

SITE NAME	SURVEY NO.	GRID REF.
Otamatea River Confluence	Q09/021	Q09 243 479
Oneriri Station Homestead Forest	Q09/022	Q09 291 444
Puketotara Forest Remnant 13	Q09/024	Q09 304 440
Kaipara Forest, Puketotara	Q09/026	Q09 305 422
Oneriri Pa Forest	Q09/027	Q09 320 430
Upper Whakaki River Forest Remnants	Q09/028	Q09 328 466
Kaira Creek Forest	Q09/029	Q09 345 465
Ruataniwha Forest Remnant	Q09/030	Q09 305 438
Gittos Point Forest and Shrubland	Q09/032	Q09 352 455
Oruawharo School Forest	Q09/033	Q09 373 469
Koareare Creek Forest Remnants	Q09/036	Q09 399 487
Topuni River Forest Remnant 1	Q09/037	Q09 427 500
Topuni River Confluence Forest	Q09/038	Q09 420 481
Wainonororo Constructed Lake	Q09/039	Q09 319 489
The Funnel Pohutukawa Fringe	Q09/043	Q09 267 493
Mohinui Forest Remnant 4	Q09/044	Q09 350 500
Puketotara Forest Remnant 15	Q09/045	Q09 286 493
Bushy Point Forest Remnants	Q09/046	Q09 198 485
Kumete Bluff Forest Remnants	Q09/047	Q09 220 481
Otaiwhata Bay Forest and Shrubland	Q09/049	Q09 192 497

LOWER PUKEAREINGA FOREST REMNANTS

Survey no.	Q08/061
Survey date	9 November 2005
Grid reference	Q08 355 629 (3 remnants)
Area	16.9 ha
Altitude	32–102 m asl

Ecological units

- (a) Totara–kahikatea forest on moderate to steep hillslope (80%)
- (b) Totara–kanuka forest on moderate hillslope (15%)
- (c) Totara–rimu forest on ridge top (5%)

Landform/geology

Hillsides and gullies underlain by Oligocene micritic limestone (Mahurangi Limestone, Motatau Complex) and melange (undifferentiated Mangakahia & Motatau Complex lithologies).

Vegetation

Two remnant examples of mature secondary forest (types (a) and (c)) are connected by a younger secondary forest type (b). This area is not fenced and appears to be grazed underneath (it is surrounded by pasture currently grazed with sheep).

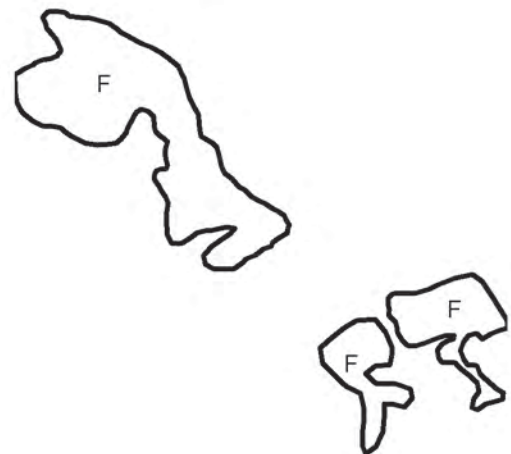
(a) Totara and kahikatea are co-dominant; the pointed secondary kahikatea crowns are often emergent above the totara. Matai is also occasionally emergent. Frequent components of the canopy are karaka, kowhai, puriri, kanuka, titoki and taraire, with a great diversity of other species present in lower numbers including kauri, nikau, tarata, kohekohe, pukatea, ti kouka, mahoe, rimu, karamu and mapou.



Q08/061 Lower Pukeareinga Forest Remnants

S = Shrubland
 F = Forest
 W = Wetland
 E = Estuarine

0 250 500 1,000 Metres



(b) This type comprises less diverse totara-kanuka forest with frequent ti kouka and kahikatea and occasional mapou and manuka.

(c) On the southern side of the site there is a small stand of totara and rimu, in association with frequent kanuka and rewarewa, and occasional mamaku, karaka, kohekohe and nikau.

Fauna

Tui, welcome swallow, kukupa (Gradual Decline).

Significance

Presence of a threatened bird species (kukupā), observed perching in totara within the site.

This site benefits from its proximity to a large continuous area of forest on Pukeareinga in the neighbouring Rodney ED (including Maungaturoto Scenic Reserve). It is a representative site for ecological unit (a) totara-kahikatea forest on moderate to steep hillslope.

