

- (e) Kauri-kanuka forest, with all kauri as rickers is present in the extreme northwestern part of the remnant.
- (f) The upper parts of the gullies have kowhai-puriri forest, with frequent mamaku and occasional ti kouka.
- (g) Along the northern gully, and where the two streams meet, there is a string of raupo-dominant wetlands.

Fauna

Kingfisher, tui, kukupa (Gradual Decline).

Significance

With 48.8 ha of indigenous forest, Hautakima South Forest is the sixth largest single remnant of indigenous forest in Otamatea ED Northland, as well as having a high diversity of habitat types. Of the seven ecological units present, three are representative. Tanekaha-rewarewa-kanuka forest on ridge top (c) is the only example of its type in Otamatea ED Northland and kanuka-manuka shrubland on moderate hillslope (d) is the best example of its type. Despite being very small, the raupo reedlands (g) are the sixth largest freshwater wetland complex recorded in Otamatea ED Northland and are one of the best representative examples of their type. The diversity of vegetation types enhances the ecological significance of this site. Not far away, within 200 m, are two other significant, large forested areas: Hukatere Scenic Reserve (Q08/081) and Hukatere North Forest (Q08/087). Together, these sites form a particularly important group of large forest remnants on the Hukatere peninsula. A threatened bird species (kukupa) uses the area.

TE RURUKU BAY FOREST REMNANT

Survey no.	Q08/089
Survey date	16 November 2005
Grid reference	Q08 133 562 (8 remnants)
Area	46.5 ha (29.5 ha forest, 16.9 ha shrubland, 0.1 ha wetland)
Altitude	0-152 m asl

Ecological units

- (a) Kanuka shrubland on gentle coastal margin (36%)
- (b) Kanuka treeland on moderate hillslope (33%)
- (c) Kanuka forest on gentle coastal margin (15%)
- (d) Kowhai-puriri forest on gentle coastal margin (10%)
- (e) Puriri-taraire forest on moderate to steep hillslope (5%)
- (f) Raupo-lake clubbrush reedland in small depression (1%)

Landform/geology

Steep coastal hillsides and gullies underlain by thinly interbedded mudstone and sandstone (Waitemata Group), and volcanoclastic gravelly sandstones and basaltic lava flows (Waitakere Group).

Vegetation

This site comprises eight separate remnants dispersed across a landscape of pasture and radiata pine forest which is drained by two small streams. The link



Q08/089 Te Ruruku Bay Forest Remnants

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

0 250 500 1,000 Metres



between the remnants is their location on Te Ruruku Bay on the west coast of the Hukatere peninsula.

(a) Most of the site is kanuka shrubland adjacent to the coast, with frequent ti kouka and mamangi. Houpara, mamaku, karaka and mapou are occasional. Pampas is a problem weed in this shrubland.

(b) The next most frequent vegetation type is relatively degraded kanuka treeland on the upper slopes away from the coast. Manuka is frequent here, and ti kouka, totara, pohutukawa and rimu are occasional.

(c) A small area of kanuka forest is also present next the coast, in the southern part of the remnant around the mouth of the stream. The canopy is frequently pierced by ricker kauri, and in places it is blended with karaka and kowhai. Mamaku occurs occasionally.

(d) Next to the kanuka shrubland, on the southern side of Paraoanui Point, there is relatively diverse coastal forest with abundant kowhai and puriri. Frequent kanuka and occasional totara, mamangi, rewarewa and karaka occur. A small remnant nestled in the pine forest is also of this type.

(e) Puriri-dominant forest with associated taraire is present in one coastal remnant. Ti kouka, karaka and kowhai are frequent, while harakeke and titoki are occasional.

(f) A tiny freshwater seepage with raupo and lake clubrush occurs next to the coast.

Significant flora

Coprosma crassifolia was recorded in kanuka shrubland (a) during the present survey.

Fauna

Kingfisher, kukupa (Gradual Decline).

Significance

This site is significant for the presence of a regionally significant plant species, *Coprosma crassifolia*, which is near its northern distributional limit in New Zealand. The kanuka shrubland (a) at this site is the fifth largest area of indigenous shrubland in Otamatea ED Northland, and is a representative example of its type. This site is also representative for ecological unit (f), raupo-lake clubrush reedland in small depression, which has not been recorded elsewhere.

