

4.1.1 Mainland sites

WAIOMIO LIMESTONE CAVES FOREST

| | |
|----------------|--|
| Survey no. | P05/057 |
| Survey date | 19 December 1994 |
| Grid reference | P05 090 431, P05 090 432, P05 090 433, P05 090 434, P05 090 435 |
| Area | 24 ha (17 ha shrubland, 7 ha forest) |
| Altitude | 30-60 m asl |

Ecological unit

- (a) Totara-titoki forest on hillslope
- (b) Kanuka/manuka shrubland on hillslope

Landform/geology

One main remnant and one small outlier on karst topography on Te Kuiti Group flaggy limestone.

Vegetation

Secondary forest remnants and shrubland on incised karst country.

- (a) The site contains two small areas of titoki-totara secondary forest, one of which is separate and to the west of the main site. Associated species include frequent karaka, *Astelia* sp., puka, and kanuka/manuka, with mapou, *Hebe* sp., ti kouka, towai, pukatea, kowhai, and matai occasional.
- (b) The majority of the site is composed of kanuka/manuka shrubland. Other species within this area include tanekaha, mamaku, and totara.

Significant flora

The only records of mawhai (Nationally Endangered), and *Anogramma leptophylla* (Gradual Decline) in the Ecological District. The fern *Doodia aspera* (Vagrant) has been recorded from the vicinity.

Fauna

One of only four populations of the threatened snail Punctidae sp. 64 (Nationally Endangered) is found at this site. NI brown kiwi (Serious Decline) have been recorded in the adjacent Ruapekapeka Forest.

Significance

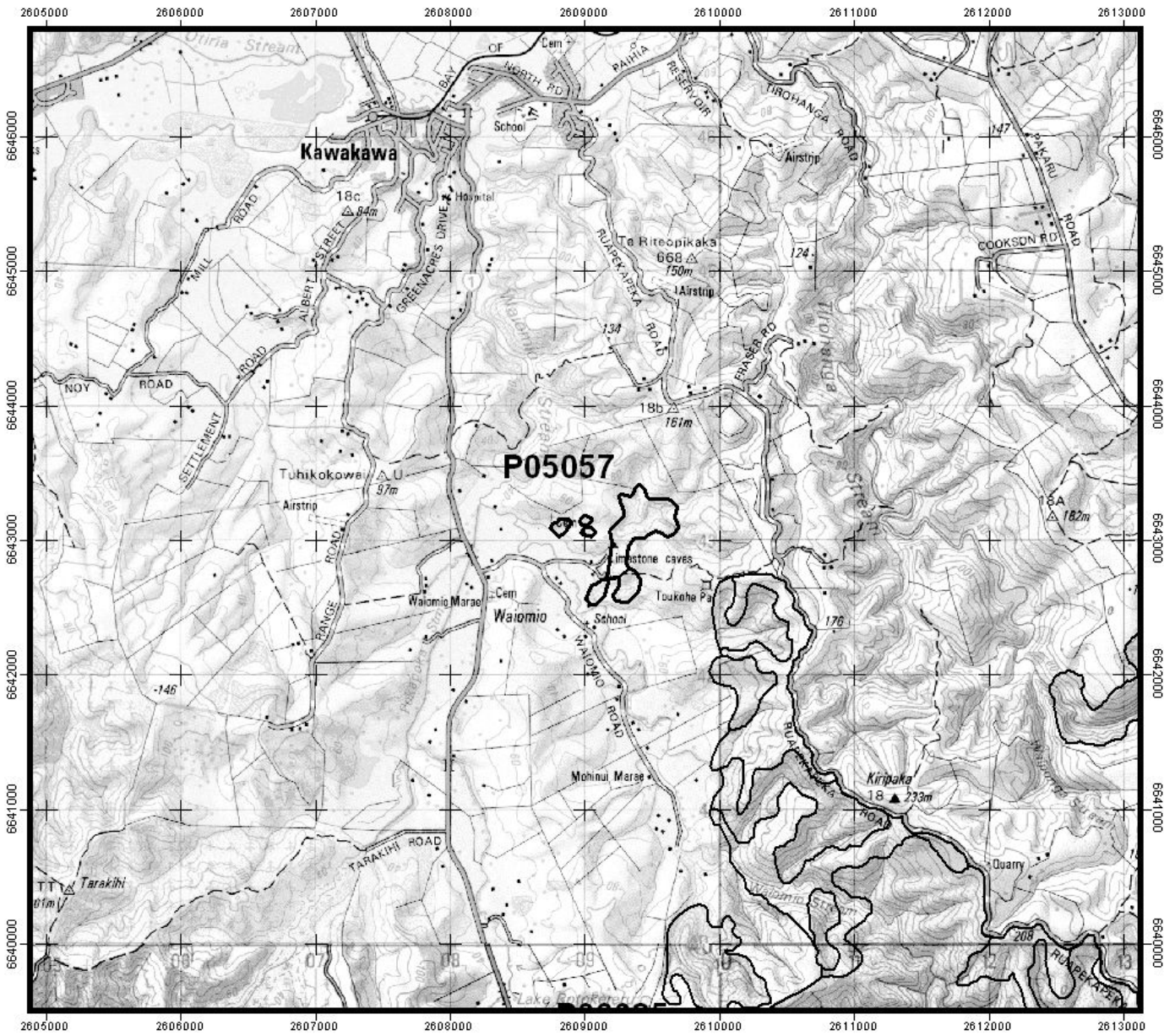
This site is one of only four limestone remnants in the Whangaruru Ecological District.

Presence of threatened snail species and threatened plants.

A representative site for both vegetation types. Only record of type (a) in the Ecological District, and only record of type (b) on limestone.

