

(d) On the western side of this stream, the vegetation is dominated by towai secondary forest, with rewarewa and rimu frequent, and kauri, totara, and tanekaha occasional. Type (b) is also repeated on the hillslopes.

(e) The gullies in this area are dominated by totara, with tanekaha and towai frequent, and rimu, rewarewa, and ti kouka occasional.

The southern side of the site extends in part into the Glenbervie Forest, and is dominated by type (d) vegetation on the hillslopes. Associated species include taraire, totara, tanekaha, rimu, rewarewa, kauri, kahikatea, and northern rata.

(f) Within this area are some small patches of kauri, predominantly on the ridges, which also contain frequent rimu and tanekaha.

(g) Gullies on the southern side of the site are dominated by taraire. Other species include kohekohe, karaka, kauri, totara, rimu, puriri, kahikatea, and nikau.

Fauna

Australasian harrier, grey warbler, tui. NI brown kiwi (Serious Decline) reported. Longfin eel (Gradual Decline).

Significance

Possible NI brown kiwi habitat. Provides linkage between the Glenbervie Forest remnants and forest in the Matapouri/Whananaki area.

Representative site for type (c) totara shrubland.

CLEMENT ROAD REMNANTS

Survey no.	Q06/080
Survey date	21 March 1997
Grid reference	Q06 471 244, Q06 464 242, Q06 456 240
Area	52 ha (34 ha forest, 18 ha shrubland)
Altitude	0-80 m asl

Ecological unit

- (a) Kauri-rimu forest on hillslope (25%)
- (b) Kanuka/manuka shrubland on ridge (5%)
- (c) Rimu-kauri-tanekaha forest on hillslope (40%)
- (d) Totara forest on hillslope (15%)
- (e) Kanuka/manuka-tanekaha-totara shrubland on hillslope (15%)

Landform/geology

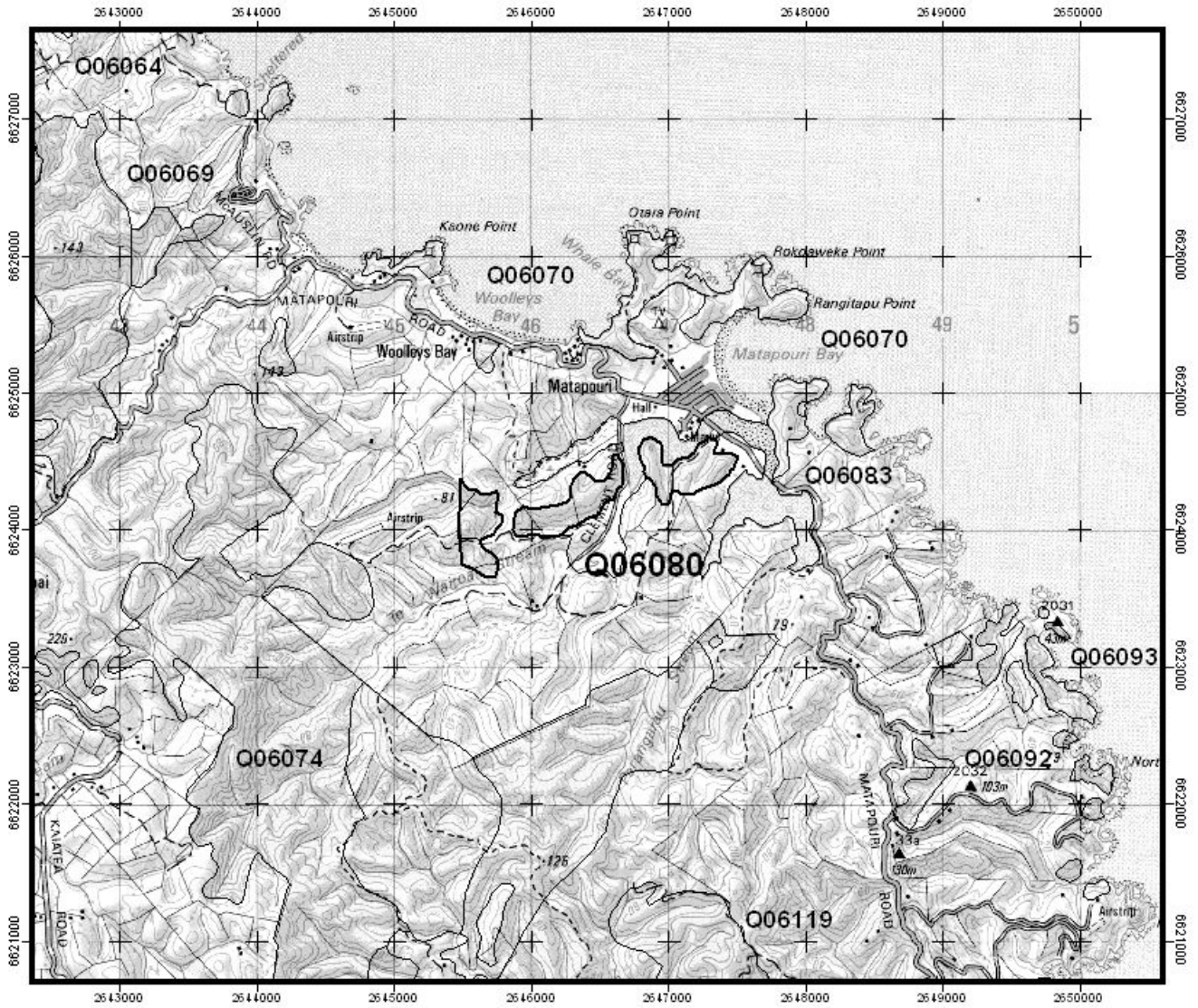
Hillcountry of Waipapa Terrane greywacke adjoining the Matapouri Estuary.

Vegetation

Three small forest and shrubland remnants bordering the Matapouri Estuary.

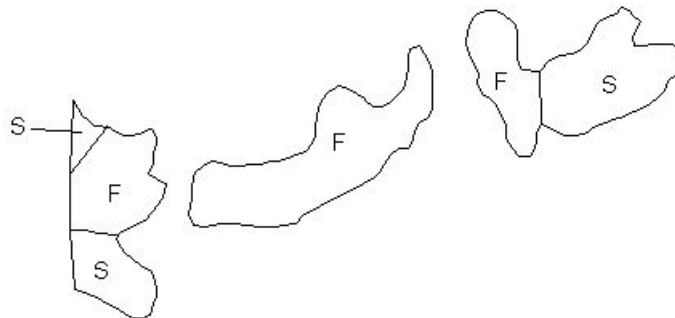
(a) Of the two small forest remnants on the western side of the Matapouri Estuary, the western remnant is composed mainly of kauri-rimu secondary forest, with occasional rewarewa, puriri, and tanekaha. (b) A small area of kanuka/manuka shrubland occurs at each end of the remnant.

(c) The eastern remnant is adjacent to the Matapouri Estuary. Rimu is abundant, with kauri and tanekaha common. Frequent species include totara, kahikatea, rewarewa, taraire, and ti kouka. Matai, puriri, and nikau occur occasionally.



Clement Road Remnants Q06/080

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



(d) Remnant on eastern side of estuary: Approximately half of the site is totara secondary forest, with frequent rimu, tanekaha, rewarewa, and puriri. Occasional species include kauri, kahikatea, kowhai, taraire, matai, and ti kouka.

(e) The remainder of the site is kanuka/manuka shrubland, with emergent totara and tanekaha common. Ti kouka and emergent rewarewa occur occasionally.

Fauna

NI brown kiwi (Serious Decline) reported from easternmost remnant. Kukupa (Gradual Decline), Australasian harrier.

Significance

The bush remnants provide a buffer to the Matapouri Estuary, and are possible habitat for NI brown kiwi. Presence of kukupa.

Representative site for type (a) kauri-rimu forest, and type (c) rimu-kauri-tanekaha forest.

8.9 ha at this site are protected; 8.4 ha by a Queen Elizabeth II National Trust covenant and 0.5 ha is a reserve administered by the Department of Conservation.

MATAPOURI ESTUARY

Survey no.	Q06/083
Survey date	24 March 1997
Grid reference	Q06 476 242
Area	81 ha
Altitude	sea level

Ecological unit

- (a) Mangrove-sea rush association on estuary (70%)
- (b) Mangrove forest on estuary (30%)

Landform/geology

Estuary.

Vegetation

(a) Upper reaches dominated by sea rush and mangroves in equal amounts. Frequent species include oioi, glasswort, and saltmarsh ribbonwood. Harakeke, raupo, and ti kouka, as well as pampas, are frequent on the edges of the saltmarsh.

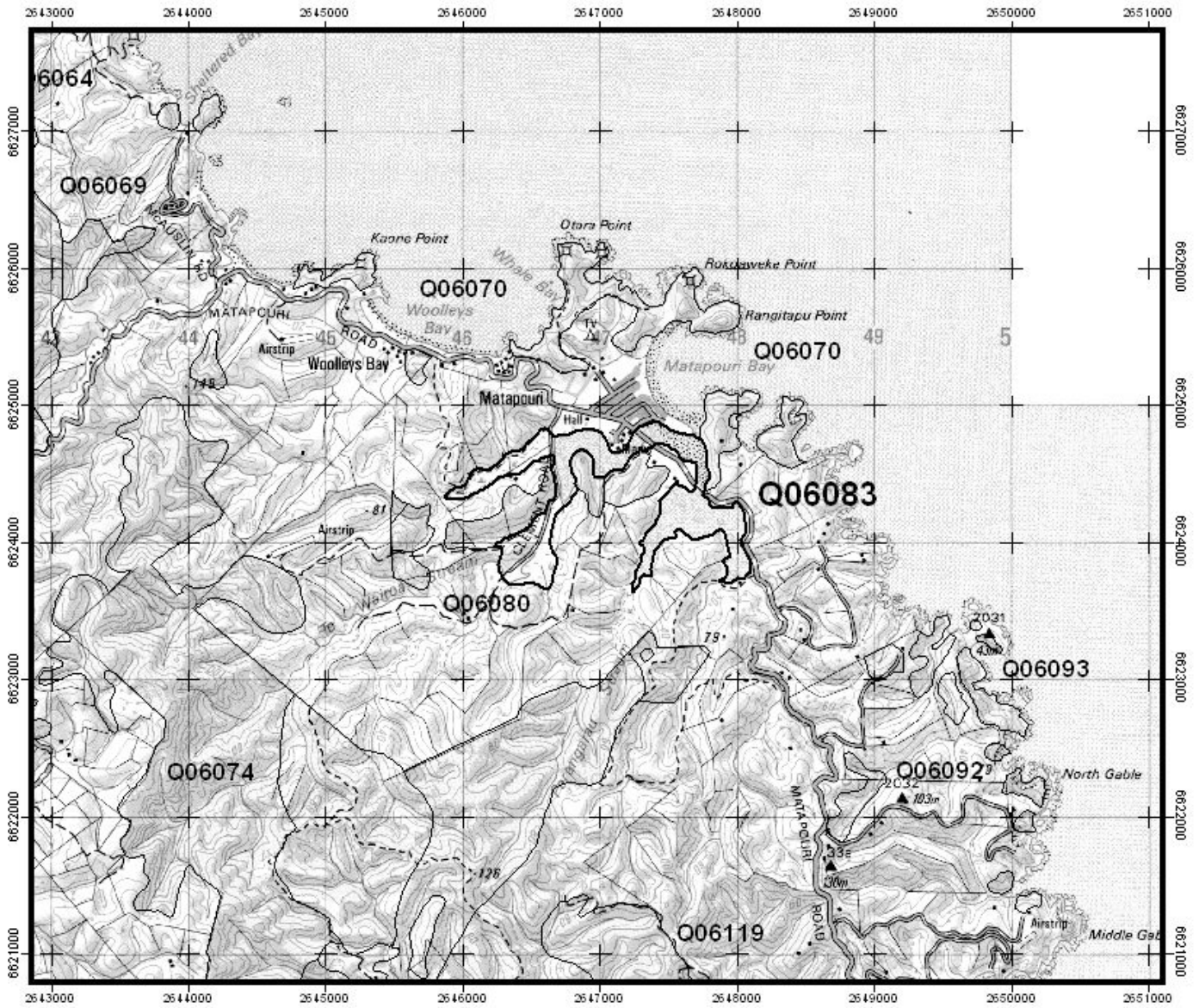
(b) Moving towards the coast, mangroves become the dominant species, with no associated canopy species.

Significant flora

Fuchsia procumbens (Sparse), *Suaeda novae-zelandiae* (Regionally Significant).

Fauna

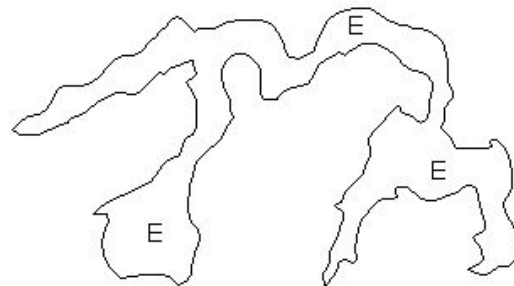
Pateke (Nationally Endangered), reef heron (Nationally Endangered), Caspian tern (Nationally Vulnerable), northern NZ dotterel (Nationally Vulnerable), white-fronted tern (Gradual Decline), banded rail (Sparse), black shag (Sparse), NI fernbird (Sparse), pied shag (Sparse), variable oystercatcher (Regionally Significant), Australasian harrier, bar-tailed godwit, black-backed gull, grey warbler, little shag, NZ kingfisher, paradise shelduck, pied stilt, pukeko, red-billed gull, tui, welcome swallow, white-faced heron. Fish recorded in streams running into the estuary include banded kokopu (Regionally Significant), giant bully (Regionally Significant), and shortfin eel.



Matapouri Estuary Q06/083

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

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



Significance

Presence of threatened and regionally significant species.

Several forest remnants provide a buffer to the estuary.

Representative site for type (a) mangrove-sea rush association.

33.5 ha at this site are protected; 0.5 ha by a Queen Elizabeth II National Trust covenant, 0.1 ha by Nga Whenua Rahui and 32.9 ha are reserves administered by the Department of Conservation.