QUARRY FOREST

Survey no.	Q08/090
Survey date	16 November 2005
Grid reference	Q08 160 556
Area	28.3 ha
Altitude	60-140 m asl

Ecological units

(a) Taraire forest on moderate to steep hillslope (45%)

(b) Totara-kanuka forest on ridge top and steep hillslope (40%)

(c) Kanuka forest on moderate hillslope (10%)

(d) Kauri forest on ridge top (5%)

Landform/geology

Hillslopes and gullies underlain by Miocene thinly interbedded mudstone and sandstone (Waitemata Group) and Miocene basaltic lava flows and intrusives (Waitakere Group).

Vegetation

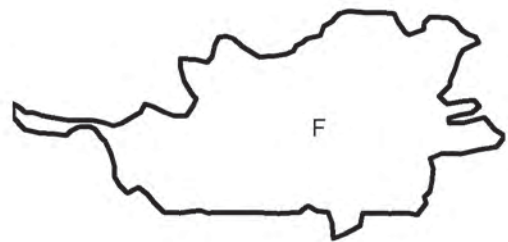
This site comprises a compact indigenous forest remnant covering a gully and a hill next to an active opencast quarry on the Hukatere peninsula. There is a



Q08/090 Quarry Forest

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

0 250 500 1,000 Metres



clear differentiation in forest types between the western and eastern sides of the hill. The forest is at least partially fenced from stock.

(a) On the eastern side of the hill, which is a relatively steep slope, the forest is extremely diverse. Taraire occupies approximately 25% of the canopy, and its main associates (between 10% and 20% cover) are karaka, rewarewa, kohekohe and puriri. The following species also contribute to the forest canopy: kowhai, totara, pukatea, kanuka, lancewood, mamaku, nikau, tarata, puka, titoki, tawa, five finger and kauri. Some of the puriri are showing signs of dieback, most likely due to possum browse.

(b) On the western side, the forest is noticeably less diverse in canopy species, comprising mainly totara and kanuka. Tanekaha, rewarewa, rimu and kahikatea are occasional.

(c) Successional kanuka forest occurs around the eastern fringe of the remnant. This forest is clearly younger and more disturbed than type (a) taraire forest which is adjacent. It has frequent totara and occasional tarata and lancewood associated with it.

(d) Two small stands of kauri rickers occur near the hill crest. These have frequent totara and occasional rewarewa and emergent radiata pine. One of the stands appears to be older than the other, with trees in a mature phase of crown development.

Significant flora

Tawa is locally uncommon in Otamatea ED Northland.

Fauna

Australasian harrier, tui.

Significance

This site is representative for (a), one of the most diverse taraire forest areas currently in existence within Otamatea ED Northland. This type contains a locally uncommon tree species (tawa).

KIRIKIRI CREEK FOREST AND WETLANDS

Survey no.	Q08/091
Survey date	16 November 2005
Grid reference	Q08 171 546 (7 remnants)
Area	40.9 ha (39.9 ha forest, 1.0 ha wetland)
Altitude	20-140 m asl

Ecological units

- (a) Taraire-puriri forest in gully (60%)
- (b) Kanuka-manuka forest in gully (28%)
- (c) Kauri-totara-kanuka forest on moderate to steep hillslope (10%)
- (d) Raupo reedland in small depression (2%)

Landform/geology

Hillslopes and gullies underlain by Miocene thinly interbedded mudstone and sandstone (Waitemata Group) and Miocene volcanoclastic gravelly sandstone and basaltic lava flows (Waitakere Group), and with a valley floor of Pleistocene alluvium.

Vegetation

This site comprises seven remnants of indigenous forest and wetland clustered around the Kirikiri Creek headwaters. Most of the site is gully-bottom or gully-head on moderate to steep topography. The flatter areas between the gullies have been cleared for pastoral farming.

(a) Taraire-puriri forest occurs in most of the remnants, especially in the bottom of gullies where it is buffered by the topography and surrounding forest of type (b). Karaka, kohekohe and tarata are occasional components of the canopy.