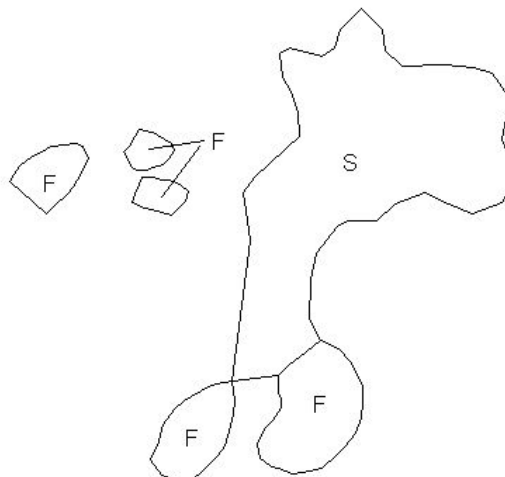
LAKE ROTOKERERU REMNANTS

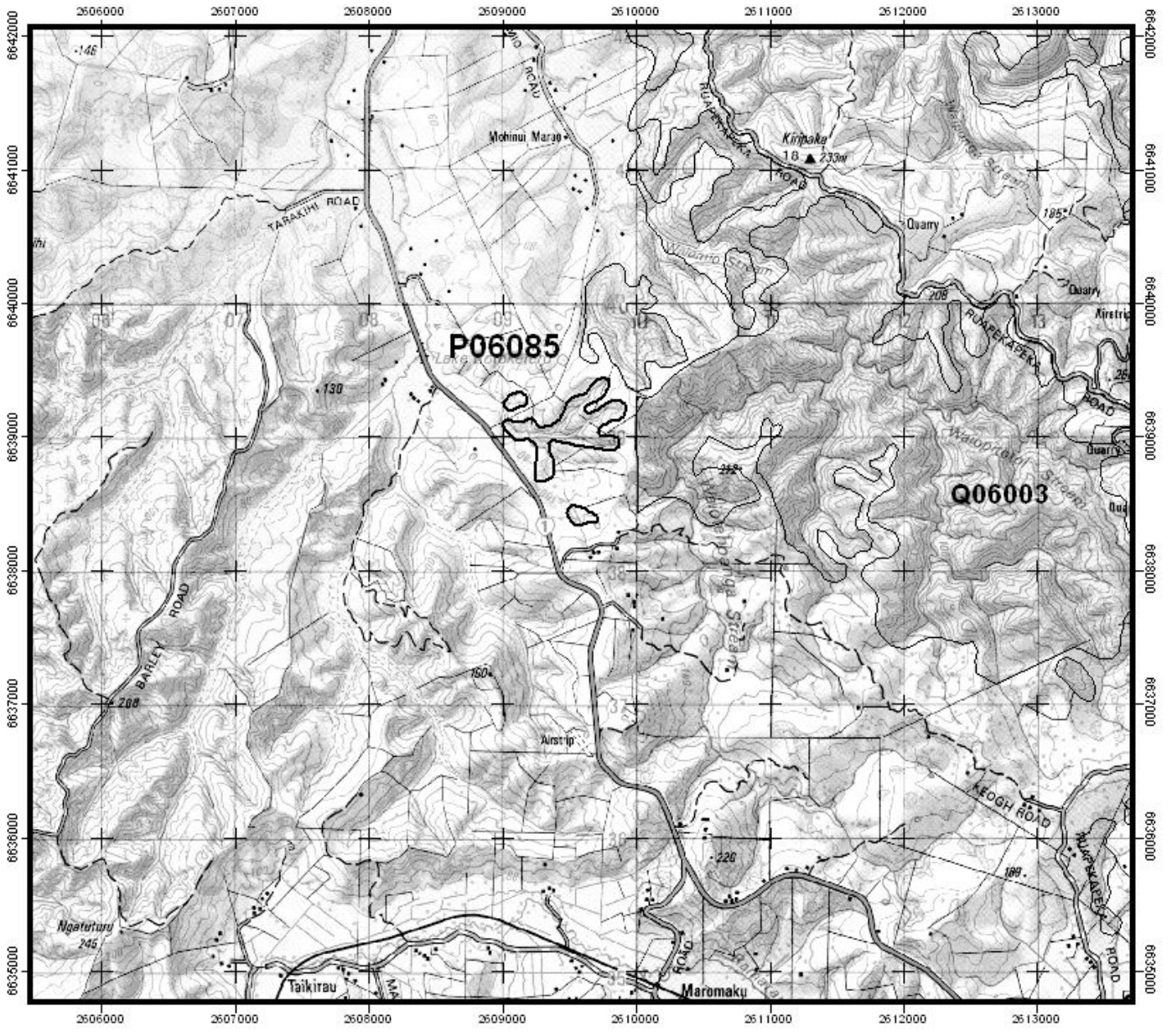
| | |
|----------------|---------------------------------------|
| Survey no. | P06/085 |
| Survey date | 6 August 1995 |
| Grid reference | P06 094 390, P06 090 392, P06 095 384 |
| Area | 28 ha |
| Altitude | 60-160 m asl |



Waiomio Limestone Caves Forest P05/057

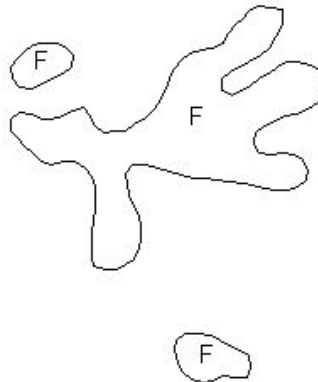
Each grid is 1000m x 1000m
 and = 100 ha
 S = shrubland
 F = forest
 W = wetland
 E = estuarine
 D = duneland





Lake Rotokereru Remnants P06/085

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



Ecological unit

(a) Totara forest on hillslope

- (b) Puriri-totara-titoki forest on hillslope
- (c) Tanekaha forest on hillslope
- (d) Kanuka/manuka shrubland on hillslope
- (e) Mamaku-towai forest on hillslope
- (f) Kahikatea forest on gentle hillslope

Landform/geology

Three small remnants on deeply incised valleys in Waipapa Terrane greywacke with karst topography on overlying Te Kuiti Group flaggy limestone in the north-west.

Vegetation

A diverse mix of secondary forest and shrubland types. Forest and shrubland types include:

- (a) Totara forest with frequent kanuka, puriri, and taraire, and occasional emergent kauri, rimu, and kahikatea.
- (b) Puriri-totara-titoki forest with frequent matai, and occasional taraire, pukatea, tawa, kahikatea, and ti kouka.
- (c) Tanekaha forest with occasional totara, rewarewa, and manuka.
- (d) Kanuka/manuka shrubland with occasional totara.
- (e) Mamaku-towai forest with occasional totara.
- (f) Kahikatea forest with frequent totara and occasional ti kouka.

Fauna

Not surveyed.

Significance

One of only four forest sites on limestone in the Ecological District.

Contains a diverse assemblage of forest types, providing upper catchment and riparian protection, and a possible linkage function.

Representative site for type (b) puriri-totara-titoki forest, type (c) tanekaha forest, type (e) mamaku-towai forest, and type (f) kahikatea forest. Only record of types (b) and (e) in the Ecological District.