WAIOTOI ROAD REMNANT

Survey no.	Q06/090
Survey date	25 March 1997
Grid reference	Q06 470 192
Area	71 ha (27 ha forest, 44 ha shrubland)
Altitude	20-100 m asl

Ecological unit

- (a) Kahikatea-taraire-totara forest on hillslope (15%)
- (b) Kanuka/manuka-totara shrubland on hillslope (40%)
- (c) Totara-tanekaha shrubland on hillslope (15%)
- (d) Totara forest on hillslope (30%)

Landform/geology

Hillcountry of Waipapa Terrane greywacke, cut by a Taurikura subgroup.

Vegetation

(a) The north-west corner of the site, adjacent to the intersection of Waiotoi and Pukenui Roads, is composed of a small piece of forest dominated by kahikatea, taraire, and totara. Rimu, tanekaha, and nikau are frequent, with occasional karaka, rewarewa, matai, puriri, and kauri.

(b) Moving south-east from the above site is a small area of shrubland dominated by kanuka/manuka up to 3 m tall, with emergent totara common. Emergent rimu are frequent, and tanekaha, rewarewa, and puriri occasional.

(c) Adjacent to this is a similar-sized shrubland area dominated by totara, with tanekaha common.

(d) This merges into a large area of totara secondary forest, with frequent rimu, rewarewa, kahikatea, and taraire.

The south-east end of the site is composed of a large area of type (b) shrubland, which extends as far as Matapouri Road. Some kahikatea occur on the edge of this site, with the occasional emergent tanekaha and rimu, as well as puriri.

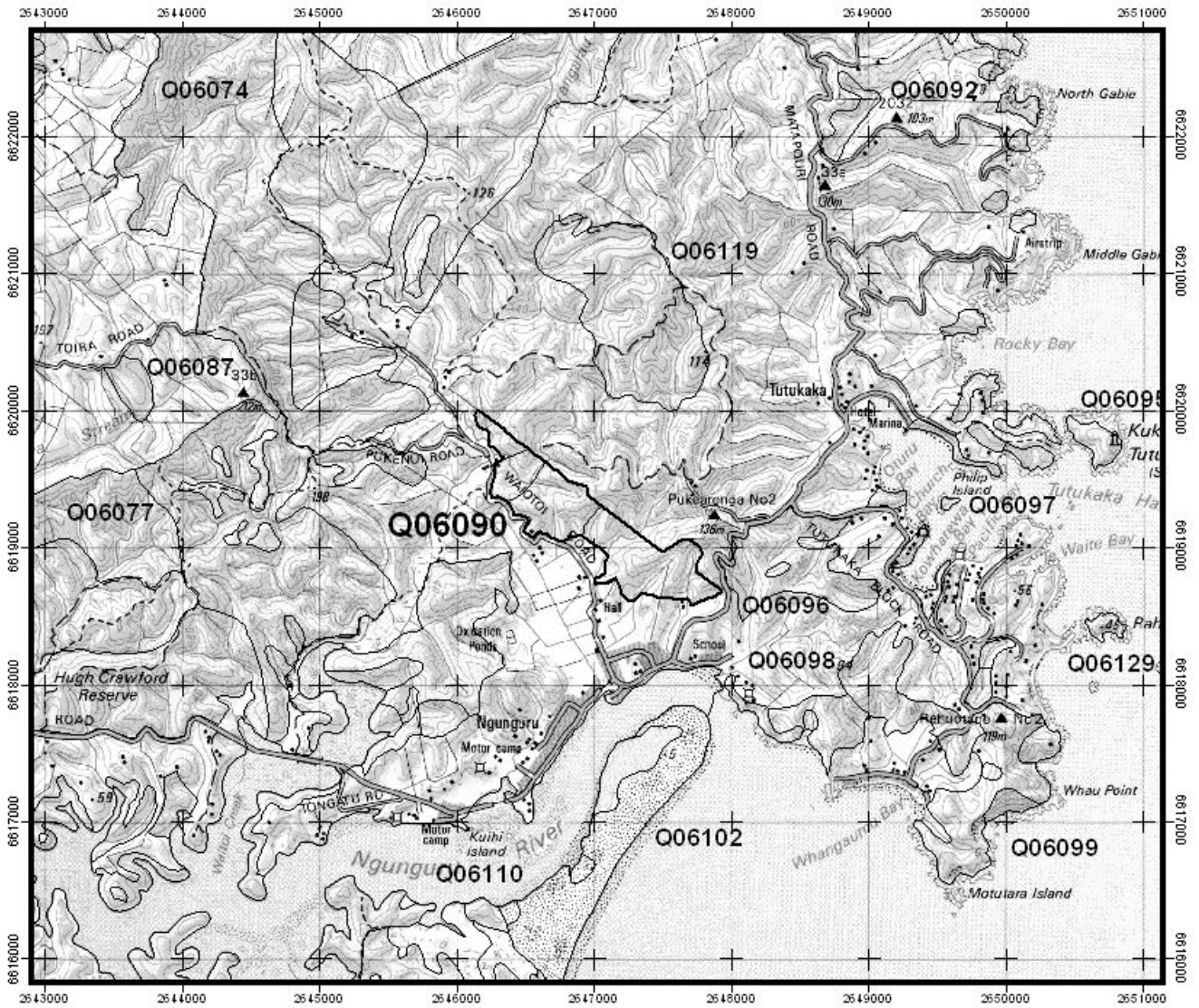
Fauna

NI brown kiwi (Serious Decline), kukupa (Gradual Decline), NI fantail, grey warbler, tui.

Significance

Presence of threatened species.

Representative site for type (a) kahikatea-taraire-totara forest, and type (c) totara-tanekaha shrubland.



Waiotai Road Remnant Q06/090

Each grid is 1000m x 1000m

and = 100 ha

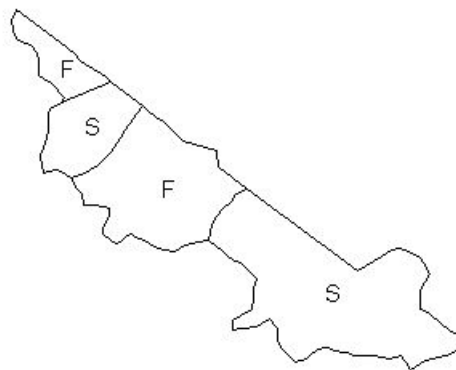
S = shrubland

F = forest

W = wetland

E = estuarine

D = duneland



HULSE'S BUSH

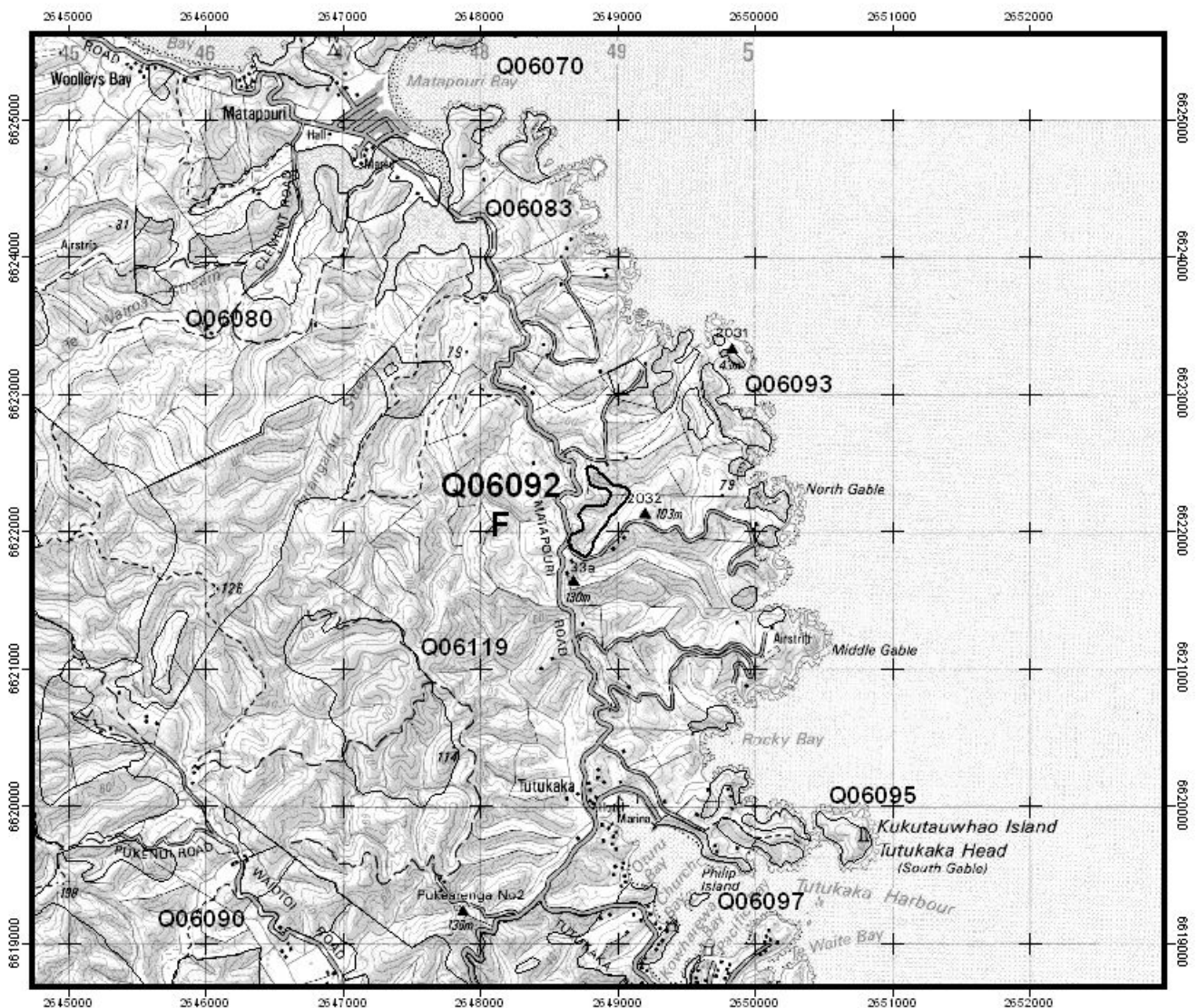
Survey no. Q06/092
Survey date 24 March 1997
Grid reference Q06 488 221
Area 10 ha
Altitude 40-80 m asl

Ecological unit

(a) Totara forest on hillslope

Landform/geology

Valley in hillcountry of Waipapa Terrane greywacke.



Hulse's Bush Q06/092

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

Vegetation

Totara dominates this small hillslope site, with a high diversity of associated species. The following occur occasionally throughout the site: rimu, puriri, kawaka, kahikatea, taraire, kohekohe, rewarewa, karaka, pukatea, and ti kouka.

Significant flora

Kawaka (Sparse).

Fauna

Kukupa (Gradual Decline), tui, grey warbler. Visiting NI kaka (Nationally Endangered) and NI kiwi (Serious Decline), and bellbird (Regionally Significant) all reported.

Significance

Presence of threatened and regionally significant species. Possible presence of kiwi; survey required.

2 ha at this site are protected by a Queen Elizabeth II National Trust covenant.

NORTH GABLE REMNANTS

Survey no.	Q06/093
Survey date	21 March 1997
Grid reference	Q06 498 232, Q06 500 222, Q06 501 213, Q06 499 215, Q06 497 229, Q06 495 228, Q06 500 219, Q06 497 234, Q06 498 224, Q06 490 231, Q06 494 231
Area	44 ha
Altitude	0-60 m asl

Ecological unit

- (a) Totara-kanuka/manuka coastal forest on hillslope
- (b) Kahikatea-totara coastal forest in gully
- (c) Puriri-taraire-totara coastal forest in gully
- (d) Pohutukawa-kanuka/manuka coastal forest on headland/cliff
- (e) Pohutukawa coastal forest on headland and hillslope
- (f) Pohutukawa-totara coastal forest on hillslope

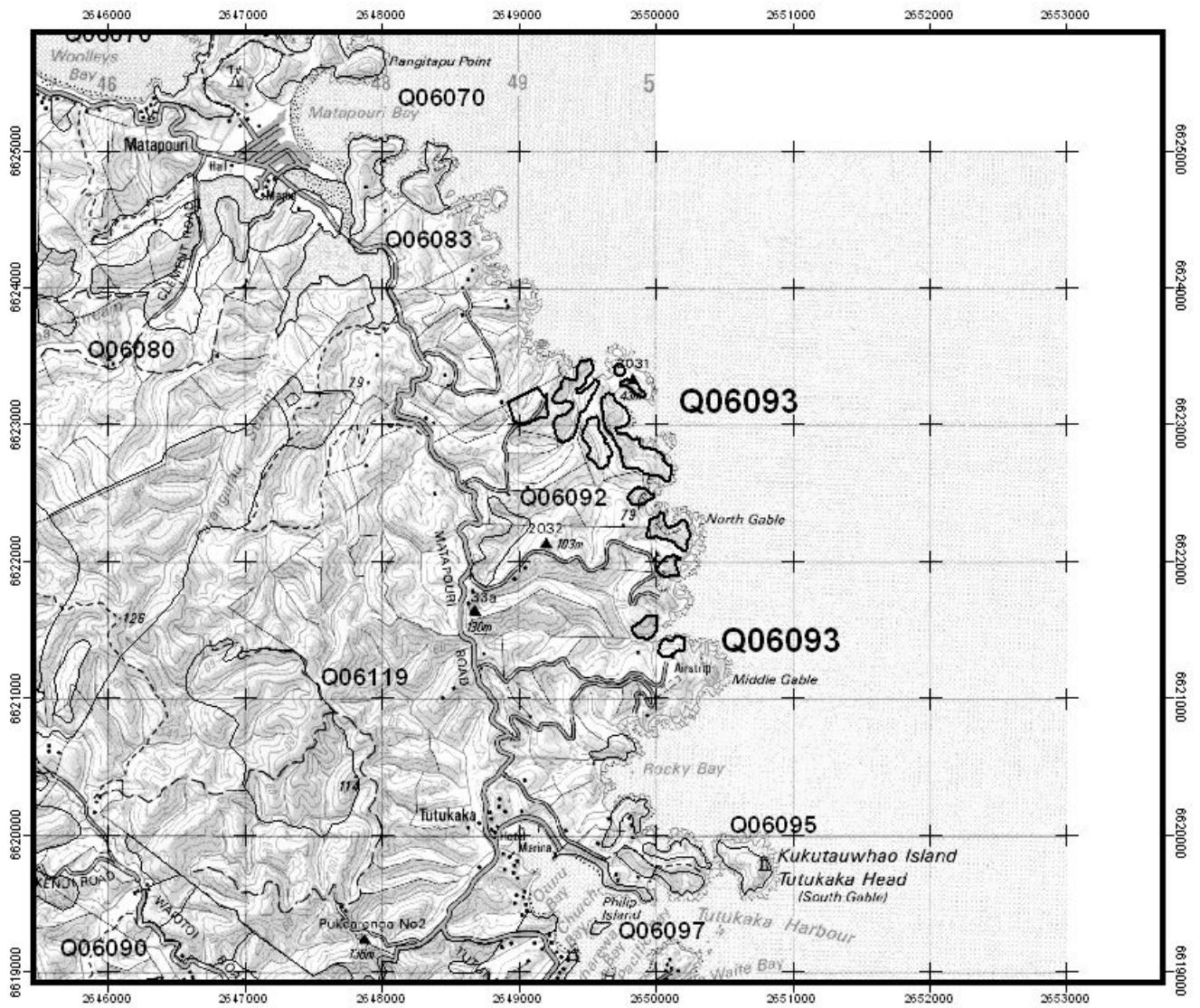
Landform/geology

Steep coastal headland and hillcountry in Waipapa Terrane greywacke.

