

SITE NAME	SURVEY NO.	GRID REF.
Newton Road Remnants	Q07/054	Q07 206 053
Millington Road	Q07/055	Q07 234 057
Cemetery Road Remnants	Q07/056	Q07 244 047
Tauraroa Road Remnants	Q07/057	Q07 195 927
Whangarei Harbour	Q07/058	Q07 380 990
Maungakaramea Mountain	Q07/059	Q07 186 945
Te Hihi Stream	Q07/060	Q07 253 062
Mannington Road Wetland	Q07/061	Q07 182 048
Limestone Island & Surrounding Islands	Q07/062	Q07 335 008
Maungatapere Remnants	Q07/063	Q07 195 036
Wheki Stream Swamp	Q07/064	Q07 157 010
Weke Road Remnants	Q07/065	Q07 151 004
McDonalds Island	Q07/084	Q07 452 989
Calliope Island	Q07/085	Q07 486 943
Mangakahia River	P07/024	P07 052 053
Waitomotomo Stream	P07/025	P07 070 084
Wairua Falls Scenic Reserve	P07/028	P07 074 046
Draffin Farm Wetland	P07/029	P07 067 008
Waiotama Reserve	P07/030	P07 075 995
Hanham's Bush	P07/032	P07 056 019

AKERAMA BRIDGE RIVERINE FOREST

Survey no. Q06/007
 Survey date 5 May 1996
 Grid reference Q06 180 327
 Area 95 ha (91 ha forest, 4 ha wetland)
 Altitude 100-120 m asl

Ecological unit

- (a) Kahikatea-totara riverine forest on alluvium (40%)
- (b) Totara riverine forest on alluvium (55%)
- (c) **Harakeke**-cabbage tree riverine association in wetland on alluvium (5%)

Landform/geology

Quaternary alluvial and swamp deposits in the headwaters of the Hikurangi Swamp.

Vegetation

Alluvial riverine forest adjoining the Waipuakakahau and Ngaruawahine Streams.

- (a) Tall kahikatea-totara riverine forest with frequent matai and occasional kowhai, kohuhu, cabbage tree, black maire, titoki, manatu and native passion flower.
- (b) Totara riverine forest where totara is abundant and associated with occasional matai, kowhai, kahikatea and manatu.

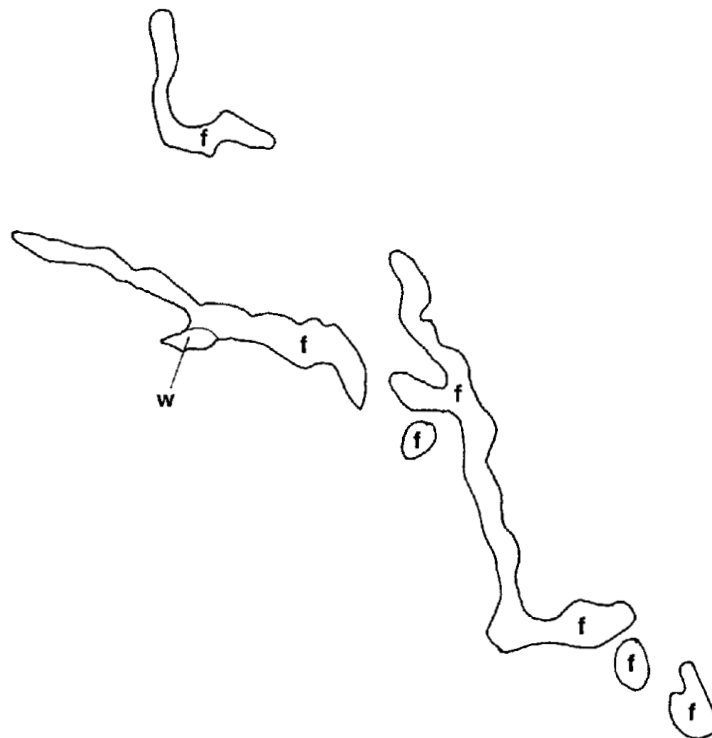
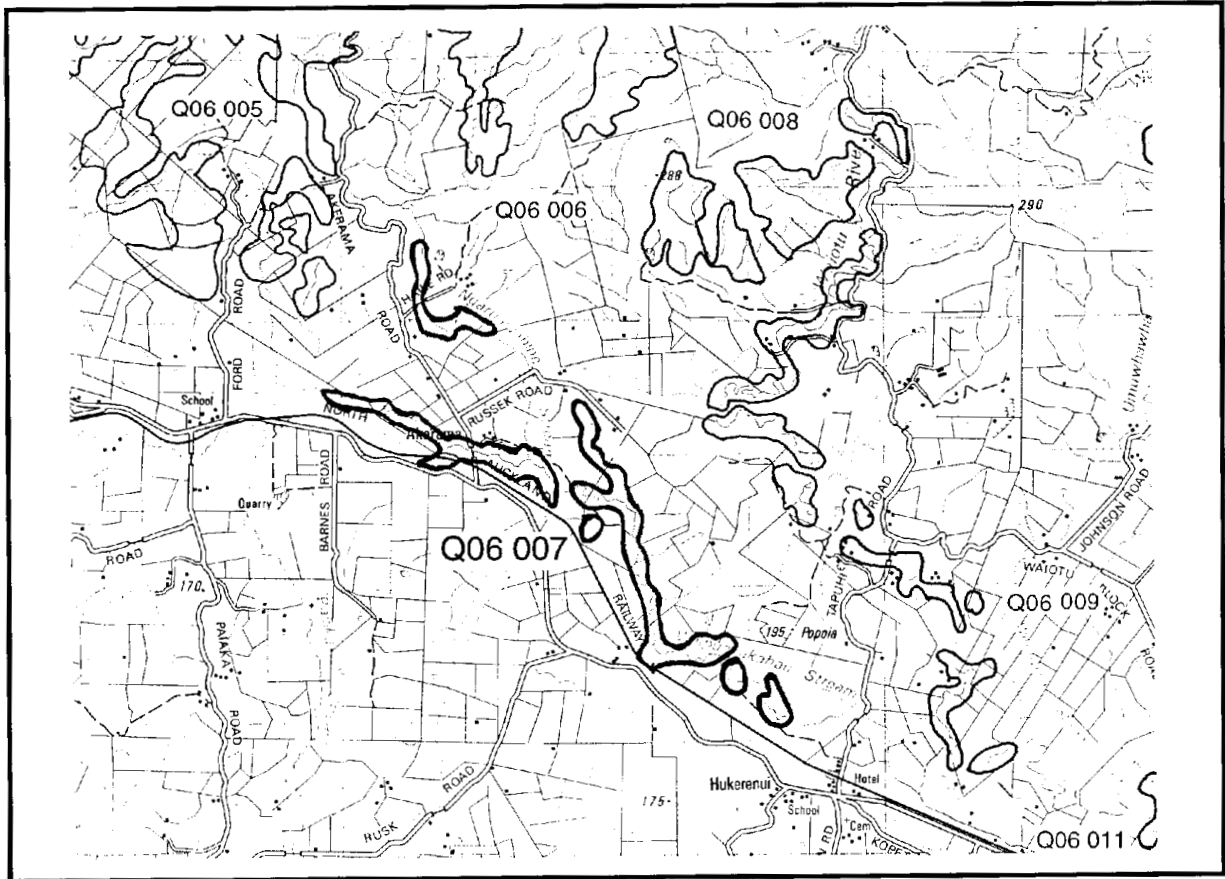


Figure 3. Akerama Bridge Riverine Forest, Q06 007
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; w = wetland.

(c) Harakeke-cabbage tree riverine association in wetland.

Significant flora

Black maire (Regionally significant species).

Fauna

Common forest birds and waterfowl are known from this site.

Significance

The best example of alluvial riverine forest (an uncommon forest type), within the Whangarei Ecological District. It has good plant diversity, and contains at least one regionally uncommon species, black maire. It is a representative site for totara riverine forest and kahikatea-totara riverine forest, and the only site where **harakeke**-cabbage tree wetland has been recorded in the Ecological District.

It is also upstream of a site containing the riparian dependent plant *Pittosporum obcordatum*, which is threatened. Future botanical assessment is warranted and riparian function is implied.

FORSYTHE MEANDER

Survey no.	Q06/010
Survey date	21 November 1997
Grid reference	Q06 216 250
Area	27.5 ha
Altitude	80 m asl

Ecological unit

- (a) **Kahikatea**-totara riverine forest on alluvium (40%)
- (b) **Kanuka/manuka**-totara riverine forest on alluvium (60%)

Landform/geology

Quaternary alluvial and swamp deposits adjoining artificially cut-off meander of Wairua River, Hikurangi Swamp.

Vegetation

Riverine forest surrounding an artificial oxbow of open water.

(a) About 40% of the riverine forest is kahikatea dominant with totara common. Other canopy species include frequent manuka and manatu with occasional matai, white maire, cabbage tree and kowhai.

(b) About 60% is kanuka/manuka dominant with totara common. Kowhai occurs frequently with white maire, manatu and kahikatea occasional.

Fauna

Australasian shoveler.

Significance

Riverine forest is an uncommon vegetation type and this is a representative site for **kahikatea**-totara forest and **kanuka/manuka**-totara riverine forest. It also has riparian function.

Approximately 13 ha of this site is protected as stewardship land, administered by the Department of Conservation.

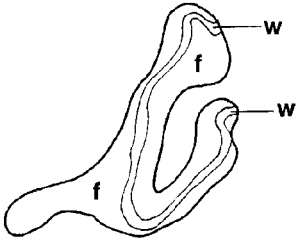
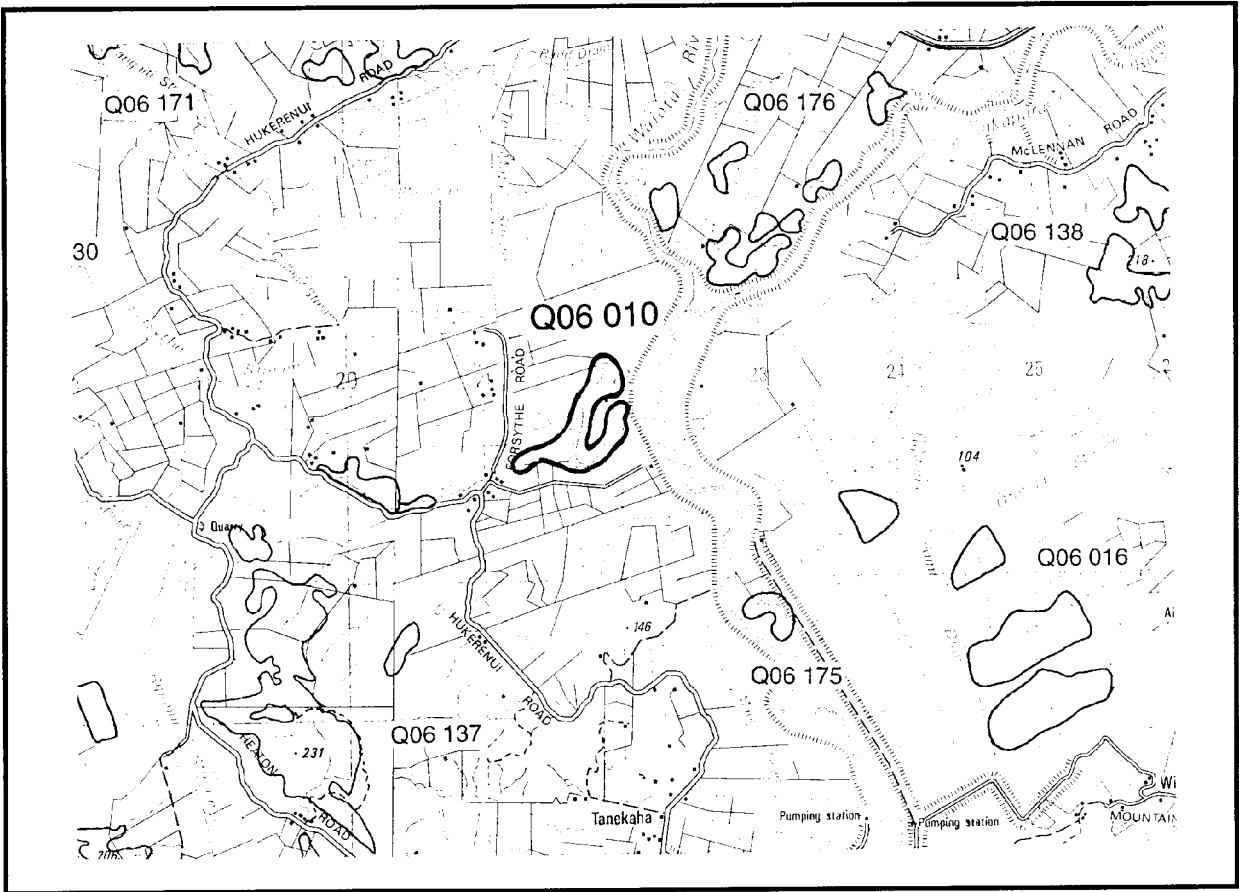


Figure 4. Forsythe Meander, Q06 010
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; w = wetland.

WAIOTU RIVERINE REMNANTS

Survey no. Q06/011
 Survey date 15 November 1997
 Grid reference Q06 220 302
 Area 20.6 ha
 Altitude 80 m asl

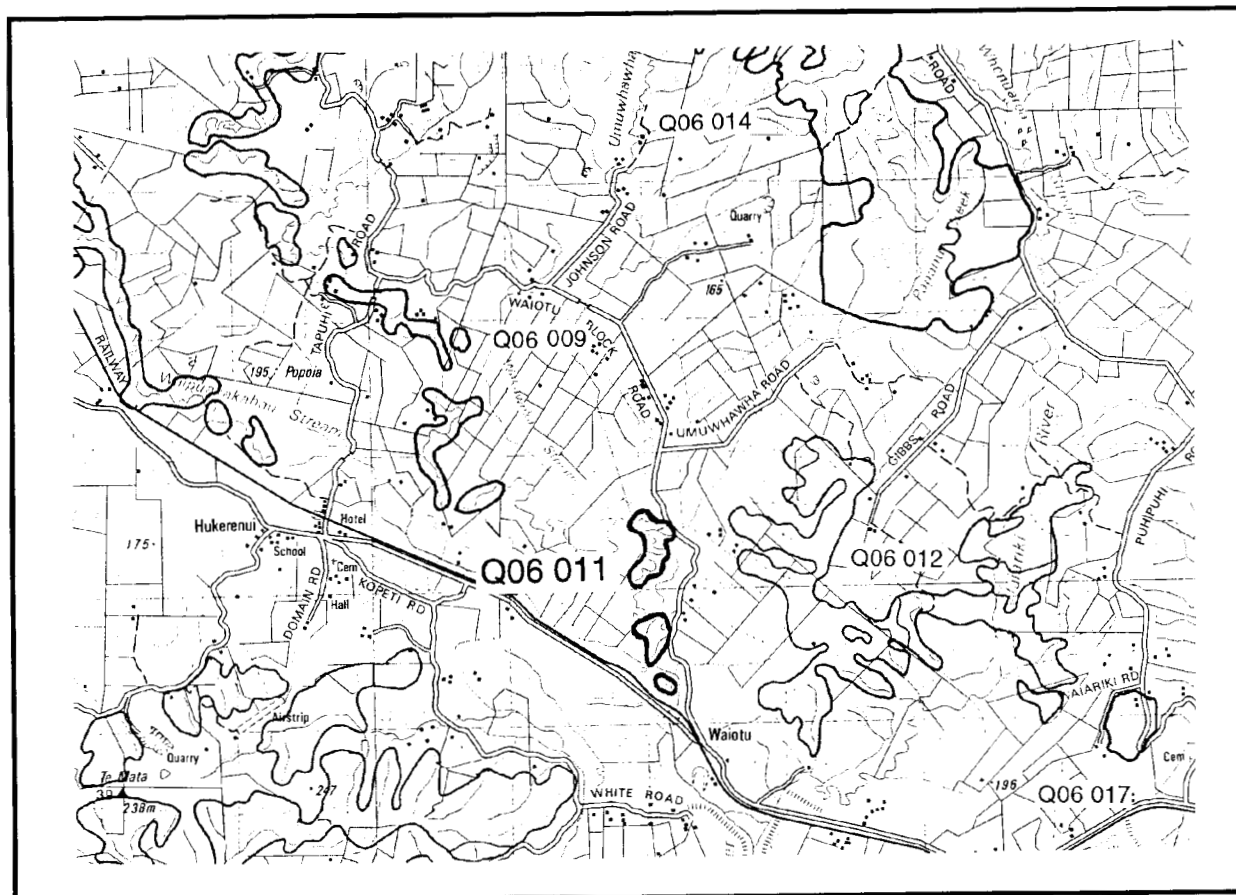


Figure 5. Waiotou Riverine Remnants, Q06 011. Each grid is 1000 m x 1000 m and equals 100 ha. f = forest; w = wetland.

Ecological unit

- (a) Totara riverine forest on alluvium (90%)
- (b) Kahikatea riverine forest on alluvium (10%)

Landform/geology

Quaternary alluvial and swamp deposits in headwaters of Hikurangi Swamp.

Vegetation

Three remnants of riverine alluvial forest.

- (a) Two of the areas are dominated by totara with frequent manatu. Matai, kowhai, kanuka, white maire, kahikatea, karaka, black maire and titoki are occasional.
- (b) One small area contains kahikatea forest with occasional pukatea.

Significant flora

Black maire (Regionally significant species).

Fauna

Not surveyed.

Significance

This site has an uncommon vegetation type and a rare association of riverine species including the regionally uncommon black maire. It is a representative site for kahikatea forest. Riparian function implied.

HIKURANGI SWAMP REMNANT

Survey no.	Q06/016
Survey date	17 November 1997
Grid reference	Q06 250 235
Area	77.4 ha (60.8 ha swamp shrubland, 8.3 ha forest, 8.3 ha wetland)
Altitude	80 m asl

Ecological unit

- (a) Kahikatea forest on alluvium (10%)
- (b) Harakeke wetland on alluvium (10%)
- (c) Manuka swamp shrubland on alluvium (60%)
- (d) **Manuka**-cabbage tree swamp shrubland on alluvium (20%)

Landform/geology

Quaternary alluvial and swamp deposits in Hikurangi Swamp.

Vegetation

- (a) The northernmost remnant is a mature stand of kahikatea forest with occasional cabbage tree and rimu. The understorey contains predominantly *Coprosma propinqua*, *Melicytus micranthus*, *Muehlenbeckia australis* and native jasmine. Manuka and cabbage tree are frequent and *Coprosma parviflora*, pigeonwood and *Myrsine divaricata* are occasional.
- (b) South-east from here there is an area of harakeke wetland.