OTAMATEA RIVER

Survey no.	Q08/062
Survey date	Various (December 2005 - January 2006)
Grid reference	Q08 321 537
Area	2790.9 ha
Altitude	sea level

Ecological units

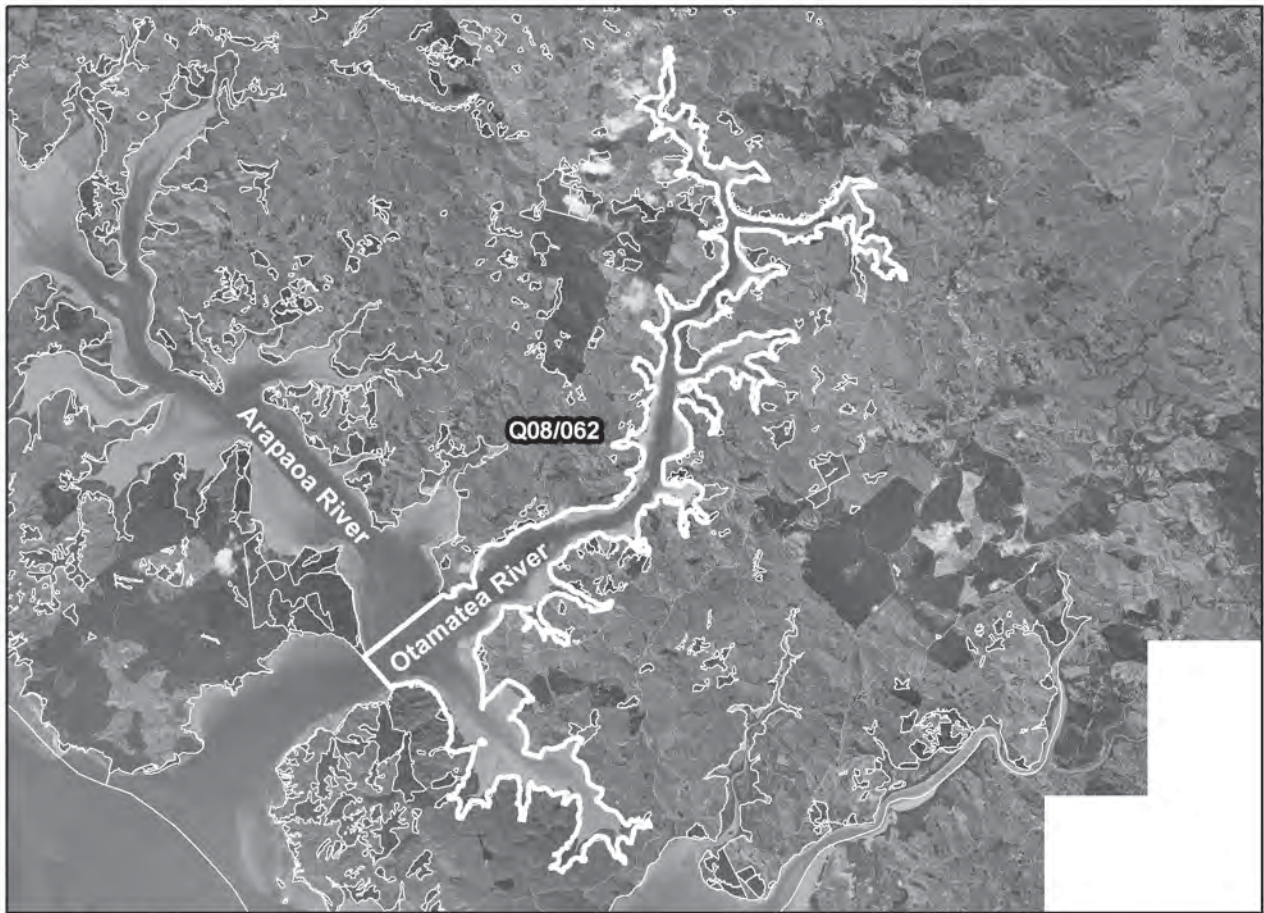
- (a) Mangrove shrubland and forest in estuary
- (b) Sea rush rushland in estuary
- (c) Mangrove-sea rush shrubland in estuary
- (d) Oioi-sea rushland in estuary
- (e) Sea primrose-arrow grass-saltwater paspalum herbfield in estuary
- (f) Saltmarsh ribbonwood shrubland in estuary
- (g) Saltwater paspalum grassland in estuary
- (h) *Spartina alterniflora* grassland in estuary
- (i) *Baumea articulata* reedland in estuary
- (j) Mudflats and sandflats on estuary

Landform/geology

Holocene estuaries, beaches, and intertidal rock flats.

