(b) The inland part of the remnant comprises totara forest. This is not easily visible from public roads or from the coast, hence this type has been interpreted from aerial photography (flown in 2002) and brief glimpses from the river.

(c) An area of kahikatea forest occurs on a steep slope at the top end of the remnant in the south. Also present in the canopy are five finger, rewarewa and puriri.

(d) Pohutukawa forest is present on the point opposite Te Kowhai Creek, which bears the brunt of the weather.

(e) Kanuka–manuka shrubland is also on the headland. Occasional mingimingi and bracken are present.

Fauna

Not surveyed.

Significance

This site represents the best example of coastal puriri–kowhai forest in Otamatea ED Northland even though it appears to be grazed. It has quite a high diversity of vegetation types for its size, and forms a valuable indigenous forest and shrubland buffer to the Arapaoa River (Q08/084), which is otherwise mostly bordered by pasture.

WHAKAPIRAU/ROCKY POINT FOREST AND SHRUBLAND

Survey no.	Q08/135
Survey date	8 December 2005
Grid reference	Q08 272 538 (2 remnants)
Area	11.7 ha (11.6 ha forest, 0.1 ha shrubland)
Altitude	0–40 m asl

Ecological units

(a) Totara–kanuka forest on steep coastal margin (45%)

(b) Puriri forest on steep coastal margin (30%)

(c) Puriri–taraire forest on steep coastal margin (20%)

(d) Pohutukawa treeland on steep coastal margin (4%)

(e) Mapou–karamu–hangehange shrubland on steep coastal margin (1%)

Landform/geology

Coastal headland underlain by Cretaceous sandstone and mudstone (Mangakahia Complex).

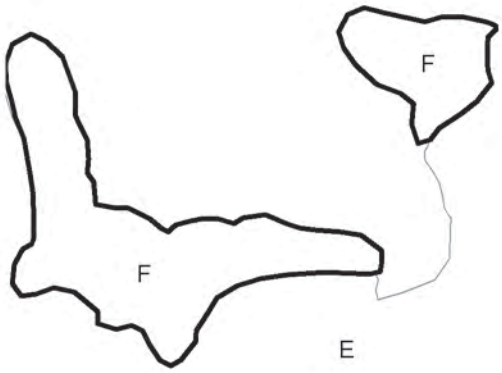
Vegetation

Whakapirau/Rocky Point is a headland next to the main channel of the Arapaoa River (Q08/084). The western side of the point is more exposed to strong winds blowing down the river than the eastern side. The coastal forest in this site is divided into two remnants, the major one being on the end of the point and the minor one on the eastern side. Scattered coastal broadleaved trees (e.g. puriri, karaka, taraire) are present in adjacent exotic grassland, but these are excluded from the site. They do, however, provide a role in linking the two remaining remnants of forest.

Q08/135 Whakapirau/Rocky Point Forest and Shrubland

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

0 250 500 1,000 Metres



(a) The terrain of the point is quite steep and rocky in places, as the name would suggest. The main canopy species is totara, followed by kanuka. Tall, emergent radiata pine and puriri are frequent.

(b) The eastern remnant has a majority of puriri in the canopy while kowhai, kanuka, karaka and titoki are all frequent. Emergent macrocarpa trees feature prominently above the indigenous canopy. This forest is more sheltered from predominant westerly winds than the rest of the site.

(c) On the sheltered, eastern side of the point there is a forest dominated by puriri (>50% canopy cover) in association with taraire. Several other species are frequent including karaka, heketara, tanekaha, kowhai, totara and kahikatea.

(d) Pohutukawa treeland occurs on the exposed, western side of the point, near to the water's edge. Directly underneath and behind the trees has been cleared for pasture.

(e) A small area of diverse shrubland is present on a very steep part of the coast, directly in the lee of the point. Mapou, karamu and hangehange are the most frequent species, in association with harakeke, mamaku, *Gahnia lacera*, *Coprosma macrocarpa*, mingimingi, manuka and koromiko. There is also occasional lancewood, karaka, mamangi, rangiora and tanekaha.

Significant flora

Mida (Gradual Decline) was recorded at this site in 2000 (SSBI Q08/H067).

Fauna

Kingfisher, fantail, Australasian harrier and kukupa (Gradual Decline) were noted here in 2000 (SSBI Q08/H067).