Vegetation

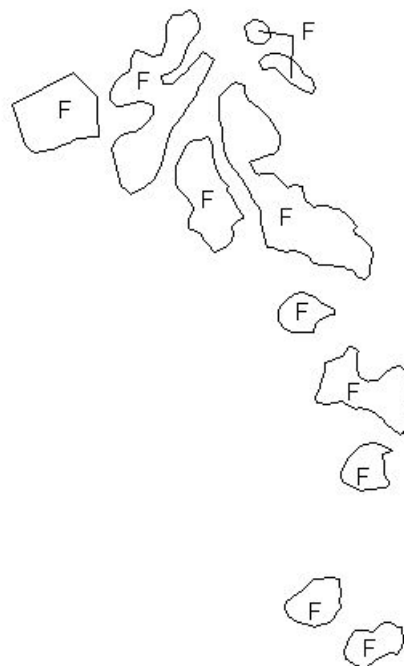
The site consists of eleven coastal forest remnants spread over approximately 2.5 km of coastline.

- (a) The north-western remnant, which is dissected by the access road, is dominated by totara, with kanuka/manuka as a common species.
- (b) West of this site is a gully adjacent to the coast, in which kahikatea and totara are the dominant species. Frequent species are rimu, rewarewa, puriri, kohekohe, nikau and ti kouka.
- (c) In the next gully south, which is also next to the coast, vegetation is dominated by puriri-taraire-totara forest. Kahikatea, rimu, kohekohe, nikau, and kanuka/manuka are frequent, with occasional rewarewa.
- (d) Headlands and cliffs near these remnants are dominated by pohutukawa, with kanuka/manuka common. Other species present include harakeke, houpara, kohekohe, and ti kouka.



North Gable Remnants Q06/093

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



Moving southwards is a small area type (a) forest, with kanuka/manuka common. Rimu and rewarewa are frequent, with the occasional kowhai, kahikatea, and puriri.

Type (a) is again repeated to the south of this area, with frequent rimu, nikau, puriri, pohutukawa, nikau, and kowhai. Kahikatea, kohekohe, and emergent rewarewa are occasional. Plantation pines are growing adjacent to the site.

The large remnant at North Gable is composed of type (d) coastal forest. Frequent harakeke, ti kouka, and kawakawa, as well as occasional kohekohe and emergent rimu occur throughout. Some mature *Pinus* sp. are growing along the ridges.

(e) South of this site is a smaller area dominated by pohutukawa. Frequent species include nikau, kohekohe, karaka, and puriri. A few *Pinus* sp. are growing on the northern edge of the remnant.

(f) The southern end of the site contains an area of pohutukawa-totara coastal forest, with frequent puriri, rimu, taraire, kohekohe, nikau, and ti kouka. Kahikatea and rewarewa occur occasionally.

Type (f) is repeated at this site, with frequent puriri, kohekohe, nikau, ti kouka, and kanuka/manuka. There is also the occasional totara.

Significant flora

The threatened fireweed *Senecio scaberulus* (Nationally Endangered) occurs at this site. It also contains *Myrsine aquilonia* (Sparse), parapara (Sparse), tawapou (Regionally Significant) and the Northland endemic fern *Asplenium northlandicum* (Regionally Significant).

Fauna

NI brown kiwi (Serious Decline) recorded in 1991. Kukupa (Gradual Decline), Northern little blue penguin (Gradual Decline), pied shag (Sparse) roost site, bellbird (Regionally Significant), little shag, morepork, NZ kingfisher, tui.

Significance

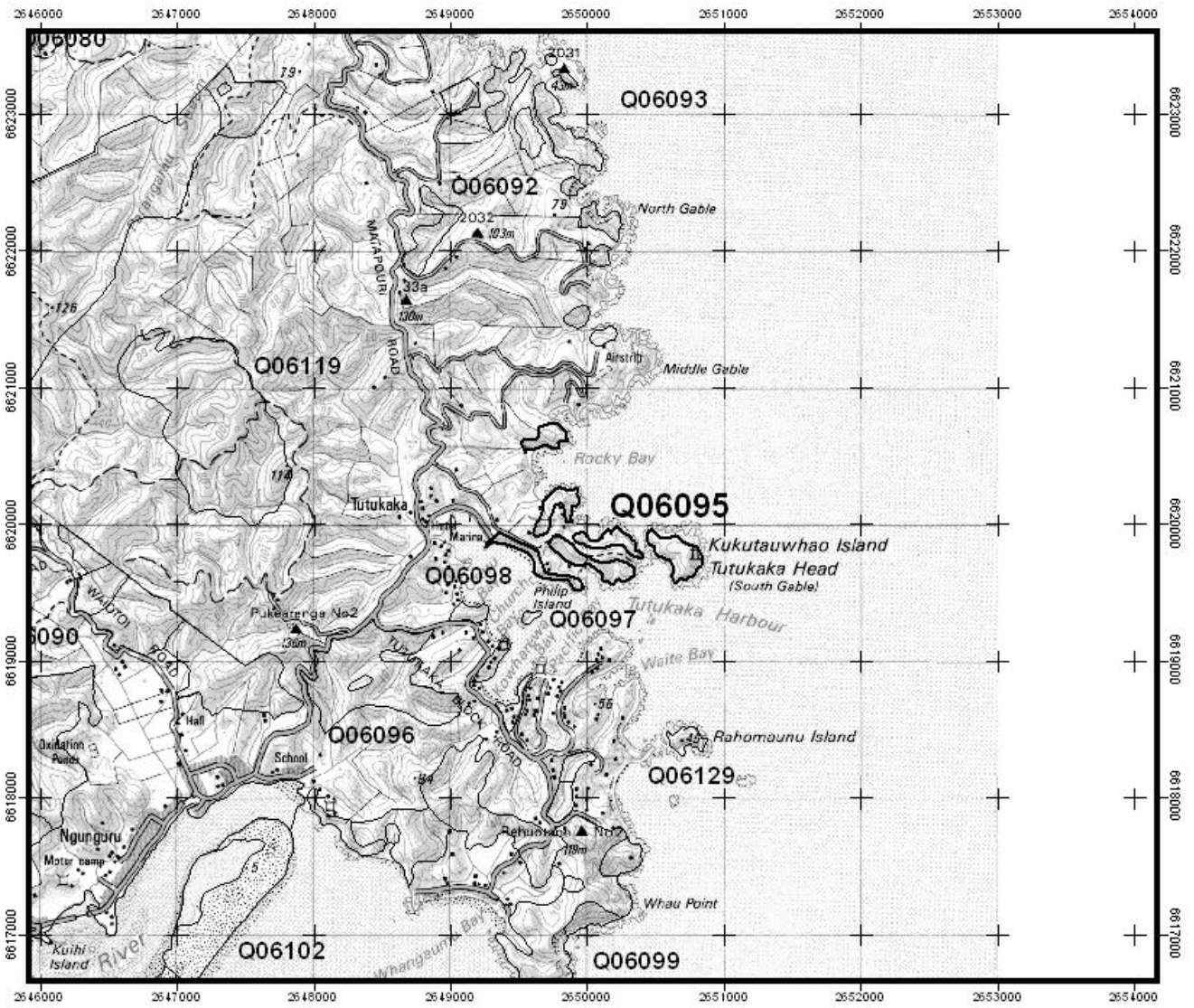
An example of a rare forest type of limited distribution in Northland, which provides habitat for threatened and regionally significant plants and animals. Some of the remnants have been fenced, and possum control has been undertaken at the northern end of the site.

Representative site for type (b) kahikatea-totara coastal forest, type (c) puriri-taraire-totara coastal forest, type (d) pohutukawa-kanuka/manuka coastal forest, type (e) pohutukawa coastal forest, and type (f) pohutukawa-totara coastal forest. Only record of type (b) in the Ecological District.

22.1 ha at this site are protected by a Queen Elizabeth II National Trust covenant.

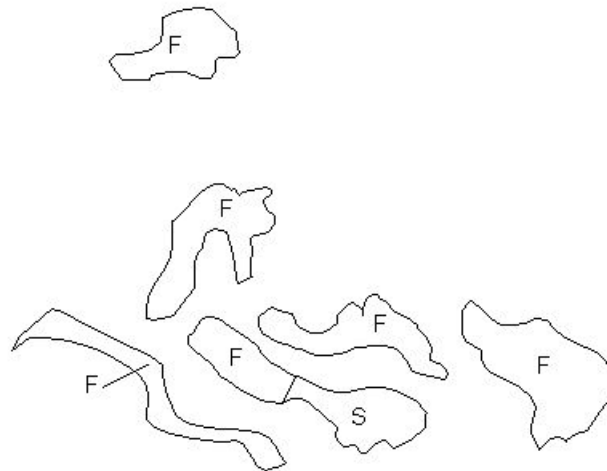
SOUTH GABLE REMNANTS

Survey no.	Q06/095
Survey date	24 March 1997
Grid reference	Q06 496 197, Q06 501 198, Q06 500 197, Q06 496 206, Q06 506 197, Q06 497 200
Area	32 ha (28 ha forest, 4 ha shrubland)
Altitude	0-60 m asl



South Gable Remnants Q06/095

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



Ecological unit

- (a) Pohutukawa-kauri coastal forest on headland
- (b) Pohutukawa coastal forest on headland
- (c) Kanuka/manuka-houpara coastal shrubland on headland
- (d) Kanuka/manuka-pohutukawa coastal forest on headland
- (e) Houpara-karaka-pohutukawa coastal forest on headland/island

Landform/geology

Steep coastal headlands and island of Waipapa Terrane greywacke.

Vegetation

This site is composed of several coastal forest and shrubland remnants on the cliffs of the South Gable headland, and the adjacent Rocky Bay.

(a) The northern remnant is separated from the other remnants, and is dominated by pohutukawa, with kauri common on the ridge. Kowhai is frequent throughout, with occasional totara and rimu. There is a small clearing in the centre of the remnant, with ti kouka and the odd nikau growing. Mature *Pinus* sp. are on the edge of the site.

(b) The northern remnant on the South Gable is dominated by pohutukawa. Frequent species include harakeke, kohekohe, kanuka/manuka, and pate in the understory. Emergent rewarewa and rimu also occur.

(c) Moving south from the above site is an area of coastal shrubland, dominated by kanuka/manuka with houpara common. Ti kouka and emergent pohutukawa are frequent. Less common species are puriri and kawakawa, as well as emergent totara, kowhai, kauri, and rewarewa.

The coastal cliff adjacent to the Tutukaka Marina is dominated by type (d). Frequent species are puriri, totara, taraire, kohekohe, mamaku, kawakawa, and emergent kauri. The occasional kowhai and *Olearia* sp. also occur.

(e) Kukutauwhao Island, off the end of the headland, is covered in coastal shrubland dominated by pohutukawa, houpara, and karaka. There is a high diversity of other species present including ti kouka, kanuka/manuka, harakeke, tree fern, rengarenga lily, bracken, kawakawa, mahoe, mapou, native broom, akepiro, cutty grass, rangiora, and emergent rimu and kauri.

Significant flora

Pimelea tomentosa (Serious Decline) has been recorded on Kukutauwhao Island.

Fauna

NI fantail, grey warbler, NZ kingfisher.

Significance

The site contains a high diversity of coastal vegetation types, which are rare nationally, and contains one of the best examples of coastal forest in the District.

Presence of a threatened plant species.

Representative site for type (a) pohutukawa-kauri coastal forest, type (b) pohutukawa coastal forest, type (c) kanuka/manuka-houpara coastal shrubland, and type (e) houpara-karaka-pohutukawa coastal forest. Only record of types (c) and (e) in the Ecological District.

21.9 ha at this site are protected; 9.5 ha are administered by the Whangarei District Council and 12.4 ha are reserves administered by the Department of Conservation.

TUTUKAKA REMNANTS

Survey no. Q06/098
Survey date 25 March 1997
Grid reference Q06 491 193, Q06 492 190, Q06 494 186
Area 9 ha
Altitude 0-30 m asl

Ecological unit

- (a) Kauri-pohutukawa-rimu coastal forest on headland (40%)
- (b) Pohutukawa coastal forest on headland (60%)

Landform/geology

Steep coastal headlands of Waipapa Terrane greywacke fronting the upper reaches of the Tutukaka Harbour.

Vegetation

Series of small coastal forest remnants in the Tutukaka Harbour.