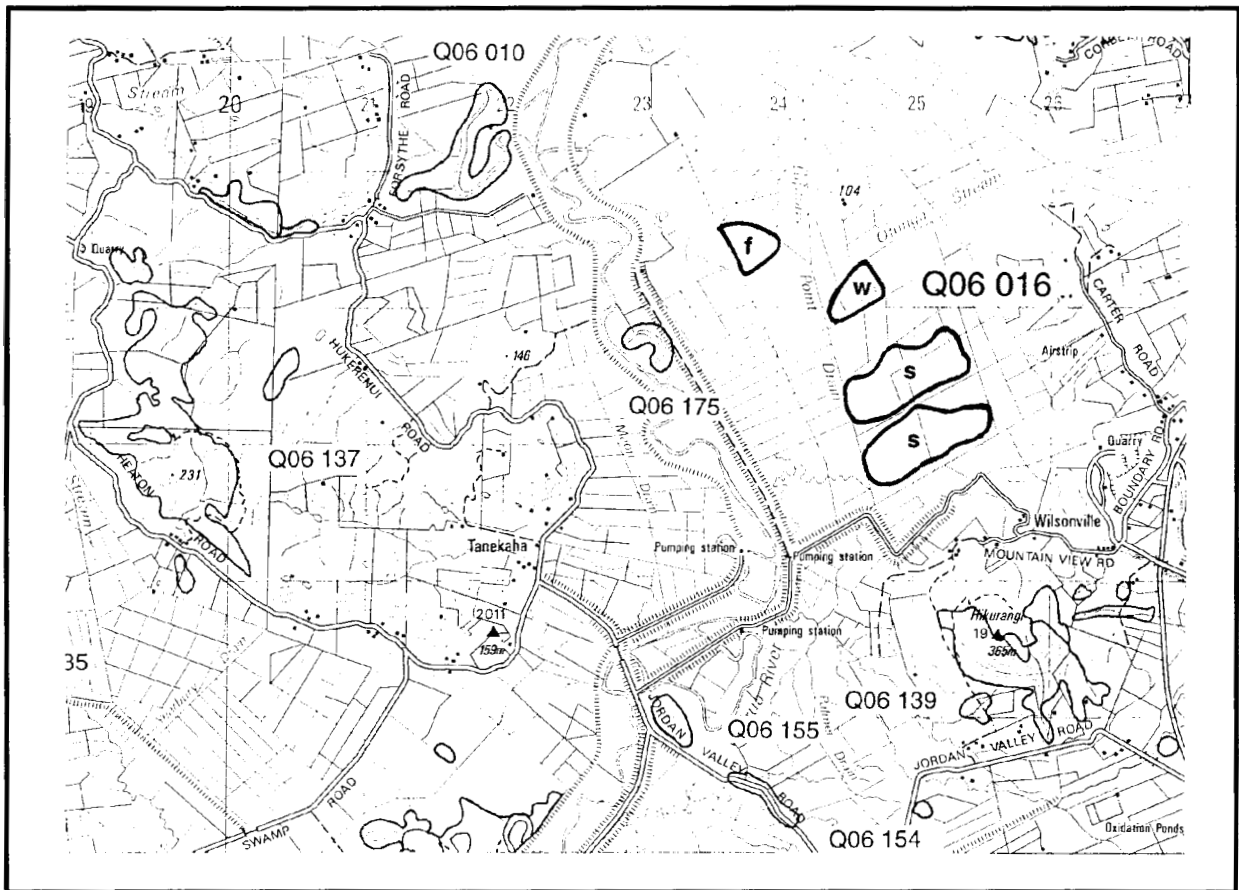


Figure 6. Hikurangi Swamp Remnant, Q06 016
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland; w = wetland.

The two remaining remnants to the south are a mosaic of two vegetation types:
 (c) 60% consists of manuka swamp shrubland.
 (d) 20% consists of swamp shrubland made up of abundant manuka with cabbage tree common.

Significant flora

Myrsine divaricata (Regionally significant species).

Fauna

Australasian bittern (Category O threatened species).

Significance

This site contains the last remnant of nationally uncommon mature kahikatea swamp forest of reasonable size on the Hikurangi Plain. It a representative site for harakeke wetland (one of two in the Ecological District), manuka swamp shrubland and kahikatea forest, and it is the only site in the Ecological District where **manuka**-cabbage tree swamp shrubland has been recorded.

Habitat for a threatened species.

OTONGA KAHIKATEA REMNANT

Survey no. Q06/024
Survey date 5 March 1996
Grid reference Q06 280 266
Area 3.8 ha
Altitude 80 m asl

Ecological unit

(a) Kahikatea forest on alluvium

Landform/geology

Quaternary alluvial and swamp deposits in Hikurangi Swamp.

Vegetation

A small remnant of pure kahikatea alluvial forest.

Fauna

Not surveyed.

Significance

An example of an uncommon vegetation type.

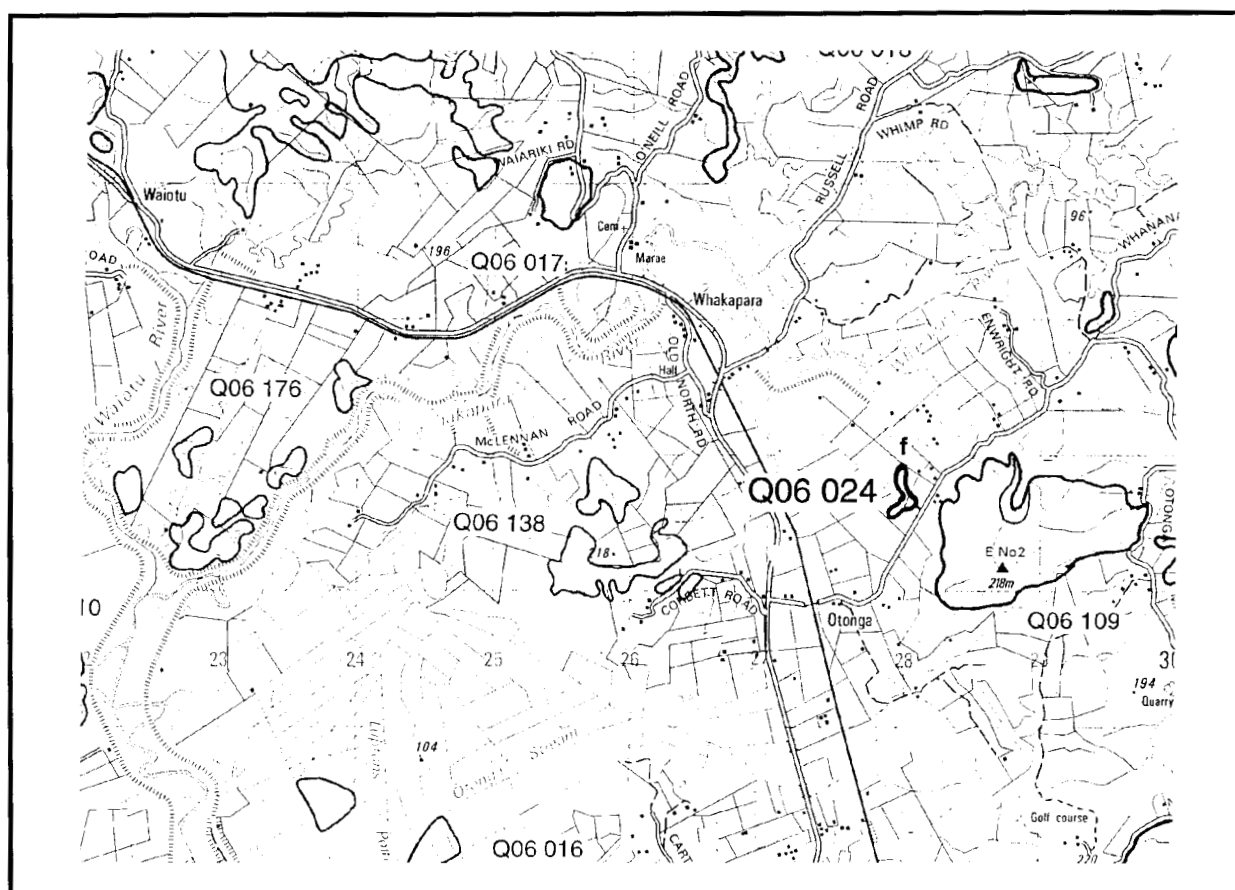


Figure 7. Otonga Kahikatea Remnant, Q06 024
Each grid is 1000 m × 1000 m and equals 100 ha.
f = forest.

TE NGAU TRIG BUSH

Survey no.	Q06/130
Survey date	21 March 1996
Grid reference	Q06 170 266
Area	34.6 ha (32.3 ha forest, 2.3 ha shrubland)
Altitude	140-260 m asl

Ecological unit

- (a) Totara forest on hillslope
- (b) **Totara**-tanekaha shrubland on ridge
- (c) Taraire-totara forest on hillslope
- (d) Puriri-taraire forest on hillslope
- (e) Rimu-totara forest on hillslope

Landform/geology

Mangakahia Complex mudstone.

Vegetation

This site includes three remnants east of Crows Nest Road.

- (a) The first remnant is centred on Te Ngau Trig and comprises abundant totara with frequent taraire. Tanekaha, mamaku, towai, kauri, rimu, kahikatea, rewarewa, and puriri are occasional.
- (b) On ridges in the remnant there are areas of regenerating totara-tanekaha shrubland. Towai is frequent with scattered rimu.
- (c) To the south-east there is a separate remnant of taraire-totara forest with frequent puriri. Associated canopy species include kauri, rimu, kahikatea, nikau and rewarewa.
- (d) Further south-east there is a separate remnant of puriri-taraire forest occurring with frequent totara and rewarewa. Kohekohe, pukatea, rimu and kahikatea are also present.
- (e) Within this remnant there is an area of rimu-totara forest with frequent taraire and towai. Kauri, pukatea, puriri, rewarewa and mamaku also occur.

Fauna

Not surveyed.

Significance

A representative site for puriri-taraire forest and the only site for rimu-totara forest and **totara**-tanekaha shrubland in the Ecological District.

Provides a corridor linkage to other areas of native vegetation.

CROWS NEST ROAD REMNANTS

Survey no.	Q06/131
Survey date	21 March 1996
Grid reference	Q06 157 261
Area	13.8 ha
Altitude	140-240 m asl

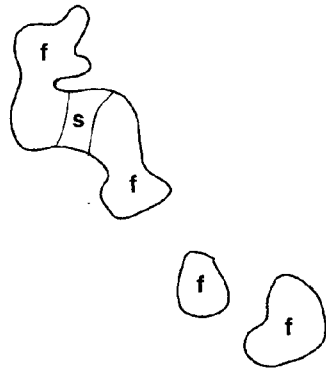
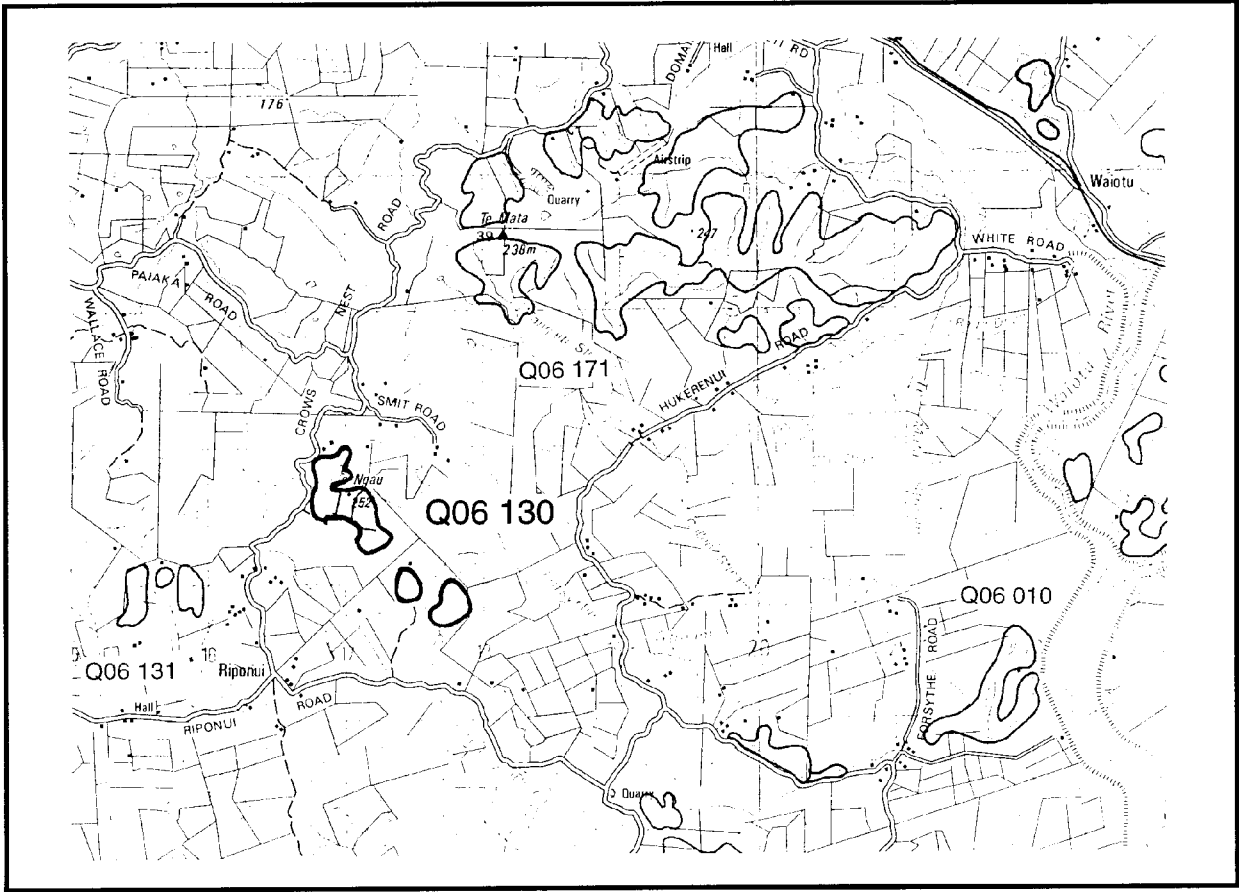


Figure 8. Te Ngau Trig Bush, Q06 130
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.

Ecological unit

- (a) Taraire forest on hillslope
- (b) **Taraire-totara-towai** forest on hillslope

Landform/geology

Mangakahia Complex mudstone and sandstone.

Vegetation

Three small remnants situated between Crows Nest Road and Riponui Road.

- (a) The eastern remnant contains abundant taraire with frequent totara and towai. Rewarewa, kahikatea, rimu, puriri and mamaku are occasional.

A very small area of taraire dominant forest occurs between the two larger remnants.

- (b) The third remnant contains abundant taraire with common totara and towai. Rewarewa, kahikatea, rimu, mamaku and kauri are occasional.

Fauna

Not surveyed.

Significance

The only site in the Ecological District where **taraire-totara-towai** forest has been recorded.

Provides a linkage between significant kiwi populations to the west and south in the Marlow/Riponui area.

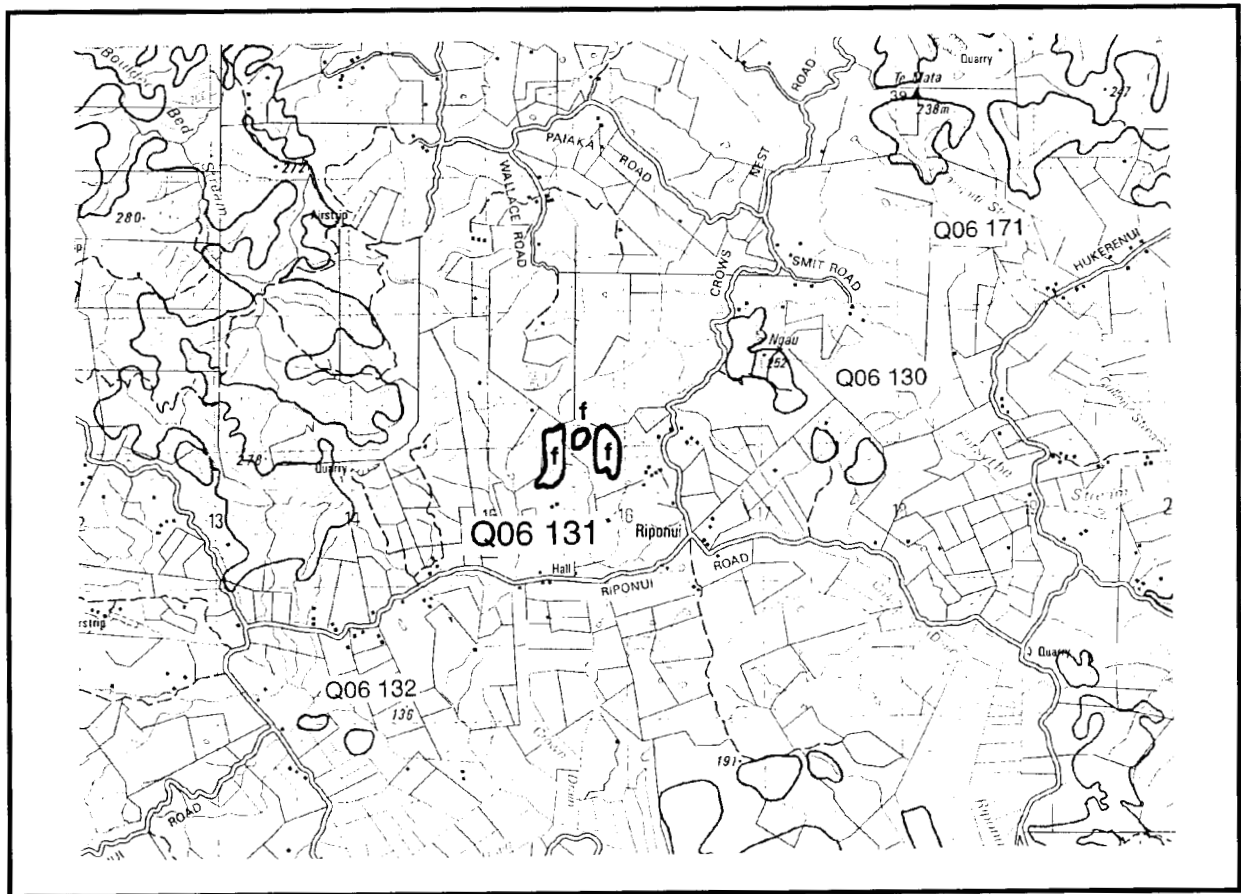


Figure 9. Crows Nest Road Remnants, Q06 131

Each grid is 1000 m × 1000 m and equals 100 ha. f = forest.

RIPONUI ROAD BUSH REMNANTS

Survey no. Q06/132
Survey date 20 March 1996
Grid reference Q06 140 238
Area 5 ha
Altitude 100 m asl

Ecological unit

- (a) Kahikatea-totara forest on alluvium
- (b) Kahikatea forest on alluvium

Landform/geology

Quaternary alluvial and swamp deposits in headwaters of Hikurangi Swamp.

Vegetation

Two small adjacent kahikatea remnants near Riponui Road.

- (a) In the eastern remnant kahikatea is abundant and totara is occasional.
- (b) In the western remnant kahikatea and totara are both common while titoki is occasional.