Significance

This site has diverse habitat types for its size, and is representative for ecological unit (e) which was not recorded elsewhere in Otamatea ED Northland. It is known to support a threatened plant species (mida) and a threatened bird species (kukupa). The site is also significant as an indigenous vegetation buffer and scenic headland on the edge of a large estuarine natural area (Arapaoa River, Q08/084).

BARTON'S HILL FOREST

Survey no.	Q08/137
Survey date	28 November 2005
Grid reference	Q08 285 640
Area	11.2 ha
Altitude	50–140 m asl

Ecological units

(a) Taraire forest on steep hillslope (90%)

(b) Totara forest on moderate to steep hillslope (10%)

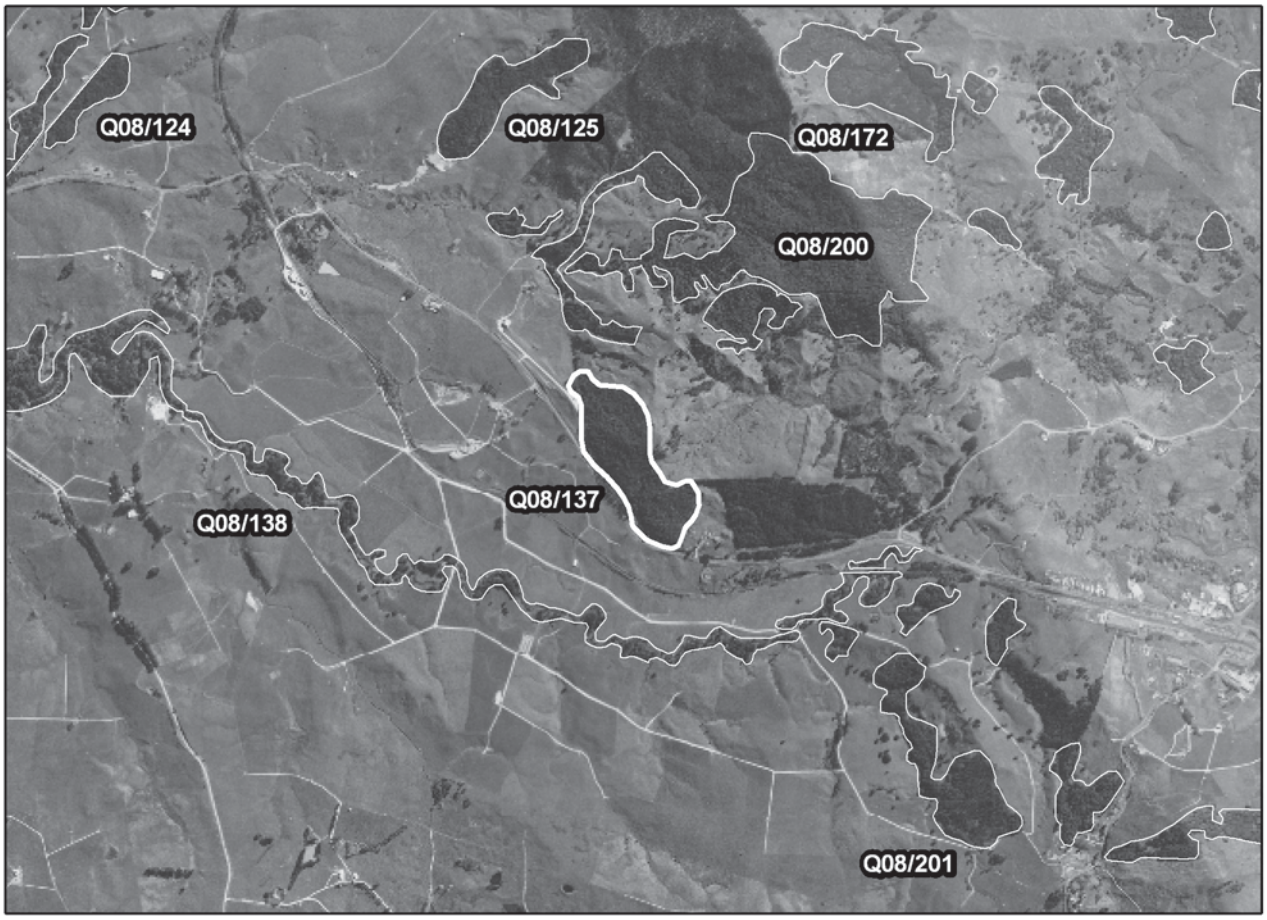
Landform/geology

Hillslopes and gullies underlain by Cretaceous sandstone and mudstone (Mangakahia Complex).

