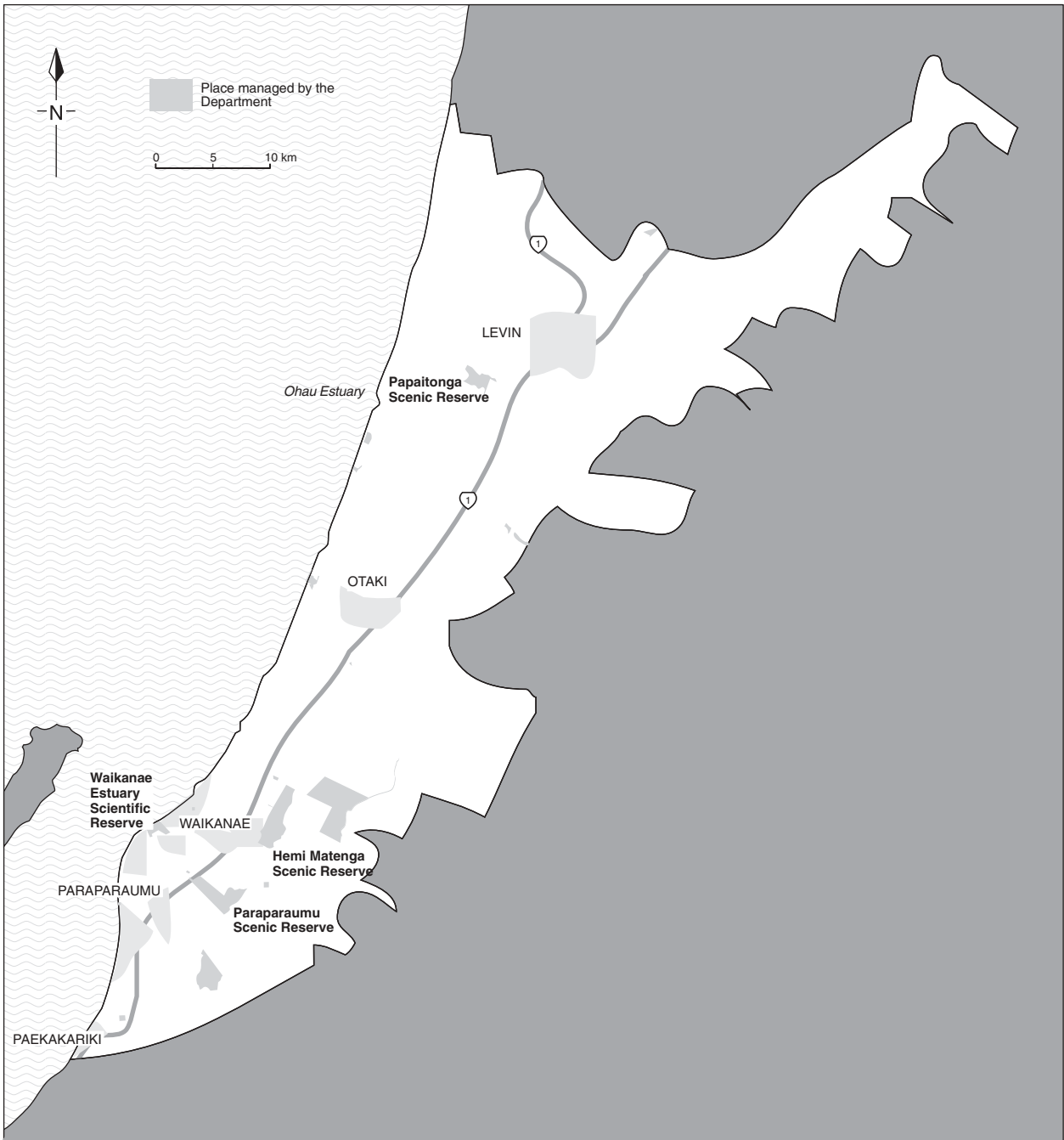


Map 25:
Kapiti/Horowhenua



7. *Kapiti/Horowhenua*

7.1 OVERVIEW

Description

This area stretches west up the coast from Pukerua Bay to the Manawatu River. It is mostly lowland formed by floodplain deposits and coastal accretion. It is bounded to the east by the Tararua Range foothills with old sea cliffs at their base.