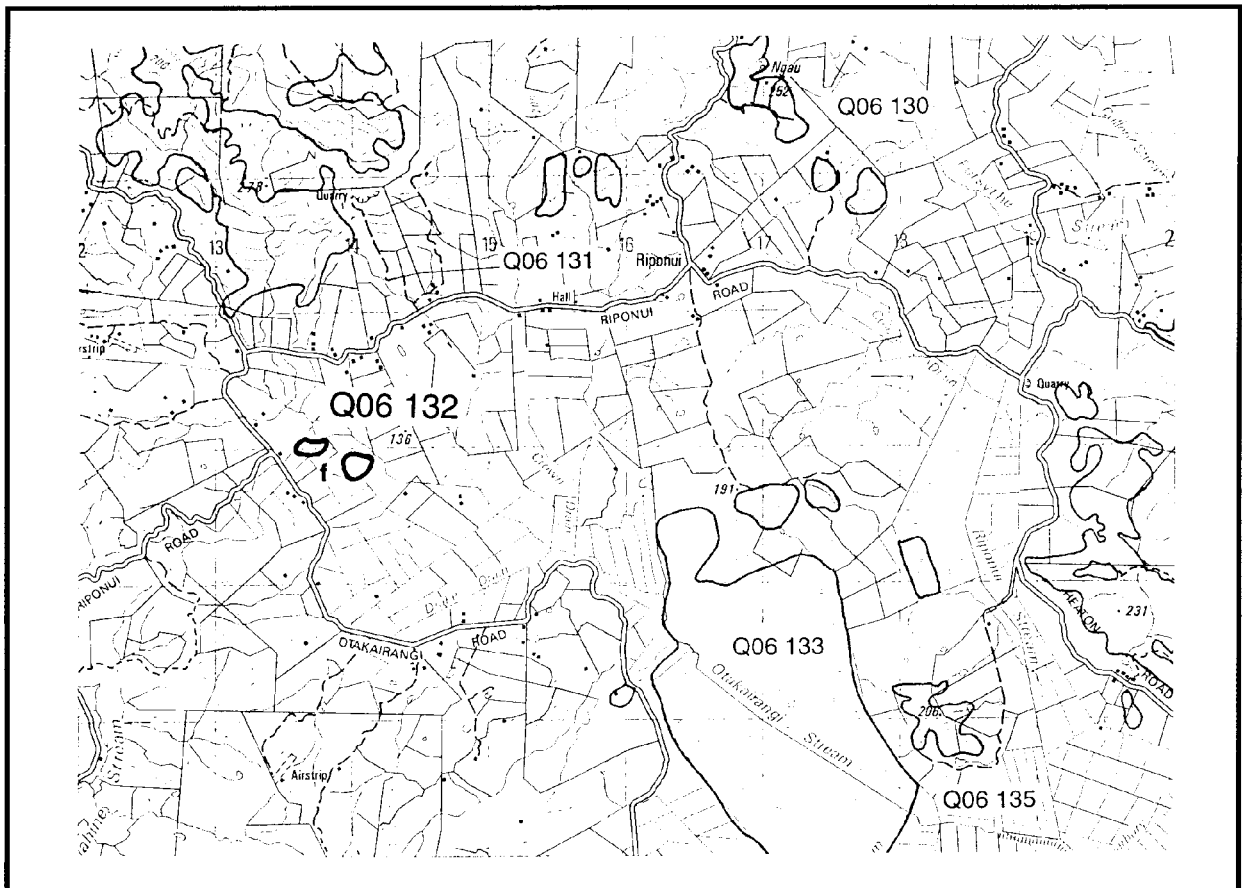


Figure 10. Riponui Road Bush Remnants, Q06 132
Each grid is 1000 m × 1000 m and equals 100 ha.
f = forest.

Fauna

Not surveyed.

Significance

An example of an uncommon forest type in this Ecological District and close to a significant kiwi population (Riponui/Marlow area).

OTAKAIRANGI PEAT BOG

Survey no.	Q06/133
Survey date	7 April 1996
Grid reference	Q06 170 220
Area	315 ha (245.8 ha swamp shrubland, 47.5 ha shrubland, 17.5 ha forest, 4.2 ha wetland)
Altitude	80-180 m asl

Ecological unit

- (a) Manuka swamp shrubland on peat bog
- (b) Harakeke wetland on peat bog
- (c) Raupo reedland on peat bog
- (d) Gorse-mamaku-totara shrubland on hillslope
- (e) Puriri-taraire forest on hillslope
- (f) **Kahikatea**-totara forest on hillslope
- (g) Cabbage tree-manuka-raupo swamp shrubland on peat bog

Landform/geology

Quaternary alluvial and swamp deposits in Hikurangi Swamp.

Vegetation

A large peat bog containing mainly swamp shrubland, adjacent to forest and shrubland remnants.

- (a) Low manuka swamp shrubland 3-6 m in height forms the canopy over the majority of the peat bog. In places the canopy is open and wire rush forms dense hummocks over the ground. Near the edges there is occasional pate and mapou in the canopy. A border of gorse surrounds the bog. A small separate remnant of manuka swamp shrubland also occurs to the east of the main area.
- (b) A small amount of harakeke wetland with frequent cabbage tree borders (a) on the western side of the bog.
- (c) A very small area of raupo reedland occurs towards the western edge of the peat bog.
- (d) On a hillslope to the north and contiguous with type (a), there is an area of gorse-mamaku-totara shrubland.
- (e) Contiguous with type (d), there is a very small forest remnant at the top of the hill. Puriri and taraire are common with totara also occurring frequently.
- (f) A separate forest remnant to the north of the peat bog contains abundant kahikatea and commonly occurring totara. Occasionally there is puriri, kauri, rimu, rewarewa and pukatea.

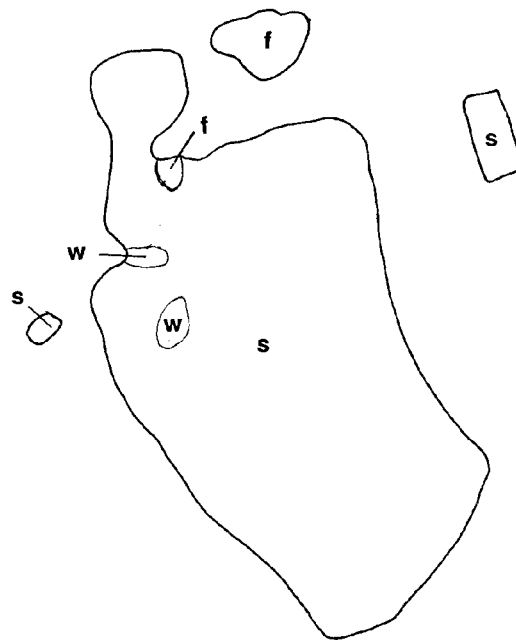
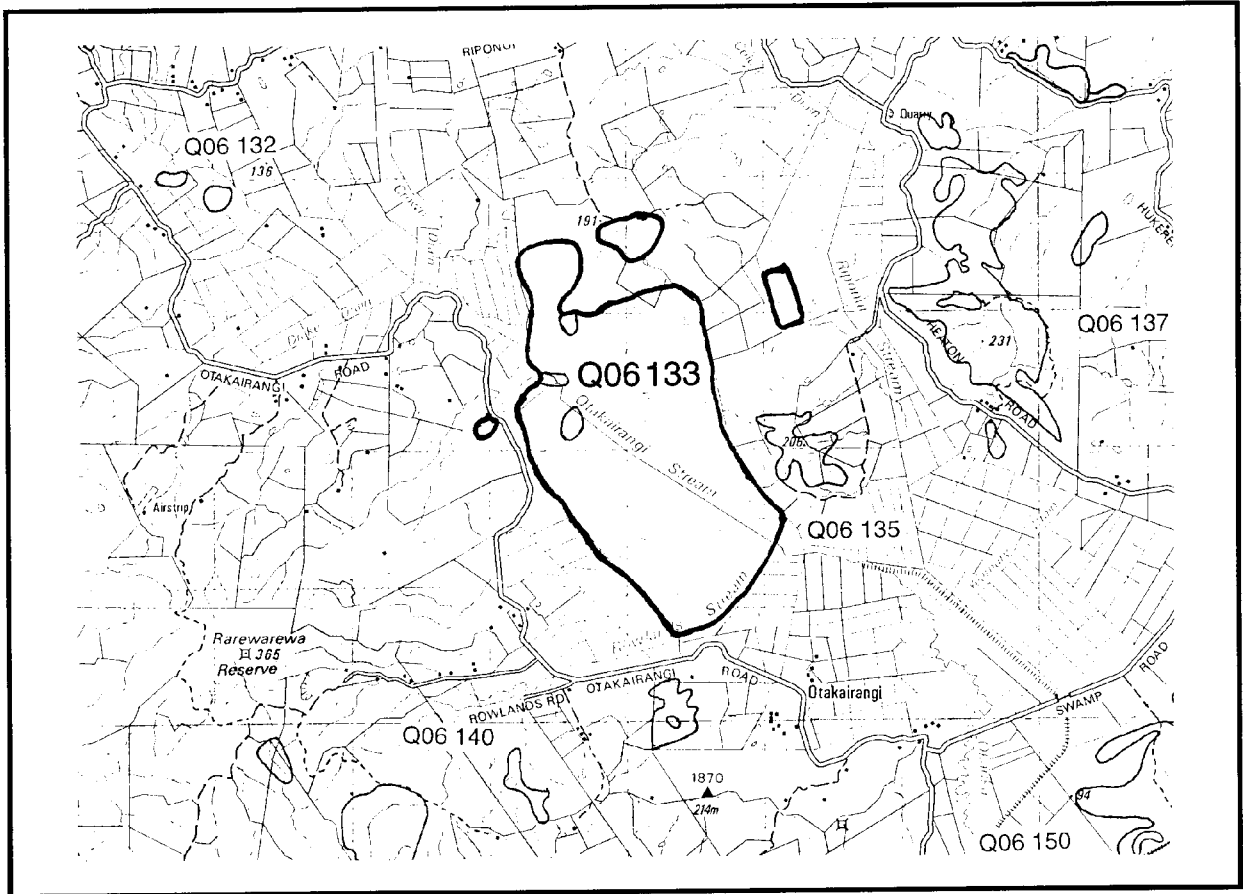


Figure 11. Otakairangi Peat Bog, Q06 133
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland; w = wetland.

(g) Across Otakairangi Road to the west a small stream flows into the peat bog. Here, a small fertile swamp shrubland occurs containing cabbage tree, manuka and raupo. Also present are frequent totara and kohuhu with occasional harakeke.

Significant flora

It is one of the only sites in central Northland where wire rush (Regionally significant species), occurs.

Fauna

Australasian bittern (Category O threatened species), NI fernbird, spotless crane (both Regionally significant species), fantail, grey warbler, harrier. NI brown kiwi (Category A threatened species) occasionally visit.

Black mudfish. (Category C threatened species), eel sp.

Significance

This site is the largest remaining area of undrained peat bog on the once very extensive Hikurangi flood plain. It is a representative site for raupo reedland, harakeke wetland, manuka swamp shrubland and puriri-taraire forest and the only site in the Ecological District where cabbage tree-manuka-raupo swamp shrubland occurs.

Otakairangi peat bog is an important large wetland habitat for threatened wetland bird and fish species. It is the largest and most important site for black mudfish in the Whangarei Ecological District.

Approximately 266 ha of this site is a Government Purpose Wildlife Management Reserve, administered by the Department of Conservation.

APOTU SWAMP SHRUBLAND

Survey no.	Q06/134
Survey date	7 March 1996
Grid reference	Q06 245 185
Area	38.9 ha (15.6 ha forest, 23.3 ha swamp shrubland)
Altitude	80-140 m asl

Ecological unit

- (a) Manuka swamp shrubland on peat bog
- (b) Totara forest on hillslope

Landform/geology

Quaternary swamp and alluvial deposits in Hikurangi Swamp.

Vegetation

- (a) The swamp shrubland consists of low growing manuka and is a remnant of the once extensive Hikurangi swamp.
- (b) Adjacent to this is an area of totara forest on a moderate hillslope where kahikatea is frequent. Titoki, karaka, wheki, cabbage tree and kanuka are present in low numbers.

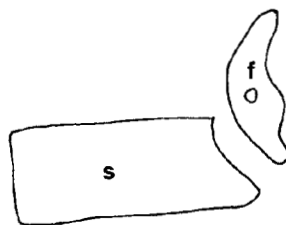
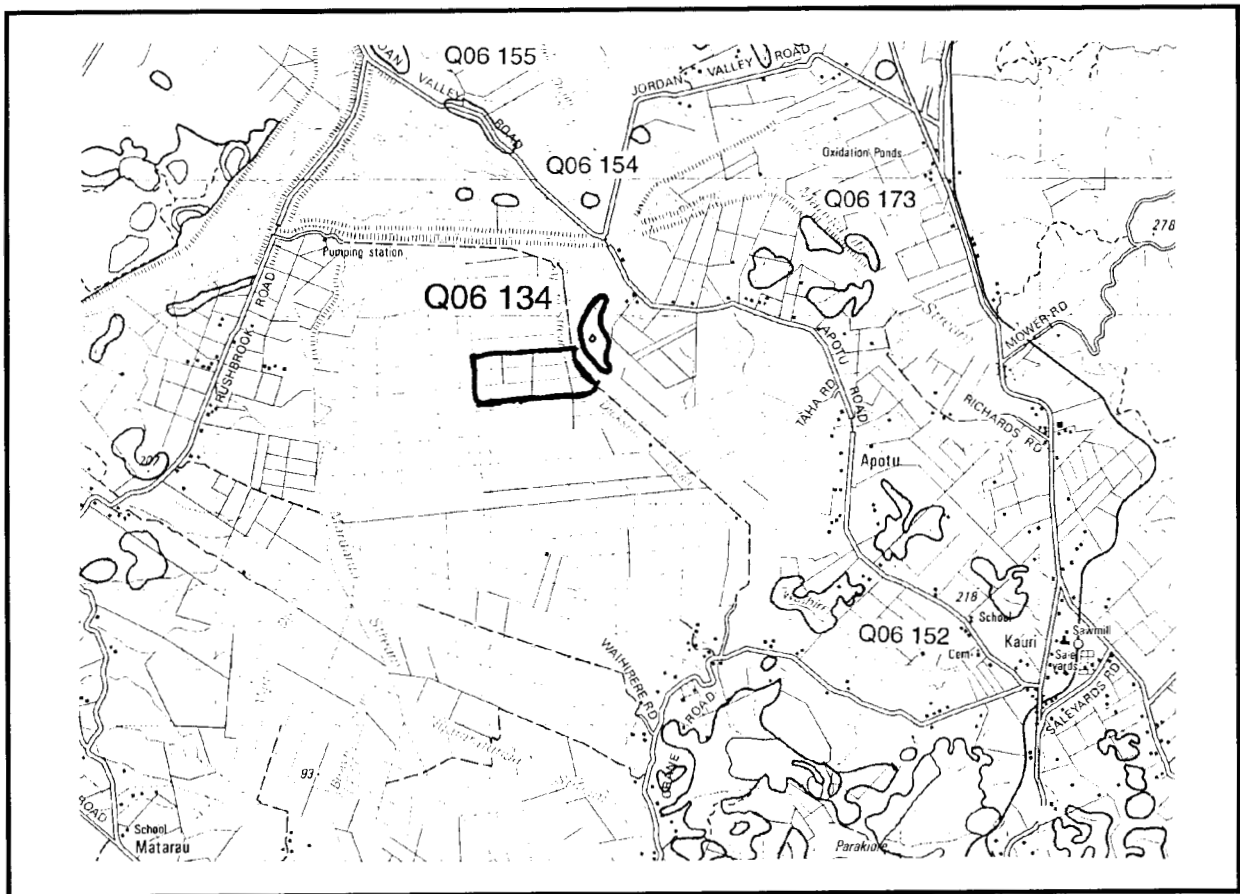


Figure 12. Apotu Swamp Shrubland, Q06 134
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.

Fauna

Australasian bittern (Category O threatened species), banded rail (Regionally significant species), NI fernbird (Regionally significant species).

Significance

Swamp shrublands on acid peat bogs are a rare habitat type in the Ecological District. It is a representative site for manuka swamp shrubland.

Habitat containing threatened wetland bird species.

MATARAU ROAD REMNANTS

Survey no. Q06/136
Survey date 7 March 1996
Grid reference Q06 214 174
Area 27.5 ha
Altitude 100-200 m asl

Ecological unit

- (a) Kahikatea-totara forest on hillslope
- (b) Taraire-towai forest on hillslope
- (c) **Kahikatea**-kauri forest on hillslope

Landform/geology

Kerikeri Volcanics Basaltic lava flows.

Vegetation

Several forest remnants east of Matarau Road.

- (a) The two most southern remnants consist of kahikatea-totara forest with occasional rimu, taraire, puriri, pukatea and towai.
- (b) North of Rushbrook Road another remnant has taraire-towai forest with totara, rewarewa and karaka occurring frequently. Also occurring in the canopy are northern rata, titoki, pukatea and rimu. Pine is also present as an emergent. Type (a) also occurs in two small remnants further along Matarau Road. Matai is present occasionally.
- (c) Another remnant is situated next to the road before the bridge across the Wairua River. Here, kahikatea is abundant and kauri is common. Totara is frequent and pukatea, puriri and black maire are occasional.

Significant flora

Black maire (Regionally significant species).

Fauna

Not surveyed.

Significance

The only site in the Ecological District of **kahikatea**-kauri forest.

Presence of a regionally significant plant species.

There is a significant kiwi population to the west of this site at Purua.