(a) The headland remnant on the north side of Church Bay is dominated by pohutukawa and emergent kauri and rimu. Totara, taraire, kowhai, tree fern, and ti kouka are frequent, with emergent rewarewa less common. There are a few mature *Pinus* sp. at the point of the headland, some of which have been felled.

(b) The headlands on both sides of Kowharewa Bay are dominated by pohutukawa. Frequent species are taraire, kowhai, puriri, mamaku, kanuka/manuka, kohekohe and houpara. The occasional ti kouka, tanekaha, rimu and emergent rewarewa also occur.

All sites have residential properties bordering them, with various exotic trees growing at the tops of the cliffs adjacent to the coastal forest. On the north side of Kowharewa Bay there are two small groups of mature *Pinus* sp. growing within the coastal forest.

Significant flora

Psilotum nudum (Regionally Significant).

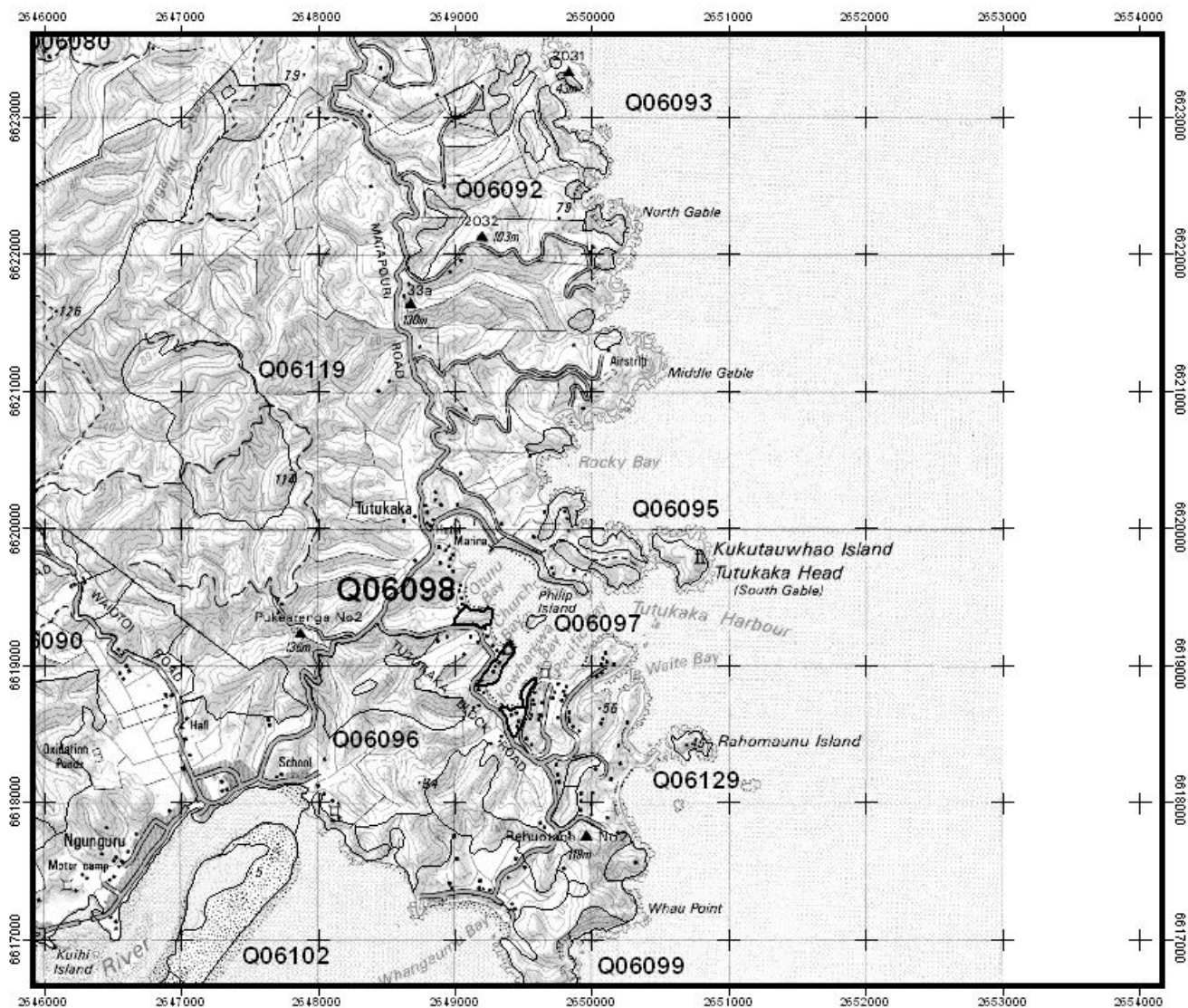
Fauna

NZ kingfisher.

Significance

Representative site, and a good example old-growth pohutukawa forest, and coastal kauri-pohutukawa-rimu coastal forest, both of which are rare in Northland.

Presence of a regionally significant plant species.



Tutukaka Remnants Q06/098

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



REHUOTANE HEADLAND

Survey no.	Q06/099
Survey date	10 April 1997
Grid reference	Q06 498 180, Q06 500 175
Area	134 ha (62 ha forest, 72 ha shrubland)
Altitude	0-119 m asl

Ecological unit

- (a) Pohutukawa-houpara coastal forest on headland
- (b) Kanuka/manuka-tanekaha-totara coastal shrubland on hillslope
- (c) Kanuka/manuka coastal shrubland on hillslope
- (d) Kanuka/manuka-kauri-rimu coastal forest on hillslope
- (e) Taraire coastal forest in gully
- (f) Rimu-taraire-totara coastal forest in gully
- (g) Kanuka/manuka-totara coastal shrubland on hillslope

Landform/geology

Coastal headlands and hillcountry of Waipapa Terrane greywacke.

Vegetation

Headland with coastal forest and shrubland.

(a) On the western side of the site, opposite the end of the Ngunguru Sandspit, the coastal forest is dominated by pohutukawa, with houpara common. Kohekohe, kowhai, totara, puriri, rangiora, *Olearia* sp., taraire, and kawakawa are all frequent, with the occasional rewarewa, rimu, and ti kouka.

(b) To the east of the above site, as seen from Whangaumu Bay, is a small area of shrubland dominated by kanuka/manuka, and emergent totara and tanekaha. Puriri and emergent rimu are frequent throughout, with the occasional nikau, ti kouka, and emergent rewarewa.

(c) Adjacent to this site is another small shrubland area, dominated by kanuka/manuka. A few puriri, ti kouka, and emergent rewarewa are also present.

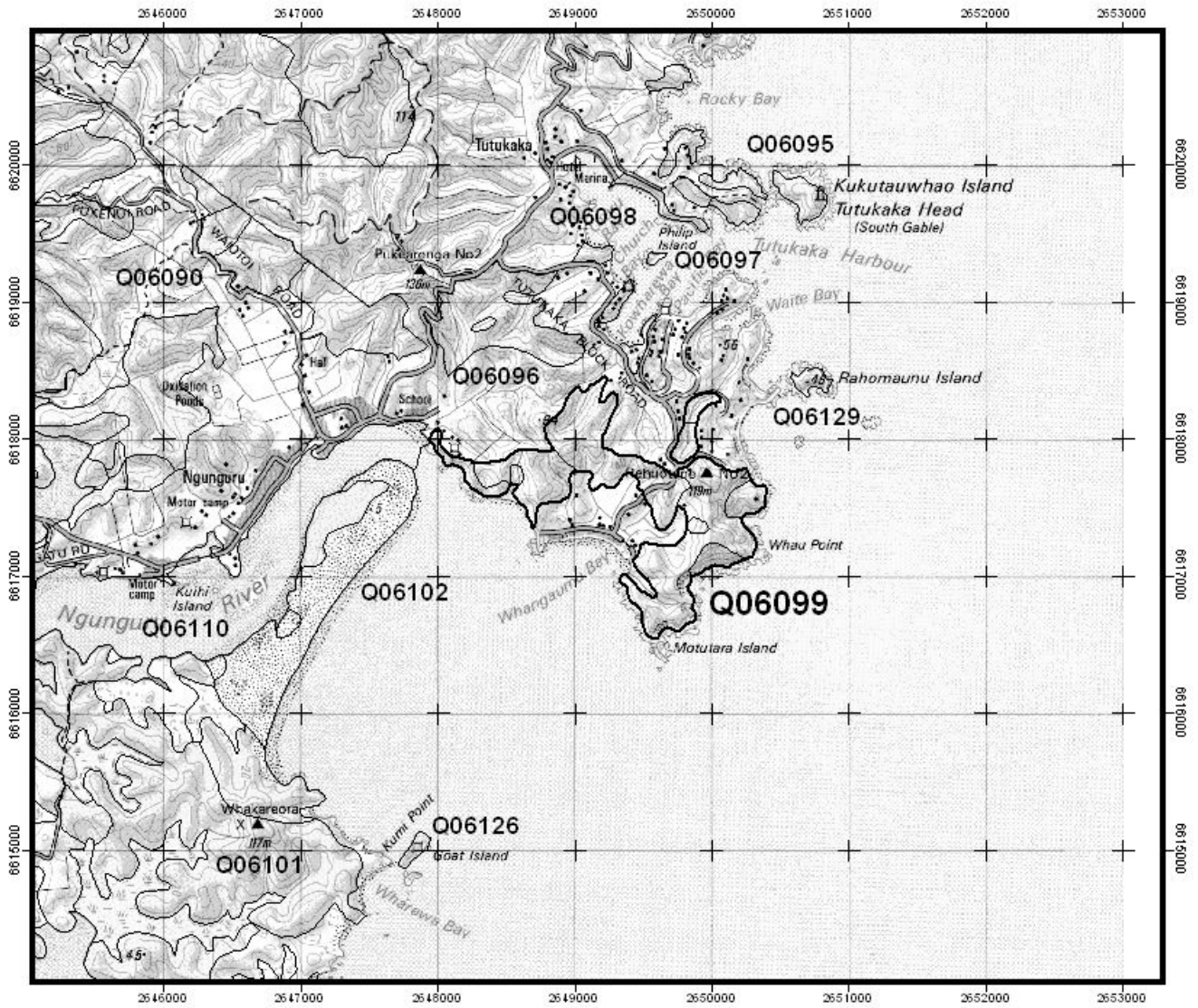
(d) Moving east from this site is an area of secondary forest, which extends as far as Tutukaka Block Road. This area is dominated by mature kauri and rimu, as well as kanuka/manuka. Frequent species are tanekaha, puriri, taraire, and nikau. Rewarewa and matai are less common.

(e) Within this site is a gully dominated by taraire, with frequent puriri, rimu, totara, and nikau.

(f) Moving north from this area, but still to the west of Tutukaka Block Road, is a gully dominated by taraire, totara, and rimu. Puriri, tanekaha, rewarewa, and nikau are frequent, with the occasional karaka.

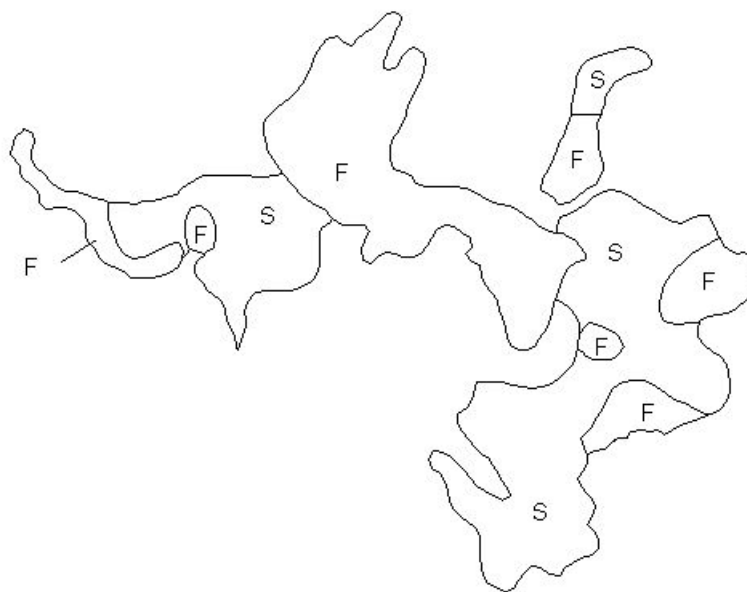
In the gully immediately north of the Rehuotane Trig, type (f) also occurs at the head of the gully, with frequent puriri, kohekohe, nikau, and ti kouka. Type (c) also occurs in the lower half of the gully, and includes some cleared, grassed areas.

(g) The large area to the south-east of Tutukaka Block Road is dominated by kanuka/manuka shrubland, with emergent totara common. Other species present include tree fern, puriri, and the occasional emergent rimu and rewarewa. Within this site are some small areas of totara secondary forest, with tanekaha and kanuka/manuka common. Rewarewa and rimu are also present. At



Rehuotane Headland Q06/099

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



least 14 houses have been built within this shrubland area, although little of the shrubland has been cleared to date.

Significant flora

Hibiscus aff. *trionum* (Nationally Endangered/Taxonomically Indeterminate), *Calystegia marginata* (Sparse), *Metrosideros carminea* (Regionally Significant) and *Olearia albida* (Regionally Significant).

Fauna

Long-tailed bat (Nationally Vulnerable), matuku (Nationally Endangered), kukupa (Gradual Decline), NI fernbird (Sparse), NI tomtit (Regionally Significant), NZ kingfisher, tui. Past records of NI brown kiwi (Serious Decline). Banded kokopu (Regionally Significant), koaro (Regionally Significant).

Significance

Presence of several threatened and regionally significant species, including past records of kiwi.

Although modified in places, the site is a relatively large coastal forest area for the District, and is a forest type which is rare in Northland.

Representative site for type (a) pohutukawa-houpara coastal forest, type (d) kanuka/manuka-kauri-rimu coastal forest, type (e) taraire coastal forest, and type (f) rimu-taraire-totara coastal forest. Only record of type (a), (d), (e), and (f) in the Ecological District.

11.9 ha (9%) at this site are protected; 2.4 ha by a Queen Elizabeth II National Trust covenant and 9.5 ha are administered by the Whangarei District Council.