Vegetation

Barton's Hill Forest is forested on its western side, from the peak at 140 m asl (a locally prominent point), down to where State Highway 12 curves around it at 50 m asl. The slope is generally steep throughout (>30°). The hill forest is at least partially fenced, and the canopy is apparently healthy.

(a) Most of the forest is dominated by taraire, whose windswept crowns give an even, sculpted texture to the canopy. Two other broadleaved trees are frequent (karaka and puriri), along with emergent rewarewa. A large variety of species are occasional throughout, including kohekohe, nikau, titoki, mamaku, tarata, karamu, *Coprosma macrocarpa*, mapou, and emergent pukatea and kahikatea.



Q08/137 Barton's Hill Forest

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

0 250 500 1,000 Metres

(b) On the northwestern side of the hill the forest is dominated almost entirely by totara. Tanekaha and kanuka are frequent, with occasional rimu, kahikatea, nikau, tarata and ti kouka.

Fauna

The threatened indigenous snail *Amborhytida dunniae* (Gradual Decline) was recorded at this site.

Significance

This is a representative site for (a) taraire forest on steep hillslopes. As one of the few places known to support a threatened snail species, this site is particularly significant. It appears to be in good condition and is physically linked with another large area of indigenous forest, the Huarau Ridge Forest Remnants (Q08/200).

UPPER PAHI RIVER RIPARIAN FOREST

Survey no.	Q08/138
Survey date	28 November 2005
Grid reference	Q08 274 640 (4 remnants)
Area	31.9 ha
Altitude	20–40 m asl

Ecological units

(a) Totara forest on alluvium (50%)

(b) Totara–kahikatea treeland on alluvium (50%)

Landform/geology

Valley floor on Holocene alluvium.

Vegetation

Remnants of indigenous riparian forest and treeland follow a 5 km stretch of the Pahi River from a point just upstream of the tidal influence back to the railway crossing and State Highway 12. There are some fine large old podocarps present, but all of the remnants have rather ragged edges, are grazed throughout by livestock (down to the water's edge) and have very little understorey.

(a) Towards the western end a dense canopy of totara forms a forest cover. Frequent examples of matai, kahikatea, kanuka, kowhai and tree privet are present. Also recorded were tanekaha, rimu, mamaku, hawthorn and elaeagnus.