Three distinct landform elements are recognisable and relate to the Ecological Districts of Foxton (duneland and associated wetlands), Manawatu Plains (alluvial floodplain), and Tararua (foothills and ranges). Landforms of the duneland and associated wetlands record changes to the land resulting from glacial periods, earthquakes, longshore sediment drift, dune migration and the recent impacts of human settlement.

A rich history of Maori settlement, intertribal warfare and plentiful resources is accompanied by a history of intensive agriculture and horticulture, transport, forestry and urban development. It is the tribal territory of Muaupoko, Ati Awa ki Whakarongotai and Ngati Raukawa ki te Tonga. The area has the highest population growth rate in the Conservancy.

Values

- Indigenous plant communities of coastal and wetland forest remnants especially kohekohe forest which is now rare in the North Island, totara stands at Otaki, and wetland and dune plant communities.
- The giant land snail, *Powelliphanta traversi traversi*, found only in this region of New Zealand; two subspecies (one with four forms) are recognised.
- Numerous waterfowl and waders on the wetlands and estuarine areas, including significant New Zealand dabchick populations.
- Wetland and lakes of the region associated with dune formations and river estuaries. The Department manages Lake Papaitonga and is involved in management of Lake Horowhenua and Waikanae River and Manawatu River Estuaries. Other significant wetland areas have been identified in the Foxton Protected Natural Area programme.
- The Ohau River estuary, the last major unmodified estuary on the west coast of the Conservancy.
- Dune formations on the flat coastal plains, which indicate past physical development of the area and have created the distinctive wetland systems. This is the only locality where an Oligocene sedimentary environment can be identified in the Wellington Region.
- Archaeological sites and sites significant to iwi, especially within the coastal environment.
- Long sandy beaches and a generally milder climate than Wellington attract high numbers of visitors, and settlements have developed along the coast. The area has many recreation opportunities on the coast, rivers and reserves.

Threats

Many kohekohe stands are grazed, and kohekohe is also an attractive food species for possums. This threatens the viability of small remnant stands.

Powelliphanta populations have survived in remnants of damp forest and wetland on alluvial plains and in sites along the Tararua foothills. They are preyed on by rats (primarily), pigs and possums. Management requires exclusion of stock from the habitat and predator control, as well as care not to mix isolated populations. (The latter is to protect biodiversity.) Many populations are located on private land and the Department is actively negotiating legal protection of sites.

Wetlands are associated with complex duneland dynamics. The natural mobility of dunes created the characteristic dune and basin landforms, but this is one of the most difficult features of duneland processes to conserve.

Agricultural and urban development has stabilised the dunes and is damaging their character. Conserving examples of these landforms, therefore, assumes greater significance. Rapid urban and rural growth continues to reduce the integrity of the natural landforms and natural character of the duneland.

The complex hydrology of wetlands means that drainage of one area can have a profound effect on wetland areas some distance away. Protecting a significant site therefore requires management.

Urban development and the need to protect investments in homes and farms has resulted in seawall construction in urban areas; steepening of the beach profile and restriction of broad rivermouths by flood protection work has reduced coastal habitats of indigenous wildlife. Planting of marram to stabilise dunes has changed the dune profile and increased erosion and has affected distribution of native dune plants such as pingao and spinifex.

**Key Conservation
Issues for the
Department**

- This area is a high priority for advocacy for the Conservancy. There are relatively few remaining natural areas. Only 5% of the land area is protected for nature conservation, but there are high levels of population growth and land uses in rural areas are changing from farming to rural-residential.
- Landscape assessment is a high priority for this area. It can provide local authorities with the means to identify landforms and landscapes of value for future planning and management.
- Possum control in kohekohe forest has a high priority.
- Water quality and quantity conservation advocacy. Effluent discharge policing is required to protect the numerous wetlands and streams. The Department advocates riparian planting to filter run-off and improve wildlife habitat.
- The need for integrated management of areas by the Department, iwi, local government, communities and landowners to conserve natural and historic resources, and the need for integrated management of the environment to protect natural resources.
- Joint iwi and Department management of areas managed by the Department. Little physical evidence of past Maori occupation or early pakeha settlement remains, but since this is a significant area for Maori culturally, spiritually and politically, protection of historic resources implies a greater emphasis on conserving landscape, cultural tradition and oral interpretation.