WHAKAREORA COASTAL HABITAT

Survey no.	Q06/101
Survey date	23 April 1997
Grid reference	Q06 467 141, Q06 461 138, Q06 445 140, Q06 446 144, Q06 461 154
Area	364 ha (152 ha forest, 193 ha shrubland, 19 ha wetland)
Altitude	0-117 m asl

Ecological unit

- (a) Kanuka/manuka coastal shrubland on hillslope
- (b) Kanuka/manuka-tanekaha-totara-towai coastal shrubland on hillslope
- (c) Kanuka/manuka-totara coastal shrubland on hillslope
- (d) Totara-kanuka/manuka coastal forest on hillslope
- (e) Pohutukawa coastal forest on steep hillslope/cliff
- (f) Giant umbrella sedge sedgeland on flat
- (g) Kahikatea coastal forest on hillslope
- (h) Kanuka/manuka-totara-mamangi-mapou coastal forest on hillslope.
- (i) Kawaka coastal forest on hillslope
- (j) Kanuka/manuka-rimu coastal forest on hillslope
- (k) Kanuka/manuka-kauri coastal forest on hillslope
- (l) Kanuka/manuka-kauri-tanekaha coastal forest on hillslope

Landform/geology

Coastal headlands and hillcountry of Waipapa Terrane greywacke bounded by the Horahora and Ngunguru Estuaries on the inland side.

Vegetation

A large area of coastal forest and shrubland at the base of Ngunguru Sandspit, linking the Ngunguru and Horahora Estuaries. This site has been farmed and burned in the past, and is now composed primarily of young, regenerating forest. Some remnants of mature forest still remain in gullies and along the coastline.

(a) The majority of the site, especially the area around the trig station, is dominated by kanuka/manuka shrubland. Relative frequency and composition of associated species differs across this area, but, in general, the following species are frequent to occasional, and are emergent over the kanuka/manuka: kauri, rimu, puriri, tanekaha, totara, and rewarewa.

(b) Within this shrubland area and on the south-east side of the site is a small area kanuka/manuka shrubland with tanekaha, totara, and towai common. Occasional species include puriri, tree fern, and ti kouka.

(c) On the western side of the site are two arms of land jutting out into the saltmarsh area. These arms are covered by kanuka/manuka-totara shrubland. Emergent rimu and tanekaha, as well as ti kouka, occur in low numbers.

(d) Secondary forest dominated by totara with abundant kanuka/manuka can be found on the north-west side of the site, adjacent to the Ngunguru Estuary. Species which are frequent are pohutukawa, tanekaha, puriri, and kowhai, with occasional kauri and rimu.

(e) To the east of this site is a small pohutukawa remnant surrounded by pasture on three sides, and bordering on the estuary. Kohekohe is frequent, with puriri and totara growing on the edge of the area.

(f) South of here, and connected to the main forest area, is a wetland dominated by giant umbrella sedge. Associated species include manuka, *Carex* sp., sharp spike sedge, knobby clubbrush, and kuta.

(g) At the end of Ngunguru Ford Road, bordering the main shrubland area, is a small piece of kahikatea forest. Frequent species are rimu, totara, kauri, and towai, with tanekaha and rewarewa less common.

Type (e) vegetation also occurs on the northern side of the site, at the base of the sandspit.

(h) On the north-east face leading up to the trig is an area of kanuka/manuka-totara-mamangi-mapou coastal forest.

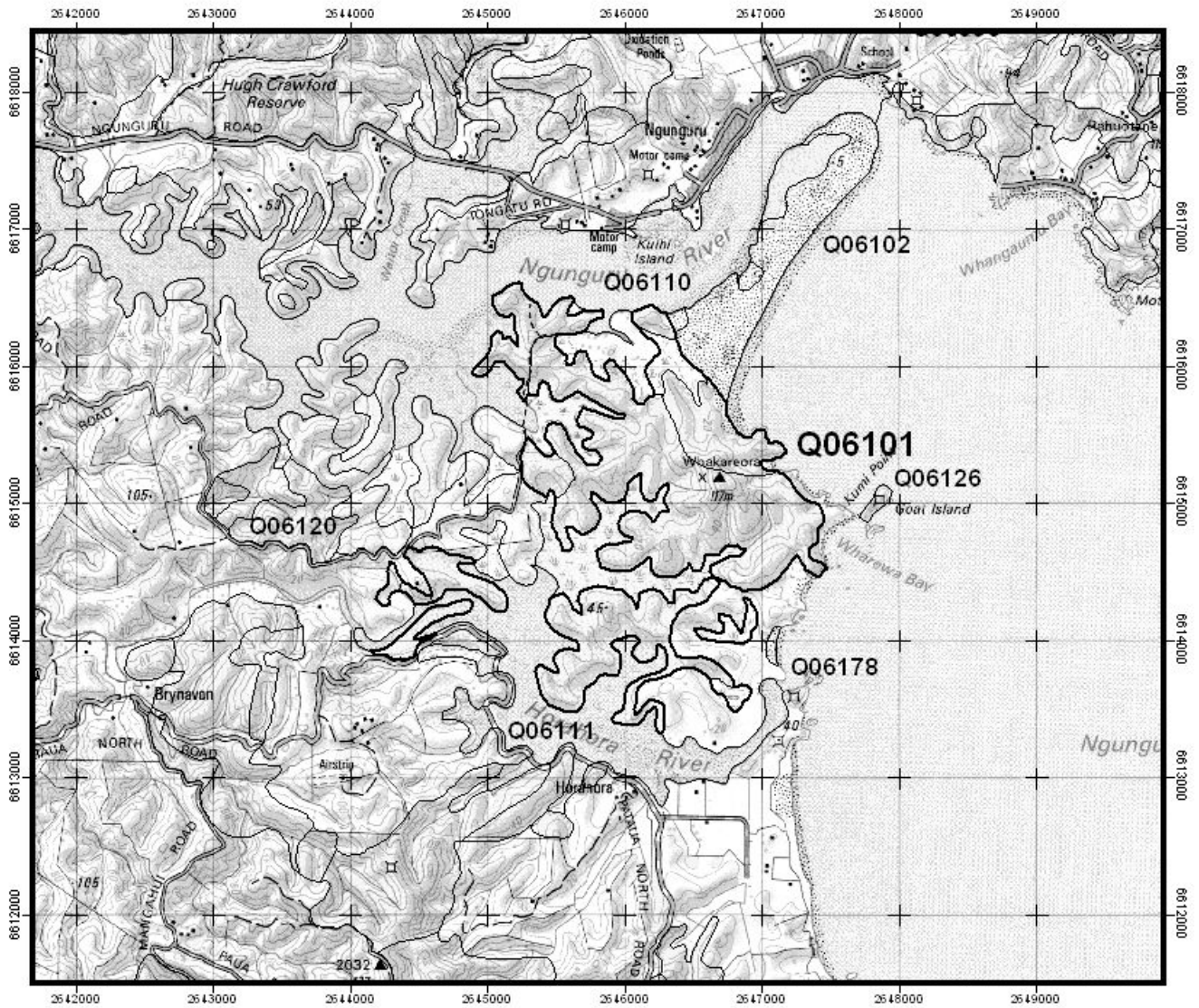
(i) On the eastern side of the site, near the base of the sandspit, is a small piece kawaka forest with frequent pohutukawa and kauri. There is abundant matai regeneration at this site.

Type (e) vegetation also occurs adjacent to the above site, and also on the cliffs along the south-eastern side of the site.

(j) The southern side of the site contains some kanuka/manuka-rimu forest adjacent to the Horahora Estuary, with frequent tanekaha and occasional kauri.

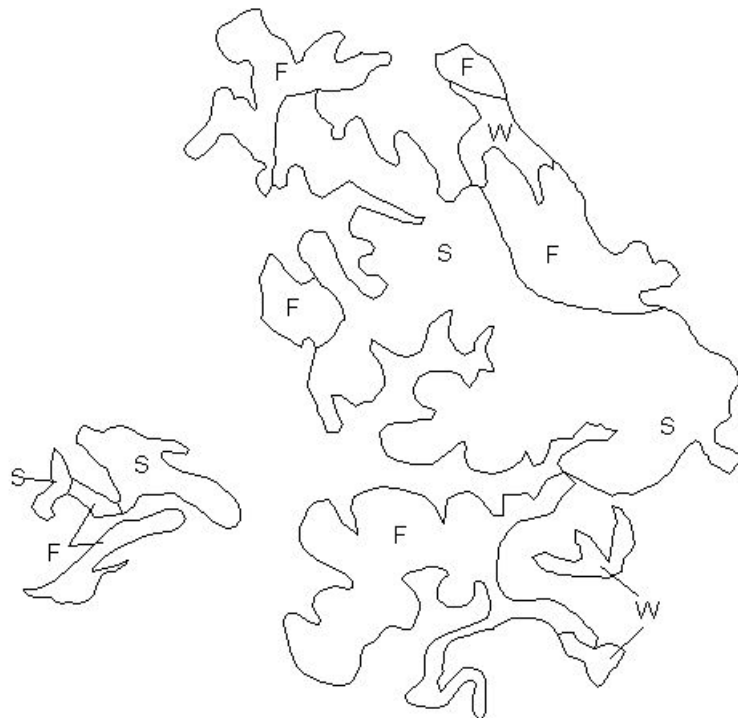
(k) The above vegetation merges into an area of kanuka/manuka-kauri secondary forest on the point sticking out into the estuary. Rimu and totara are frequent, with puriri, rewarewa, kowhai, and kohekohe less common.

Type (d) vegetation is repeated on the western side of the site, adjacent to the Horahora Estuary. Associated species include kauri and rimu, along with occasional puriri, kahikatea, and tanekaha.



Whakareora Coastal Habitat Q06/101

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



Adjacent to the above area, type (a) vegetation is repeated. Tanekaha and totara are emergent. Towai, rewarewa, puriri, and rimu are also present.

(l) This area also contains a small piece of kanuka/manuka-kauri-tanekaha secondary forest towards the southern side. Rimu and kahikatea are frequent, with occasional rewarewa.

The site also contains some areas of freshwater wetland, which were not sighted. SSBI records from 1989 of these wetlands list the following species as being present: *Baumea* spp., *Carex* spp., raupo, harakeke, *Blechnum* sp., and giant umbrella sedge.

Significant flora

Pingao (Gradual Decline), *Mida salicifolia* (Gradual Decline), *Fuchsia procumbens* (Sparse), monoao (Sparse), kawaka (Sparse). *Calystegia tugoriorum*, coastal maire, hard beech reported, tawapou, coastal tussock, and *Hebe* “Whangarei” (all Regionally Significant).

Fauna

The forested area contains common forest birds, as well as kukupa (Gradual Decline), and NI brown kiwi (Serious Decline) reported in the past. The saltmarsh/wetland areas contain matuku (Nationally Endangered), banded rail (Sparse), NI fernbird (Sparse), and spotless crane (Sparse). Pateke (Nationally Endangered) have been present in the past, and could potentially recolonise. Beaches adjacent to the site have reef heron (Nationally Endangered), northern New Zealand dotterel (Sparse), and variable oystercatcher (Regionally Significant). White heron (Nationally Critical) are frequent visitors to the area. Black mudfish (Gradual Decline) have been recorded in several wetlands on the south side of the site. Contains the threatened snail *Amborbytida dunniae* (Gradual Decline).

Significance

Whakareora shows a full sequence of coast, estuarine-brackish-freshwater wetland, shrubland, and coastal forest. It contains a high diversity of threatened and regionally significant plants and animals.

This is a unique coastal site in that it has the only area of kawaka coastal forest recorded in Northland (L. Forester, pers. comm.).

Representative site for type (a) kanuka/manuka coastal shrubland, type (b) kanuka/manuka-tanekaha-totara-towai coastal shrubland, type (c) kanuka/manuka-totara coastal shrubland, type (d) totara-kanuka/manuka coastal forest, type (e) pohutukawa coastal forest, type (f) giant umbrella sedge sedgeland, type (g) kahikatea coastal forest, type (i) kanuka/manuka-kawaka coastal forest, type (j) kanuka/manuka-rimu coastal forest, type (k) kanuka/manuka-kauri coastal forest, type (l) kanuka/manuka-kauri-tanekaha coastal forest. Only record of types (b), (f), (i), (k), and (l).

16.1 ha at this site are reserves administered by the Department of Conservation.

NGUNGURU SANDSPIT

Survey no.	Q06/102
Survey date	4 April 1997
Grid reference	Q06 470 167
Area	95 ha (75 ha dunelands, 4 ha estuary, 16 ha shrubland)
Altitude	0-5 m asl

Ecological unit

- (a) Kanuka/manuka coastal shrubland on sandspit
- (b) Sweetpea shrub scrub on sandspit
- (c) Sandfield on sandspit
- (d) Sea primrose saltmarsh on sandspit

Landform/geology

Holocene sandspit at the mouth of Ngunguru Estuary, comprising a sand beach and foredune on the seaward side, and dune and deflation areas to landwards.

