raupo reedland in valley

(b) Prickly hakea-kanuka-kumarahou shrubland on hillslope

(c) Kanuka/manuka shrubland on gentle hillslope.

Landform/geology

Hill country and valley, freshwater wetlands in highly weathered Tangihua Complex volcanic and sedimentary rock units.

Vegetation

(a) A raupo wetland covers about 10% of the area.

(b) In about half of the area vegetation less than one metre tall occurs in which prickly hakea is abundant, kumarahou and kanuka common, bracken frequent and ti kouka, blue pine, gorse, pampas, manuka, rushes and patches of pasture occur occasionally.

(c) The rest of the area consists of kanuka/manuka shrubland to two metres. Gorse is locally frequent. Other species occurring are ti kouka, harakeke, hangehange, prickly hakea, mamaku, pampas and blue pine.

Significant flora

Pomaderris polifolia (Vulnerable) recorded in 1999.

Fauna

Not surveyed.

Significance

Threatened plant habitat. An area of mixed shrubland midway between east and west coasts providing a link with the various wetlands, sand dunes, forest remnants and shrublands that stretch along Aupouri Peninsula. The shrubland provides a linkage to Lake Wahakari (N03/026).

Additional surveying is recommended to determine further ecological significance of this site.

WILD HORSE WETLAND

Survey no.	N03/003
Survey date	23 August 1995
Grid reference	N03 072 173
Area	7.9 ha
Altitude	2–10 m asl