(b) The remainder of the gully forests are younger, dominated by kanuka and manuka with frequent totara and occasional ti kouka, black wattle and poplar.



Q08/091 Kirikiri Creek Forest and Wetlands

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

0 250 500 1,000 Metres



(c) The most prominent feature of this site is the dense stands of kauri rickers with associated totara and kanuka. Young kahikatea are also frequent associates of these stands, with occasional rewarewa, rimu and nikau.

(d) Three small areas of raupo reedland occur in this site. Together they cover 1 ha, which is large in comparison to other remaining raupo reedlands in Otamatea ED Northland.

Significant flora

In 1994, a flowering example of a northern rata × pohutukawa hybrid (*Metrosideros robusta* × *M. excelsa*, regionally significant) was recorded. At

that time the forest understorey was 'eaten out' and required fencing (SSBI Q08/H051).

Fauna

Kingfisher, shining cuckoo, welcome swallow. A spotless crane tape was played at two of the raupo reedlands, with no response. Grey warbler, fantail, silvereye and kukupa (Gradual Decline) were recorded in 1994 (SSBI Q08/H051), and probably still use the area.

Significance

This site is significant for the presence of a regionally significant plant hybrid (*Metrosideros robusta* × *excelsa*) and a threatened bird species (kukupa). The southern-most wetland, which is surrounded by grazed pasture, is mostly fenced but the fence excludes some of the wetland. The latter area is grazed by cattle. None of the other forest/wetland remnants appear to be fenced. A 1977 NZ Wildlife Service survey found that there had been more extensive raupo wetlands in the lower Kirikiri Creek which had been drained (SSBI Q08/H051). The total area of forest is large relative to other natural areas in Otamatea ED Northland (it is the 22nd largest out of 188 sites with forest habitat). However, it comprises many separate remnants, which increases the edge effects and decreases its ecological values.

WAITIEKE CREEK FOREST

Survey no.	Q08/092
Survey date	16 November 2005
Grid reference	Q08 152 540 (4 remnants)
Area	104.8 ha (103.6 ha forest, 0.8 ha shrubland, 0.4 ha wetland)
Altitude	0-140 m asl

Ecological units

- (a) Kanuka forest on moderate hillslope (45%)
- (b) Kanuka forest on moderate to steep hillslope (13%)
- (c) Kauri-kanuka forest on ridge top (10%)
- (d) Kowhai-kahikatea forest in gully (10%)
- (e) Kanuka-totara forest on moderate to steep hillslope (10%)
- (f) Pohutukawa forest on steep coastal margin (10%)
- (g) Kanuka shrubland on steep coastal margin (1.5%)
- (h) Raupo reedland in small depression (0.5%)

Landform/geology

Steep coastal hillsides and gullies underlain by Miocene thinly interbedded mudstone and sandstone (Waitemata Group), and Miocene volcanoclastic gravelly sandstone and basaltic lava flows (Waitakere Group).

Vegetation

This site encompasses scattered remnant riparian vegetation throughout the Waitieke catchment, as well as the largely forested coastal headland culminating in Pakaukau Point on the west coast of the Hukatere peninsula.



Q08/092 Waitieke Creek Forest

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

0 250 500 1,000 Metres



Together these remnants form a broken forest sequence from the coastal fringe to 140 m asl. The site comprises mainly the steeper landforms in the catchment, i.e. gullies and steep coastal hillslopes, because easier country has been cleared for agriculture some of which appears to have been recent.

(a) The majority of the site is kanuka forest with occasional manuka, mamangi, tanekaha, kahikatea, ti kouka and mamaku. Pohutukawa occurs sporadically throughout this type.