- Research into duneland hydrology, to determine how wetland areas can be sustained.
- Restoration of wetland ecosystems.
- Advocacy for protection of estuaries, in particular the Waikanae and Ohau estuaries.
- Targeted reserve management for *Powelliphanta* populations.
- PNAP and complementary surveys required:
 - HIGH priority: Manawatu Plains Ecological District
Foxton Ecological District (Implementation of PNA survey results)
- Key sites for future protection:
 - Manawatu Plains Ecological District: all remaining natural areas
 - Foxton Ecological District: Recommended Areas for Protection (PNAP) and natural areas under immediate threat from urban development.

[refer Section 16, p 161; Table 9, p 166]

- Lake Horowhenua is a large shallow lake in a basin behind old dunes, surrounded by farmland and a sewage treatment station on the outskirts of Levin. The Hokio Stream flows from the lake to enter the sea at Hokio Beach.

The lake has been polluted by stormwater, farm runoff and by treated sewage and its margins have been trampled by stock. Natural vegetation around the lake has been reduced to small remnants.

Despite its degraded state, the lake remains important for wintering populations of New Zealand dabchick and habitat for other threatened birdlife, including Australasian bittern, marsh crake, kotuku and royal spoonbill; it still supports populations of eel and whitebait. It is an important focus for several iwi, principally Muaupoko and Ngati Raukawa, and around the lake margin are urupa, pa, pa islands and other waahi tapu. The lake and Hokio Stream are traditional food gathering areas.

The lakebed, dewatered zone, islands and the Hokio Stream are owned by beneficial members of the Muaupoko tribe, as determined by the Reserves and other Lands Disposal Act (ROLD) 1956. The lake waters Muaupoko Domain, dewatered zone and one chain reserve strip in front of the Muaupoko Domain are vested under the Reserves Act 1977 in the Horowhenua Lake Domain Board. The Department chairs the Board.

To enhance the conservation values of Lake Horowhenua and its environs, the Department and the Board have been involved in a joint initiative with Muaupoko, Horowhenua District Council, and Manawatu Wanganui Regional Council. This is called the Lake Horowhenua Restoration Project, and is administered by the Horowhenua Lake Trustees.