Ecological unit

(a) Open water

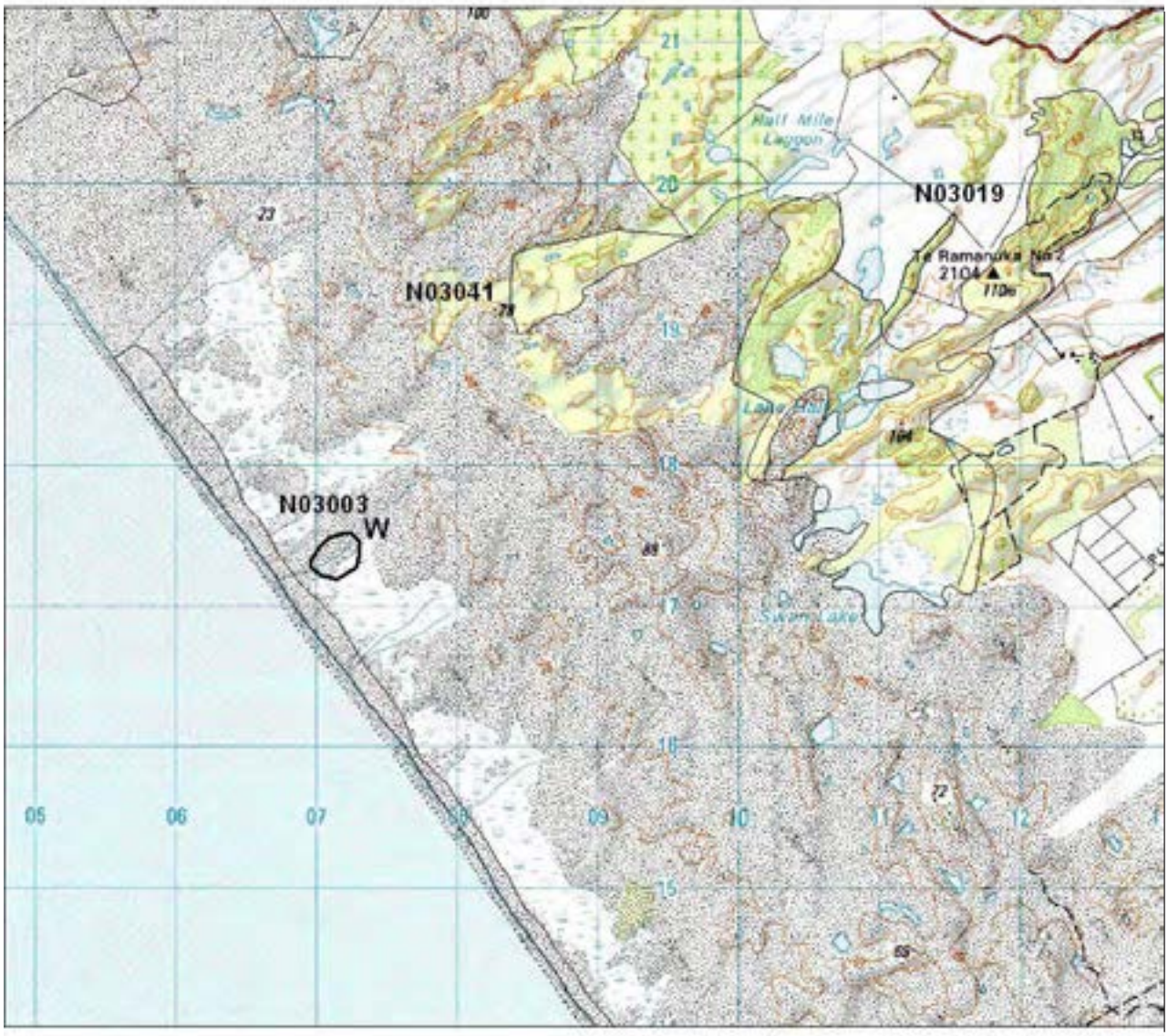
(b) Oioi rushland on dunes

Landform/geology

Freshwater wetland in Holocene coastal dune deflation zone.

Vegetation

(a) Open water covers 60% of the area.



Wild Horse Wetland N03/003

Each grid is 1000m x 1000m
and = 100 ha.
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

(b) Oioi is abundant in the remainder of the area with toetoe, pampas, other sedges and *Lilaeopsis novae-zelandiae* occurring occasionally.

Fauna

Not surveyed.

Significance

A nationally uncommon habitat type.

Representative site for type (b) oioi rushland.

PUKEKURA STREAM WETLANDS

Survey no.	N03/004
Survey no.	23 August 1995
Grid reference	N03 014 296, N03 016 296, N03 007 287, N03 995 278
Area	12 ha
Altitude	5–10 m asl

Ecological unit

(a) Open water

(b) *Eleocharis sphacelata* reedland in stream bed

(c) *Baumea articulata*-raupo reedland in stream bed

(d) Raupo reedland in stream bed

(e) Oioi rushland on sand flats

Landform/geology

Freshwater wetland in gully in eroded Pleistocene consolidated parabolic dunes.

Vegetation

A series of wetlands along the Pukekura Stream.

(a) The uppermost area (N03 016 296) is 80% open muddy water.

(b) A narrow fringe of *Eleocharis sphacelata* occurs around the pond, with a reedbed of this species at one end and raupo, (type d), at the other. *Carex* sp. occurs occasionally.

Pines grow to the margins which are dominated by dense pampas and Sydney golden wattle.

(c) Just to the west (N03 014 296) *Baumea articulata* and raupo are common with frequent kiokio and other sedges. Harakeke, manuka, bracken and ti kouka also occur. Pampas is also locally common, indicating a possible drying out of the wetland. A 100 m buffer of kanuka with wattle occurs on the northern side. Elsewhere pines are planted to the margin.

(d) A kilometre or so downstream (N03 003 287) is a raupo wetland in which harakeke, kanuka, pampas and other sedges (*B. articulata, Eleocharis* sp.) occur frequently. Oioi, watercress, *Azolla* and balsam are also present. Again, pines are planted to the margin.