EASTERN BAY OF ISLANDS ESTUARY

| | |
|----------------|--|
| Survey no. | Q05/001 |
| Survey date | Various |
| Grid reference | Q05 190 550, Q05 130 558, Q05 149 565, Q05 207 570, Q05 208 579, Q05 188 579, Q05 214 585, Q05 253 596, Q05 248 606, Q05 155 526, Q05 156 512, Q05 175 549, Q05 144 546, Q05 144 578, Q05 225 596, Q05 141 515, Q05 127 503, Q05 116 503, Q05 125 478, Q05 169 554, Q05 220 509, Q05 130 513, Q05 151 512, Q05 142 509, Q05 141 519, Q05 169 513, Q05 210 520, Q05 151 519, Q05 214 523, Q05 133 522, Q05 201 525, Q05 182 528, Q05 213 529, Q05 162 530, Q05 171 532, Q05 207 532, Q05 205 536, Q05 155 546, Q05 207 549, Q05 200 541 |
| Area | 1129 ha |
| Altitude | intertidal zone |

Ecological unit

- (a) Tidal flats in estuary
- (b) Eelgrass saltmarsh in estuary
- (c) Mangrove forest in estuary
- (d) *Juncus* sp. rushland in estuary
- (e) Oioi saltmarsh in estuary
- (f) Glasswort saltmarsh in estuary
- (g) Selliera-sea primrose-*Isolepis* sp.-*Cotula* sp. saltmarsh in estuary
- (h) *Juncus* sp.-oioi-raupo-saltmarsh ribbonwood association in upper estuary
- (i) Saltmarsh ribbonwood-*Bolboschoenus* sp.-*Coprosma* sp.-harakeke association in upper estuary

Landform/geology

Extensive estuarine system, bordering the Waikare Inlet, the Kawakawa River, and the eastern Bay of Islands.

Vegetation

The estuarine associations of the Bay of Islands fall within two Ecological Districts; Whangaruru and Kerikeri. While the Bay is of considerable size (c. 18,000 ha), only a relatively small proportion is exposed at low tide: approximately 800 ha of exposed mudflat and 1981 ha of mangrove forest within the entire Bay (Draft Coastal Wetland Inventory; Department of Conservation).

While the proportion of the greater Bay of Islands contained within the Whangaruru Ecological District is smaller than that within the Kerikeri Ecological District, the percentage of intertidal zone appears to be greater for Whangaruru Ecological District. The area figure of 1129 ha of intertidal zone within the Whangaruru Ecological District appears to support this, as does the extensive saltmarsh component found within the Waikare/Karetu inlets. This section of the Bay of Islands undoubtedly contains the most extensive examples of saltmarsh/mangrove within the Bay, with the least modified riparian margin. Over 90 km (or 88%) of riparian margin within these two inlets adjoins significant terrestrial and/or estuarine vegetation. In many instances, freshwater wetlands adjoin their saline counterparts.

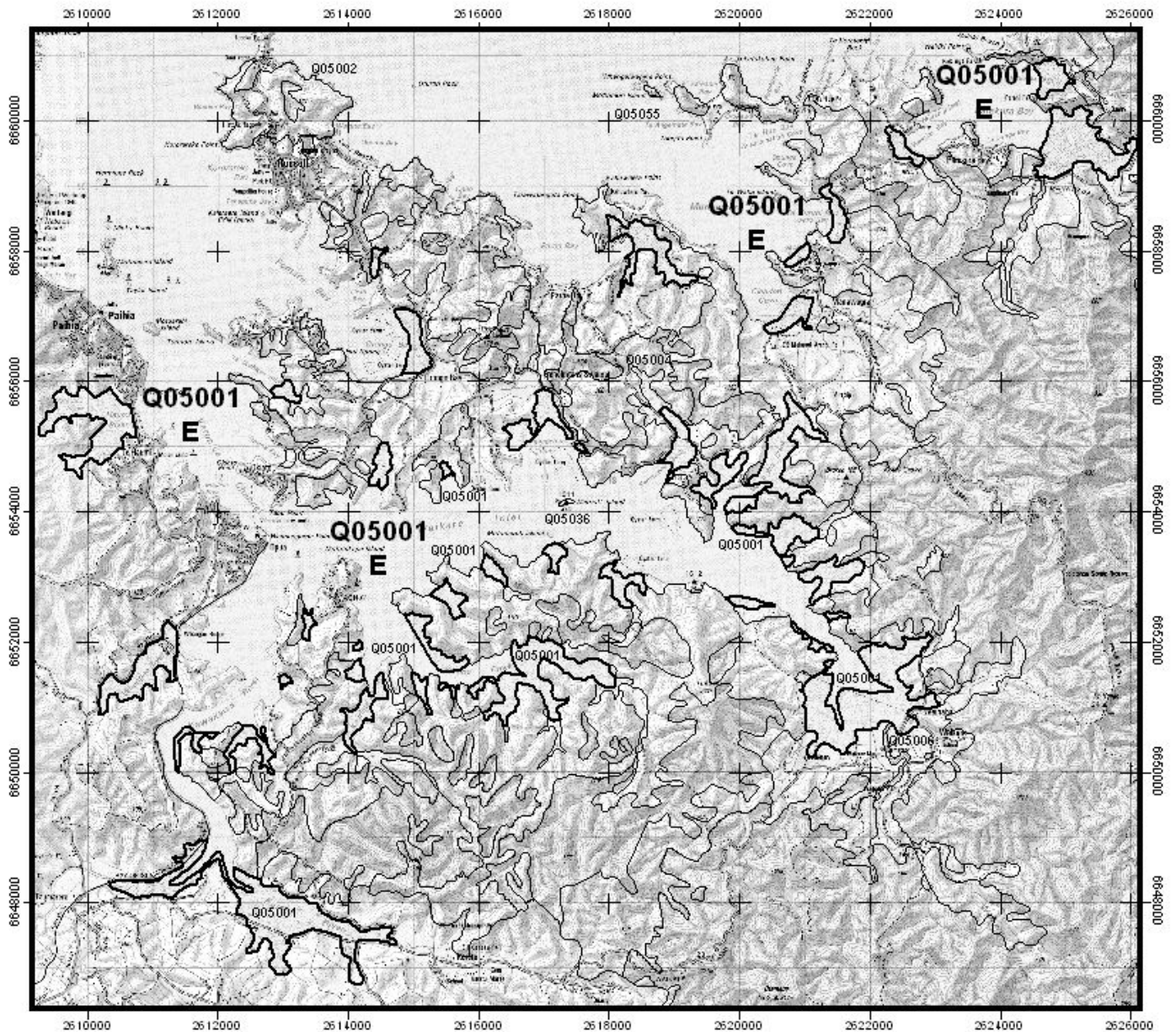
Other important intertidal sites include eastern Paroa Bay, Te Wahapu Inlet/Orongo Bay, and Parekura Bay.

Significant flora

One of the largest known Northland populations of the mistletoe *Iteadus micranthus* (Regionally Significant) is found on *Coprosma propinqua* within the Karetu Inlet.