HEATON ROAD BUSH

Survey no. Q06/137
Survey date 20 March 1996
Grid reference Q06 195 237
Area 123.3 ha (119.1 ha forest, 4.2 ha wetland)
Altitude 80-230 m asl

Ecological unit

- (a) **Totara**-kahikatea forest on alluvium

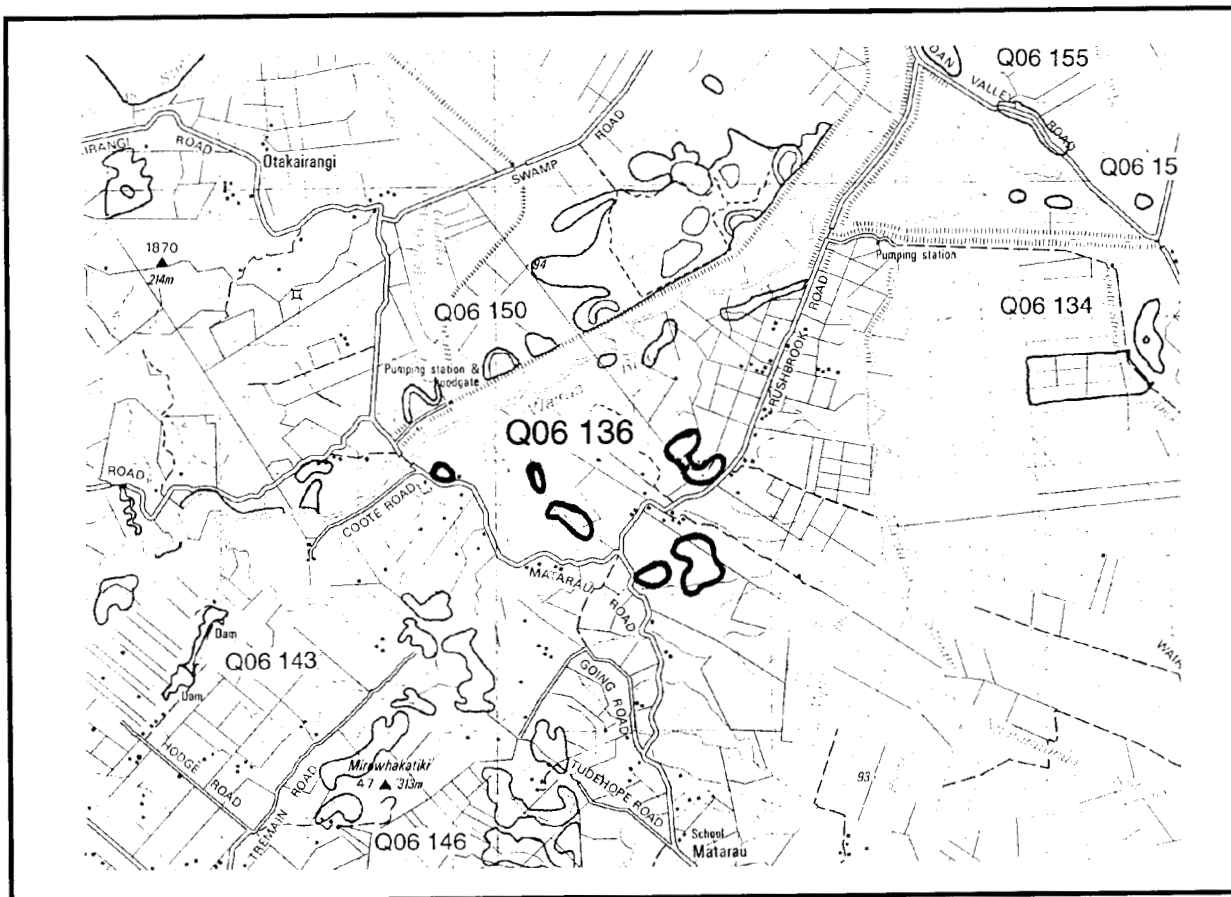


Figure 13. Matarau Road Remnants, Q06 136
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest.

- (b) **Totara**-taraire forest on hillslope
- (c) **Totara**-rimu forest on hillslope
- (d) Taraire-totara forest on hillslope
- (e) **Totara**-towai forest on hillslope
- (f) Rimu-taraire-totara forest on hillslope
- (g) Raupo reedland in wetland
- (h) Totara forest on alluvium
- (i) Tanekaha-taraire-totara forest on hillslope

Landform/geology

Torlesse Terrane greywacke and argillite.

Vegetation

A large area of secondary forest on hill country surrounded by Hikurangi Swamp plain. Also included in this site is a small alluvial remnant and a wetland/riverine area.

(a) The small alluvial forest remnant to the west of Heaton Road contains abundant totara with kahikatea common. Titoki is present in low numbers. The southern half of the area is fenced.

(b) East of Heaton Road in the main area of forest, totara is abundant while taraire is common. Rimu and towai occur frequently, while kauri and rewarewa are rare.

(c) Further north along Heaton Road on a south facing hillslope, totara is abundant and taraire is common. Also present are kahikatea, taraire and rewarewa. An area of manuka occurs between type (b) and type (c).

Type (d) occurs at the head of the catchment between types (c) and (b). Taraire and totara are common, with rewarewa, rimu and kauri frequent and puriri rare.

(e) To the north of a grassed valley east of Heaton Road and on a south facing hillslope, totara is abundant and towai is common. Puriri, taraire, kahikatea, rewarewa and mamaku also occur in the canopy.

(f) On the eastern side and discontinuous from the rest of the site (viewed from Hukerenui Road), rimu, taraire and totara are common in the canopy, with rewarewa occurring frequently. Occasionally there is tanekaha, manuka, kanuka, nikau, mamaku, cabbage tree and towai.

(g) On the northern side of Hukerenui Road is a wetland/riverine area. The lower part of the stream, which is fenced, consists of abundant raupo and frequent rush species which make up 10% of this area. Sweet grass (*Glyceria maxima*) is also present.

(h) Further upstream this grades into riverine forest which makes up about 20% of the area. This consists of abundant totara and frequent towai, pate, cabbage tree, tanekaha, mamaku and wheki. Kohuhu and putaputaweta occur rarely.

(i) The next ecological unit occurs on the hillslope above the stream and comprises about 70% of the area. Tanekaha, taraire and totara are common and towai, rimu and rewarewa are frequent. Occasionally, kauri, tawa, miro and matai are present.

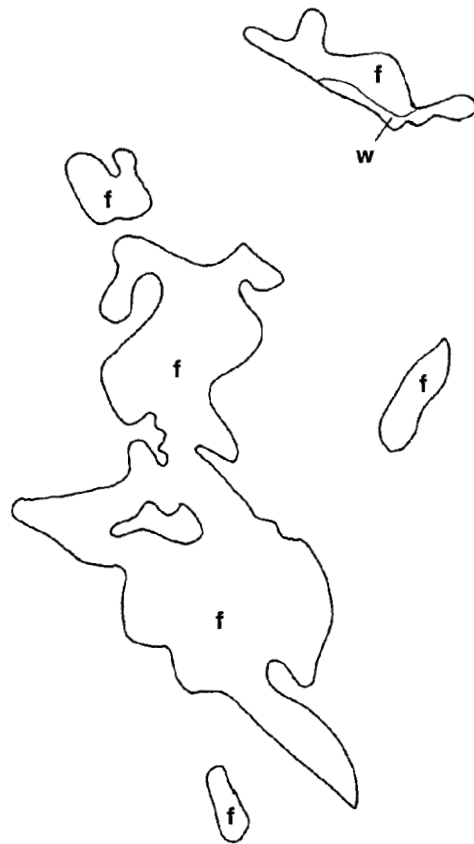
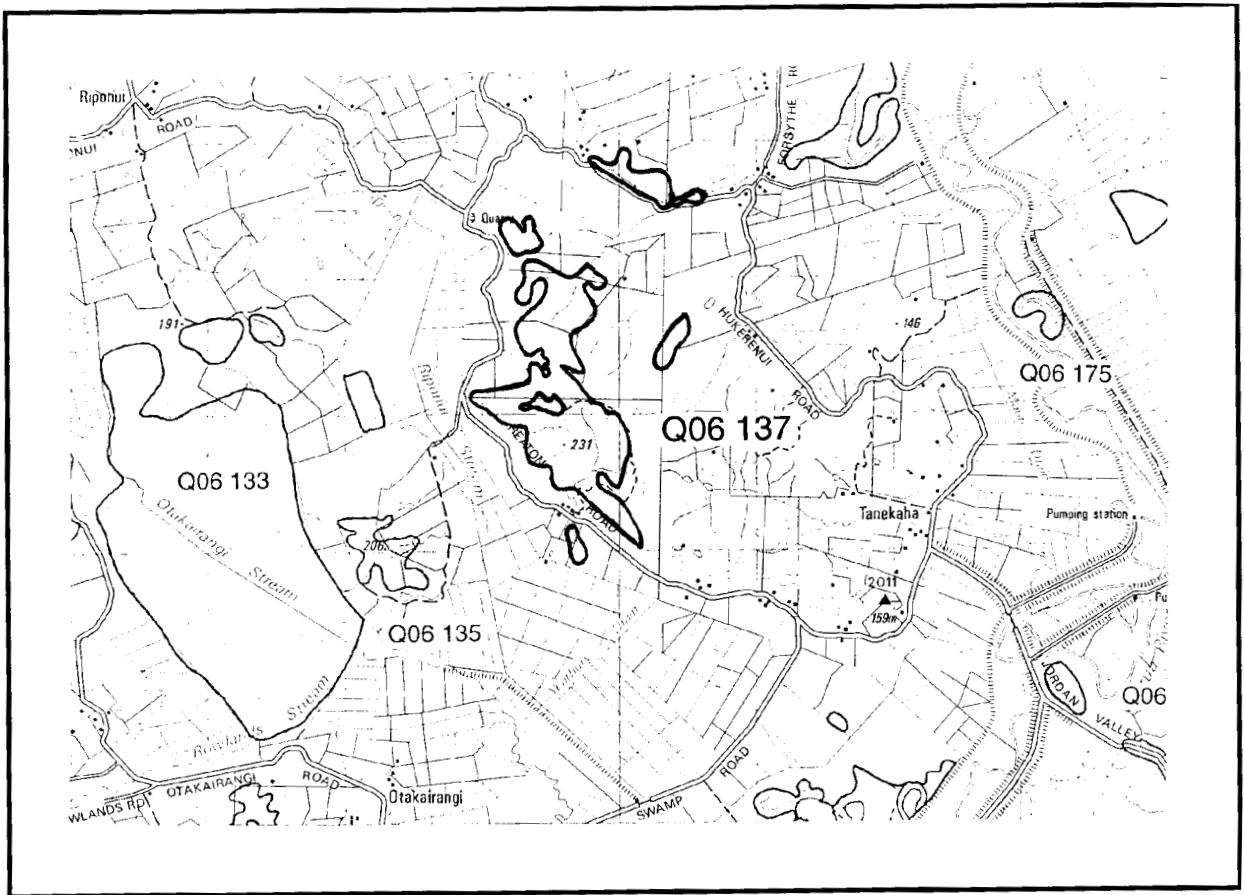


Figure 14. Heaton Road Bush, Q06 137
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; w = wetland.

Fauna

Kukupa (Category B threatened species) and NI brown kiwi reported (Category A threatened species).

Significance

The largest remaining forest remnant in the area containing important kiwi and kukupa habitat. It is a representative example of raupo reedland and taraire-totara forest. Also, it is the only example in the District of **totara**-rimu forest, rimu-taraire-totara forest and tanekaha-taraire-totara forest.

The wetland area is a rare habitat type in the District.

MOUNT HIKURANGI

Survey no.	Q06/139
Survey date	4 April 1996
Grid reference	Q06 256 216
Area	47.5 ha (40.8 ha forest, 6.7 ha shrubland)
Altitude	80-365 m asl

Ecological unit

- (a) Kahikatea-rimu-totara forest in gully
- (b) Taraire-towai forest on hillslope
- (c) **Towai**-totara shrubland on hillslope
- (d) Mamaku-totara shrubland on hillslope
- (e) **Totara**-kahikatea forest on toeslope
- (f) Totara forest on hillslope
- (g) Kahikatea-totara forest on alluvium

Landform/geology

Kerikeri Volcanics dacite dome.

Vegetation

This site is a mosaic of forest and shrubland types on and around Mount Hikurangi.

- (a) South of Mountain View Road there is a separate remnant in a stream gully consisting of kahikatea, totara and rimu with occasional pukatea.
- (b) On Mount Hikurangi there is taraire-towai forest with frequent totara, rimu, mamaku and rewarewa. Also occurring in the canopy are kauri, karaka, puriri, pukatea and nikau.
- (c) Contiguous with this is an area of shrubland with abundant towai and common totara. Occasionally there is mamaku, rewarewa and lancewood.
- (d) Another area of shrubland occurs on the upper northeastern side. This contains totara and mamaku with frequent towai. Rimu, rewarewa and tanekaha occur occasionally.
- (e) On the lower slopes there is abundant totara occurring with less common kahikatea.
- (f) Above this is totara forest with frequent towai and mamaku. Lancewood is also present.

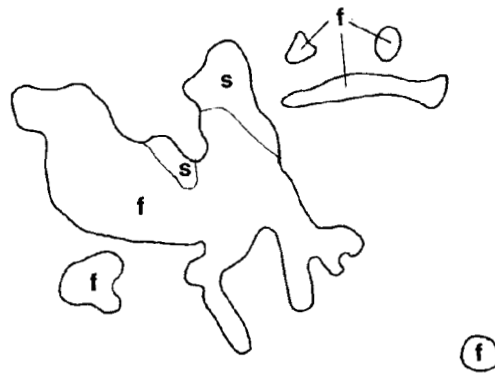
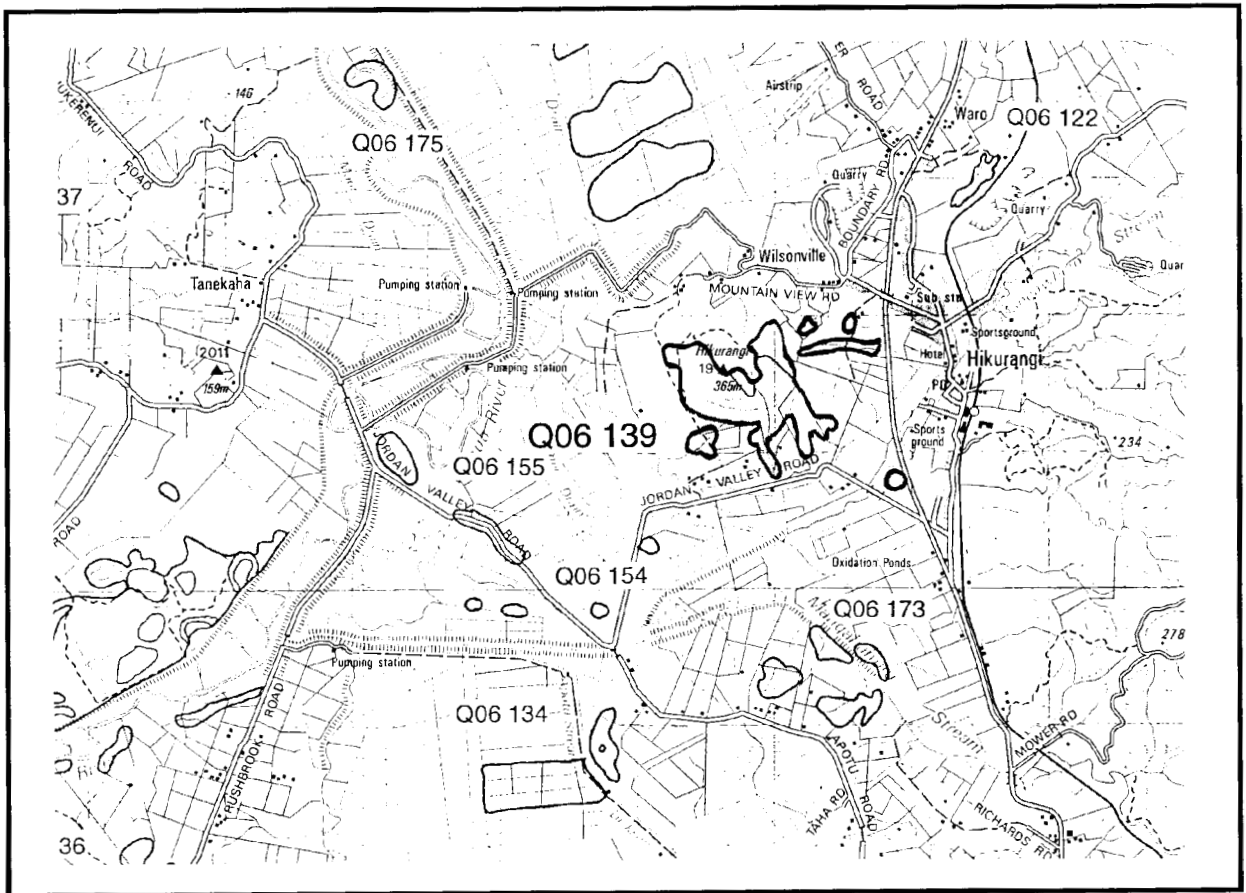


Figure 15. Mount Hikurangi, Q06 139
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.

Type (f) also occurs with occasional rimu, towai, and mamaku.

An area of totara dominant forest with frequent kahikatea and occasional kauri also occurs on the lower toeslope.

(g) A separate remnant is located on the corner between State Highway One and JordanValley Road. The canopy consists of predominantly totara and kahikatea. Also in the canopy are low numbers of titoki, rewarewa and pokaka.

Significant flora

Pokaka (Regionally significant species).

Fauna

NI brown kiwi (Category A threatened species).

Significance

Representative site for manuka-totara shrubland, taraire-towai forest and totara forest and the only site in the Ecological District where kahikatea-rimu totara forest and **towai**-totara shrubland were recorded.

Pokaka is a regionally uncommon species in Northland and this was the only site where it was recorded during the Whangarei Ecological District survey.

Habitat for a threatened species.

Within this site, approximately 1.7 ha (kahikatea-totara forest), is protected by a Queen Elizabeth II National Trust covenant.

HODGES BUSH

Survey no.	Q06/140
Survey date	2 May 1996
Grid reference	Q06 164 194
Area	43.6 ha
Altitude	120-220 m asl

Ecological unit

- (a) Taraire-towai forest on hillslope
- (b) Totara forest on hillslope
- (c) Taraire forest on hillslope
- (d) Kahikatea forest on hillslope
- (e) Kahikatea-totara forest on hillslope

Landform/geology

Mangakahia Complex sandstone and mudstone.

Vegetation

This site contains three forest remnants southeast of Rarewarewa Scenic Reserve near Rowlands Road.

- (a) The largest remnant on a south-facing slope adjacent to Rarewarewa Scenic Reserve contains common taraire and towai with rimu frequent as an emergent. Occasionally there is kahikatea, pukatea, puriri, tanekaha, kauri, kohekohe, nikau and rewarewa as an emergent. Totara is frequent on the margins. The understorey is grazed but contains many kiwi burrows.