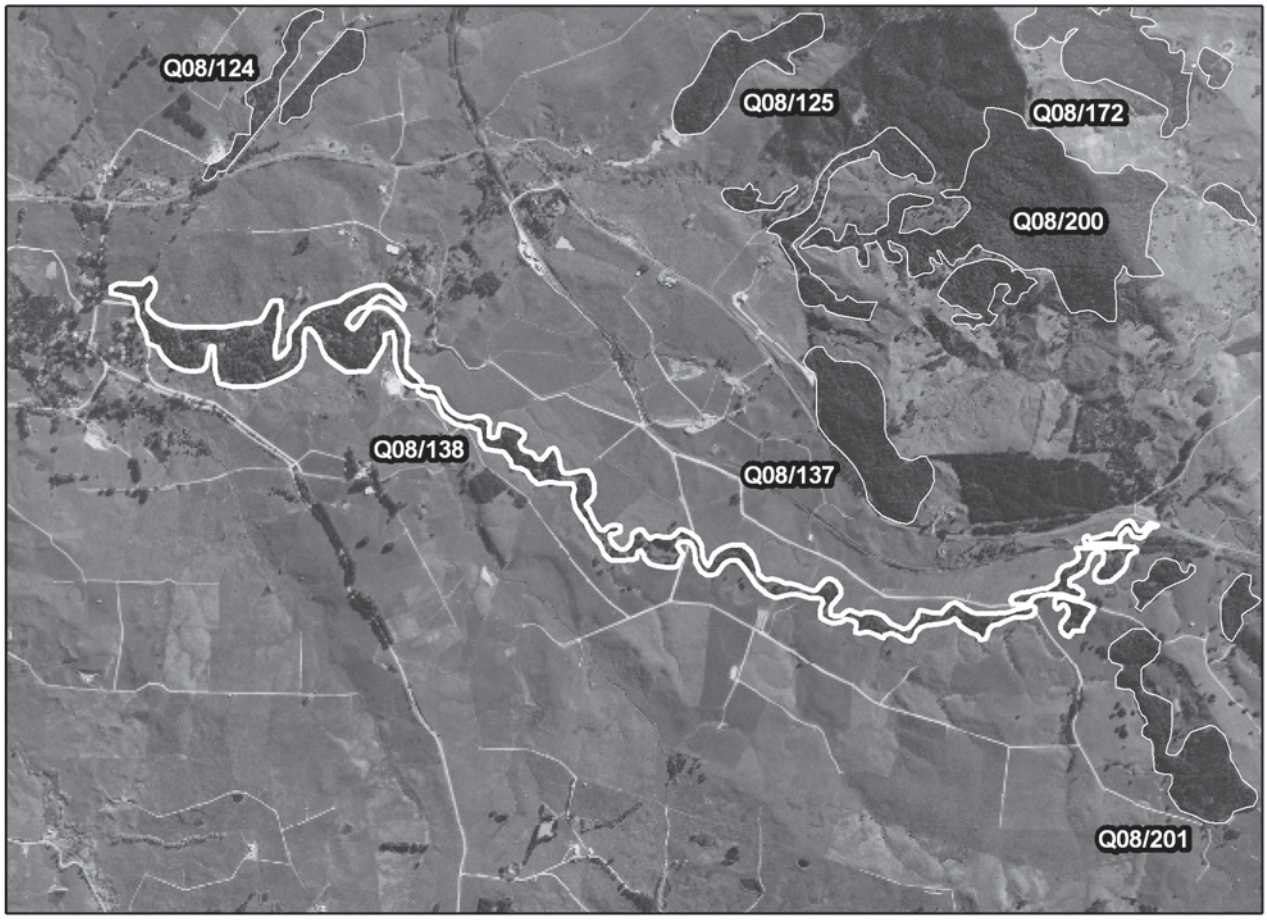
(b) The less densely covered eastern parts form 'treeland' (i.e. an interrupted canopy, scattered trees). The main trees are totara and kahikatea, but titoki, karaka and kanuka are frequent also, with occasional ti kouka, weeping willow and crack willow.

Fauna

Not surveyed.

Significance

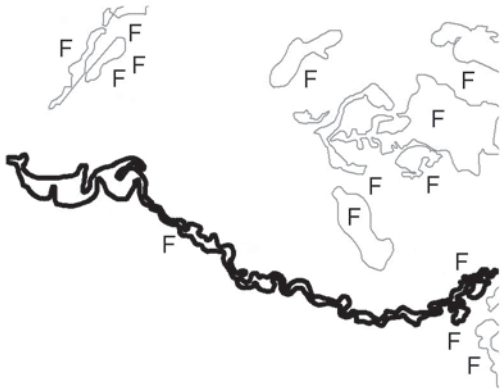
Although this site is degraded and reduced to small, scattered remnants which are prone to weed invasion, this site is representative for (b) totara forest on alluvium, which is a rare forest type in Otamatea ED Northland and in all of Northland. There are some mature trees, some more dense areas of forest and the site has considerable length.



Q08/138 Upper Pahi River Riparian Forest

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

0 250 500 1,000 Metres



PAGE POINT FOREST AND SHRUBLAND

Survey no.	Q08/140
Survey date	8 December 2005
Grid reference	Q08 232 570
Area	12.3 ha (9.4 ha forest, 2.9 ha shrubland)
Altitude	0–40 m asl

Ecological units

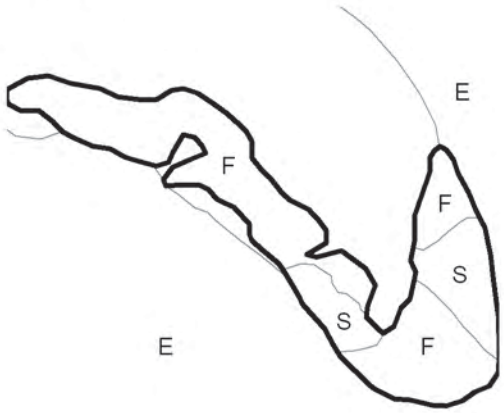
(a) Kanuka forest on steep coastal margin (35%)