- (b) Younger kanuka forest on steep land occurs at the top of the catchment. This type has frequent emergent kauri rickers, and occasional rewarewa, mamaku, matai, tarata and ti kouka.
- (c) Dense stands of kauri rickers mixed with smaller amounts of kanuka occur on ridges at the top of the catchment, and also on ridges a short distance from the sea adjacent to pohutukawa forest (f).
- (d) Gully-heads at the top of the catchment support kowhai forest with numerous emergent, young kahikatea.
- (e) Kanuka forest with abundant totara occurs the south of the remnant near the coast. Puriri, karaka and ti kouka are occasional.
- (f) Along the exposed coastal margin, a healthy and diverse fringe of pohutukawa forest occurs. Frequent associate species in this type are kowhai, puriri, karaka, kanuka, kahikatea and harakeke. Occasional species include tawapou (regionally significant), gully tree fern (regionally significant) *Coprosma macrocarpa*, ti kouka, tarata, mamaku, mamangi, mamaku and akepiro.
- (g) A small area of kanuka shrubland borders Oararo Creek to the north. Ti kouka and harakeke are frequent associates. Akepiro and kowharawhara are occasional.
- (h) A tiny raupo reedland is present on one edge of a partially drained flat next to the Waitieke Creek mouth.

Significant flora

Gully tree fern (regionally significant), tawapou (regionally significant).

Fauna

Australasian harrier, kingfisher, white-faced heron.

In 1977 there were anecdotal reports of NI brown kiwi (Serious Decline) and indigenous frogs, but these were never confirmed (SSBI Q08/H043).

Significance

This site is representative for four ecological units: (a) kanuka forest on moderate hillslope, (d) kowhai-kahikatea forest in gully, (c) kanuka-totara forest on moderate to steep hillslope and (f) pohutukawa forest on steep coastal margin. It contains two regionally significant plant species (tawapou and gully tree fern). It has the fifth largest area of forest of any site in Otamatea ED Northland and contains a diverse array of habitat types. The presence of kauri ricker forest adjacent to pohutukawa forest is a notable juxtaposition, not seen elsewhere in Otamatea ED Northland during the current survey.

TE KIAKIA BAY FOREST REMNANTS

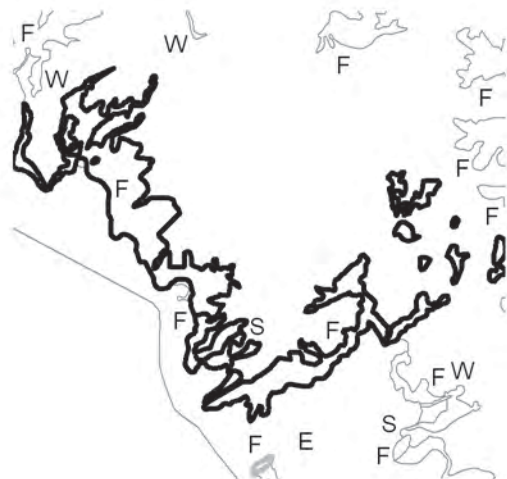
Survey no.	Q08/093
Survey date	16 November 2005
Grid reference	Q08 171 518 (10 remnants)
Area	111.0 ha (101.7 ha forest, 9.3 ha shrubland)
Altitude	0–120 m asl



Q08/093 Te Kiakia Bay Forest Remnants

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

0 250 500 1,000 Metres



Ecological units

- (a) Kanuka forest on moderate to steep hillslope (50%)
- (b) Kanuka-kauri forest on moderate to steep hillslope (25%)
- (c) Kanuka-totara-kauri forest on moderate to steep hillslope (10%)
- (d) Kanuka shrubland on steep coastal margin (8%)
- (e) Pohutukawa-kanuka forest on steep coastal margin (4%)
- (f) Pohutukawa treeland on coastal cliff (2%)
- (g) Puriri-pohutukawa forest on steep coastal margin (1%)

Landform/geology

Steep coastal hillsides and gullies underlain by Miocene volcanoclastic gravelly sandstone and basaltic lava flows (Waitakere Group).

At Strawberry Bay (opposite Pupua Island) there is a sequence of well developed pillow lava flows repeated over a syncline and anticline, overlying fossiliferous flysch and intruded by a younger dyke (Kenny & Hayward 1996).

Vegetation

This large site comprises approximately 5 km of coastline and 10 remnants of indigenous forest which are each separated by only 10–20 m of pasture, and hence form an essentially continuous forest cover from the Strawberry Bay pillow lava point in the north (opposite Pupua and Titipu Islands), through to Te Kiakia Bay in the south. Three creeks (Nihotetea Creek, Ngawhero Creek and one un-named creek) drain this section of the Hukatere peninsula. Several narrow fingers of forest extend up gullies towards Tinopai Rd, but otherwise the forest is mainly within 500 m of the coast, some of which falls within a Marginal Strip.