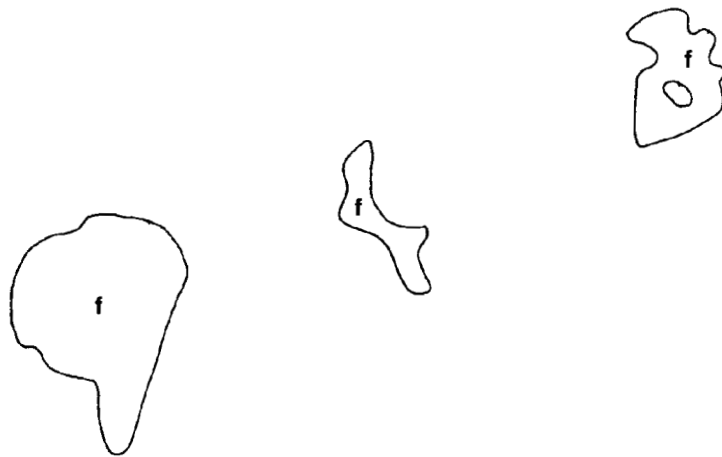
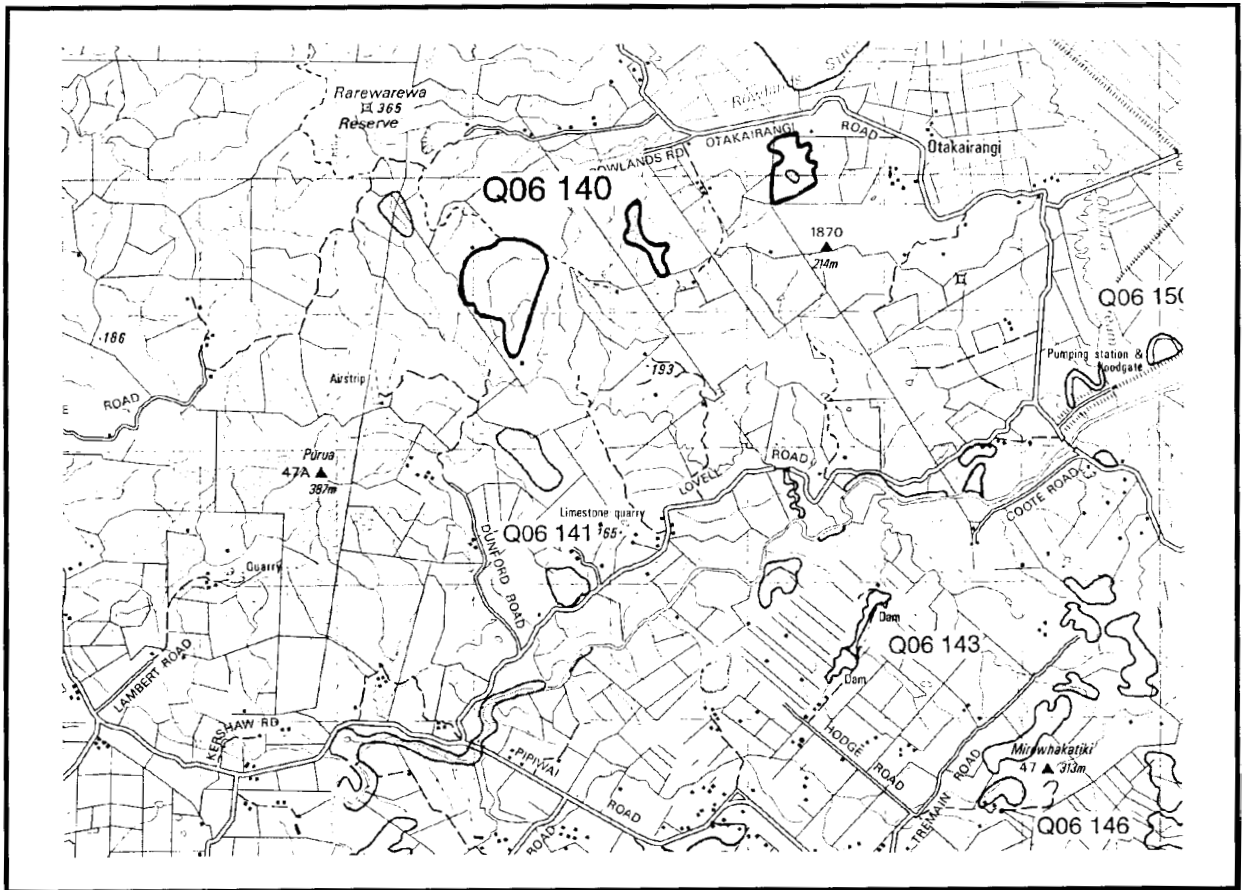


Figure 16. Hodges Bush, Q06 140
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest.

The second remnant is located on a north-facing slope to the east of the first remnant.

(b) This comprises about 40% totara forest. Associated canopy species include kauri, rimu and kahikatea.

(c) Taraire forest makes up about 50% of the remnant and also contains kahikatea, puriri, pukatea, rewarewa and mamaku.

(d) Kahikatea forest makes up about 10% of the area and also contains occasional rimu.

The third remnant occurs further east, adjacent to Otakairangi Road.

It consists of about 40% totara forest (type b), where taraire and puriri are frequent. Kahikatea, rimu, pukatea, rewarewa and tawa are also present.

About 30% consists of totara forest where towai is frequent. There is also tawa, kahikatea, rewarewa, pukatea and puriri present in the canopy, type (b).

At the toeslope, totara is abundant and tanekaha less common, and makes up about 15% of the area, type (b).

Type (e) makes up about 15% of the area where totara and kahikatea are common and rimu is rare.

Fauna

NI brown kiwi (Category A threatened species), kukupa (Category B threatened species), NI tomtit (Regionally significant species).

Significance

Contains a representative site for totara forest, taraire-towai forest and kahikatea-totara forest.

Habitat for several threatened bird species. The largest forest remnant is part of a kiwi management area at Rarewarewa Scenic Reserve and also links Purua and Aponga Scenic Reserves (kiwi management sites), (located in the neighbouring Tangihua Ecological District). The two other remnants at this site are also utilised by kiwi.

DUNFORD ROAD BUSH

Survey no.	Q06/141
Survey date	2 May 1996
Grid reference	Q06 154 180
Area	18.8 ha
Altitude	100-160 m asl

Ecological unit

(a) Kahikatea-totara forest on gentle hillslope

(b) **Totara**-kanuka/manuka forest on gentle hillslope

Landform/geology

Motatau Complex muddy limestone (part of).

Vegetation

Two small forest remnants east of Purua Scenic Reserve and Dunford Road.

The southern remnant is located on the north side of Lovell Road near a limestone quarry. Totara and kahikatea are the dominant species, with pukatea occurring frequently. Puriri, kauri, taraire, rimu, rewarewa and kanuka are also present.

The northern remnant occurs on a west-facing hillslope near Dunford Road. It is totara dominant with common manuka and kanuka. Kauri, tanekaha and kahikatea are also present. The area is partly fenced and has a good understorey.

Fauna

NI brown kiwi (Category A threatened species).

Significance

Habitat for kiwi, which are known to inhabit the northern forest remnant. The remnants are nearby to Purua Scenic Reserve, a kiwi management area in neighbouring Tangihua Ecological District.

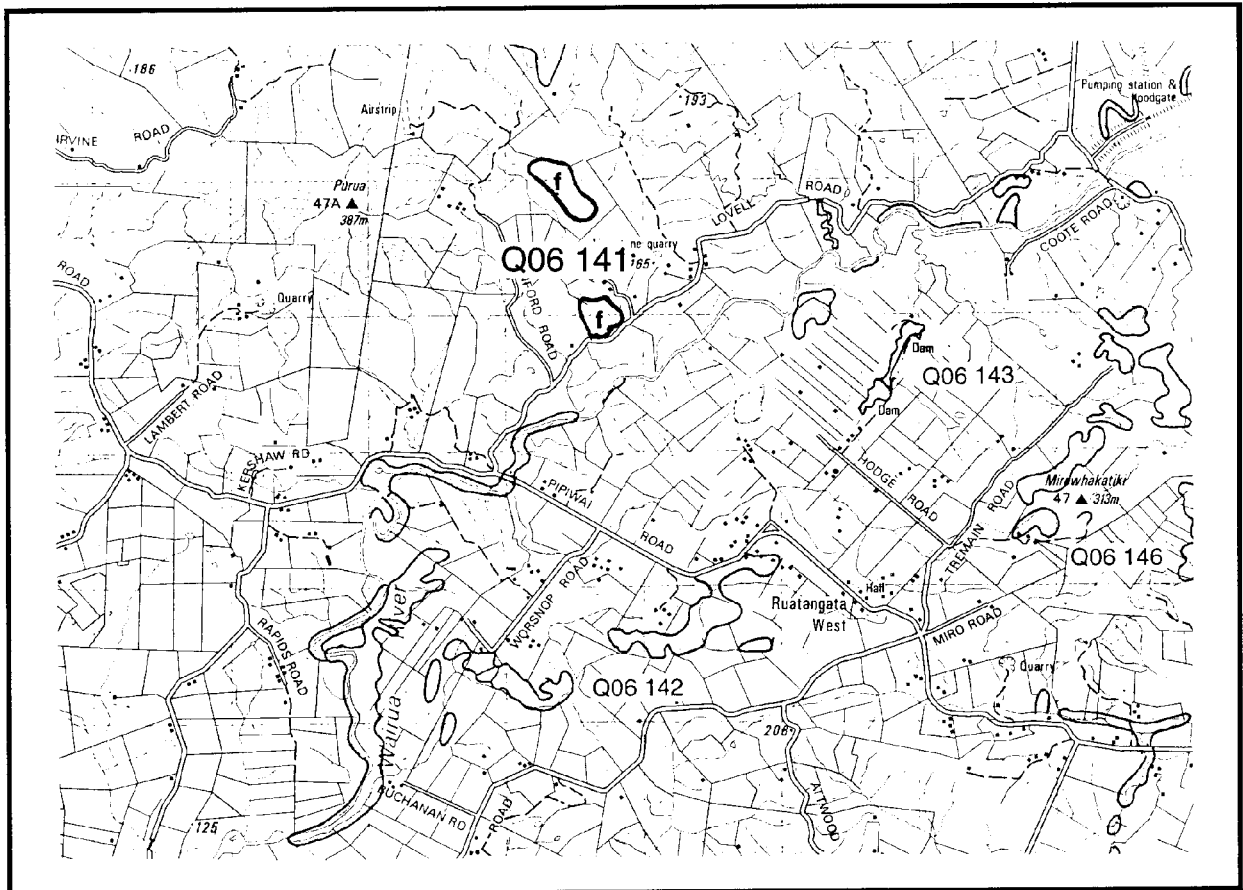


Figure 17. Dunford Road Bush, Q06 141

Each grid is 1000 m × 1000 m and equals 100 ha.

f = forest.

WORSNOP ROAD BUSH

Survey no.	Q06/142
Survey date	24 April 1996
Grid reference	Q06 160 145
Area	39.8 ha (2.5 ha shrubland, 37.3 ha forest)
Altitude	100-160 m asl

Ecological unit

- (a) Totara forest on gentle hillslope
- (b) Kahikatea-kauri forest on gentle hillslope
- (c) Kahikatea-totara forest on gentle hillslope
- (d) Totara treeland on hillslope
- (e) Manuka-totara riverine shrubland on alluvium
- (f) **Manuka**-kahikatea-totara forest on hillslope
- (g) Manuka-totara riverine forest on alluvium

Landform/geology

Kerikeri Volcanics basaltic lava flows with Mangakahia Complex mudstone at Q06 165 148 and Q06 168 145.

Vegetation

Several forest and riverine remnants near Worsnop Road.

- (a) The remnant next to Pipiwai Road contains totara that is abundant and rimu, kahikatea, rewarewa and matai that are occasional.
- (b) The remnant next to and downstream of type (a) contains kahikatea-kauri forest with occasional pukatea, rimu and taraire (60%).
- (c) Within this remnant and further west, kahikatea is common at the base of the slope while totara is concentrated on the ridges. Other species also present include kauri, rimu, rewarewa, pukatea, towai, titoki puriri, taraire and mamaku. Manuka borders the edges (40%).

Further downstream another remnant contains a variety of vegetation types.

Type (d) makes up about 40% of this area and consists of scattered totara with occasional kauri and taraire.

This grades into type (e) where manuka and totara form a shrubland along the stream margin. Also present are kahikatea, houhere, rimu and cabbage tree (20%).

Type (f) occurs on the hillslope above the stream. Manuka is abundant with frequent kahikatea and totara. Kohuhu is also present (20%).

Type (a) occurs adjacent to this. Totara is abundant and kahikatea is frequent. Puriri and taraire are occasional (20%).

Two further remnants are situated further west. Both consist of abundant totara and frequent kahikatea, type (a).

(g) The last area is a riverine remnant further downstream. Manuka and totara are common as dotted trees along the streambank. The stream flows into the Wairua River.

Fauna

Not surveyed.

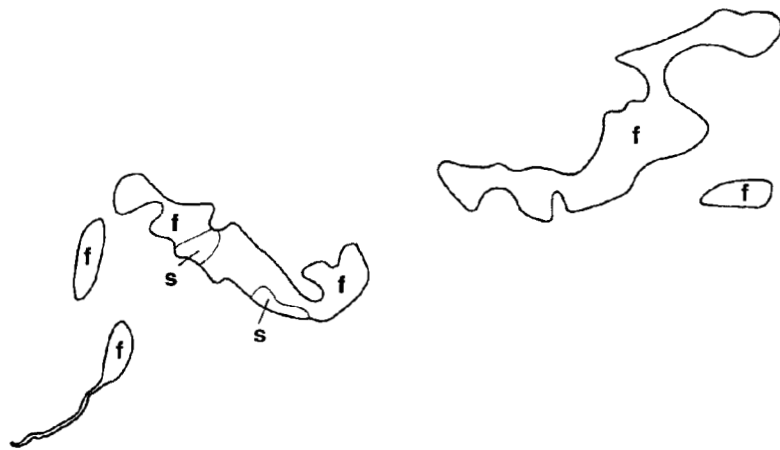
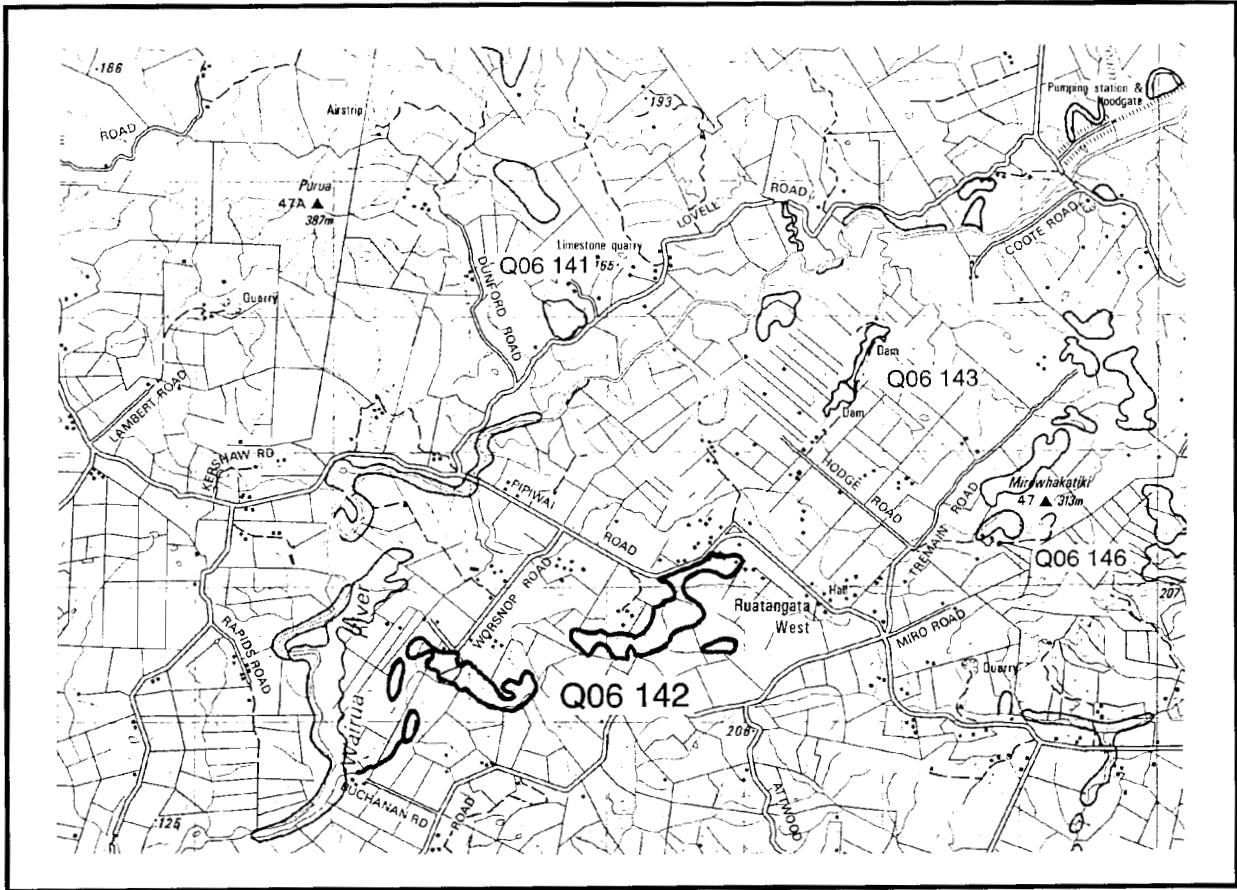


Figure 18. Worsnop Road Bush, Q06 142
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.

Significance

Riverine vegetation is uncommon in the Ecological District and this site also provides riparian protection. It is the only site in the Ecological District where kahikatea-kauri forest, kahikatea-totara forest and **manuka**-kahikatea totara forest are recorded and it is a representative site for manuka-totara riverine forest and kahikatea-totara forest.

HODGE ROAD DAMS

Survey no. Q06/143
Survey date 24 April 1996
Grid reference Q06 177 164
Area 6.9 ha
Altitude 120 m asl

Ecological unit

- (a) Open water in dam
- (b) Gorse-Tasmanian blackwood-*Salix* sp. shrubland on dam margin
- (c) Raupo reedland on dam margin

Landform/geology

Artificial ponds.

Vegetation

Two artificial dams with their margins fenced and planted with native and exotic shrubs.

Approximately 80% of the dams consist of open water.

Raupo forms a periphery at the head of both dams and makes up 10% of the site. Associated species include *Juncus* sp., bamboo spike-sedge and *Carex* sp.

Around the dam Tasmanian blackwoods and *Salix* sp. have been planted and gorse is also common. Other species present include kowhai, mahoe, tarata and bracken (10%).

Fauna

Tui, NZ kingfisher, welcome swallow. Good numbers of waterfowl and little shags.

Significance

Provides habitat for waterfowl.

KARA ROAD WETLAND

Survey no. Q06/145
Survey date 19 April 1996
Grid reference Q06 175 103
Area 5 ha
Altitude 80 m asl

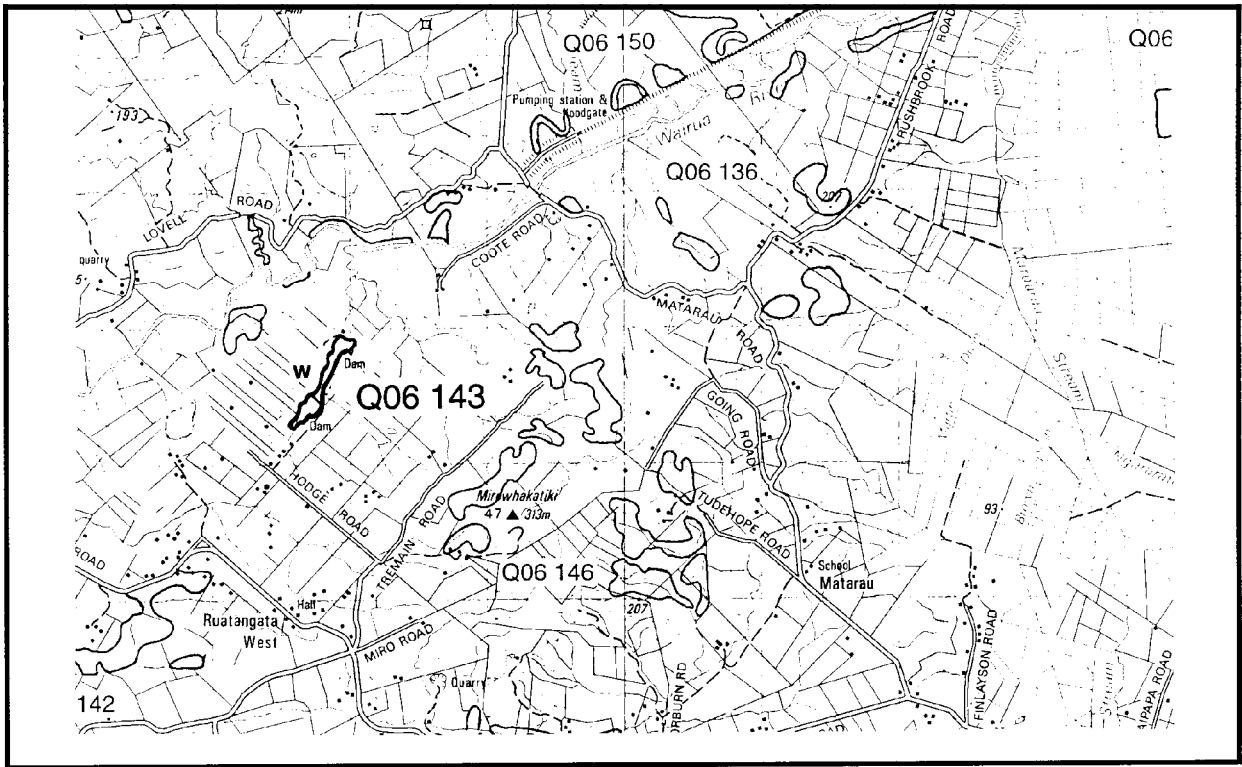


Figure 19. Hodge Road Dams, Q06 143
 Each grid is 1000 m × 1000 m and equals 100 ha. w = wetland.