Fauna

Pateke (Nationally Endangered), NI weka (Nationally Endangered), reef heron (Nationally Endangered), matuku (Nationally Endangered), grey duck (Nationally Endangered), Caspian tern (Nationally Vulnerable), Northern NZ dotterel (Nationally Vulnerable), white-fronted tern (Gradual Decline), banded rail (Sparse), little black shag (Sparse), NI fernbird (Sparse), black shag (Sparse), pied shag (Sparse), variable oystercatcher (Regionally Significant), Australasian gannet, white-faced heron, pied stilt, little shag, black-backed gull, red-billed



Eastern Bay of Islands Estuary Q05/001

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

gull, NZ kingfisher, paradise shelduck, harrier, and pukeko. Fish recorded from adjacent streams include banded kokopu (Regionally Significant), giant bully (Regionally Significant), cockabully, common bully, common smelt, and yellow-eyed mullet.

Significance

Features one of the best examples of unbroken gradients, from old-growth hill forest to tidal flats, found anywhere in Northland, with extensive riparian cover sometimes adjoining freshwater/brackish wetlands.

Habitat for threatened and regionally significant species, and an especially important area of Northland for the recovery of two threatened bird species - pateke and matuku. Important for the maintenance of water quality within the Bay of Islands.

Representative site for type (b) eelgrass saltmarsh, type (c) mangrove forest, type (f) glasswort saltmarsh, type (g) selliera-sea primrose-*Isolepis* sp.-*Cotula* sp. saltmarsh, type (h) *Juncus* sp.-oioi-raupo-saltmarsh ribbonwood saltmarsh, and type (i) saltmarsh ribbonwood-*Bolboschoenus* sp.-*Coprosma* sp.-harakeke association. Only record of types (b), (f), (g), (h), and (i) in the Ecological District.

43.1 ha at this site are protected; 3.8 ha by a Queen Elizabeth II National Trust covenant, 2.5 ha by Nga Whenua Rahui and 36.8 ha are reserves administered by the Department of Conservation.

TAPEKA POINT COASTAL HABITAT

| | |
|----------------|---|
| Survey no. | Q05/002 |
| Survey date | 7 March 1995 |
| Grid reference | Q05 130 602 |
| Area | 171 ha (11 ha forest, 160 ha shrubland) |
| Altitude | 0-101 m asl |

Ecological unit

- (a) Kanuka/manuka-puriri-taraire coastal forest on hillslope
- (b) *Pittosporum umbellatum*-kanuka/manuka coastal shrubland on hillslope
- (c) Manuka coastal shrubland on hillslope
- (d) Mamaku coastal fernland on hillslope
- (e) Wattle-flametree scrub on hillslope

Landform/geology

Coastal hills of Waipapa Terrane greywacke.

Vegetation

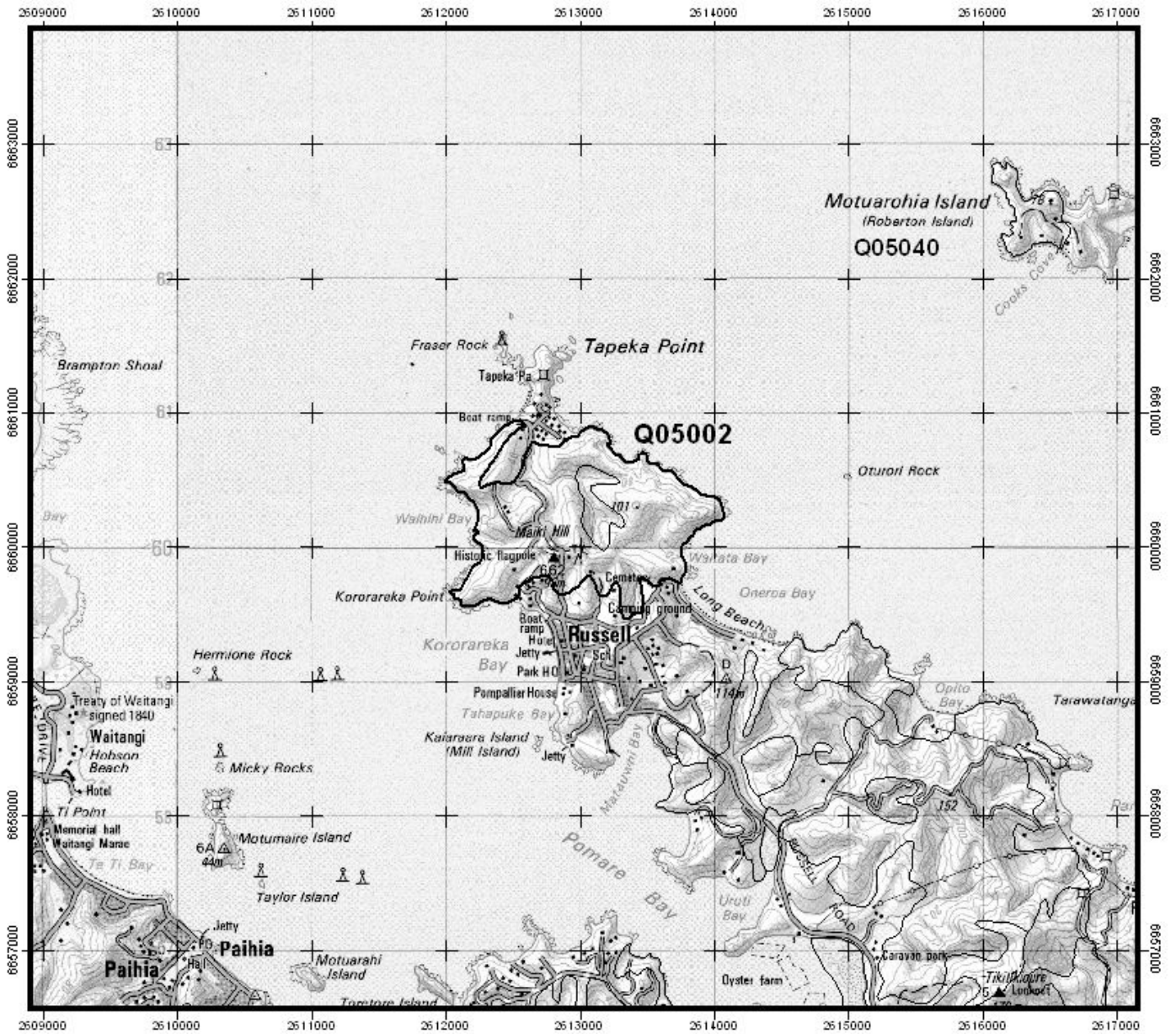
Coastal riparian shrubland and secondary coastal broadleaf forest, on a prominent headland within the Bay of Islands.

(a) The riparian margin and the less modified gully sites consist of kanuka/manuka-puriri-taraire secondary forest, with pohutukawa, rewarewa, and occasional towai.

(b) *Pittosporum umbellatum*-kanuka/manuka shrubland is the dominant vegetation type on the coastal ridges. Bracken is also present, as well as occasional pohutukawa, hangehange, and gorse.