Vegetation

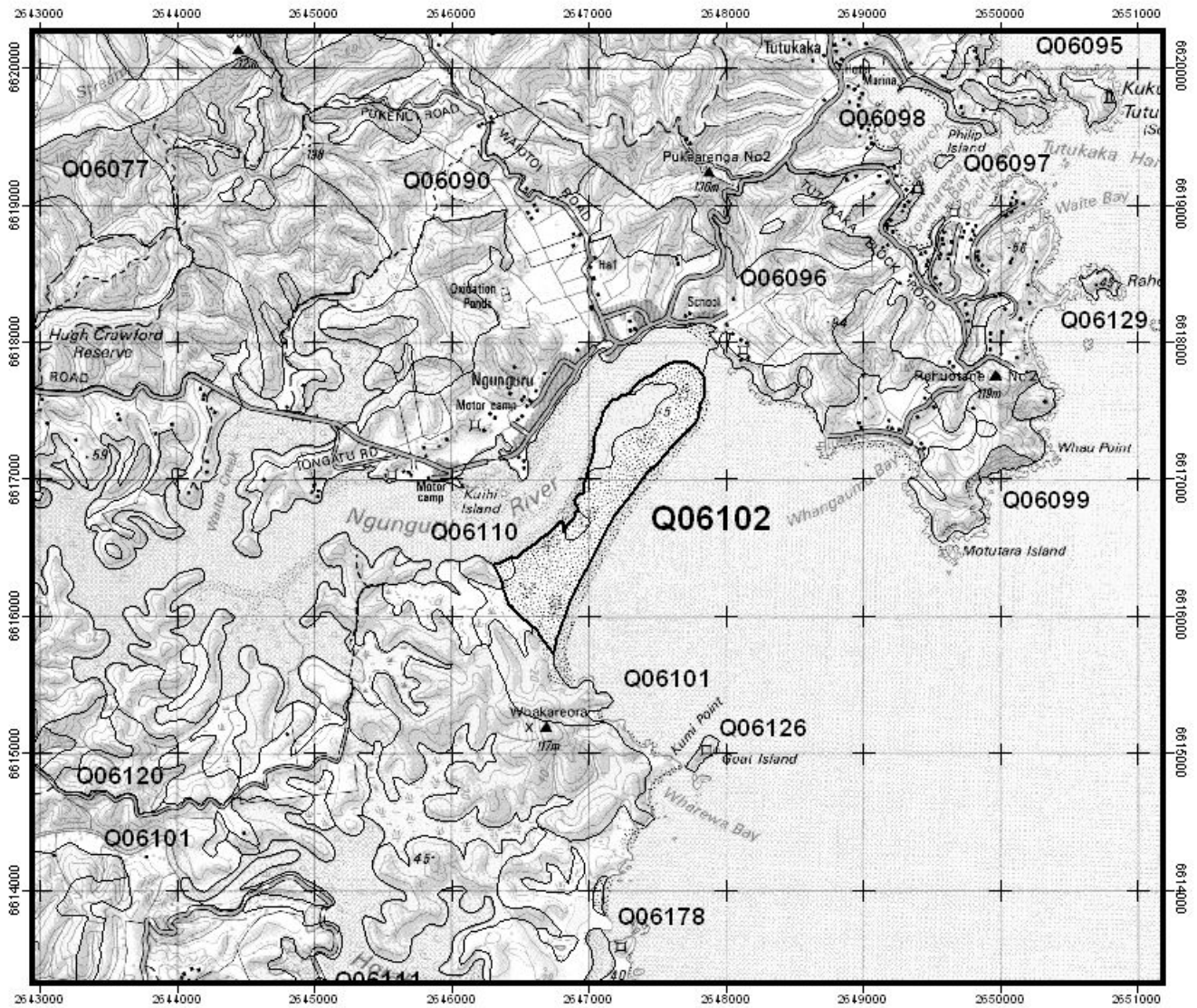
- (a) At the north-western end of the spit is an area of kanuka/manuka shrubland with frequent totara, which has been eaten out by stock. Brush wattles are present in low numbers, as well as sweet pea shrub, boneseed, wilding pines, and sharp rush. There are several pohutukawa at the southern end of the site.
- (b) To the north of this is an area dominated by sweetpea shrub.
- (c) The dune area consists predominantly of sand. Dune species which occur most frequently are toetoe, knobby clubrush, and spinifex. The adventives hawkbit and pampas also occur frequently. Other species present in this coastal dune association include tauhinu, shore bindweed, pohuehue, New Zealand spinach, and pingao. Other adventives include marram grass and buffalo grass, and large numbers of *Pinus* sp. seedlings.
- (d) On the estuary side of the spit there are two small areas of saltmarsh dominated by sea primrose. Other common species include glasswort, selliera, saltmarsh ribbonwood, and knobby clubrush.

Significant flora

Desmoschoenus spiralis (Gradual Decline), *Suaeda novae-zelandiae* (Regionally Significant).

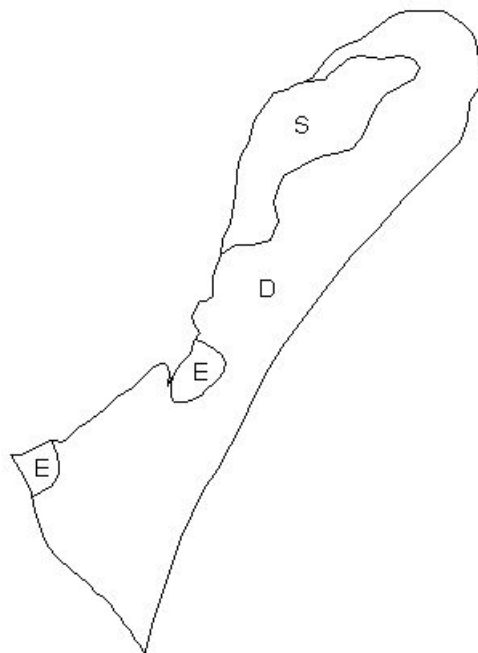
Fauna

The sandspit is a very important site for shorebirds, and provides habitat for breeding northern NZ dotterel (Nationally Vulnerable) and variable oystercatcher (Regionally Significant), especially at the northern end. Up to 12 pairs of northern NZ dotterel have bred annually at this site in the past, with up to 40 individuals roosting during winter months. Other birds which have been recorded at this site include grey duck (Nationally Endangered), matuku (Nationally Endangered), reef heron (Nationally Endangered), Caspian tern (Nationally Vulnerable), wrybill (Nationally Vulnerable), banded dotterel (Gradual Decline), kukupa (Gradual Decline), northern little blue penguin (Gradual Decline), white-fronted tern (Gradual Decline), banded rail (Sparse), black shag (Sparse), NI fernbird (Sparse), pied shag (Sparse), spotless crane (Sparse), bar-tailed godwit, lesser knot, little shag, NZ kingfisher, NZ pipit, paradise shelduck, pied oystercatcher, pied stilt, sharp-tailed sandpiper, turnstone, whimbrel and white-faced heron. White heron (Nationally Critical),



Ngunguru Sandspit Q06/102

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



NI kaka (Nationally Endangered) and bellbird (Regionally Significant), are occasionally recorded at this site. Other birds using the area include NI fantail, grey warbler, morepork, silvereye and tui.

The snail *Succinea archeyi* (Serious Decline), and the black katipo (Serious Decline) can be found in the dunes. Shore skink and copper skink are also present at this site, and inanga and shortfin eel have been recorded in the freshwater wetland at the base of the spit.

Significance

The site provides habitat for a high diversity of bird species, including many threatened species. It is a breeding site for both northern NZ dotterel and variable oystercatcher, both of which face a reduction in their habitat due to pressure from coastal development. Ngunguru Sandspit supports the largest population of *Succinea archeyi* in the Ecological District, and the third largest population of this species in New Zealand. It also supports other threatened invertebrates, and threatened and regionally significant plants.

The Ngunguru Sandspit is an example of a habitat type which is now very rare both in Northland and nationally, and is one of the least modified sandspits remaining in private ownership. Its ecological value is further increased by its proximity to other significant natural areas, and its continuity with coastal forest at site Q06/101.

Representative site for type (c) coastal sandfield.

The sandspit is a site of regional geological significance, and is:

- an excellent example of an unmodified sand barrier beach and dune field developed between a tidal estuary and a broad open bay,
- a significant example of a rapidly disappearing coastal feature (Kenny & Hayward 1996).

2 ha at this site are a reserve administered by the Whangarei District Council.

WHANANAKI COASTAL REMNANTS

Survey no.	Q06/103
Survey date	27 February 1997
Grid reference	Q06 410 310, Q06 422 300, Q06 421 308, Q06 415 305
Area	23 ha (21 ha forest, 2 ha shrubland)
Altitude	0-20 m asl

Ecological unit

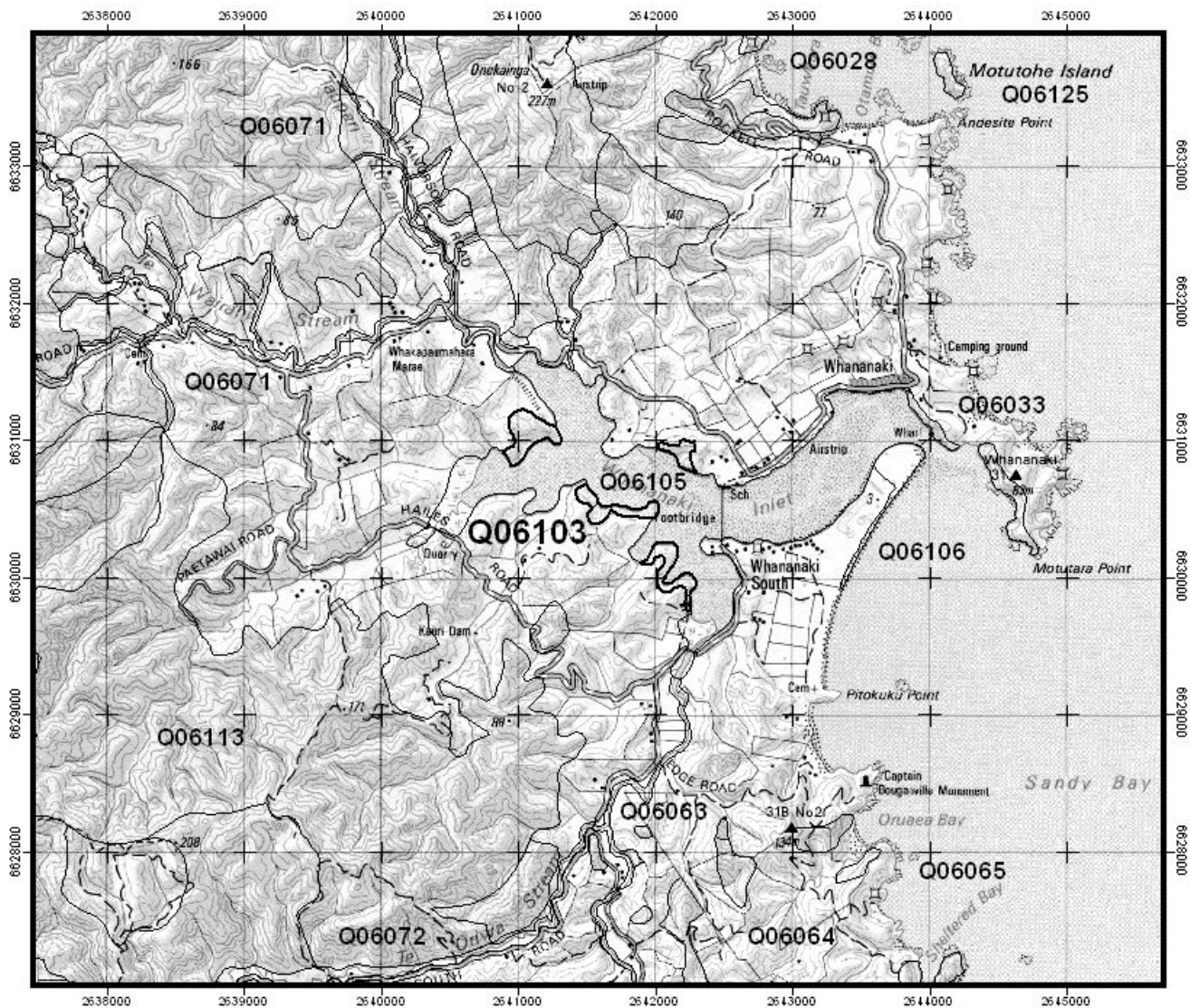
- (a) Totara coastal forest on hillslope
- (b) Puriri-totara coastal forest on hillslope
- (c) Pohutukawa coastal forest on hillslope
- (d) Kanuka-manuka coastal shrubland on hillslope
- (e) Kanuka/manuka-totara coastal forest on hillslope

Landform/geology

Coastal headlands in Waipapa Terrane greywacke fronting the Whananaki Estuary.

Vegetation

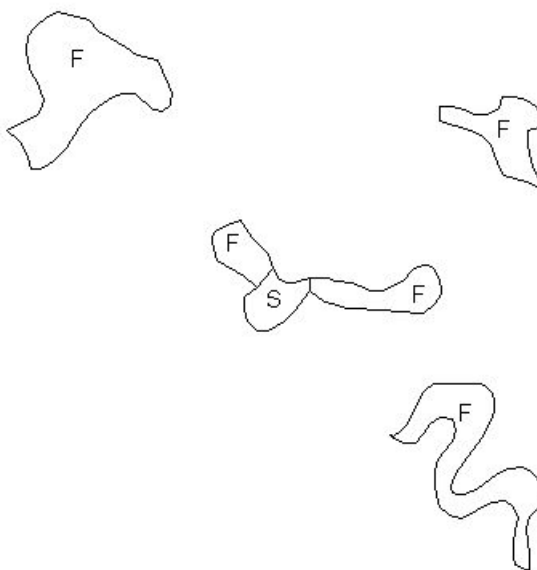
The site consists of four small coastal remnants adjacent to the Whananaki Estuary.



Whananaki Coastal Remnants Q06/103

Each grid is 1000m x 1000m

- and = 100 ha
- S = shrubland
- F = forest
- W = wetland
- E = estuarine
- D = duneland



(a) The western coastal remnant on the northern side of the estuary is dominated by totara, with frequent kauri, pohutukawa, and kanuka/manuka. Kowhai, rimu, puriri, and rewarewa occur in low numbers.

(b) The smaller remnant to the east is composed of puriri-totara coastal forest, with frequent pohutukawa and kanuka/manuka, and occasional tanekaha and kowhai.

The western remnant on the southern side of the estuary contains three vegetation types. (c) The eastern end of this remnant contains an area of pohutukawa forest, with frequent rimu, kowhai, puriri, and kanuka/manuka. *Fuchsia procumbens* has been recorded in this remnant.

(d) The central part of this remnant consists of kanuka/manuka shrubland, with emergent totara frequent, and rimu and puriri in low numbers.

Type (a) vegetation is repeated on the western side of this remnant. Frequent species include kauri, rimu, and kanuka/manuka, with occasional kowhai, pohutukawa, puriri, and tanekaha.