(b) Taraire–puriri forest on steep coastal margin (35%)

Q08/140 Page Point Forest and Shrubland

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

0 250 500 1,000 Metres



(c) Kanuka shrubland on steep coastal margin (15%)

(d) Manuka shrubland on steep coastal margin (9%)

(e) Totara–puriri forest on steep coastal margin (6%)

Landform/geology

Coastal headland underlain by Cretaceous sandstone and mudstone (Mangakahia Complex); Cretaceous siliceous mudstone (Whangai Fmn, Mangakahia Complex).

Vegetation

Page Point Forest and Shrubland comprises coastal forest which has developed within the past half century following previous clearance, and an established shrubland which is probably <20 years old. There appears to have been some recent work carried out to fell mature emergent pines around the coast. The edges of the remnant are frayed and inhabited by gorse (these parts have generally been excluded from the site). Grazing livestock have access throughout.

(a) The main forest canopy tree on the western side is kanuka. Frequent karaka, puriri, kahikatea, taraire, ti kouka and gorse are present, along with occasional tarata, kauri and rewarewa.

(b) Small pockets of taraire–puriri forest are present (these probably escaped the major clearance), in which karaka and kohekohe are frequent and rewarewa is occasional.

(c) The eastern side of the remnant has regenerated following relatively recent clearance to kanuka shrubland. Juvenile totara and mature puriri are frequent. Occasional species include radiata pine, kahikatea and kowhai.

(d) Recent clearance in the west has regenerated to manuka shrubland (perhaps due to the more exposed nature of the coast there). Mapou, gorse and mamangi are frequent, with occasional mingimingi, *Gahnia lacera, Metrosideros perforata, Haloragis erecta* and *Coprosma macrocarpa*.

(e) On the very sheltered, eastern side of the point, a patch of totara–puriri forest with frequent kowhai and karaka is present.

Fauna

Grey warbler, welcome swallow, kingfisher, Australasian harrier, kukupa (Gradual Decline).

Significance

This site is significant as it is known to support a threatened bird species (kukupa) and contains a relatively high diversity of habitat types for its size. However, the effects of continued livestock access to the forest reduces its value.

TE TAWHITI FOREST REMNANTS

Survey no.	Q08/144
Survey date	29 November 2005
Grid reference	Q08 322 581 (2 remnants)
Area	7.6 ha (6.9 ha forest, 0.7 ha shrubland)
Altitude	61–107 m asl