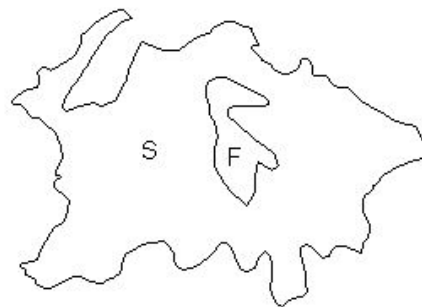
(c) The upper ridge sites are dominated by manuka shrubland. *Hakea* sp., as well as the occasional *Acacia* sp., occur within this area.

(d) Mamaku fernland, and (e) wattle-flametree scrub, can be found in small amounts within the site.



Tapeka Point Coastal Habitat Q05/002

- 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) present and part of a managed population, along with NI weka (Nationally Endangered), kukupa (Gradual Decline), and other fauna including pied shag (Sparse).

Supports the snails *Amborhytida forsythi* (Gradual Decline), *Liarea t. turriculata*, and *Paracharopa delicatula*, all of which are endemic to Northland.

Fish recorded at this site include banded kokopu (Regionally Significant) and shortfin eel.

Significance

An example of coastal riparian forest and shrubland, which is rare in the District.

Presence of one threatened and two Northland endemic snail species, and four threatened bird species.

Representative site for types (a) kanuka/manuka-puriri-taraire coastal forest, and (b) *Pittosporum umbellatum*-kanuka/manuka coastal shrubland. Only record of type (b) in the Ecological District.

The site is of regional importance due to its soils, as it contains the only example of Omaiko soils in northern New Zealand (North Island and northern offshore islands) (Arand et al. 1993).

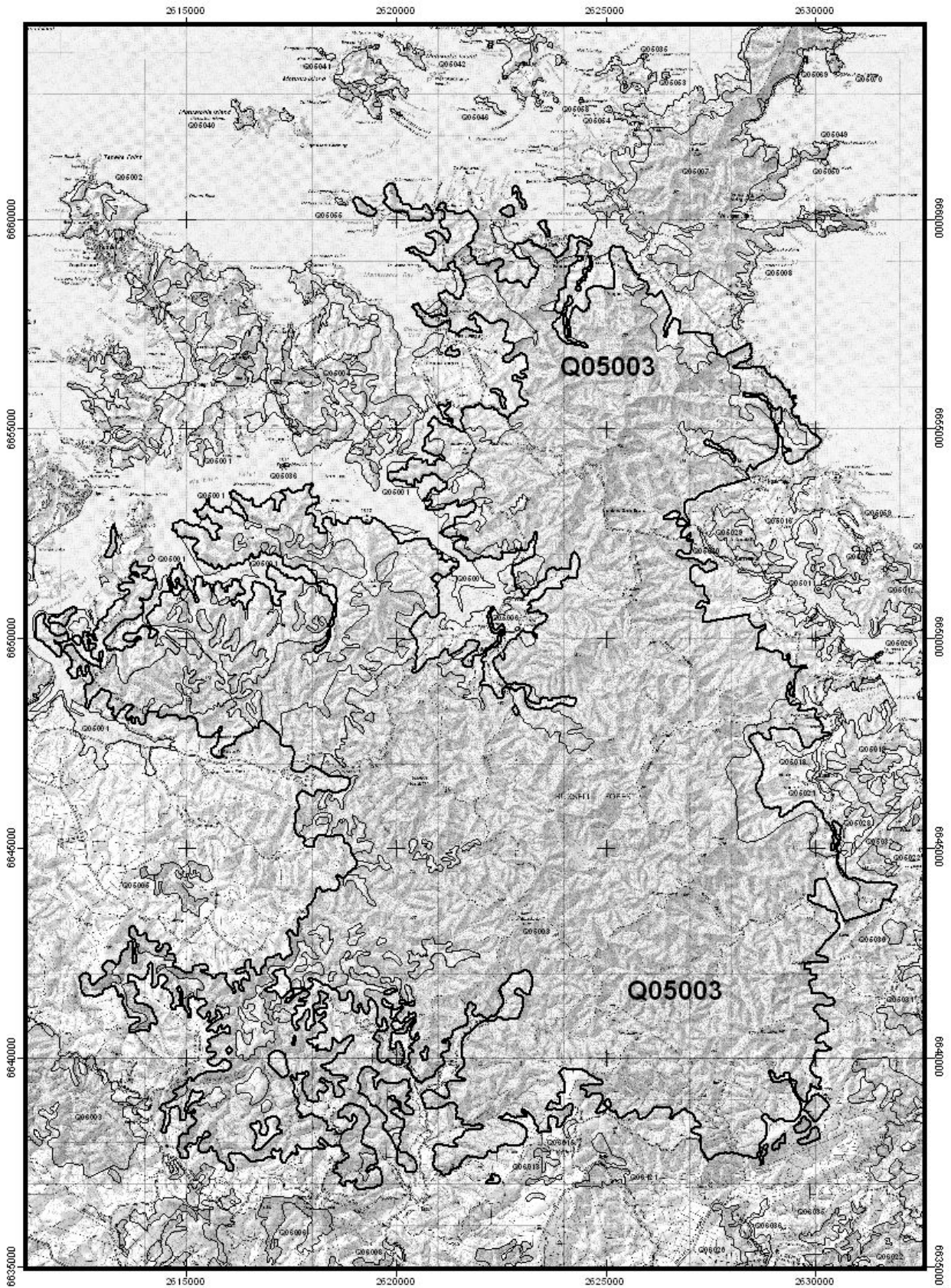
31.6 ha at this site are protected; 27.9 ha are reserves administered by the Department of Conservation, and 3.7 ha are on private land.

RUSSELL FOREST

| | |
|----------------|---|
| Survey no. | Q05/003 |
| Survey date | 19 December 1994 |
| Grid reference | Q05 123 499, Q05 199 604, Q05 229 605, Q05 223 371, Q05 226 601, Q05 287 376, Q05 235 597, Q05 291 380, Q05 298 381, Q05 296 384, Q05 300 388, Q05 197 385, Q05 213 568, Q05 225 557, Q05 211 553, Q05 192 603, Q05 132 523, Q05 244 587, Q05 118 500, Q05 120 505, Q05 219 486 |
| Area | 22,737 ha (18,154 ha forest, 4484 ha shrubland, 100 ha wetland) |
| Altitude | 0-430 m asl |

Ecological unit

- (a) Kanuka/manuka-tanekaha forest on hillslope
- (b) Kanuka/manuka-towai forest on hillslope
- (c) Kanuka/manuka-rimu-tanekaha-totara forest on hillslope
- (d) Taraire-towai forest on hillslope
- (e) Tanekaha-towai forest on hillslope
- (f) Totara-towai forest on hillslope
- (g) Taraire-kohekohe-puriri forest on hillslope
- (h) *Hakea* sp. scrub on hillslope
- (i) Kanuka/manuka-kauri-tanekaha forest on ridges