(a) As in many areas on the western side of Hukatere peninsula, the main forest type is kanuka forest. At this particular location, vegetative cover on just qualifies as ‘forest’ (i.e. the majority of trees are only just over 10 cm dbh), and contains frequent early successional species such as ti kouka and mamaku. Young tanekaha are also frequent.

(b) Numerous stands of kanuka and kauri rickers are dotted around the site on steep slopes or ridges. Kahikatea and ti kouka are frequent members of these stands. Puriri, kowhai, pohutukawa, mamaku and tanekaha are scattered throughout.

(c) Small patches of kanuka-totara-kauri forest occur in the steep upper gully heads. Only one of these is fenced. Occasional associated species are ti kouka, kahikatea, five finger, nikau and puriri.

(d) In the Marginal Strip, kanuka shrubland has regenerated after past clearance on the forest margin. Ti kouka and harakeke are frequent here, and mamangi is occasional.

(e) Pohutukawa and kanuka are dominant in the canopy around the steep margins of the coast most of the way along the site, including the pillow lava at Strawberry Bay in the north. Harakeke is frequent. Occasional emergent radiata pine occurs above the kanuka and pohutukawa. At Te Kiakia Bay a small willow-leaved hakea infestation is present within this ecological unit.

(f) Coastal cliffs have a similar community to (e), but more sparse, with pampas frequently occurring on slips.

(g) A very small, but dense area of pohutukawa and puriri forest occurs next to the coast in the mid-section of the site.

Fauna

Not surveyed.

Significance

This site is representative for five ecological units: (a) kanuka forest on moderate to steep hillslope, (b) kanuka-kauri forest on moderate to steep hillslope, (c) kanuka-totara-kauri forest on moderate to steep hillslope, (e) pohutukawa-kanuka forest on steep coastal margin, and (g) puriri-pohutukawa

forest on steep coastal margin. It comprises the sixth largest area of forest and the ninth largest area of shrubland in Otamatea ED Northland and includes a diverse range of habitat types. 10.6 ha (9.5%) of this site is within Te Kiakia Bay Marginal Strip, which is administered by DOC. The Strawberry Bay pillow lava is a nationally important geological site (Kenny & Hayward 1996).

RAEPERE CREEK FOREST

Survey no.	Q08/094
Survey date	16 November 2005
Grid reference	Q08 198 526 (7 remnants)
Area	116.1 ha (107.7 forest, 8.4 ha shrubland)
Altitude	6-108 m asl

Ecological units

- (a) Totara-kanuka forest on moderate hillslope (40%)
- (b) Kauri-kanuka forest on ridge top (30%)
- (c) Kanuka-manuka shrubland on gentle hillslope (10%)
- (d) Puriri-nikau-totara forest on moderate hillslope (10%)
- (e) Totara-kahikatea-puriri forest on moderate to steep hillslope (5%)
- (f) Totara forest on moderate hillslope (5%)

Landform/geology

Hillslopes and gullies underlain by Miocene thinly interbedded sandstone and mudstone (Waitemata Group) and Miocene volcanoclastic gravelly sandstone (Waitakere Group).

Vegetation

This site includes the fourth largest area of indigenous forest in Otamatea ED Northland), with one large remnant along the Raepere Creek and tributaries, and six much smaller associated remnants. The areas of indigenous vegetation are surrounded by grazed pastoral land, and it seems that livestock have access to most parts.