Vegetation/habitats

- (a) Mangrove shrubland and forest covers c. 17% (470 ha) of the site, generally in the upper reaches of the estuary, in areas away from the main current. The tallest mangrove forests are on the edges of channels, where the trees are in optimal conditions for growth, while shrub-sized mangroves tend to be restricted to the upper tidal areas, bordering saltmarsh habitats.
- (b) Stands of pure sea rush are the most common type of saltmarsh.
- (c) Where mangrove shrubland and sea rush rushland meet there is often a mingling of these two vegetation types over several metres of upper-tidal mudflat, creating habitat with cover for species such as banded rail which may be present in the estuarine margins.
- (d) In some places oioi and sea rush are equally common. This is generally at freshwater outflows or above the pure sea rush rushlands.
- (e) Herbfields with indigenous species dominant are very uncommon. One example of an indigenous herbfield was observed at the intersection of Judd Road and Bickerstaffe Road in which arrow grass (a regionally significant plant)



Q08/062 Otamatea River

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0 2,500 5,000 10,000 Metres



was mixed with sea primrose in equal proportions, with frequent saltwater paspalum threatening to smother them. Pampas occurred occasionally.

(f) Saltmarsh ribbonwood occurs at the extreme upper tidal limit, with various mixtures of indigenous and exotic species. The following were recorded as occasional associates in this type: *Coprosma propinqua*, harakeke, ngaio, mapou, periwinkle, Japanese honeysuckle, gorse and woolly nightshade. Tiny scattered examples of this type are present, mainly in the Otamatea River part.

(g) Saltwater paspalum is present in most saltmarsh areas of Otamatea River, and can form extensive grasslands, through which indigenous salt meadow herbs often grow, e.g. sea primrose, bachelor's button, remuremu. It does not

tend to occur on more exposed, sandy beaches. The preferred habitat is in quiet tidal inlets above mangrove forests and shrublands.

(h) Five known infestations of *Spartina alterniflora* occur between Takahoa Creek and the Bickerstaffe rail bridge. These are currently being eradicated by helicopter spraying; otherwise the Otamatea River and Whakaki River appear free of this weed. These infestations have been regularly treated over the past four years, and are currently at 1–3% regrowth (Peter Joynt, Biosecurity Officer, Northland Regional Council, pers. comm.).

(i) A small area (20 m²) of *Baumea articulata* reedland was recorded at the Judd–Bickerstaffe Road intersection, at a freshwater seepage draining out from underneath the road. Such habitats may occur at other points along the coast, but were not recorded.

(j) Intertidal mudflats and sandflats cover approximately 42% (1163 ha) of the surface area of Otamatea and Whakaki Rivers. These calm, shallow, productive, saltwater habitats are vital as feeding grounds to both NZ-breeding waders (particularly in winter) and Arctic migrant waders (particularly in summer) (Sagar *et al.* 1999). Included within the figure quoted above (area measured as being exposed at low tide), are all of the saltmarsh types (b, d, e, f, i), saltwater paspalum grasslands (g) and *Spartina alterniflora* grasslands (h) and colonies of the introduced Pacific oyster (*Crassostrea gigas*), which occur frequently around the coast either in natural beds or on constructed racks of small-scale oyster farms.

Significant flora

Arrow grass (regionally significant).

Fauna

A wide variety of bird species uses this site. Some of these are listed below, based on records from Crockett (1992–2004), in which counts for ‘Batley-Tanoa’ and ‘Ngamotu’ apply to the lower parts of Otamatea River and Whakaki River. Frequency of encounter and the range of numbers of individuals across the two areas over the period are stated in brackets.

- NZ fairy tern (1993 – 2 recorded), black stilt (2001 – 4 recorded, possibly hybrids with pied stilt) (Nationally Critical)
- Caspian tern (regular, 1–8), wrybill (1994 – 4 recorded, 2001 – 1 recorded) (both Nationally Vulnerable)
- Banded dotterel (sporadic in winter, 16–53), white-fronted tern (regular, 1–17) (both Gradual Decline)
- Pied shag (regular, 2–53), NZ dotterel (1–35) (both Sparse)
- Royal spoonbill (sporadic, 3–5) (Coloniser)
- Bar-tailed godwit (up to 2220 in summer, 1–29 in winter), lesser knot (sporadic, up to 500 in summer, winter 1997 – 2 recorded), turnstone (winter 1992 – 2 recorded) (all Migrant)
- Variable oystercatcher (sporadic, 2–4) (regionally significant)
- White-faced heron (regular, 4–56), pied oystercatcher (regular, 203–1120), pied stilt (regular, especially at Ngamotu, 19–1411), black-backed gull (sporadic, 1–13), red-billed gull (sporadic, 4–45), spur-winged plover (regular, 2–20), little shag (sporadic, 1–6) (all not threatened)

- Batley - Tanoa (southern Otamatea River) is the most important area in Otamatea ED Northland for pied oystercatcher, with winter numbers regularly exceeding 600.