Russell Forest Q05/003

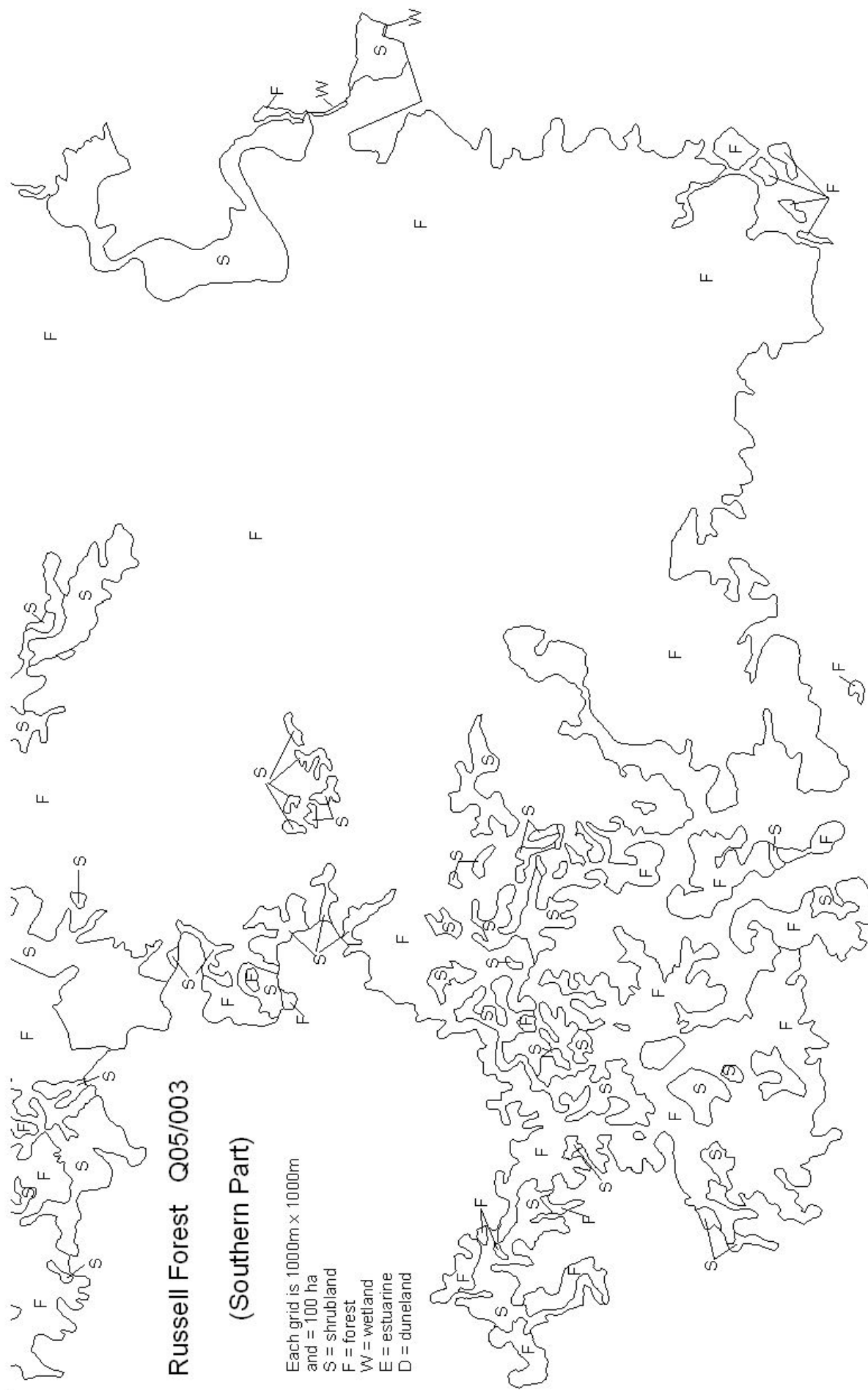
Each grid is 1000m x 1000m
 and = 100 ha
 S = shrubland
 F = forest
 W = wetland
 E = estuarine
 D = duneland

Russell Forest Q05/003
(Northern Part)

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

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





- (j) Raupo-harakeke association in swamp
- (k) Pohutukawa coastal forest on hillslope
- (l) Kanuka/manuka-puriri-taraire forest on alluvium

Landform/geology

Extensive forest and shrubland on steep dissected hillcountry of Waipapa Terrane greywacke and chert, with some Kerikeri Volcanics basalt flow remnants and associated boulder colluvium.

Vegetation

A large and complex mosaic of unmodified, cutover, and secondary forest types, as well as shrublands and freshwater wetlands, extending through an altitudinal range from sea level to 430 m asl. In places, full sequential gradients exist, from mature hill forest through to coastal riparian and marshy tones, to extensive mangrove forests within the Bay of Islands (covered by Q05/001). There are many associated canopy species, including 11 species of gymnosperm.

Other forest types and local dominance are likely, which were not identified by the reconnaissance survey.

Significant flora

Threatened plant species include king fern (Serious Decline), raukawa (Gradual Decline), willow-leaved maire (Gradual Decline), *Thelypteris confluens* (Gradual Decline), *Calystegia marginata* (Sparse), kawaka (Sparse), monoao (Sparse), and *Pittosporum p. pimelioides* (Sparse). Regionally significant plants include hutu, *Asplenium bookerianum*, *Blechnum fluviatile*, *Doodia aspera*, *Hymenophyllum lyalli*, *Ileostylus micranthus*, *Pratia angulata*, *Loxsonoma cunninghamii*, *Luzula picta*, *Metrosideros carminea*, *Schizaea bifida*, *Sticherus flabellatus*, gully tree fern, horopito, mountain harakeke, tawari, tawaroa, and toatoa.

Fauna

Fauna values within such a large forest tract are predictably very high, there being a generally accepted correlation between habitat size and the number of species which are found within it. This may also be due in part to the great range of altitudes, topography, and physical situations found within the forest. Notable species include recent past records of NI weka (Nationally Endangered), visiting NI kaka (Nationally Endangered), NI brown kiwi (Serious Decline), and kukupa (Gradual Decline). The kukupa population in Russell Forest declined approximately 80% between 1979 and 1993 (Pierce et al. 1993). Pateke (Nationally Endangered) persist in a few estuarine locations bordering the forest. NI tomtit (Regionally Significant) are present throughout, and red-crowned kakariki (Regionally Significant) were recorded in 2004. A few unconfirmed reports of NZ falcon (Nationally Vulnerable) have also been made within the forest. Russell Forest is also near the distributional limits of three forest geckos: the Auckland green gecko (Gradual Decline) and the forest gecko (Regionally Significant) reach their northern limit in this area, while the Northland green gecko (Gradual Decline) approaches its southern limit.