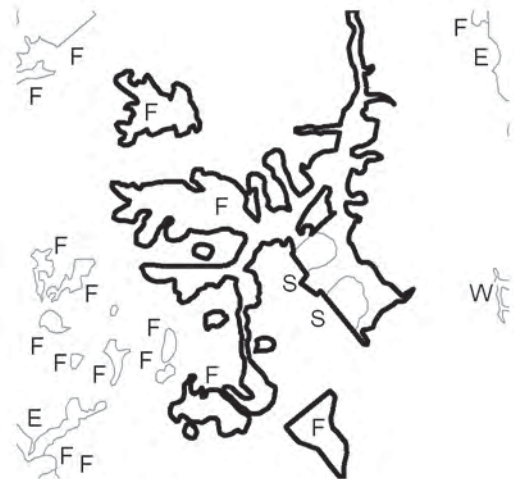
- (a) Most of the forest is dominated by equally by totara and kanuka, two very hardy species resistant to grazing. Puriri is frequent, but often badly browsed. Other species occasionally seen are manuka, kowhai, rimu, nikau and kohekohe.
- (b) This site stands out from similar sites on Hukatere peninsula because of its relatively extensive forest of kauri rickers and kanuka, which rises above surrounding canopies to form a distinctive profile on the skyline. This forest tends to be set in a matrix of type (a) forest, which buffers it.
- (c) Large areas of kanuka-manuka shrubland occur in the southern part of this site, accompanied by frequent young tanekaha, and occasional ti kouka, mamangi and emergent radiata pine. Seedling radiata pine are also establishing here.
- (d) On the western side of Tinopai Road, forest dominated by puriri with abundant totara and nikau occurs. Although not in the catchment of Raepere Creek (rather facing the western side of Hukatere from the crest of the hill), it is



Q08/094 Raepere Creek Forest

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

0 250 500 1,000 Metres



included in this site because of its close physical connection to forest directly on the eastern side of the road. Kahikatea is frequent in this type, and rewarewa and kowhai are occasional.

(e) The remnant around a house on Tinopai Road is composed of abundant totara with associated kahikatea and puriri, and occasional very tall, emergent eucalypts. Other species present in the canopy include taraire, tarata and nikau.

(f) Forest with a canopy of pure totara and little else occupies some of the smaller remnants and forest edges.

Significant flora

During a 1977 NZ Wildlife Service survey, miro (locally uncommon), was recorded here also (SSBI Q08/H042).

Fauna

NI brown kiwi (Serious Decline) were found here as recently as 1977, but a survey in 1992 failed to establish their continued presence, and they are suspected to be extinct in Otamatea ED Northland now. Birds recorded in 1992 include kukupa (Gradual Decline), shining cuckoo, morepork, kingfisher, welcome swallow, fantail, silvereve and tui (SSBI Q08/H042).

Significance

By comparison with reports from three decades ago, this site appears to have become more degraded (species loss, degradation of condition of trees, and forest composition), though it still shows considerable diversity in the canopy layers (at least from a distance). This degradation has probably been caused by continued grazing and browsing (which reduces vegetation health and eliminates sensitive plant species), as well as the likely less visible effects of invasive predators on indigenous fauna (e.g. stoats killing kiwi). Despite this, the site is still representative for four ecological units: (a) totara-kanuka forest on moderate hillslope, (b) kauri-kanuka forest on ridge top, (c) kanuka-manuka shrubland on gentle hillslope, and (e) totara-kahikatea-puriri forest on moderate to steep hillslope. This is reflection of the rarity of larger forest blocks in Otamatea ED, as well as the poor quality of many natural areas. The very bottom end of the totara-kanuka forest in the gully next to the coast (0.1 ha) is within the Raepere Creek Marginal Strip (administered by DOC).

TOTARA CREEK FOREST REMNANT

Survey no.	Q08/095
Survey date	16 November 2005
Grid reference	Q08 181 541
Area	34.9 ha (34.8 ha forest, 0.1 ha wetland)
Altitude	20-116 m asl

Ecological units

- (a) Kanuka forest on moderate to steep hillslope (45%)
- (b) Totara-kanuka forest on moderate hillslope to steep hillslope (35%)
- (c) Kauri-kanuka forest on gentle hillslope (10%)
- (d) Tanekaha-totara forest on moderate hillslope (9.5%)
- (e) Raupo reedland in small depression (0.5%)

Landform/geology

Hillslopes and gullies underlain by Miocene thinly interbedded mudstone and sandstone (Waitemata Group) and Miocene volcanoclastic gravelly sandstone (Waitakere Group), and with a valley floor of Pleistocene alluvium.

Vegetation

This site comprises a smaller example of forest types similar to neighbouring Raepere Creek Forest (Q08/094) and Kirikiri Creek Forest and Wetlands (Q08/091). It is less visible from roads than either of the latter; therefore the