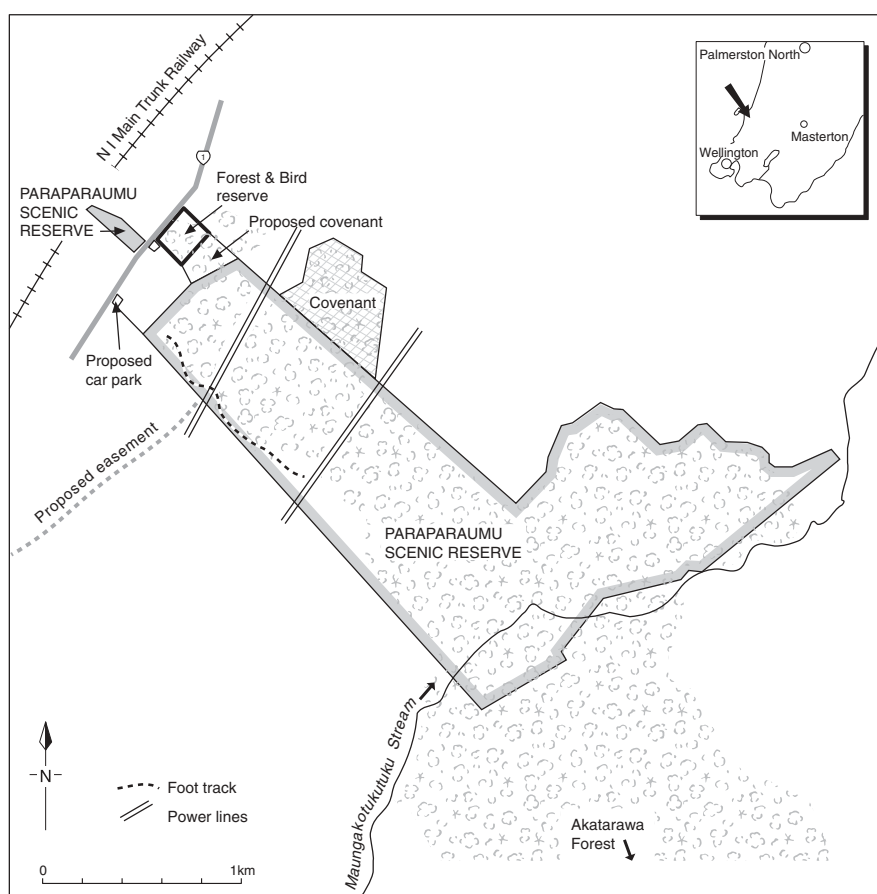
The project involves completing fencing around the lake to exclude stock, revegetation, fencing and protecting forest and wetland remnants, improving water quality in the catchment of the lake and establishing artificial wetlands at drain and sewage plant overflow outlets. A walking track and interpretation centre will be established around the shore.

The Department will continue to support efforts to restore the Lake and Hokio Stream.

7.2 PARAPARAUMU SCENIC RESERVE

Conservation Unit No.:	R26033
Status:	Scenic Reserve
Area:	174.5 ha
Ecological District:	Tararua
Local Government:	KCDC/WRC

Map 26:
Paraparaumu
Scenic Reserve

**Description:**

The reserve forms part of a corridor of predominantly coastal (kohekohe) and lowland broadleaved (tawa-mahoe) forest extending southeast from SH1 over rolling/steep hill country into the upper catchment of the Maungakotukutuku Stream.

The reserve is connected through to SH1 by a conservation covenant and a small reserve owned by the Royal Forest and Bird Protection Society. On the western side of SH1, a narrow strip of the reserve extends to the railway line, with pukatea-kohekohe forest in the gully, sloping to an area of flat swamp.

Grazing licences are issued over areas of pasture which exist on the southern boundary and an easement for high-voltage electricity transmission lines bisects the reserve.

Land to the southwest and north is pasture, while on the western side of SH1 is the Kapiti Coast District Council's tourist zone including Lindale Farm development to the south. To the east is secondary growth forest and pine plantation.

Values	<p>The reserve contains extensive areas of regionally rare kohekohe forest.</p> <p>Brown mudfish, <i>Neochanna apoda</i>, rated as a vulnerable species and a high national and Conservancy priority, is present.</p> <p>Close to main urban areas and on SH1 in a locality identified for tourism-related activities, the site has high potential to meet passive recreation needs, e.g., walking paths and a scenic viewpoint for local and regional visitors, and may provide future opportunities for the interpretation of the coastal forest.</p>
Management Issues	<p><i>Access</i></p> <p>The reserve is the least developed of the easily accessible reserves administered by the Department and close to urban centres. Only one marked route provides for a walk through the reserve. The intention is to develop a carpark and picnic area on SH1 adjacent to the Forest and Bird Reserve and establish a loop track through to the highest point of the reserve. The Department would also like to establish an easement between Nikau Scenic Reserve and Paraparaumu Scenic Reserve to enable visitors to walk the ridge line between the two reserves.</p> <p><i>Noxious Weeds</i></p> <p>Gorse and ragwort have become established within the reserve and require ongoing control, especially on farmland boundaries. Tradescantia is extensive in the adjacent Royal Forest and Bird Protection Society area.</p> <p><i>Brown Mudfish</i></p> <p>The fish are present only in the wetland in the small western portion of the reserve. The hydrology and water quality of this portion of the reserve need to be maintained.</p>
Objectives	<ol style="list-style-type: none"> 1 Protect and preserve natural resources, especially kohekohe forest, wetland areas and brown mudfish. 2 Facilitate public enjoyment of the reserve compatible with protection of its natural resources. 3 Seek protection of natural resources and public access to adjoining areas.
Implementation	<ol style="list-style-type: none"> 1 Monitor brown mudfish populations and act to mitigate any threats if feasible. 2 Advocate that surrounding land uses be managed to preserve the hydrology and protect water quality in the western reserve and in wetland areas beyond the reserve. 3 Develop a walk-standard loop track and investigate the future provision of material, in consultation with Royal Forest and Bird Protection Society and landowners of the covenant. 4 Develop a carpark next to SH1. 5 Investigate the establishment of an easement between Nikau and Paraparaumu Scenic Reserves; implement if feasible. 6 Discuss management options to protect natural resources of adjoining natural areas with landowners.