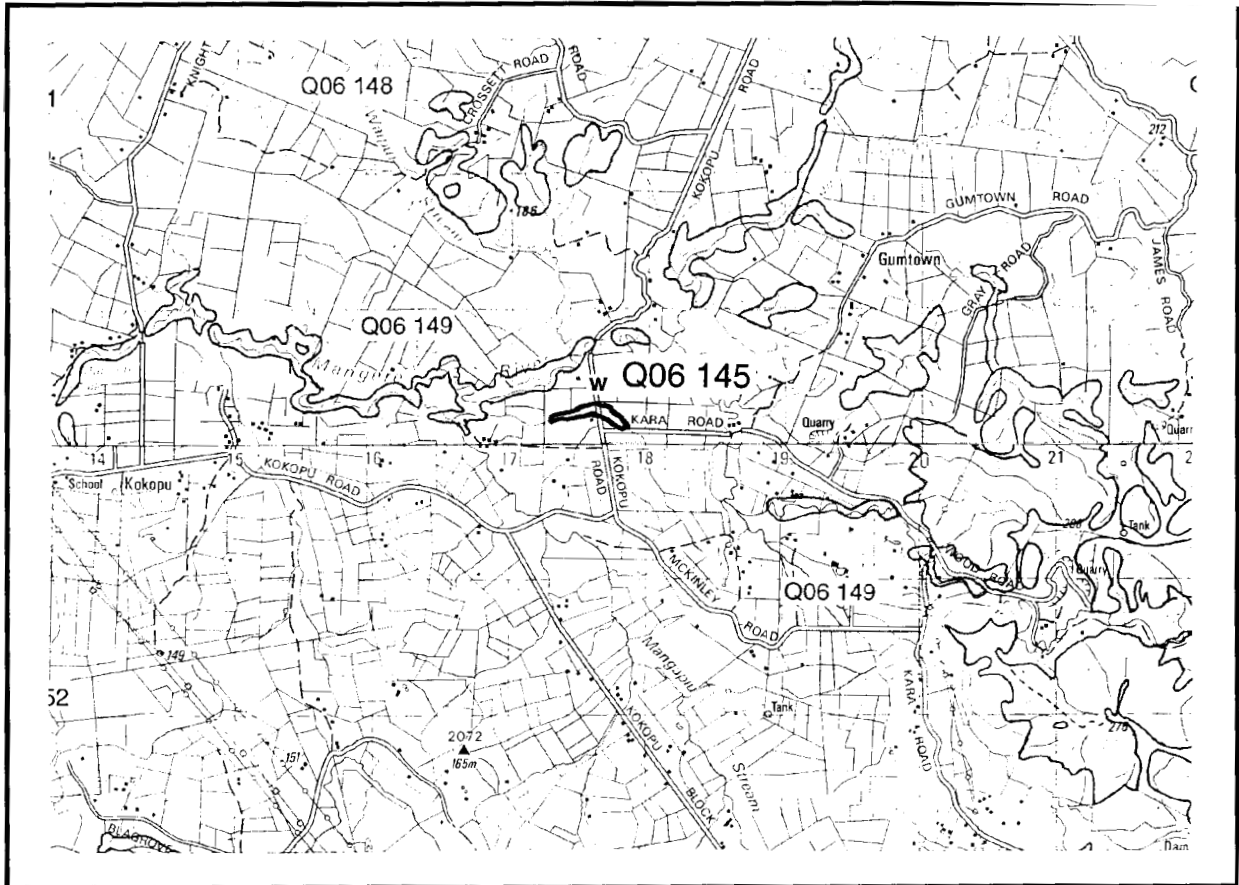


Figure 20. Kara Road Wetland, Q06 145
 Each grid is 1000 m × 1000 m and equals 100 ha. w = wetland.

Ecological unit

(a) **Harakeke**-sweet grass wetland in stream

Landform/geology

Quaternary swamp deposits.

Vegetation

A fertile wetland located in a stream and containing dense swards of harakeke. Sweet grass is common and manuka is frequent. Karamu, *Coprosma tenuicaulis*, *C. propinqua* x *C. robusta*, bamboo spike-sedge, cabbage tree and crack willow also occur.

Fauna

Spotless crane (Regionally significant species).

Significance

Harakeke dominated habitats are rare in the Ecological District and Ecological Region.

Presence of a regionally significant species.

MIROWHAKATI KI TRIG BUSH

Survey no.	Q06/146
Survey date	22 April 1996
Grid reference	Q06 193 160
Area	78.1 ha (77.5 ha forest, 0.6 ha wetland)
Altitude	140-280 m asl

Ecological unit

- (a) Taraire-totara forest on hillslope
- (b) Kahikatea-totara riverine forest on alluvium
- (c) Totara forest on hillslope
- (d) Raupo reedland in wetland
- (e) Taraire-totara-towai forest on hillslope
- (f) Totara riverine forest on alluvium

Landform/geology

Basaltic volcanoes in Kerikeri Volcanics.

Vegetation

This site contains a large group of forest remnants and a small wetland in the vicinity of Mirowhakatiki trig.

(a) The remnant east of Tremain Road and south-west of Mirowhakatiki trig contains commonly occurring taraire and totara with occasional towai, kohekohe, rewarewa, nikau, mamaku, pukatea, puriri, karaka and lancewood.

North of here a second remnant is located on a steep hillside with small rock bluffs. It also contains type (a) but karaka is frequent. Also present are puriri, rewarewa, kohekohe, nikau and mamaku.

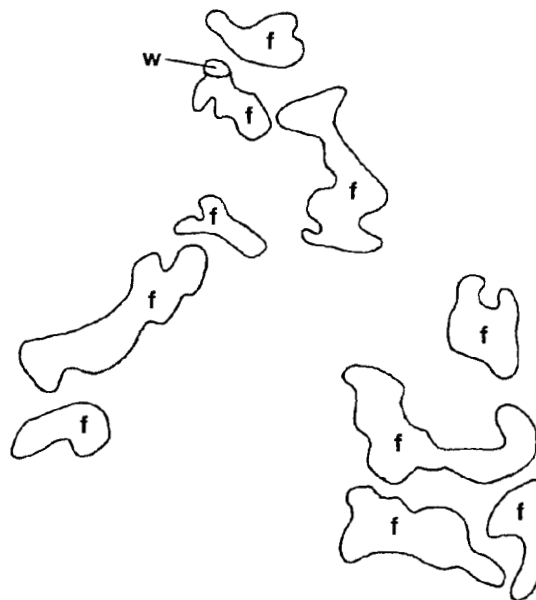
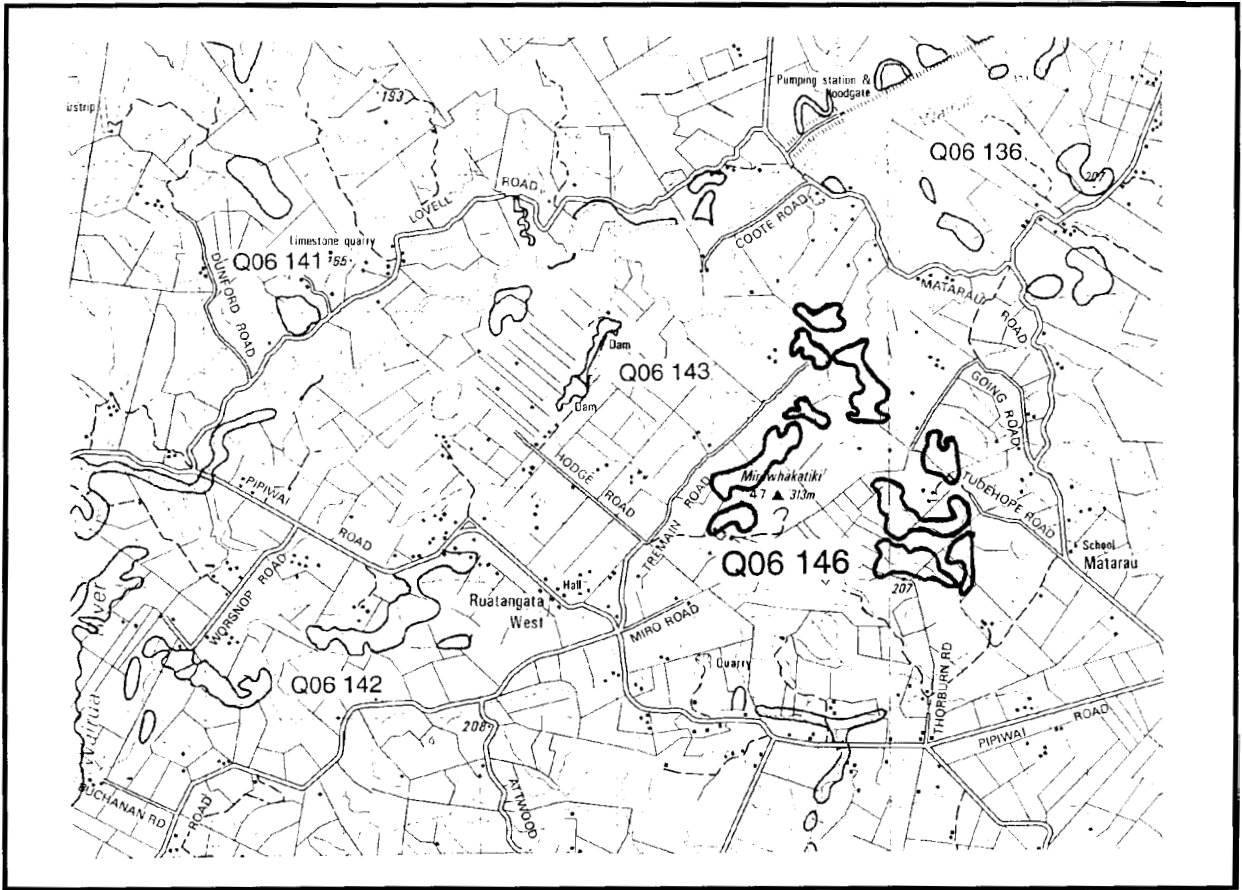


Figure 21. Mirowhakatiki Trig Bush, Q06 146
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; w = wetland.

(b) Further north kahikatea-totara forest makes up a small riverine remnant. Another forest remnant to the east of the end of Tremain Road also consists of taraire-totara forest. Frequent towai, rewarewa and puriri occurs with occasional pukatea, kohekohe, kahikatea and mamaku.

(c) At the end of Tremain Road two small remnants of totara forest lie either side of a small raupo wetland. The western forest area contains frequent taraire with occasional titoki, kohekohe and rewarewa. The eastern remnant has frequent taraire and kahikatea with occasional towai.

Type (c), totara forest, also occurs in two more remnants to the west of Tudehope Road. Taraire is frequent and rimu, tanekaha and rewarewa also occur.

(d) The wetland contains abundant raupo with occasional cabbage tree.

(e) Taraire-totara-towai forest occurs in a remnant on a southeast-facing slope at the end of Tudehope Road and to the east of Mirowhakatiki trig. It also contains frequent rewarewa and occasional pukatea, rimu, mamaku, kauri and puriri.

(f) Totara is abundant and mamaku is rare in a riverine remnant east of the previous two remnants.

Fauna

Kukupu (Category B threatened species), tui.

Significance

This site includes an example of a freshwater wetland which is a rare habitat type in the Ecological District. Riverine forest is also uncommon.

Habitat for a threatened species (kukupu).

WAIPUI BUSH

Survey no.	Q06/148
Survey date	25 March 1996
Grid reference	Q06 171 120
Area	53.1 ha (48.9 ha forest, 4.2 ha shrubland)
Altitude	100-180 m asl

Ecological unit

- (a) Tanekaha forest on hillslope
- (b) Totara forest in gully
- (c) Tanekaha-totara forest on hillslope
- (d) Kauri forest on ridge
- (e) Tanekaha shrubland on hillslope
- (f) Rewarewa-taraire forest in gully
- (g) **Tanekaha**-totara forest on hillslope
- (h) Kanuka/manuka shrubland on hillslope
- (i) **Towai**-mamaku-totara forest on hillslope

Landform/geology

Torlesse Terrane greywacke and argillite.

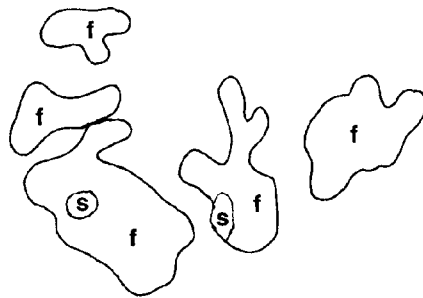
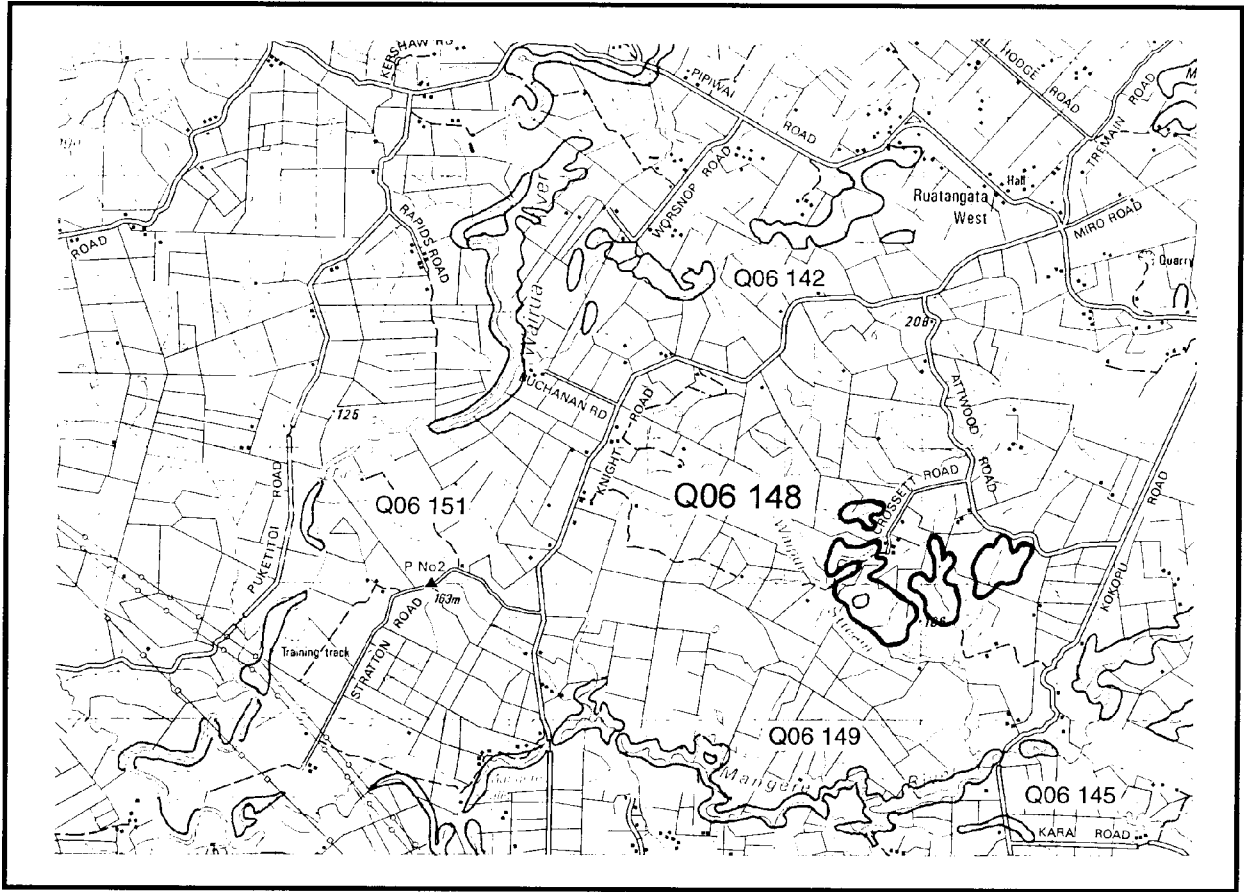


Figure 22. Waipui Bush, Q06 148
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.

Vegetation

A mosaic of forest types in a group of remnants draining into Waipui Stream.

(a) A small remnant west of Crosset Road consists of commonly occurring tanekaha while taraire, rewarewa, totara and kahikatea are less common. Titoki, kauri and pukatea are occasional.

(b) In a gully bisected by a farm track, totara forest occurs with frequent taraire, rewarewa and kohuhu. There is also occasional towai, kauri, mamaku, kahikatea and miro.

Further east another remnant contains several vegetation types including:

(c) Tanekaha and totara on hillslopes with frequent taraire. Kahikatea, mamaku, rimu and towai are also present.

(d) Abundant kauri on ridges with frequent tanekaha and occasional rimu.

(e) Shrubland on lower hillslopes containing abundant tanekaha and frequent totara and kohuhu. Kanuka and manuka are occasional.

(f) Rewarewa and taraire in gullies with frequent tanekaha. Tawa, pukatea, kohekohe, towai and miro are also present.

(g) A separate remnant further east contains dominant tanekaha and sub-dominant totara. Rimu, rewarewa, kauri and mamaku are occasional.

(h) A small area of kanuka/manuka shrubland is also present here.

(i) In the last remnant south of Attwood Road, towai is abundant and totara and mamaku are common. Tanekaha is frequent and taraire is rare.

On the ridges kauri forest is common, type (d).

Fauna

Kukupu (Category B threatened species).

Significance

Contains a representative example of kauri forest, which is an uncommon vegetation type in this District. It is also a representative site for tanekaha forest, totara forest, **tanekaha**-totara forest and **towai**-mamaku-totara forest. It is the only site in the Ecological District where tanekaha shrubland has been recorded.

Habitat for a threatened species (kukupu).