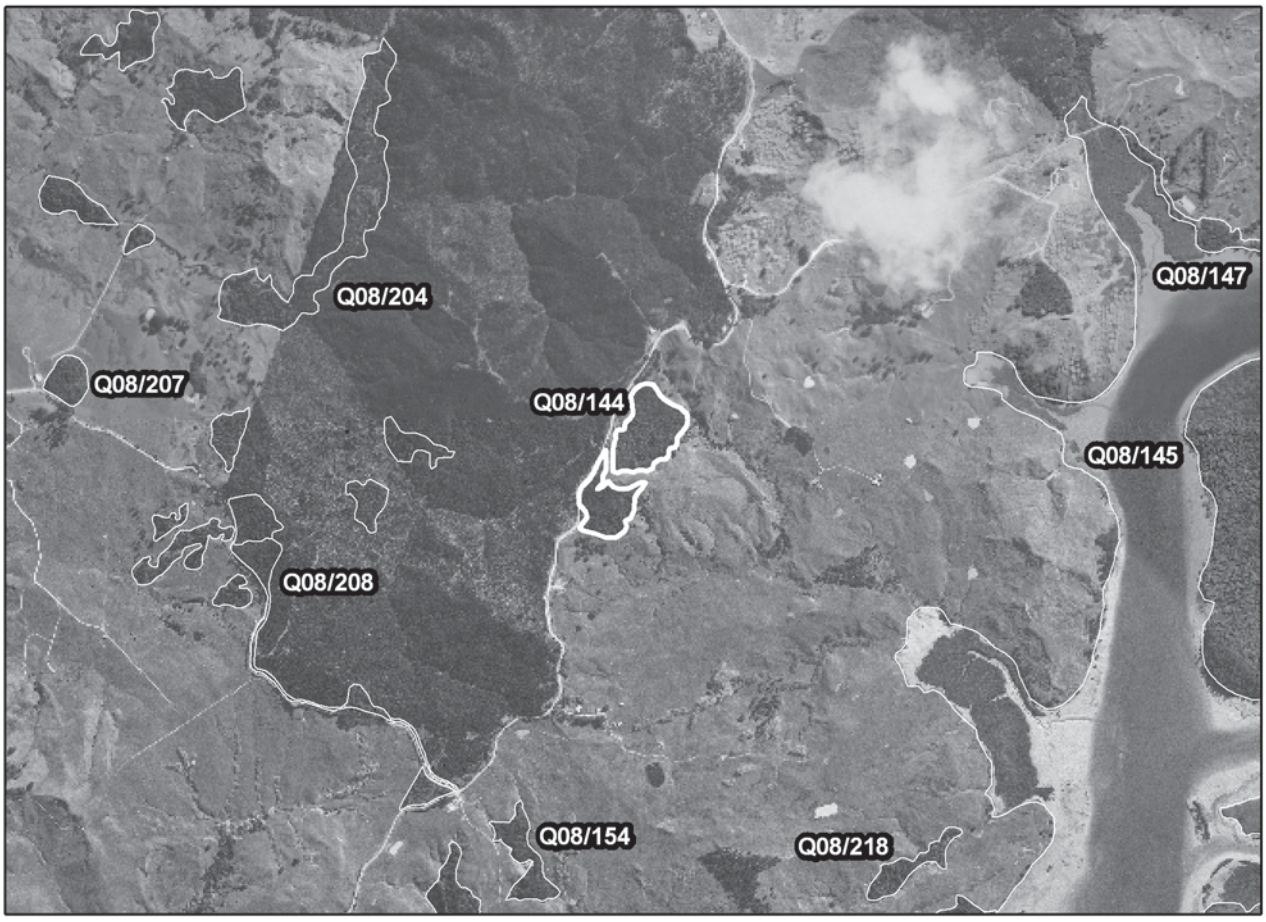
Ecological units

(a) Taraire forest on moderate to steep hillslope (91%)

(b) Manuka–kanuka shrubland on local steep slope (9%)

Landform/geology

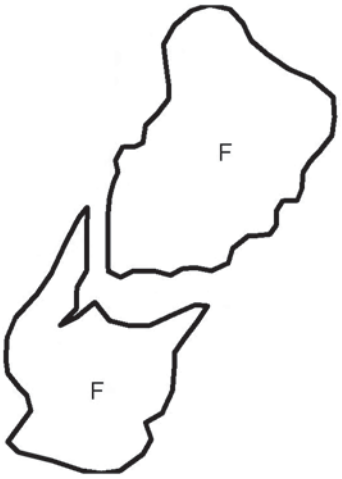
Hillslopes underlain by Cretaceous sandstone and mudstone (Mangakahia Complex).



Q08/144 Te Tawhiti Forest Remnants

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

0 250 500 1,000 Metres



Vegetation

This site comprises two compact forest remnants on a predominantly east-facing hillslope 1 km inland from the Otamatea River (Q08/062). To the west lies an extensive radiata pine plantation forest and surrounding the site there is pasture. There appears to be no fencing around the forest to exclude stock, hence the understorey is grazed almost bare. Tree privet, woolly nightshade, elaeagnus and wild grape vines are problem weeds in the immediate surrounding landscape.

(a) Both remnants are composed primarily of taraire forest. Frequent associates of this type are puriri, karaka, totara and emergent kahikatea. Some of the kahikatea are large and old. Nikau, rewarewa, pukatea, titoki, tawa and puka (epiphytic) occur occasionally.

(b) Next to Bickerstaffe Road, in the southern remnant, a steep west-facing slope supports a shrubland of manuka and kanuka with frequent ti kouka, and occasional tarata, totara, mingimingi, mahoe, mapou, karamu, tanekaha, mamaku, hangehange and pampas.