7.3 HEMI MATENGA MEMORIAL PARK SCENIC RESERVE

Conservation Unit No.:	R26023	R26042
Status:	Scenic Reserve	Covenant
Area:	326.17 ha	4.31 ha
Ecological District:	Tararua	Tararua
Local Government:	KCDC/WRC	KCDC/WRC

Description: The reserve extends along the western side of the hills immediately behind Waikanae. Ancient scree slopes dating from past glacial periods form the lower flanks. The mature coastal forest cover is a prominent landscape feature noticeable for some distance along SH1 and from Waikanae township. It is adjacent to a plantation forest which clothes the remainder of the range.

On the eastern aspect of the range mature forest under Maori ownership adjoins the reserve. The area is nearly contiguous with Kaitawa Scenic Reserve and Tararua Forest Park, helping form a continuum from lowland coastal forest to montane forest. A tongue of forest extends from Hemi Matenga Scenic Reserve onto private land above SH1.

Values Plant community values are high in this reserve. This is probably the largest remaining forest remnant on the North Island mainland dominated by lowland kohekohe forest. The kohekohe dominated forest merges upslope into lowland broadleaved forest with rimu and rata emergents.

Both the track to the ridgeline and the low level tracks receive high use by local residents. It is the closest large forest reserve with developed access available to Kapiti Coast residents who want half-day outings and the extensive views of Kapiti Island, the Kapiti plains and Tararua foothills. The track is part of the Conservancy's core network of huts and tracks.

The historic significance of the reserve goes back to the original owners, Hemi Matenga and his brother Wiremu Parata. Wiremu was the son of Metapere Waipunahau and an early whaler, George Stubbs, and was descended from Ngati Toa and Ati Awa. The area was gazetted a Scenic Reserve in November 1956 after its acquisition in 1955 as a reserve contribution from the subdivision of the Matenga Estate.