In addition to these records, little egrets (Migrant) and white herons (Nationally Critical) are known to occasionally visit the Otamatea River (Veitch 1979).

Significance

Combined, the Otamatea River and Whakaki River (which are both part of this site) have 1269 km of coastline and 2791 ha of estuarine habitat, of which approximately 42% is open mudflat or sandflat (1163 ha), and 17% is mangrove forest or shrubland (470 ha). The full extent of saltmarsh habitats (i.e. types (b), (d), (e), (f) and (i)) was not measured, but these occupy a very low percentage of the overall area (collectively <1%).

A recent review of indigenous shorebird habitat networks deemed the Kaipara Harbour to be a 'site of particular importance', as it is within the top five non-breeding sites for seven species of indigenous-breeding waders, and is also used by 1000+ Arctic migrants during summer months (Dowding & Moore 2006). This site contains a quarter of the wading habitat in Otamatea ED Northland.

This is a representative site for two ecological units: (e) sea primrose-arrow grass-saltwater paspalum herbfield in estuary and (i) *Baumea articulata* reedland in estuary.

Marginal Strips (DOC-administered) cover 11.4 ha of this site, QEII Open Space Covenants cover 0.8 ha of the site and 0.2 ha of the Takahoa Government Purpose Wildlife Management Reserve (Q08/164), also DOC-administered, is within the site. All of these protected areas are at the upper intertidal margins of the Otamatea River.

OTARA HEAD FOREST AND SHRUBLAND

Survey no.	Q09/063
Survey date	9 November 2005
Grid reference	Q08 295 505
Area	14.5 ha (5.3 ha forest, 9.2 ha shrubland)
Altitude	0-60 m asl

Ecological units

- (a) Ti kouka-kanuka shrubland on steep coastal margin (50%)
- (b) Kanuka forest on gentle hillslope (20%)
- (c) Pohutukawa-kowhai-puriri-taraire forest on steep coastal margin (15%)
- (d) Tutu shrubland on coastal cliff (10%)
- (e) Pohutukawa treeland on steep coastal margin (5%)

Landform/geology

Steep coastal hillside of Oligocene micritic limestone (Mahurangi Limestone, Motatau Complex) and melange (undifferentiated Mangakahia & Motatau Complex lithologies).

Vegetation

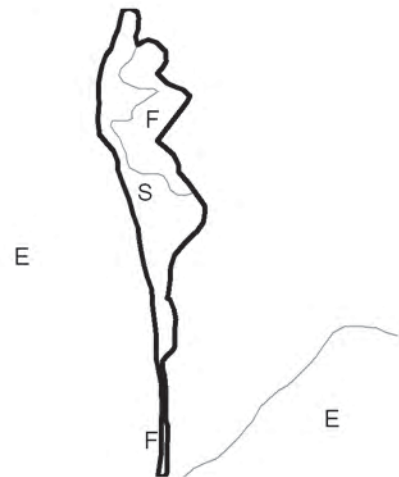
A gentle kanuka forested slope drops off through ti kouka-kanuka shrubland to a west-facing coastal cliff with tutu clinging to near vertical faces. Surrounding land is covered in pasture.



Q08/063 Otara Head Forest and Shrubland

S = Shrubland
 F = Forest
 W = Wetland
 E = Estuarine

0 250 500 1,000 Metres



(a) Kanuka forest is present on most of the flatter areas above the cliff, the canopy of which is punctuated occasionally by yellow ti kouka.

(b) A dense band of bright yellow ti kouka mixed with dark kanuka is conspicuous above the cliff. Harakeke, mapou and mamaku are frequent.

(c) South of the cliff a diverse remnant of pohutukawa-kowhai-puriri-taraire forest extends most of the way down a steep slope to the beach and rock platforms of the lower Otamatea River (Q08/062). Karaka and kanuka are frequent here, and there are occasional rewarewa.

- (d) The cliff face has 50% cover of tutu shrubland. The intervening spaces are either bare rock or are covered by unidentified grasses and herbs.
- (e) Towards the southern part of the remnant a few sparse, very large pohutukawa cling to steep coastal slopes.

Fauna

Not surveyed.

Significance

This is a representative site for three ecological units: (a) ti kouka-kanuka shrubland on steep coastal margin, (c) pohutukawa-kowhai-puriri-taraire forest on steep coastal margin and (d) tutu shrubland on coastal cliff. Indigenous woody vegetation extends to the harbour's edge, providing some catchment protection functions.