MANGERE RIVER

Survey no.	Q06/149
Survey date	19 April 1996, 3 May 1996, 9 January 1998
Grid reference	Q06 185 115
Area	167.5 ha (5 ha wetland, 162.5 ha forest)
Altitude	60-140 m asl

Ecological unit

- (a) **Raupo**-harakeke-willow weed wetland
- (b) Kauri-totara forest on hillslope
- (c) Crack willow riverine forest on alluvium

- (d) **Totara**-kanuka/manuka riverine forest on alluvium
- (e) **Kanuka/manuka**-totara riverine forest on alluvium
- (f) Kahikatea-totara forest on hillslope
- (g) Totara riverine forest on alluvium
- (h) Taraire-totara riverine forest on alluvium
- (i) Kanuka/manuka riverine forest on alluvium

Landform/geology

Mostly on Kerikeri Volcanics basaltic lava flow but includes some Quaternary alluvial deposits.

Vegetation

The area described is riverine vegetation of Mangere River from Pipiwai Road to the Wairua River and including the Mangere Falls and the Patuwairua Stream tributary. Also included is the Mangere Stream tributary from Kara Road upstream to the weir on the edge of Pukenui forest. Some small forest remnants adjacent to the river are also included.

Patuwairua Stream Tributary

- (a) South of the junction between Miro Road and Pipiwai Road the stream contains abundant raupo with harakeke and willow weed commonly occurring. Cabbage tree, mamaku and totara are occasional on the edges.
- (b) This type occurs in a small remnant on a hillslope on the north side of the stream. Kauri and totara are common with tanekaha frequent. Towai, taraire and kahikatea are occasional and the threatened mistletoe, *Ileostylus micranthus*, is also present.
- (c) Downstream from this, crack willow is abundant for a short stretch of the stream.
- (d) From Kokopu Road south for about one kilometre along the stream there are patches of abundant totara with common kanuka and manuka. Kauri is present occasionally.
- (e) Further downstream, kanuka and manuka are abundant and totara is common. Lancewood is occasionally present.
- (f) A small remnant of forest on a hillslope occurs south of the junction with the eastern branch of Patuwairua Stream. Kahikatea and totara are common, while kauri and manuka are frequent. Rimu, tanekaha, cabbage tree and gorse are also present.
- (g) Downstream from here totara is abundant with occasional taraire, karaka, mamaku and kahikatea.

Mangere Stream Tributary

This includes riverine vegetation along Mangere Stream from Kara Road upstream to the weir on the edge of Pukenui Forest.

The riverine forest on the northern branch of Mangere Stream begins about 500 m upstream from the western bridge on Kara Road, where type (g) occurs. The vegetation consists of abundant totara with occasional manatu, kahikatea and manuka. This continues for about one kilometre upstream.

- (h) Upstream from type (g) there is a break in the vegetation before coming to a riverine remnant at the corner of Kara Road and Wood Road. Here, totara and

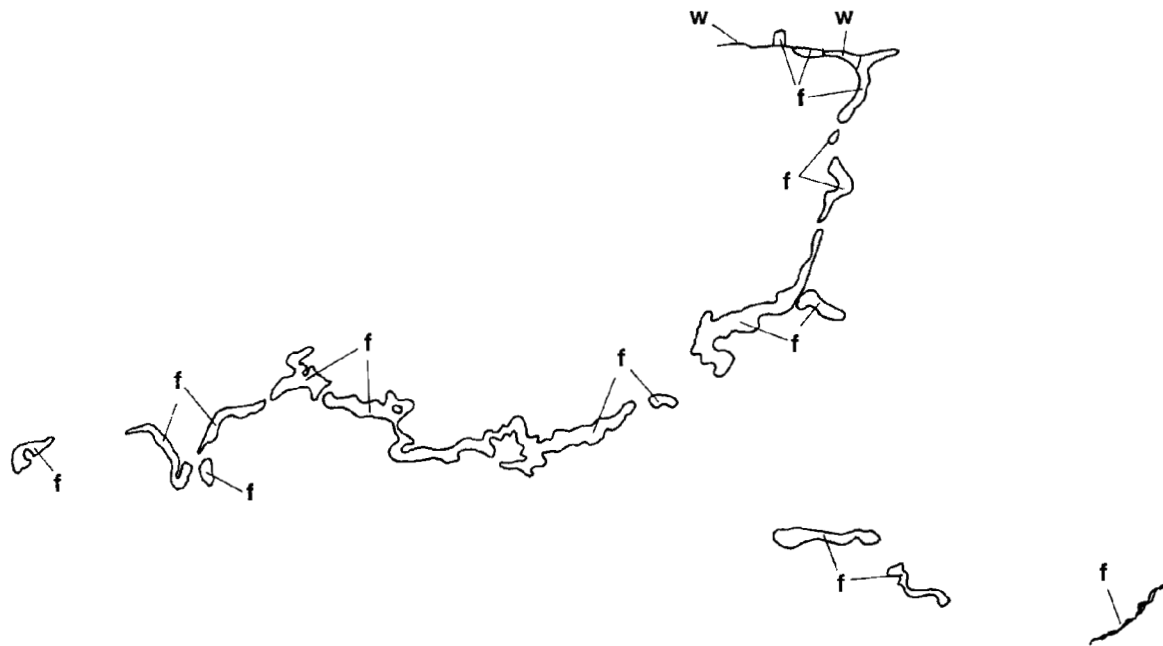
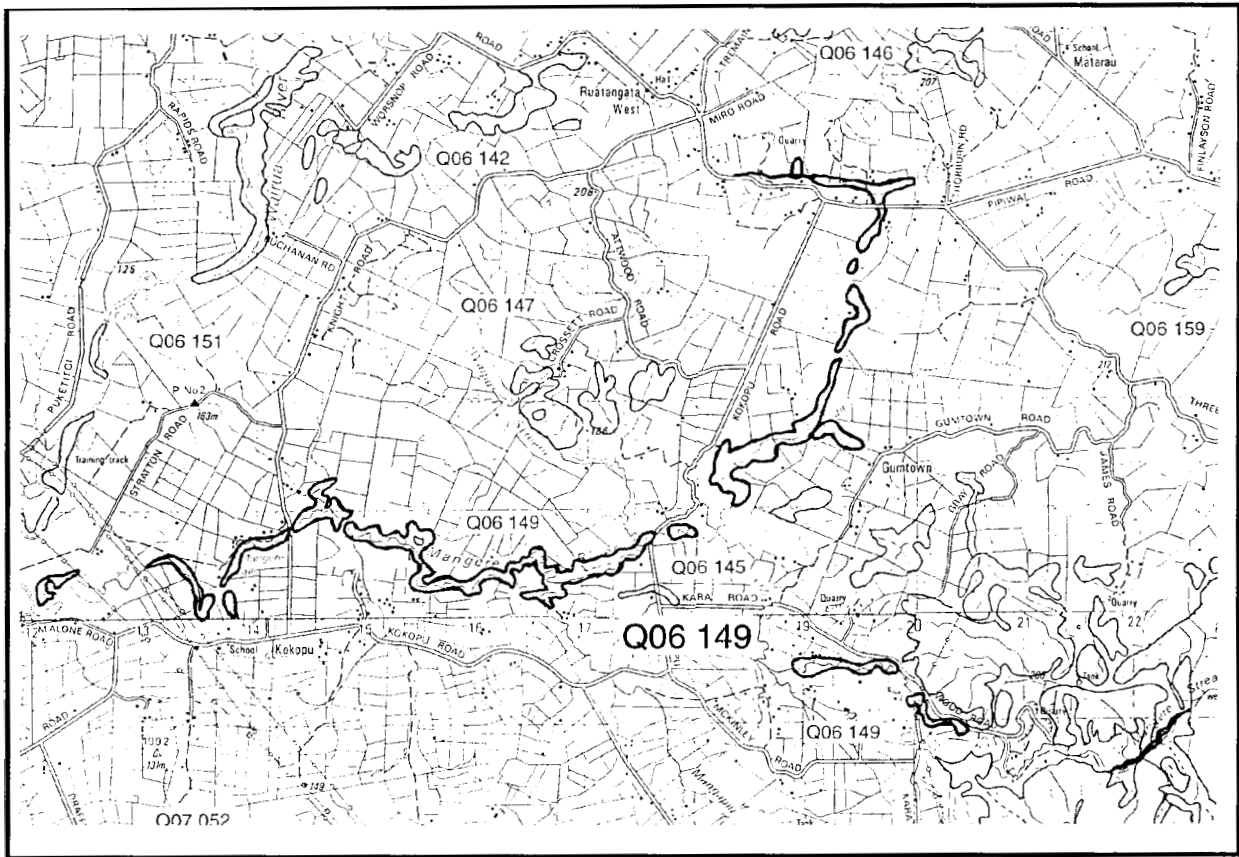


Figure 23. Mangere River, Q06 149

Each grid is 1000 m × 1000 m and equals 100 ha.

f = forest; w = wetland.

taraire are common with occasional matai, titoki, karaka, nikau and rewarewa. Two large oak trees are also present.

Upstream from the bridge type (g) occurs with totara dominant and kahikatea, taraire, titoki, mamaku, nikau and kanuka occasional.

Upstream from here there is a stretch of willows before type (e) occurs. Kanuka and manuka are dominant with totara common. Taraire, titoki and pukatea are occasional.

Type (e) continues upstream to the edge of Pukenui Forest and kanuka and manuka continues to be dominant with totara common. Also present are taraire, towai and kahikatea.

Returning to Mangere River, type (g) also occurs upstream and downstream from the bridge across Mangere River on Kokopu Road. Totara is still abundant, but the associated canopy species include frequent manuka, manatu and hawthorn.

Further downstream abundant totara continues, with occasional kahikatea, titoki and manatu.

Moving downstream the totara remains abundant, but the titoki and manatu become frequent. Karaka, manuka and kohuhu are also present.

From here to the bridge on Knight Road, totara is abundant with occasional manatu, titoki, mahoe and mapou. The riverbank is fenced on both sides but wandering willie is present.

Downstream from the bridge to the Mangere Falls, totara is still abundant with kanuka and manuka common. Manatu and harakeke are frequent with occasional cabbage tree, karaka, titoki and crack willow, type (g).

Below the falls, type (g) continues with totara common and frequent manatu and towai. Also present are: kanuka, manuka, kowhai, tanekaha, cabbage tree and kauri. At the edge of the river below the falls, harakeke is abundant with sweet grass and the pink bindweed common. This area is fenced and continues downstream until there is a break in the vegetation.

After the break, totara is abundant with frequent manuka and manatu. Kowhai, kauri, kahikatea and crack willow are also present, type (g).

(i) Continuing downstream, there is a narrow fringe of kanuka/manuka riverine forest present along the riverbank for about 100 m.

After this, the riverbank becomes very steep and forms an escarpment approximately 20 m in height. Totara is dominant once again and occasional canopy species include: kahikatea, matai, houhere, manatu, kauri, tawa, kanuka, manuka and tanekaha, type (g). Here the river is fenced from stock.

Continuing downstream there is a break in the vegetation before riverine forest reappears at the confluence of the Mangere River and the Wairua River. Here, totara is dominant while kanuka and manuka are common. Manatu and weeping willow are frequent with cabbage tree and harakeke occasionally present. Oxygen weed is abundant in the stream. This area is also fenced.

Significant flora

Ileostylus micranthus (Declining). There are two historical records from this site: *Pimelea tomentosa* (Declining) from Mangere Falls (1898) and *Baumea complanata* (Declining) Mangere Falls (1897).

Fauna

Kukupa (Category B threatened species), tui, fantail, grey warbler, shining cuckoo, Australasian harrier, welcome swallow, NZ kingfisher, grey duck, mallard, paradise duck, Australasian shoveler, black shag, little shag, pukeko, white-faced heron.

Freshwater crab (Regionally significant species), long-finned and short-finned eels.

Significance

Mangere River is forested along most of its length, making it an important habitat for riverine plants and animals. Riverine forest is an under-represented forest type in the Ecological District. This site is representative for **kanuka/manuka**-totara riverine forest, kanuka/manuka riverine forest, kauri forest, taraire-totara forest and kahikatea-totara forest. It is the only site in the Ecological District where **raupo**-harakeke-willow weed wetland has been recorded.

Presence of a threatened mistletoe.

Habitat for the threatened kukupa and the regionally significant freshwater crab. A good range of waterfowl inhabit the river.

WAIKURIA RIVER WILDLIFE MANAGEMENT RESERVE

Survey no.	Q06/150
Survey date	25 March 1996
Grid reference	Q06 210 195
Area	178.4 ha (62.3 ha wetlands and oxbows, 98.6 ha swamp shrubland, 3.3 ha swamp forest, 17.5 ha forest)
Altitude	80 m asl

Ecological unit

- (a) Manuka swamp shrubland on alluvium
- (b) **Kanuka/manuka**-cabbage tree-totara swamp forest on alluvium
- (c) Totara treeland on alluvium
- (d) Kanuka/manuka-*Melicytus micranthus* shrubland on alluvium
- (e) **Burr-reed**-beggars' ticks-willow weed association in wetland
- (f) Open water
- (g) *Baumea*-willow weed-parrots feather association in wetland
- (h) Kanuka/manuka swamp shrubland on alluvium
- (i) Chinese privet-*Coprosma propinqua* swamp shrubland on alluvium
- (j) **Baumea-Juncus** sedgeland in wetland
- (k) Kahikatea forest on alluvium
- (l) **Kahikatea**-cabbage tree riverine forest on alluvium
- (m) **Kanuka**-manuka riverine forest on alluvium

Landform/geology

Quaternary alluvial and swamp deposits in Hikurangi Swamp.

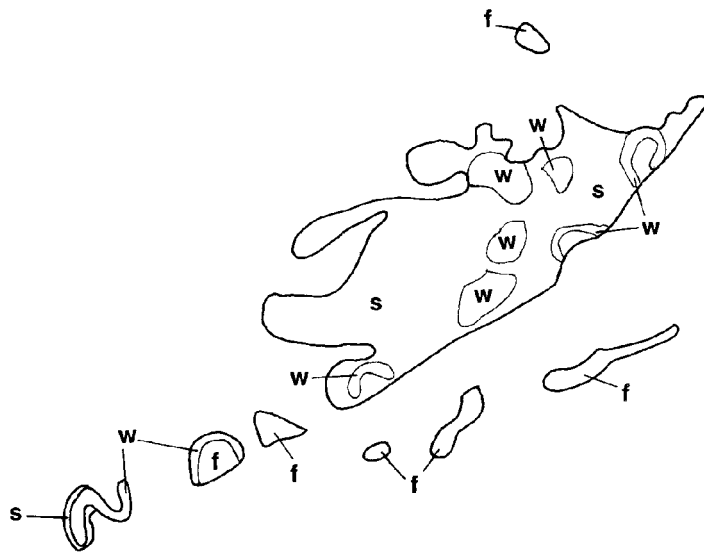
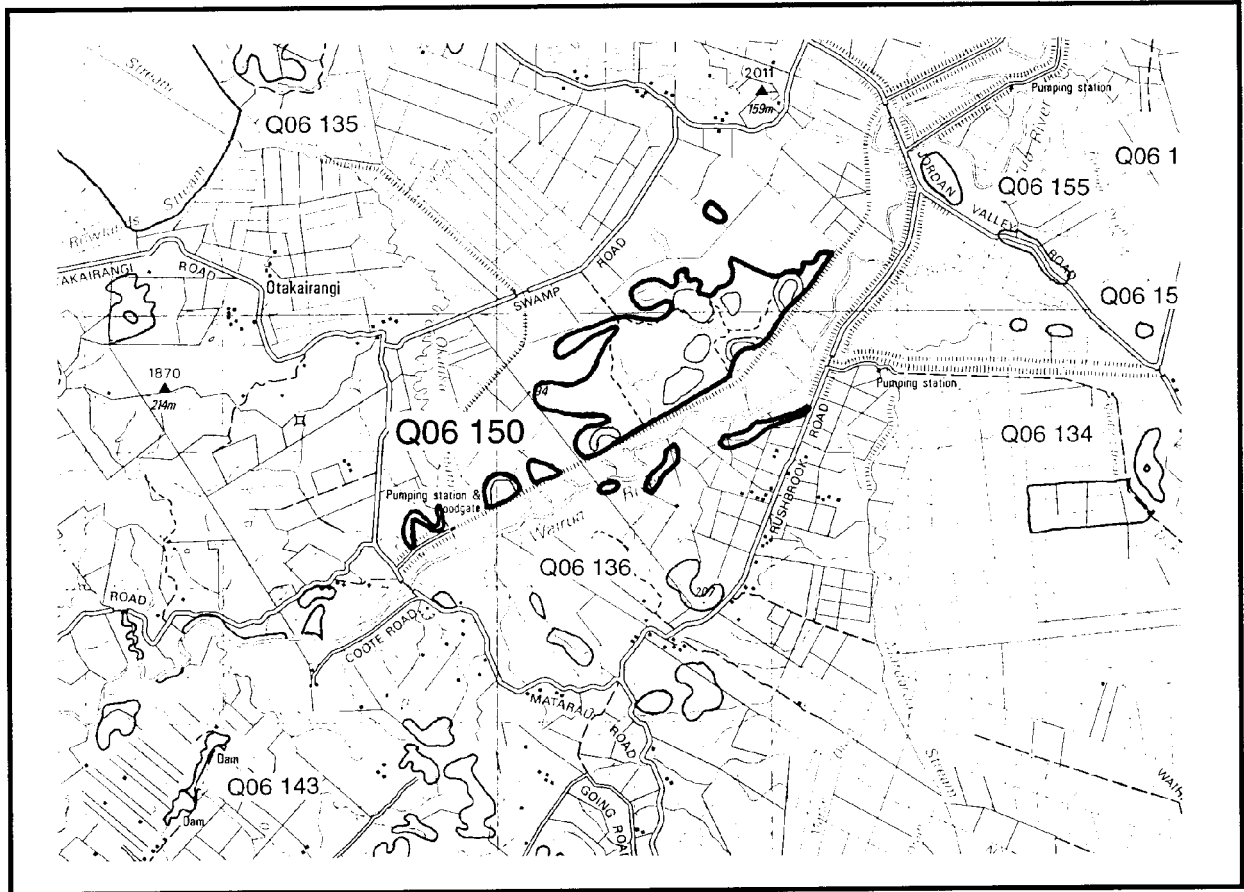


Figure 24. Wairua River Wildlife Management Reserve, Q06 150
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland; w = wetland.

Vegetation

This site is a large area of oxbows, wetlands and swamp shrubland vegetation called the Wairua River Wildlife Management Reserve (also known as Hikurangi Swamp). It also includes some riverine remnants on the true left of the river to the south of the reserve. The oxbows were formed when the Wairua River was straightened and a stopbank was constructed.

(a) The first oxbow is located on the true right of the Wairua River, behind the stopbank. This is east of the junction between Matarau Road and Lovell Road and is accessed along the stopbank. Manuka is scattered along the margin of the oxbow with frequent crack willow, Chinese privet and *Coprosma propinqua*. There is occasional kahikatea, rimu and poplar.

(b) The second oxbow is upstream from the first and contains on its inner side kanuka/manuka swamp forest with cabbage tree and totara occurring commonly. Kohuhu is frequent and kahikatea is occasional. The understorey contains the rare heart-leaved kohuhu, in low numbers. Also in the understorey, *Melicytus micranthus* and totara are common while *Myrsine divaricata* is frequent. Kahikatea, white maire, round-leaved coprosma, poataniwha, and hawthorn are occasional. Near the water's edge *Coprosma propinqua* and *C. tenuicaulis* are common.