(e) The remnant to the south-east consists of a narrow strip adjacent to the estuary, and is dominated by kanuka/manuka-totara forest. Kauri, kowhai, and puriri are frequent within this area, with pohutukawa, tanekaha, nikau, and ti kouka in low numbers.

Significant flora

Fuchsia procumbens (Sparse).

Fauna

Kukupu (Gradual Decline).

Significance

An example of a rare forest type in the District. The remnants act as a buffer to the estuary, and provide habitat for kukupu. Presence of *Fuchsia procumbens*.

Representative site for type (a) totara coastal forest, type (b) puriri-totara coastal forest, and type (c) pohutukawa coastal forest.

0.8 ha at this site is a reserve administered by the Department of Conservation.

WHANANAKI ESTUARY

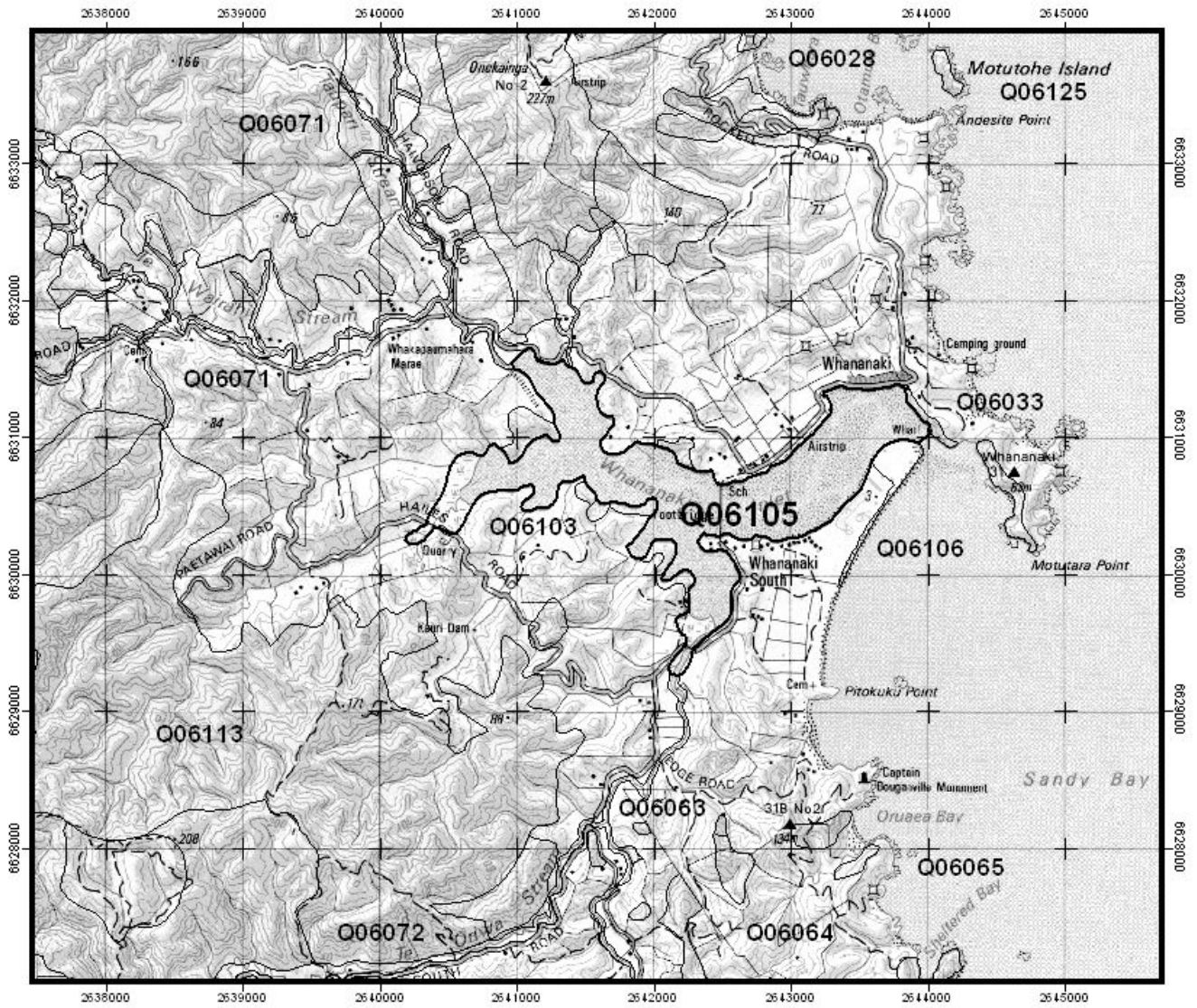
Survey no.	Q06/105
Survey date	27 February 1997
Grid reference	Q06 421 304
Area	225 ha
Altitude	sea level

Ecological unit

- (a) Mangrove forest on estuary
- (b) Oioi-mangrove-saltmarsh ribbonwood saltmarsh on estuary
- (c) Oioi-sea rush saltmarsh on estuary
- (d) Oioi-manuka-raupo association on estuary
- (e) Oioi-kanuka/manuka association on estuary

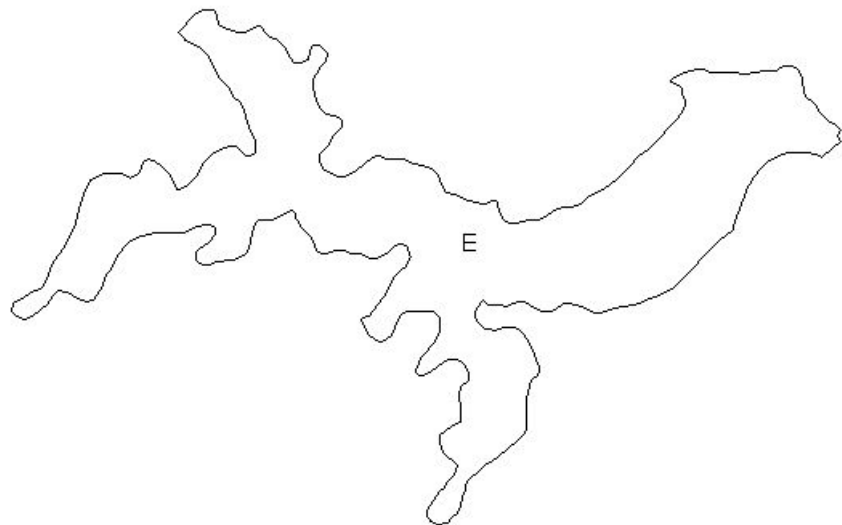
Landform/geology

Estuary.



Whananaki Estuary Q06/105

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



Vegetation

(a) The majority of the site is composed of mangrove forest of varying maturity. The other ecological units are found towards the upper reaches of the fingers of the estuary.

(b) At the southern tip of the estuary is an area dominated by oioi, with saltmarsh ribbonwood and mangrove common. Manuka can be found along the road edge. Less common species include sea rush, jointed twig-rush, raupo, and harakeke.

(c) To the north of this area, the saltmarsh vegetation is dominated by oioi and sea rush. Frequent species are giant umbrella sedge, *Juncus* sp., and saltmarsh ribbonwood. There is also a small amount of harakeke in this area.

Type (c) is repeated in the area adjacent to Hailes Road. Frequent species associated with this vegetation type are manuka, saltmarsh ribbonwood, harakeke, and raupo. Giant umbrella sedge and ti kouka occur in low densities on the edges of the area.

(d) To the north-east of this site, oioi, manuka, and raupo are the dominant species. Less frequent species are giant umbrella sedge, *Juncus* sp., mangrove, and ti kouka.

Type (c) is repeated again in the northernmost point of the site. Saltmarsh ribbonwood and kanuka/manuka are also present.

(e) To the south of this area, the saltmarsh vegetation is dominated by oioi, with kanuka/manuka common. Harakeke, raupo, and ti kouka occur occasionally.

Fauna

Grey duck (Nationally Endangered), matuku (Nationally Endangered), pateke (Nationally Endangered), reef heron (Nationally Endangered), Caspian tern (Nationally Vulnerable), northern NZ dotterel (Nationally Vulnerable), banded dotterel (Gradual Decline), white-fronted tern (Gradual Decline), banded rail (Sparse), black shag (Sparse), little black shag (Sparse), NI fernbird (Sparse), pied shag (Sparse), variable oystercatcher (Regionally Significant), Australasian harrier, bar-tailed godwit, black-backed gull, grey warbler, little shag, NZ kingfisher, paradise shelduck, pied stilt, pukeko, red-billed gull, pied oystercatcher, welcome swallow, white-faced heron. Fish in the estuary and adjacent streams include common bully, common smelt, inanga, and yellow-eyed mullet.

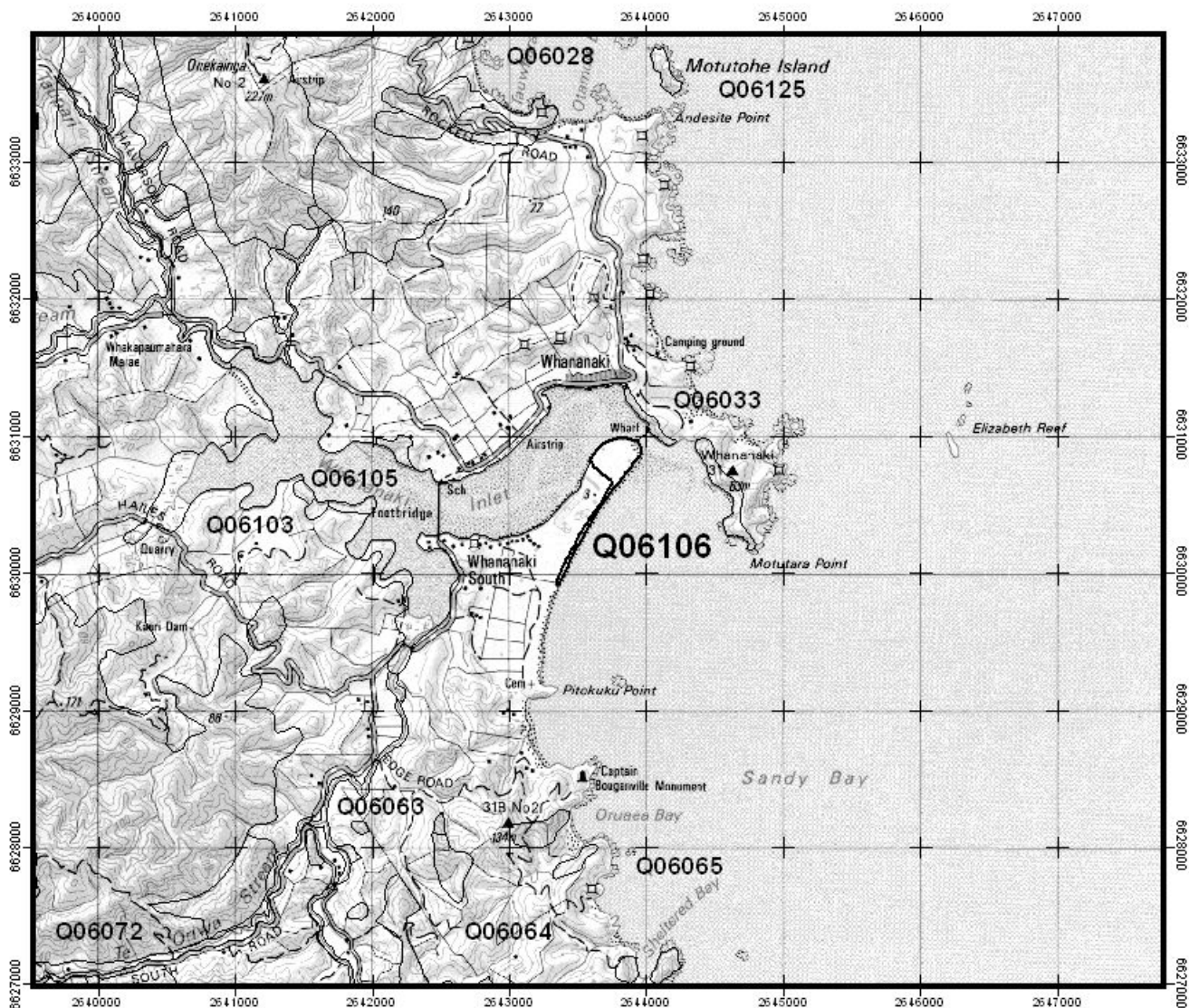
Significance

A large estuarine area which provides habitat for numerous threatened and regionally significant species. Important roost site and feeding areas for pateke. Representative site for all ecological units. Only record of types (b) and (d) in the Ecological District.

0.5 ha at this site is a reserve administered by the Department of Conservation.

WHANANAKI SANDSPIT

Survey no.	Q06/106
Survey date	12 July 2004
Grid reference	Q06 436 304
Area	10 ha
Altitude	0-3 m asl



Whananaki Sandspit Q06/106

Each grid is 1000m x 1000m

and = 100 ha

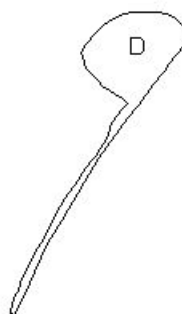
S = shrubland

F = forest

W = wetland

E = estuarine

D = duneland



Ecological unit

- (a) Spinifex coastal grassland on sandspit
- (b) Exotic grass spp.-spinifex coastal grassland on sandspit
- (c) Buffalo grass coastal grassland on sandspit

Landform/geology

Holocene sandspit at the mouth of Whananaki Estuary, comprising a sand beach and foredunes on the seaward side, and dune and deflation areas to landwards.

Vegetation

A large sandspit bordering the Whananaki Estuary. The majority of the spit is covered with plantation pines, with numerous associated weeds including pampas and smilax. The northern tip of the spit contains relatively unmodified habitat, and consists of the following vegetation types:

(a) Spinifex coastal grassland on the seaward side of the spit, with the occasional pingao and planted pohutukawa. Knobby clubrush occurs in small patches. Exotic species, occurring in low numbers, include exotic grass spp., pines, and dandelion. Spinifex grassland also extends in a narrow strip down the seaward side of the spit. Pingao occurs in very low numbers.