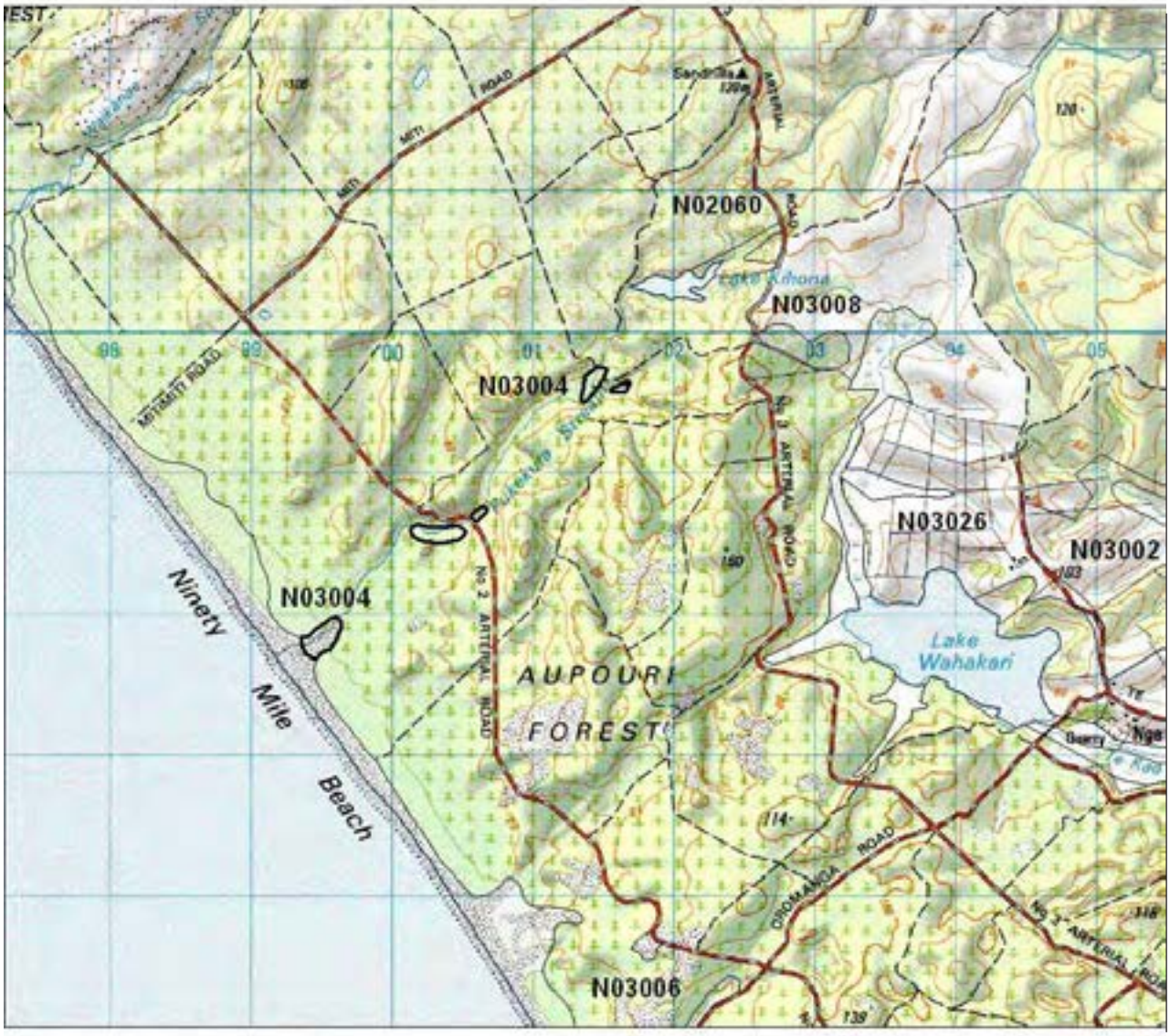
(e) At the stream mouth (N03 995 278) there is an oioi dominant wetland. Pampas is frequent and raupo, harakeke and *Lilaeopsis novae-zelandiae* are also present.

Fauna

Birds: Spotless crake and Australasian little grebe (inland sites) (both Regionally significant species).

Significance

A series of wetlands providing a range of habitat types and providing habitat for regionally significant species.