(c) Further upstream the third oxbow is located and has scattered totara on the inner side. Kanuka is frequent and kowhai, kahikatea and white maire are also present.

(d) On the edge of the oxbow there is kanuka/manuka-*Melicytus micranthus* shrubland. *Myrsine divaricata* is frequent and kowhai is occasional.

The fourth oxbow is located further upstream and also has manuka swamp shrubland, type (a), on its inner and outer edges. Kanuka is frequent and cabbage tree, kohuhu, kahikatea and totara are occasional.

Between the fourth and fifth oxbows there are extensive areas of wetlands and kanuka/manuka swamp shrubland. This includes:

(e) A wetland where burr reed is abundant while beggars' ticks and willow weed are common. Also present are frequent *Isolepis prolifer*, *Juncus* sp. and parrot's feather. Manuka is scattered, with occasional harakeke, cabbage tree, soft rush, jointed twig-rush and *Carex ovalis*. The water table is high and open water occurs in small patches making up about 5% of the area, type (f).

(g) Open water (60%) and wetland species (40%) including frequent jointed twig-rush, willow weed and parrot's feather. *Carex* sp. is occasional.

Most of the area consists of type (a), manuka swamp shrubland. In the understorey *Juncus* sp. is common and *Carex ovalis* is frequent. In places there is surface water.

(h) The fifth oxbow consists of kanuka/manuka swamp shrubland on its outer edge. Manatu is frequent and cabbage tree, kahikatea, kowhai, putaputaweta and totara are occasional. In the understorey *Melicytus micranthus*, *Myrsine divaricata*, *Coprosma tenuicaulis* and *C. rhamnoides* are common. Frequently present understorey species are small-leaved milktree, heart-leaved kohuhu, *Coprosma propinqua* and the vine pohuehue. Manatu, manuka, totara and *Coprosma rotundifolia* are occasional in the understorey.

In between the fifth and sixth oxbows, type (a) occurs. Low manuka swamp shrubland is abundant with frequent kanuka. Cabbage tree, kowhai, manatu, *Acacia* sp., Chinese privet and emergent totara are also present.

The sixth oxbow consists of type (a) with manuka swamp shrubland forming an incomplete canopy. Cabbage tree and totara are frequent while pigeonwood, kohuhu and kowhai are occasional. On the inner edge of the oxbow *Coprosma propinqua*, *Melicytus micranthus* and *Myrsine divaricata* form a dense shrubland. *Coprosma spathulata* and gorse are frequent and harakeke is occasional at the water's edge.

On the other side of the reserve, nearest to Swamp Road, type (i) occurs. Chinese privet and *Coprosma propinqua* form a shrubland with frequent emergent totara. Cabbage tree, gorse and blackberry are occasional.

(j) Towards the river, a wetland is situated where jointed twig-rush is abundant and *Juncus* sp. is common. Despite the high water table, cattle were grazing at the time of survey. On the edge of this manuka shrubland is present, type (a). Chinese privet, kanuka, totara and *Coprosma propinqua* are frequent and cabbage tree and manatu are occasional.

(k) North of here a small kahikatea forest remnant is situated amongst pasture. On the other side of the Wairua River opposite the reserve and adjacent to Rushbrook Road, are three small riverine forest remnants.

The first remnant borders Rushbrook Road and contains abundant kahikatea. Kowhai is frequent and cabbage tree, manuka and totara are occasional, type (k).

(l) The second remnant is further downstream and consists of riverine forest made up of abundant kahikatea with cabbage tree common. Totara is frequent and rimu occasional. A small area of raupo reedland borders the forest.

(m) The third riverine forest remnant is further downstream located on the river's edge. Kanuka is abundant and manuka common. There is frequent kahikatea and totara and occasional kowhai, cabbage tree, kohuhu and manatu.

Significant flora

Pittosporum obcordatum (heart-leaved kohuhu) (Recovering-Conservation Dependent), *Hebe* aff. *bishopiana* (Taxonomically Indeterminate-Critically Endangered) and burr reed (Regionally significant species).

Fauna

Australasian bittern (Category O threatened species), NI fernbird (Regionally significant species), banded rail (Regionally significant species), Australasian shoveler.

Significance

Example of a largely unmodified wetland and swamp shrubland of considerable size, which is also an uncommon habitat type in this District. It is the only site in the Ecological District for types (b), (d), (h), (j) and (l). It is also the only site in the Ecological District where burr reed is dominant albeit in association with introduced species.

It is a representative site for manuka swamp shrubland.

Habitat for the threatened plant, heart-leaved kohuhu, which is one of only two localities in Northland. This site is one of the largest populations in the country. It is also the only site on record for the recently discovered and yet undescribed *Hebe* aff. *bishopiana*.

Presence of several threatened and regionally significant bird species.

This site includes 154 ha of Wildlife Management Reserve and 3.5 ha of Stewardship Land, that protects the threatened plants, administered by the Department of Conservation.

WAIRUA RIVER

Survey no.	Q06/151
Survey date	16 July 1996
Grid reference	Q06 141 150
Area	131.3 ha (98.8 ha forest, 32.5 ha shrubland)
Altitude	80-100 m asl

Ecological unit

- (a) Crack willow riverine forest on alluvium
- (b) Kanuka/manuka-totara riverine forest on alluvium
- (c) Kanuka/manuka riverine forest on alluvium
- (d) **Totara**-kanuka/manuka riverine forest on alluvium
- (e) Kahikatea-totara riverine forest on alluvium
- (f) Totara riverine forest on alluvium
- (g) **Manuka**-totara riverine shrubland on alluvium
- (h) Crack willow-kanuka/manuka riverine forest on alluvium
- (i) Totara forest on moderate hillslope
- (j) Manuka-totara riverine forest on alluvium
- (k) Gorse-mamaku-manuka riverine shrubland on alluvium
- (l) Manuka riverine shrubland on alluvium
- (m) Mamaku-manuka riverine shrubland on alluvium
- (n) Kanuka/manuka-totara riverine shrubland on alluvium

Landform/geology

Mostly Quaternary deposits but includes Kerikeri Volcanics basaltic lava flows in the vicinity of Q06 140140.

Vegetation

The area described covers the vegetation along the Wairua River from south of the Matarau bridge to as far as but not including the Wairua Falls Scenic Reserve.

This includes topographical maps Q06 (Hukerenui) and Q07 (Whangarei).

- (a) About one kilometre south of Matarau Bridge there is a small oxbow adjacent to the Wairua River consisting of 20% open water and 80% crack willow riverine forest. Kanuka, totara and kowhai are frequent and black maire is rare.

(b) Downstream from here there is a short break in the vegetation then totara-kanuka/manuka forest occurs intermittently along the northern riverbank. Associated species include frequent kahikatea and manatu with occasional cabbage tree, kowhai and crack willow.

(c) Further downstream on the opposite bank, there is an area of kanuka/manuka forest ranging from 3 m to 6 m in height. Totara occurs frequently and crack willow is occasional.

(d) Contiguous with this, is a small area of totara dominant forest with kanuka and manuka common. Other species present are titoki, kahikatea, kowhai and cabbage tree.

(e) Further downstream there is a small side stream flowing in from the north. The vegetation along this streambank is kahikatea-totara riverine forest with frequent kowhai. Cabbage tree and putaputaweta are occasional.

(f) Further downstream and on the opposite side of the river there is a small area of totara forest with frequent kahikatea, manuka, taraire, karaka and hawthorn. There is also occasional titoki, pukatea and miro present.

(g) Contiguous with this is a small area of riverine shrubland consisting of abundant manuka up to five metres in height. Totara occurs less commonly. Both of these areas, type (f) and type (g), contain many divaricating shrubs in the understorey but a quick search failed to reveal any heart-leaved kohuhu plants.

Moving downstream there is a break in the vegetation for about one kilometre and then type (f) vegetation resumes on the southern bank. Totara is abundant and kanuka, manuka and crack willow are present occasionally. This vegetation type continues intermittently on both riverbanks to as far as the Pipiwai Road Bridge.

(h) Immediately downstream from the bridge there is crack willow-kanuka/manuka forest on both sides of the river. Kahikatea and totara are frequent with occasional matai and cabbage tree also present.

Downstream from here on the northern bank there is a small area of type (a) forest, where willow is common and totara and titoki are frequent. Also present in the canopy are matai and kahikatea.

Type (f) occurs on the edge of an oxbow just downstream from here. Totara is abundant with manuka frequent and kahikatea occasional.

(i) Downstream from here there is a break in the vegetation then there is an area of totara forest. This extends from the river's edge up on to the moderately sloped hillslope on the eastern side of the river.

Further south type (i) continues but totara is common and matai, kahikatea and manuka frequent. Also present are occasional titoki and taraire.

(j) Further south this changes to an area of totara-manuka forest on the river's edge which also extends up onto the hillslope to the east.

Continuing downstream, type (f) occurs, where totara riverine forest is dominant and manuka is frequent. There is also occasional kahikatea present.

Downstream from this, type (h) occurs. Here, crack willow-kanuka/manuka riverine forest is associated with frequent mamaku, totara and gorse.

(k) Further downstream where the side stream on the eastern side runs parallel with the Wairua River, there is an area of riverine shrubland ranging in height

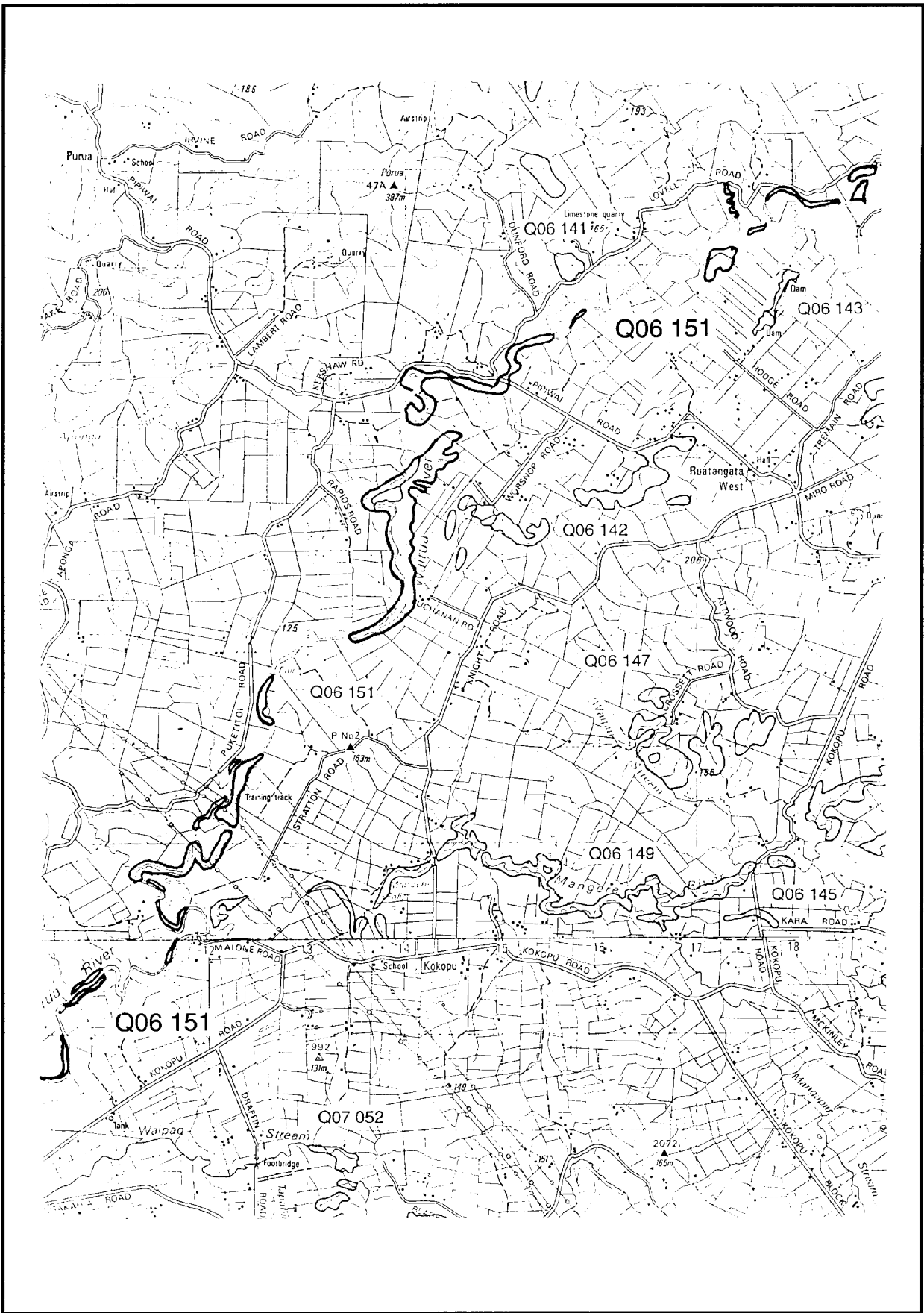
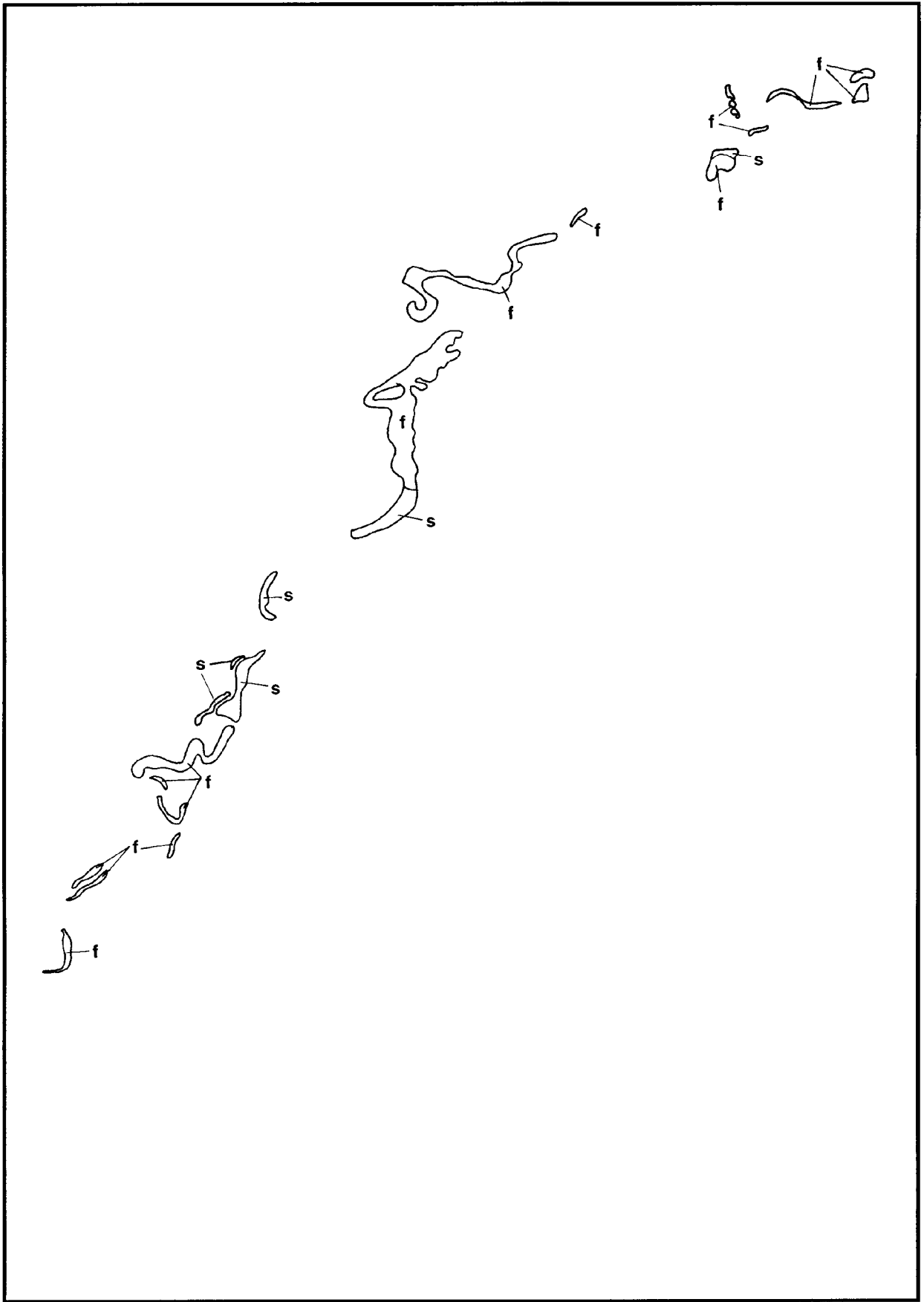


Figure 25 (above and opposite). Wairua River, Q06 151
 Each grid is 1000 m × 1000 m and equals 100 ha.
 f = forest; s = shrubland.



from one to three metres. Commonly occurring species here include gorse, mamaku and manuka. Also present are frequent hangehange and occasional cabbage tree. This extends to the confluence of the side stream with the Wairua River.

(l) There is a break in the vegetation until below the falls, where there is low riverine manuka shrubland up to 2 m in height on the western side.

(m) This is contiguous with an area of mamaku-manuka riverine shrubland. Gorse is frequent and hangehange is occasional.

(n) There is a break in the vegetation before kanuka/manuka-totara riverine shrubland is encountered again on the eastern riverbank. Crack willow and gorse are also present.

On the western side there are intermittent stretches of totara riverine forest where totara is common. Frequent species include kahikatea, titoki, kanuka and manuka. Matai, karaka and puriri are also present, type (f).

Further downstream, on both sides of the river, this changes to totara-kanuka/manuka riverine forest with an incomplete canopy. Titoki and karaka are frequent and kahikatea is occasional, type (b).

Just north and south of the bridge over the Wairua River on the western riverbank, there is a thin strip of manuka-totara riverine forest with an incomplete canopy. Crack willow is frequent with occasional manatu and kahikatea, type (j).

Map Q07

There is a break in the vegetation and then further downstream type (f) occurs on both riverbanks for intermittent distances. Totara is abundant and kahikatea, manatu, titoki, kanuka, manuka and crack willow are occasional. Downstream from here there is no significant native vegetation until the Wairua Falls Scenic Reserve.

Significant flora

Black maire (Regionally significant species).

Fauna

Freshwater crab (Regionally significant species).

Tui, fantail, grey warbler, white-faced heron, black shag, little shag, Australasian shoveler, grey duck, paradise shelduck, pied stilt.

Significance

Nearly all of Northland's rivers have lost their original forested riparian margins and consequently aquatic and riparian habitat values have been degraded. Protected alluvial/riverine forest is the rarest, most fragmented and most under-represented forest type out of 10 types in Northland. The Wairua River has significant habitat values for both instream and riparian flora and fauna. The remaining riparian vegetation is important as an example of a rare habitat type in the Ecological District.

It is a representative site for type (e), (g), (i), (j), (l) and (n). It is also the only site in the Ecological District where mamaku-manuka riverine shrubland, type (m), was recorded.

Habitat for large numbers of waterfowl and the regionally significant species.