Fauna

Grey warbler, shining cuckoo, welcome swallow, kingfisher.

Significance

Despite being relatively small and with poor understorey, these remnants are still a representative example of (a) taraire forest on moderate to steep hillslopes, because the forest contains occasional emergent mature kahikatea, which are very uncommon in Otamatea ED Northland.

RAEPARE CREEK HEADLAND FOREST

Survey no.	Q08/145
Survey date	29 November 2005
Grid reference	Q08 343 578 (2 remnants)
Area	46.3 ha
Altitude	0–60 m asl

Ecological units

(a) Taraire–puriri–totara forest on moderate hillslope (40%)

(b) Kanuka forest on gentle hillslope (35%)

(c) Kauri–totara forest on gentle coastal margin (15%)

(d) Kanuka–rimu forest on moderate to steep hillslope (5%)

(e) Totara–puriri–kahikatea forest on gentle coastal margin (5%)

Landform/geology

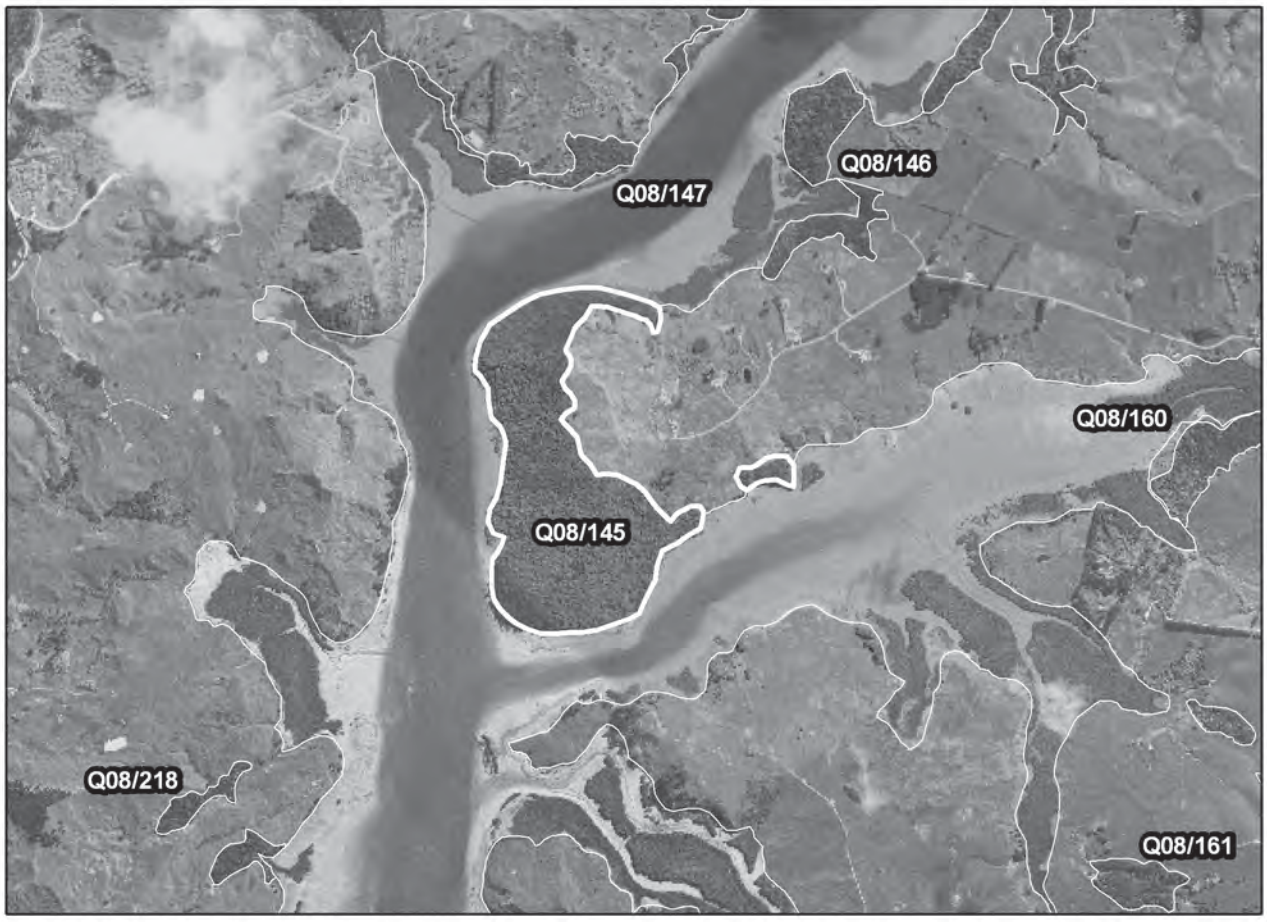
Coastal headland underlain by Cretaceous sandstone and mudstone (Mangakahia Complex).