Pukekura Stream Wetlands N03/004

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

TE ARAI SANDFIELDS

Survey no.	N03/009
Survey date	15 August 1995
Grid reference	N03 065 225
Area	1,253 ha (534 ha duneland, 697 ha shrubland, 9 ha forest, 13 ha wetland)
Altitude	0–105 m asl

Ecological unit

(a) Sandfield

(b) Marram-pohuehue association on sand

(c) Mixed coastal turf association on damp sand flats

(d) Open water in dune lake

(e) *Eleocharis sphacelata*-raupo reedland in lake bed

(f) Raupo reedland in lake bed

(g) Kanuka/manuka-marram-toetoe association on dunes

(h) Pohutukawa forest on dunes

(i) Kanuka shrubland on dunes

Landform/geology

Holocene dune belt with areas of underlying late Pleistocene unconsolidated parabolic dunes.

Vegetation

(a) On the sandfield, vegetation is variable, consisting primarily of sandbinding species sparsely distributed in the west. Marram, knobby clubrush and oioi are uncommon to locally frequent. On the foredune *Spinifex*, pingao and *Carex pumila* occur sparsely. In the swampy lower dunes oioi and knobby clubrush are common.

(b) In the east a dense association of pohuehue and marram occurs. Other species occurring are toetoe, kanuka, bracken, harakeke, tauhinu, NZ spinach, *Coprosma acerosa,* native broom, ti kouka, mahoe, lupin and a variety of adventive weeds.

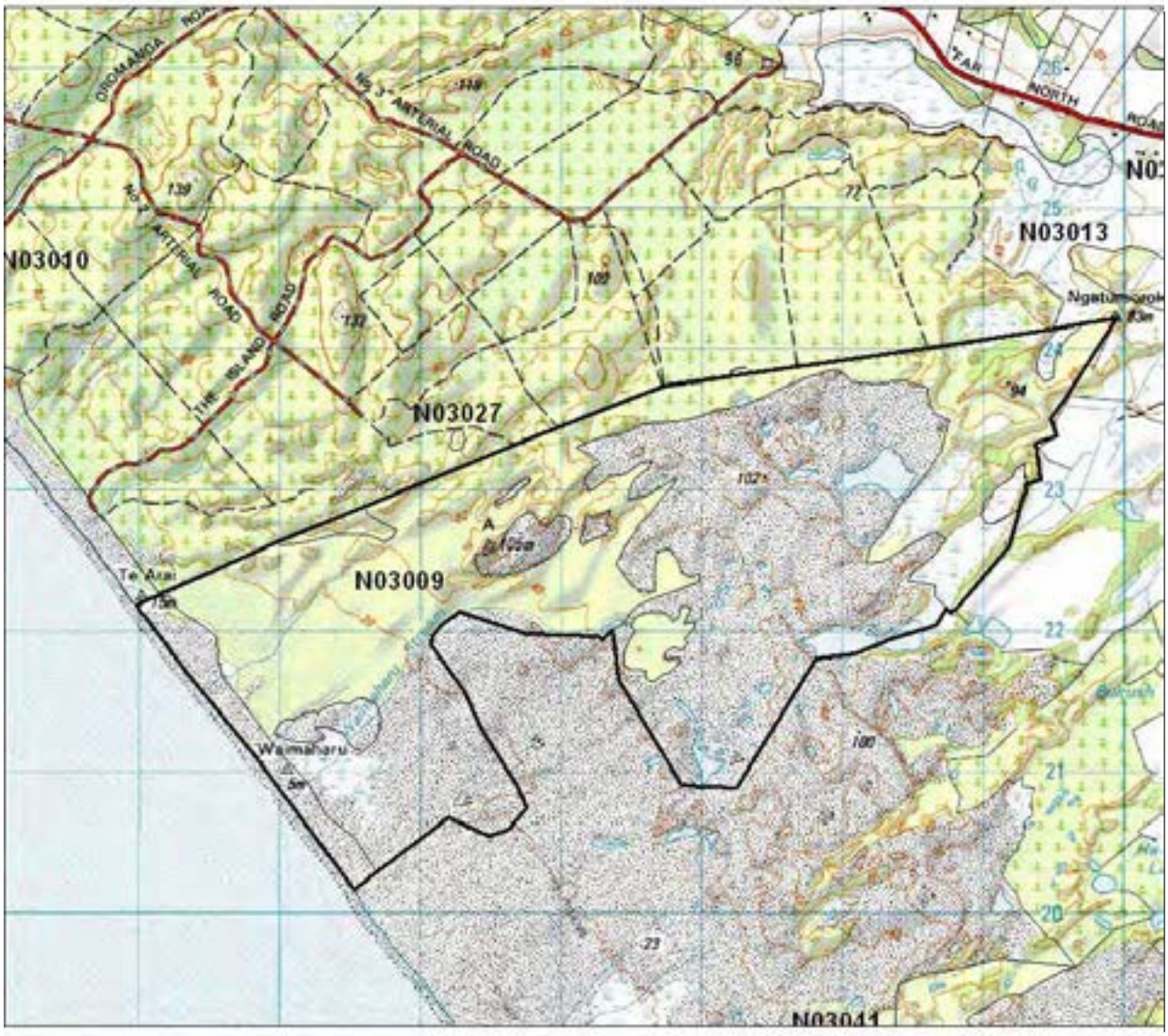
(c) Where freshwater streams approach the coast, wet dune flats occur as the streams fan out, with dense streamside turfs, and damp interdune depressions occur. Species occurring in these sites include *Myriophyllum votschii*, *Glossostigma*, *Azolla pinnata, Isolepis prolifer*, *I. reticularis*, *I. inundata* and the threatened *Eleocharis neozelandica* (L.J. Forester pers. comm.).