(b) Exotic grass spp.-spinifex coastal grassland on the estuary side of the spit, with frequent knobby clubrush. Pampas is a significant weed species in this area, and there is the occasional pohutukawa and pine tree.

(c) To the south of this area, still on the estuary side, is an area dominated by buffalo grass. Knobby clubrush are frequent throughout, and there are also small amounts of pampas.

Significant flora

Pingao (Gradual Decline).

Fauna

Reef heron (Nationally Endangered), Caspian tern (Nationally Vulnerable), northern NZ dotterel (Nationally Vulnerable), variable oystercatcher (Regionally Significant), bar-tailed godwit, pied stilt, white-faced heron. The threatened snail *Succinea archeyi* (Serious Decline) is present on the dunes.

Significance

Presence of threatened and regionally significant species.

A example of a habitat type which is rare in the Ecological District. Representative site for type (a) spinifex coastal grassland.

7 ha at this site are a reserve administered by the Whangarei District Council.

OTONGA REMNANT

Survey no.	Q06/109
Survey date	21 April 1997
Grid reference	Q06 289 264
Area	106 ha (6 ha forest, 100 ha shrubland)
Altitude	120-218 m asl

Ecological unit

- (a) Kanuka/manuka-mamaku shrubland on hillslope
- (b) Kahikatea-rimu-totara forest in gully

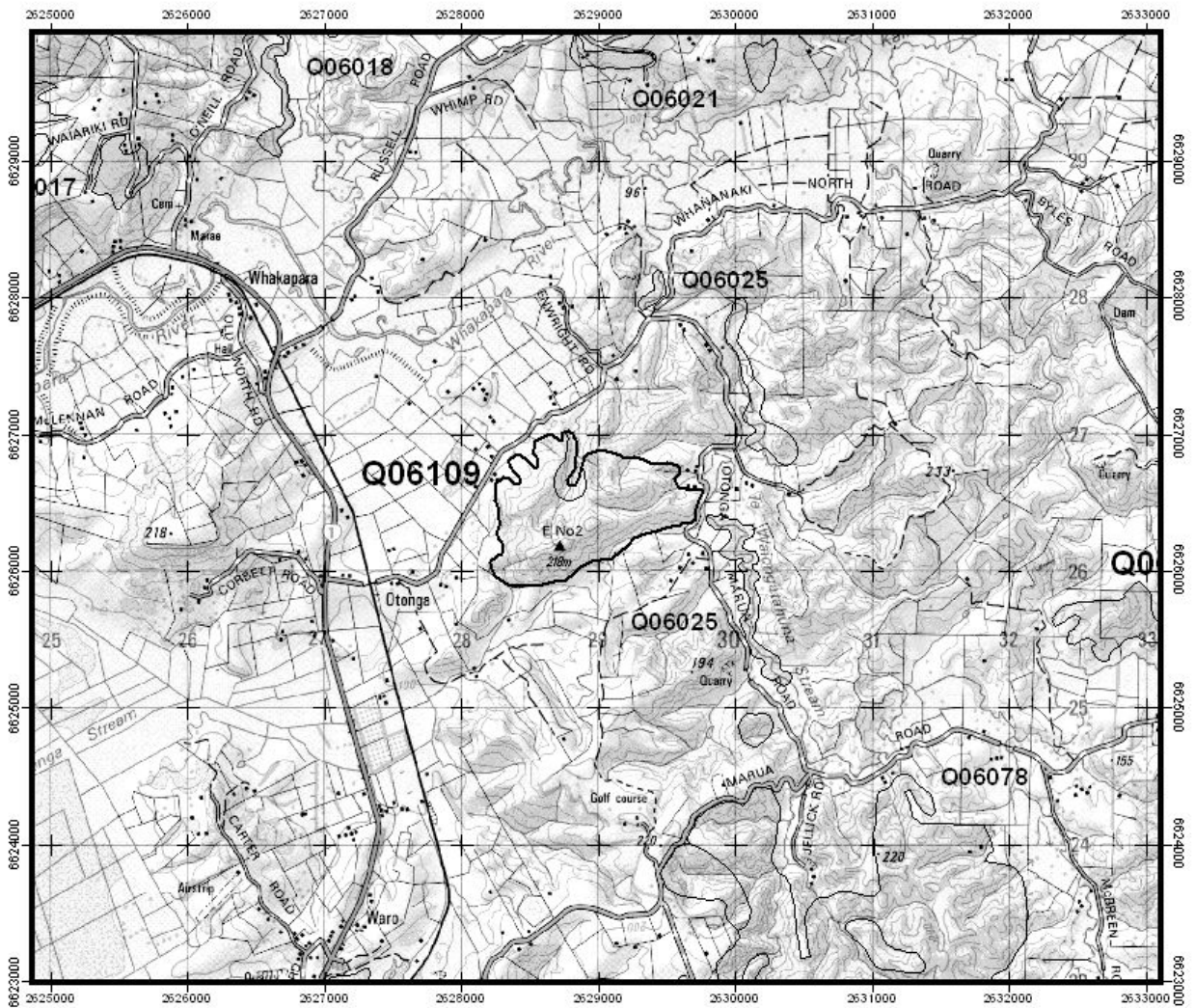
Landform/geology

Hillcountry of Waipapa Terrane greywacke and chert.

Vegetation

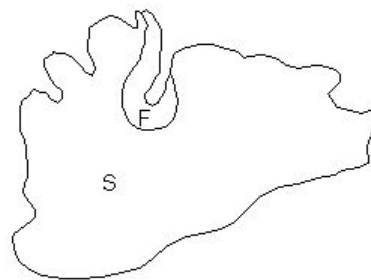
(a) The majority of the site is kanuka/manuka-mamaku shrubland, with frequent towai, and emergent totara.

(b) There is a small amount of kahikatea-rimu-totara secondary forest in some of the gully areas. Mature wilding pines, as well as gorse and pampas, are present throughout the site.



Otonga Remnant Q06/109

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



Fauna

NI brown kiwi (Serious Decline).

Significance

Presence of kiwi, which were in high numbers in the early 1990s.

Representative site for both ecological units. Only record of type (b) in the Ecological District.

NGUNGURU ESTUARY

Survey no.	Q06/110
Survey date	22 April 1997
Grid reference	Q06 442 165
Area	543 ha
Altitude	sea level

Ecological unit

- (a) Mangrove forest on estuary
- (b) Oioi-kanuka/manuka association on estuary
- (c) Oioi saltmarsh on estuary
- (d) Sea rush saltmarsh on estuary

Landform/geology

Estuary.

Vegetation

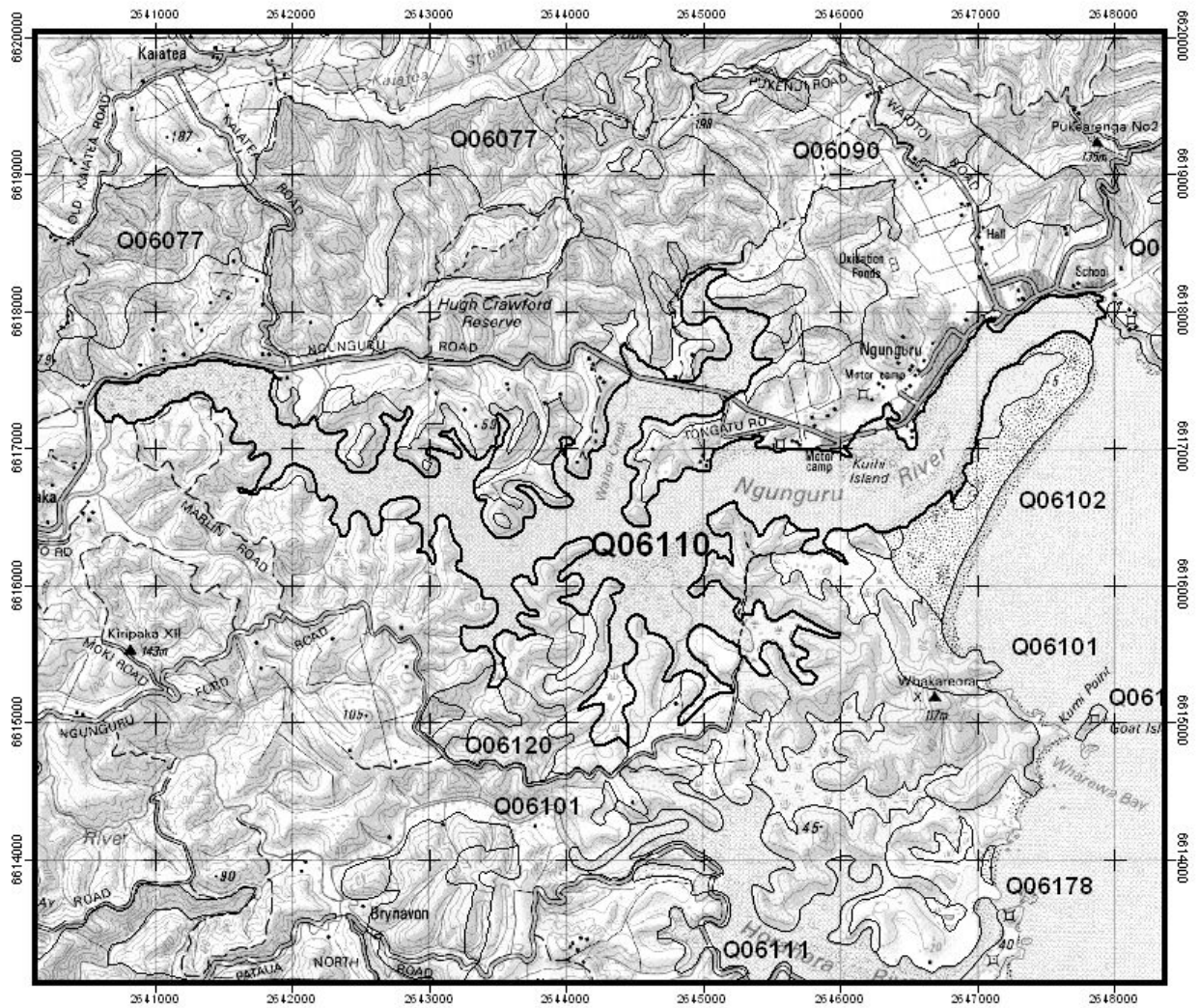
- (a) Most of the Ngunguru Estuary is composed of mangrove forest.
- (b) At the western point of the estuary is an area of oioi-kanuka/manuka saltmarsh, which also contains frequent mangroves and saltmarsh ribbonwood. Sea rush occurs occasionally.
- (c) The northernmost point of the estuary contains an area vegetated almost entirely by oioi. The edges of this area contain mangroves, raupo, and saltmarsh ribbonwood in small amounts.
Moving south-west from this site, type (b) is repeated in a small area on the north side of the Ngunguru Road. Mangroves and raupo are frequent, with harakeke less common. Pampas is also present.
Type (b) is repeated again in the south-east corner of the estuary, in the area furthest from the Ngunguru River. Associated species include sea rush, raupo, and ti kouka on the edges.
- (d) Adjacent to this site but closer to the river is an area dominated by sea rush. Oioi is frequent throughout, with some saltmarsh ribbonwood on the edges. The vegetation adjacent to this area includes kanuka/manuka, kowhai, ti kouka, tanekaha, and totara.

Fauna

White heron (Nationally Critical), matuku (Nationally Endangered), pateke (Nationally Endangered), reef heron (Nationally Endangered), Caspian tern (Nationally Vulnerable), white-fronted tern (Gradual Decline), banded rail (Sparse), black shag (Sparse), little black shag (Sparse), NI fernbird (Sparse), northern New Zealand dotterel (Sparse), pied shag (Sparse), spotless crane (Sparse), variable oystercatcher (Regionally Significant), Australasian harrier, bar-tailed godwit, black-backed gull, little shag, NZ kingfisher, paradise shelduck, pied stilt, pukeko, red-billed gull, pied oystercatcher, welcome swallow, white-faced heron.

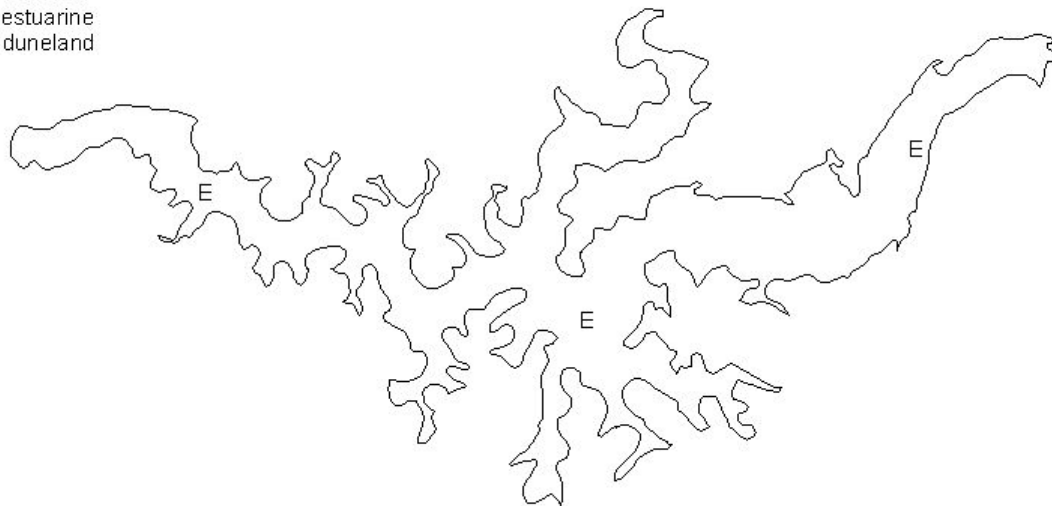
Significance

A large estuarine area which is contiguous with several forest remnants on the southern side, including the Whakareora coastal forest area (site Q06/101). The site provides habitat for at least 13 threatened and one regionally significant bird species.



Ngunguru Estuary Q06/110

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



Representative site for all ecological units. Only record of type (d) in the Ecological District.

5.2 ha at this site are protected; 0.2 ha by a Queen Elizabeth II National Trust covenant and 5 ha are reserves administered by the Department of Conservation.