Threatened snails include *Schizoglossa worthylae* (Serious Decline), kauri snail (Gradual Decline), Punctidae sp. 28 (Range Restricted), Punctidae sp. 147 (Range Restricted) from the Ngaiotonga area, and the flax snail *Placostylus bongii* (Range Restricted) on the Orokawa Peninsula, and *Phenacohelix brooki* (Range Restricted). Other threatened invertebrates include the forest ringlet butterfly (Serious Decline) and the stag beetle *Paralissotes mangonuiensis* (Sparse).

Native fish species known from this forest include longfin eel (Gradual Decline), lamprey (Sparse), giant bully (Regionally Significant), bluegill bully (Regionally Significant), banded kokopu (Regionally Significant), redfin bully, shortfin eel, common bully, common smelt, inanga, and torrent fish. Native freshwater limpets, freshwater shrimp, and koura are also present.

Significance

Russell Forest, and its contiguous areas of private and Crown-owned forest, constitutes one of the largest contiguous forest blocks in the Eastern Northland Ecological Region, the other being the more inland Puketi/Omahuta tract in the Puketi Ecological District. It is underlain by the region's oldest geological structure—Permian-Jurassic greywacke—and features some 50 km of coastal riparian margin. The forests, shrublands, and wetlands in the vicinity of Waikare Inlet, and between Ngaio tonga and Taupo Bay, are of particular importance in maintaining this altitudinal gradient and extensive riparian verge.

Provides a significant linkage function, linking the Bay of Islands Estuary and Cape Brett to the numerous forest remnants to the east and south.

The area contains a significant number of threatened animal and plant species. Representative site for types (c) kanuka/manuka-rimu-tanekaha-totara forest, type (g) taraire-kohekohe-puriri forest, type (h) *Hakea* sp. scrub, type (i) kanuka/manuka-kauri-tanekaha forest, type (j) raupo-harakeke association, and (l) kanuka/manuka-puriri-taraire forest. Only record of types (c), (g), (h), (i), and (l) in the Ecological District.

11,431 ha at this site are protected; 6.3 ha by a Queen Elizabeth II National Trust covenant, 1093.4 ha by Nga Whenua Rahui, 404 ha as a Conservation Covenant and 9927 ha are reserves administered by the Department of Conservation.

EDWARDS/TIKITIKIOURE COASTAL HABITAT

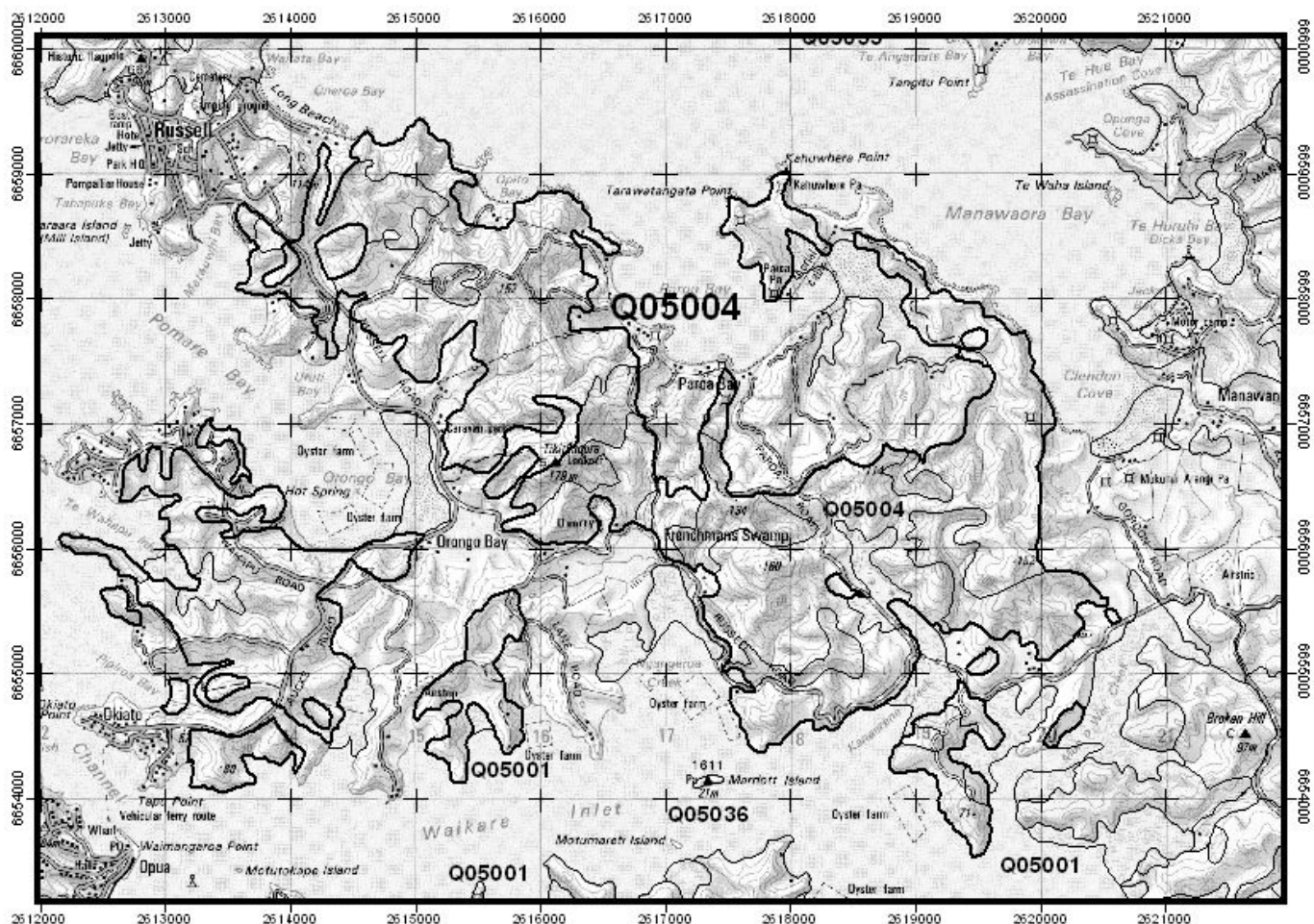
| | |
|----------------|--|
| Survey no. | Q05/004 |
| Survey date | 7 March 1995 |
| Grid reference | Q05 126 555, Q05 201 545, Q05 192 542, Q05 130 548, Q05 154 548, Q05 195 550, Q05 178 585, Q05 136 567, Q05 134 543, Q05 157 566, Q05 205 554, Q05 196 569, Q05 136 556 |
| Area | 1527 ha (338 ha forest, 1146 ha shrubland, 44 ha wetland) |
| Altitude | 0-160 m asl |

Ecological units

- (a) Puriri-tanekaha-taraire coastal forest on hillslope
- (b) Kohekohe-puriri-tawaroa coastal forest on hillslope
- (c) Kanuka/manuka-tanekaha coastal forest on hillslope
- (d) Manuka coastal shrubland on hillslope
- (e) Mamaku coastal fernland on hillslope
- (f) Raupo-harakeke association in swamp
- (g) Pohutukawa coastal forest on coastal margin

Landform/geology

Coastal hills of Waipapa Terrane greywacke and chert.