(d) A deep dune lake (Lake Ngatumoroki, N03 092 230) is bounded to the south by steep dunes and to the north by lowland basins. The lake is approximately 80% open water with *Myriophyllum propinquum*.

(e) Reed beds fringing the lake consist of *Eleocharis sphacelata* and raupo.

(f) A low saddle vegetated in rushes, sedges and occasional pampas divides the lake from a raupo swamp to the east. Ti kouka, harakeke and sedges are scattered throughout the raupo.

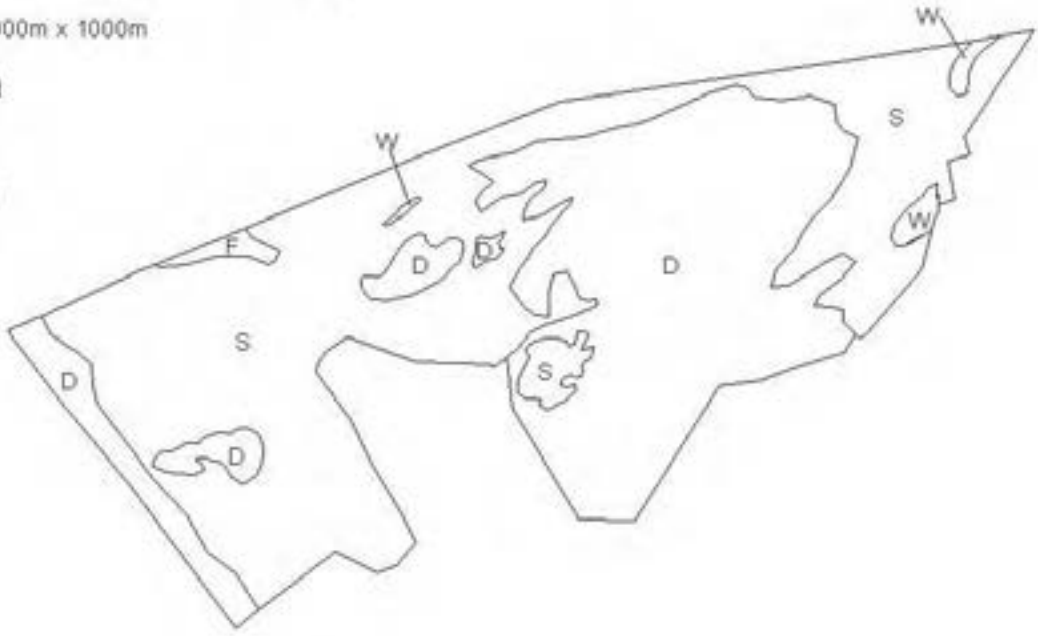
(g) On the margins kanuka/manuka-marram-toetoe with bracken, hangehange and mingimingi occur.