KOWHAI ROAD MATAI-KAHIKATEA REMNANT

Survey no.	Q08/064
Survey date	10 November 2005
Grid reference	Q08 115 612
Area	5.4 ha
Altitude	20 m asl

Ecological units

- (a) Kahikatea-ti kouka treeland on alluvium (70%)
- (b) Mature matai over secondary kahikatea-ti kouka forest on alluvium (30%)

Landform/geology

Holocene alluvium and freshwater wetlands.

Vegetation

On the southeastern side of Otuhianga Hill there is a small alluvial basin partly covered with indigenous forest and treeland.

- (a) The northern two thirds of the remnant comprise sparse kahikatea-ti kouka treeland.
- (b) The southern third comprises denser vegetation warranting the classification of 'forest', and has several tall (45-50 m), mature matai towering above a younger canopy of kahikatea poles fringed by ti kouka. Also present are lancewood, karaka and pukatea. This part of the site is fenced.

Fauna

Not surveyed.

Significance

Ecological unit (b) exists nowhere else in the Otamatea ED Northland, and is a very rare vegetation type throughout Northland. It is remarkable for the presence of unusually tall, mature matai trees. Despite its disturbed condition, it is representative of mature podocarp forest on alluvium, an ecological unit which would never have been extensive in this ED.



Q08/064 Kowhai Road Matai-Kahikatea Remnant

S = Shrubland
 F = Forest
 W = Wetland
 E = Estuarine

0 250 500 1,000 Metres



OTUHIANGA HILL FOREST

Survey no.	Q08/065
Survey date	10 November 2005
Grid reference	Q08 106 616 (3 remnants)
Area	21.9 ha (16.5 ha forest, 5.4 ha shrubland)
Altitude	20-120 m asl



Q08/065 Otuhianga Hill Forest

S = Shrubland
 F = Forest
 W = Wetland
 E = Estuarine

0 250 500 1,000 Metres



Ecological units

- (a) Kahikatea-puriri-totara forest on moderate hillslope (70%)
- (b) Totara-kahikatea forest on moderate hillslope (20%)
- (c) Mamaku-manuka forest on gentle slope (5%)
- (d) Manuka shrubland on ridge top (5%)

Landform/geology

Gullies and hillslopes underlain by Oligocene micritic limestone (Mahurangi Limestone), Miocene thinly interbedded sandstone and mudstone (Waitemata

Group), and a Miocene basaltic flow remnant and boulder colluvium (Waitakere Group).

Vegetation

On the northern and southern slopes of Otuhianga hill, there are scattered remnants of indigenous forest and shrubland amongst pasture and residential housing. The site comprises a mosaic of secondary vegetation of different ages, from about 10-15 years to greater than 120 years. Most areas appear unfenced.

(a) Gullies on the southern side of the hill have forest dominated by kahikatea in association with puriri and totara. Kowhai is frequent; ti kouka and karaka are occasional. There are some houses at the edge of this forest, however all dwellings and gardens are excluded from this site.

(b) A compact area of totara and kahikatea forest occurs on the northern side of the hill. Puriri is a common associate with occasional mamaku, ponga, nikau, kanuka, ti kouka and false acacia.

(c) Mamaku-manuka forest is present below the summit on the southern side of the site. Mahoe and ti kouka are also frequent in the canopy.

(d) Manuka shrubland with occasional ti kouka occurs near the summit on the north-facing slope.

Fauna

Australasian harrier.

Significance

This is a representative site for ecological unit (c) mamaku-manuka forest on gentle slope, which is not found anywhere else in Otamatea ED Northland. This site comprises three small remnants, which appear to be regenerating. The condition of the understorey is not known, but is probably affected by livestock.

BRYNDERWYN FARM POND

Survey no.	Q08/066
Survey date	14 November 2005
Grid reference	Q08 392 676
Area	1.2 ha
Altitude	127-139 m asl

Ecological units

(a) Open water (constructed freshwater farm pond) (99%)

(b) *Juncus sarophorus* rushland on constructed pond fringe (1%)

Landform/geology

Man-made pond/lake.

Vegetation

This site comprises a large constructed farm pond approximately 160 m long and 80 m wide lying in a north-south orientation. The paddock around this pond appears to be grazed down to the water's edge and consequently has little indigenous marginal freshwater vegetation. The fringes of the pond are vegetated with pasture (excluded), sparse indigenous rushes (*Juncus sarophorus* and *J. edgariae*) and a few overhanging poplars.