Vegetation

This site comprises indigenous forest on the western end of a prominent peninsula jutting out into the Otamatea River (Q08/062). On the southern side of the headland is Raepare Creek, a small tidal inlet of predominantly mudflats and shallow water. To the north and west lies the main channel of the saltwater river. The forest remnant is large, diverse and appears to be fenced off from neighbouring exotic grassland and residential housing. Several forest types can be distinguished:

(a) Through the mid-section of the forest the predominant vegetation type is taraire–puriri–totara forest with frequent kowhai, karaka, rewarewa and emergent kahikatea. Nikau, mamangi, pukatea and puka are occasional.

(b) Along the top, adjacent to the grassland, kanuka forest with frequent young totara and kahikatea is present.



Q08/145 Raepare Creek Headland Forest

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

0 250 500 1,000 Metres

(c) At several points around the coast, clusters of tall kauri rickers grow right down to the beach. These are interspersed with abundant totara, and frequent taraire, rewarewa, karaka, puriri and tall kahikatea spars.

(d) A distinct patch of kanuka-dominant forest with emergent young rimu spars is present at about the mid-point of the remnant. Totara is frequent here also.

(e) The southern coastal forest (including the small separate remnant) comprises abundant totara with common puriri and kahikatea. Kanuka is frequent, with occasional karaka, ti kouka, pukatea and titoki.

Fauna
Welcome swallow, kingfisher, kukupa (Gradual Decline).

Significance
This is the fifteenth largest forested site in Otamatea ED Northland. The site is representative for four ecological units: (a) taraire–puriri–totara forest on moderate hillslope, (b) kanuka forest on gentle hillslope, (c) kauri–totara forest on gentle coastal margin, and (d) kanuka–rimu forest on moderate to steep hillslope. It supports a high diversity of forest types and at least one threatened bird species (kukupa). Some of the puriri in the small separate remnant appear to be affected by dieback. Most of this natural area is within two separately owned QEII Open Space Covenants (43.2 ha in total, or 93% of the forest described here).

WAHIWAKA CREEK FOREST REMNANTS

Survey no.	Q08/146
Survey date	2 December 2005
Grid reference	Q08 357 595 (5 remnants)
Area	44.2 ha
Altitude	0–60 m asl

Ecological units
(a) Totara–puriri–kahikatea forest on steep coastal margin (40%)

(b) Totara forest on gentle coastal margin (23%)

(c) Taraire–karaka forest on gentle coastal margin (15%)

(d) Kauri–kahikatea–totara forest on ridge top (10%)

(e) Totara–kahikatea forest on moderate hillslope (10%)

(f) Kauri–kanuka forest on gentle coastal margin (2%)

Landform/geology
Coastal hillsides underlain by melange (undifferentiated Mangakahia Complex, Motatau Complex and Waitemata Group lithologies).

Vegetation
This site comprises five coastal forest remnants on the east coast of the Otamatea River (Q08/062) centred on the Wahiwaka Creek, which is a small mangrove-filled tidal inlet. Pasture dominates the surrounding landscape, and some small pine plantations and occasional willow plantations also occur. The site contains several forest types, most of which have totara as a main component. The easternmost forest remnant was fenced off from neighbouring paddocks in 2002 (David Hargreaves, pers. comm.), but there is no fence along the coastal margin, hence stock can still gain access from time to time by walking around the mudflats. None of the other remnants are effectively protected from stock access either.

(a) The most common forest type at this site, which generally occurs on steep parts of the coastline, has abundant totara with subdominant puriri and kahikatea. Frequent associates are karaka, kanuka, rewarewa, kauri and nikau, and there is occasional tarata and ti kouka.