Te Arai Sandfields N03/009

Each grid is 1000m x 1000m
and = 100 ha.

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland



(h) Large pohutukawa form forested islands amongst the sand. In the largest stand, mapou, hangehange, kawakawa, harakeke, toetoe, *Coprosma rhamnoides*, hound's tongue, and shining spleenwort occur in the understorey along with the regionally significant *Hebe diosmifolia*, the threatened *Pseudopanax ferox* and a variety of *Pseudopanax* hybrids.

(i) On stabilised dunes kanuka shrubland occurs with toetoe, harakeke and bracken. Mapou, ti kouka and pohutukawa occur occasionally. Ngaio is abundant on the margins. The understorey contains houpara, ngaio, mapou, kawakawa, *Coprosma rhamnoides*, shining spleenwort and hound's tongue. Sydney golden wattle is locally abundant. In the more sheltered leeward slopes of the dunes the vegetation is taller and has a more developed understorey.

Significant flora

Ophioglossum petiolatum, Todea barbara and *Thelypteris confluens* all Vulnerable, *Eleocharis neozelandica* (Declining), *Cyclosorus interruptus* (Declining), pingao (Recovering–Conservation Dependent), *Pseudopanax ferox* (Naturally Uncommon-Sparse).

Hebe diosmifolia and *Myriophyllum votschii* (Regionally significant species).

Fauna

Birds: NZ dabchick and variable oystercatcher (both Category C threatened species), Australasian bittern (Category O threatened species), NI fernbird (Regionally significant species), NZ shoveler, as well as common bush and open country birds.

Significance

One of the largest areas of mobile duneland not planted in pines, a rare habitat type along this coast containing many threatened and uncommon plant species and threatened and regionally significant bird species.

It contains one of two records of mixed coastal turf association in the Ecological District (although likely to occur elsewhere). It is a representative site for type (a) sandfield, type (d) open water, type (e) *Eleocharis sphacelata*-raupo reedland, type (h) pohutukawa forest, and type (i) kanuka shrubland.

Over half of this site is protected (58.9%), 734.24 ha Stewardship Land, and 4.76 ha Ecological Area, both of which are administered by the Department of Conservation.

References: Barnett (1985); Panckhurst (1984); Bellingham (1984).

OROMANGA RD WETLANDS

Survey no.	N03/010
Survey date	15 August 1995
Grid reference	N03 019 248
Area	9.6 ha
Altitude	20–40 m asl

Ecological unit

(a) Raupo reedland in stream bed

(b) Manuka shrubland in stream bed

Oromanga Rd Wetlands N03/010

Each grid is 1000m x 1000m
and = 100 ha.
S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland

(c) Raupo-rush association in stream bed

Landform/geology

Freshwater wetland in gully in eroded Pleistocene consolidated parabolic dunes.

Vegetation

Two raupo dominant wetlands linked by a small stream with a few native shrubs amongst the pines.

(a) The upstream site also contains kiokio, harakeke, ti kouka, bracken, pohuehue and locally frequent rushes.

(b) It has a thin fringe of manuka. Kanuka occurs frequently and *Coprosma macrocarpa* is occasional.

(c) The downstream site is similar but with locally common rushes and frequent harakeke, kanuka and kikuyu. In addition to the species mentioned above, toetoe, houpara, hangehange and karamu also occur.

Both sites have pines to their margins.

Significant flora

The threatened *Thelypteris confluens* (Vulnerable) is reported from this site (1984).

Fauna

Not surveyed.

Significance

Both wetlands occur near the coast and are collectively of a size to provide suitable habitat for cryptic marsh bird species. Presence of threatened plant species.

HENDERSON BAY SHRUBLAND

Survey no.	N03/014
Survey date	August 1995
Grid reference	N03 194 192, N03 207 188, N03 214 183, N03 196 174
Area	139.5 ha (2 ha duneland, 137 ha shrubland, 0.5 ha wetland)
Altitude	0–34 m asl

Ecological unit

(a) Wattle shrubland on flat to gently sloping consolidated sands

(b) Kanuka shrubland on flat to gently sloping consolidated sands

(c) Harakeke association on gently sloping consolidated sands

(d) Kanuka-manuka-wattle shrubland on gentle slope

(e) Raupo reedland in shallow valley

(f) Manuka shrubland on flat to gently sloping consolidated sands

(g) Pohutukawa forest on steep coastal faces

(h) Manuka-harakeke association on consolidated dunes

Landform/geology

Pleistocene leached consolidated sands, with underlying Houhora Complex greywacke and conglomerate outcropping in coastal cliffs and shore platforms.