Edwards/Tikitikioure Coastal Habitat Q05/004

Each grid is 1000m x 1000m

and = 100 ha

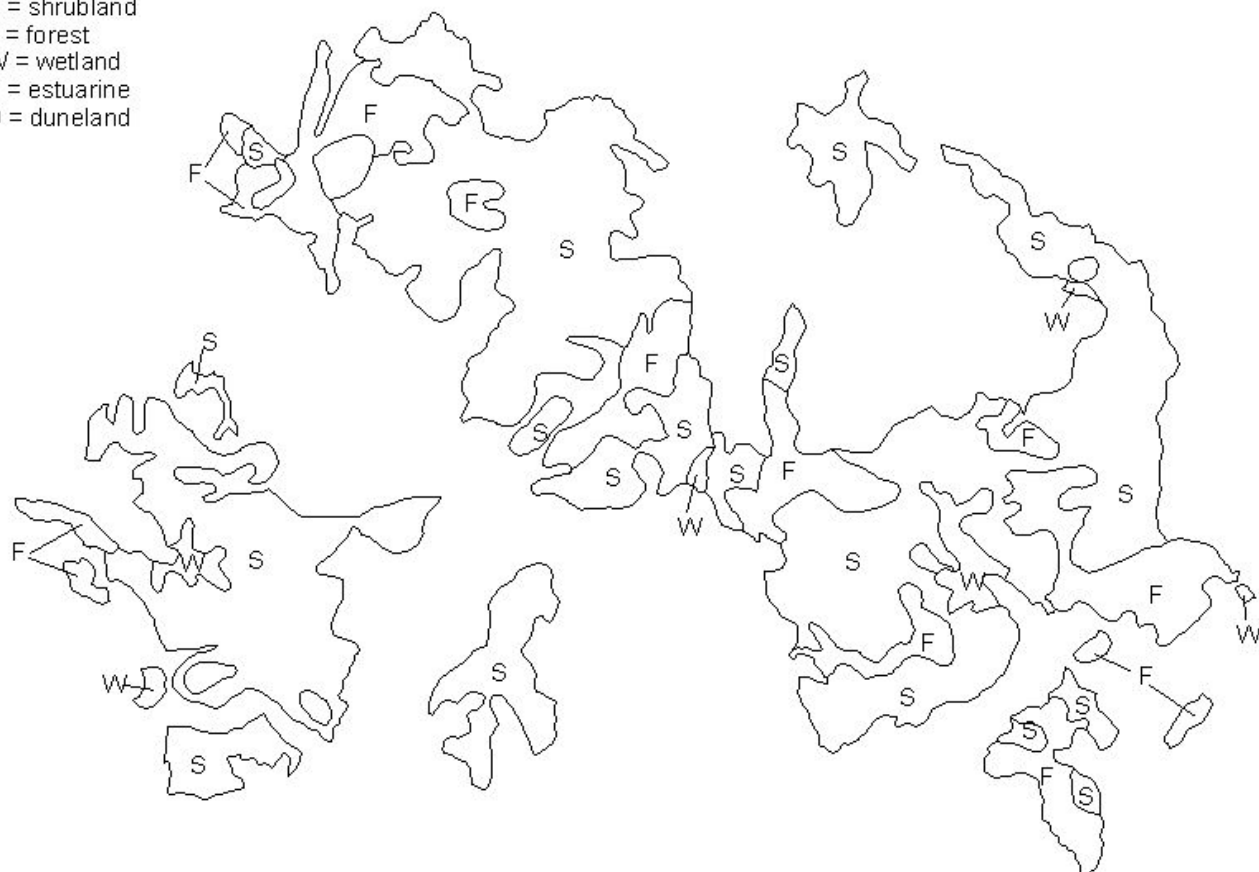
S = shrubland

F = forest

W = wetland

E = estuarine

D = duneland



Vegetation

A mosaic of forest age classes ranging from seral shrubland to cut-over forest and wetlands, sometimes adjoining estuarine associations. These include:

- (a) Puriri-tanekaha-taraire forest with frequent rewarewa, and occasional totara, kahikatea, rimu, pukatea, tawa, and kauri.
- (b) Kohekohe-puriri-tawaroa coastal forest with occasional emergent miro and rimu.
- (c) Kanuka/manuka-tanekaha forest with frequent rewarewa, and occasional kauri, towai, and rimu.
- (d) Manuka shrubland with frequent pohutukawa and kohekohe, and occasional rimu, tanekaha, heketara, houpara, mapou, and mahoe.
- (e) Mamaku fernland.
- (f) Raupo-harakeke association with frequent manuka.
- (g) Pohutukawa coastal forest on the margins.

Significant flora

The fern *Todea barbara* (Nationally Endangered), and *Pittosporum pimeleoides pimeleoides* (Sparse). Presence of tawaroa (Regionally Significant) in significant amounts in the canopy.

Fauna

NI brown kiwi (Serious Decline) and several pairs of pateke (Nationally Endangered) are present, and have been managed since the early 2000s. NI weka (Nationally Endangered) were present in the late 1980s, and have since been reintroduced to Russell Peninsula. Other birds include grey duck (Nationally Endangered), reef heron (Nationally Endangered), kukupa (Serious Decline), NI fernbird (Sparse), banded rail (Sparse), spotless crane (Sparse), pukeko, white-faced heron, NZ kingfisher, and common forest birds.

Native freshwater fish known from this site include longfin eel (Gradual Decline), giant bully (Regionally Significant), banded kokopu (Regionally Significant), inanga, common bully, cockabully, and shortfin eel.

Significance

Includes over 25 km of coastal riparian verge, much of which contains a pohutukawa element. Contains forest supporting tawaroa as a co-dominant, and occasionally restricted species such as whau and wharangi. Contains sequential gradients from hill forest to mangrove forest.

Supports threatened animal and plant species.

A representative site for type (a) puriri-tanekaha-taraire coastal forest, type (b) kohekohe-puriri-tawaroa coastal forest, type (d) manuka coastal shrubland, type (e) mamaku tree fern coastal fernland, type (f) raupo-harakeke association, and type (g) pohutukawa coastal forest. Only record of types (a) and (b) in the Ecological District.

20.9 ha at this site are protected; 13.9 ha by a Queen Elizabeth II National Trust covenant and 7 ha are reserves administered by the Department of Conservation.