Vegetation

(a) Much of the area near the Rarawa Stream is wattle scrub in which kanuka occurs frequently.

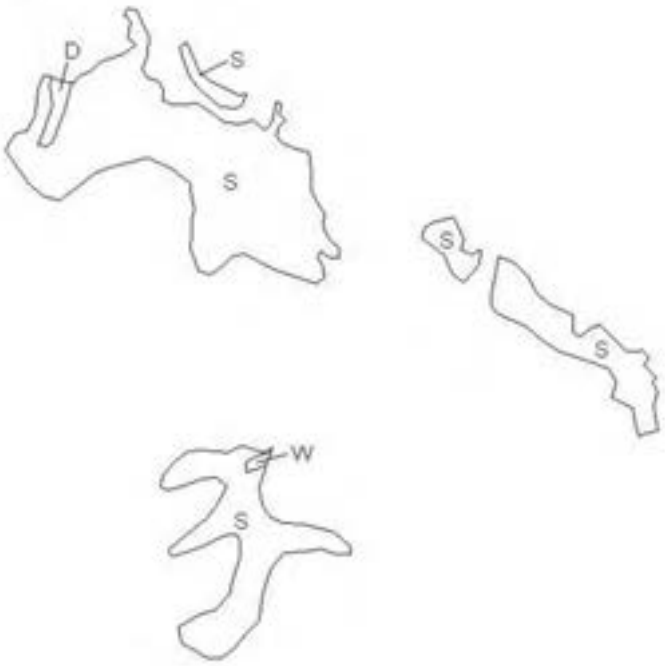
(b) The rest of the area near the stream is mostly kanuka shrubland to three metres with frequent wattle.

(c) There is also an area of harakeke dominant coastal association with frequent pohutukawa and occasional hangehange occurs along the dunes.

Henderson Bay Shrubland N03/014

Each grid is 1000m x 1000m
and = 100 ha

S = shrubland
F = forest
W = wetland
E = estuarine
D = duneland



(d) Near the Rarawa trig the shrubland is kanuka-manuka wattle. This type is also found near type (g).

(e) A raupo swamp with occasional harakeke also occurs here.

(f) Low manuka to two metres contains scattered *Dracophyllum lessonianum,* wattle*, Callistachys lanceolata,* mingimingi and patches of bare sand.

(g) On steep coastal faces on the margins of type (f) are small pockets of pohutukawa with houpara, *Coprosma* species, *Cyathodes juniperina* and kowharawhara.

(h) Coastal association of abundant manuka with harakeke and hangehange occurs in about 20% of the area.

Significant flora

At least 7 species of native orchids are present including *Thelymitra* "rough leaf" AK 229531 (Regionally significant species) which is confined to upper Northland.

Astelia grandis (Regionally significant species).

Fauna

Lizards: Northland green gecko (Regionally significant species).

Aquatic fauna: Banded kokopu (Category C threatened species) and red-finned bully.

Significance

Contains several uncommon coastal habitat types, and this particular area displays a diversity of native orchid species. Type (c) harakeke association, type (g) pohutukawa forest, and type (h) manuka-harakeke association, are representative vegetation types, with type (c) harakeke association unrecorded elsewhere on the mainland in the Ecological District.

Additional surveying is recommended to determine further ecological significance of this site.

GREAT EXHIBITION BAY

Survey no.	N03/015
Survey date	28 August 1995
Grid reference	N03 137 270
Area	755 ha
Altitude	0–43 m asl

Ecological unit

(a) Sandfield

(b) Marram-*Spinifex* grassland on upper dunes

Landform/geology

Holocene coastal dunes.