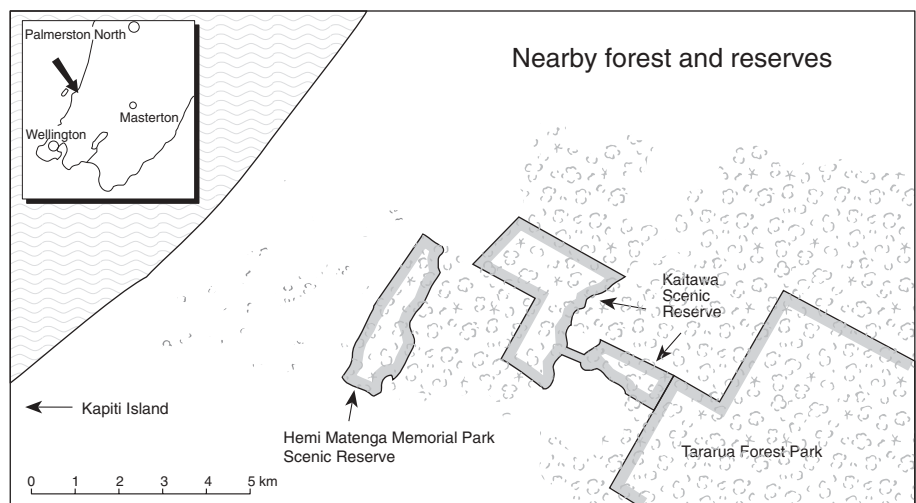
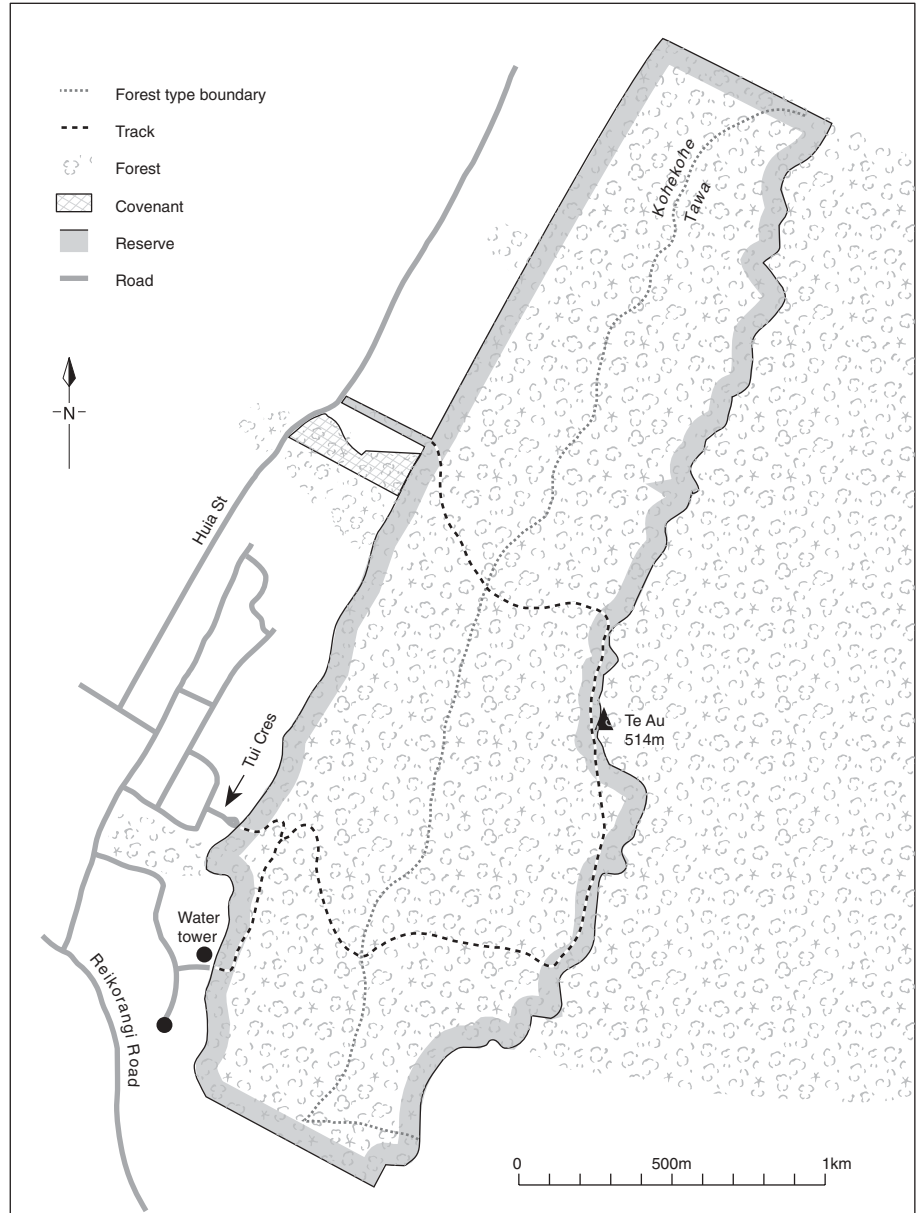
Management Issues*Pest Animals*

Possoms browse on northern rata and kohekohe, and the reserve has been identified for possum control by the Department. Goats are gradually being eliminated. Stock have access at the southern end, where fencing is incomplete.

Visitors

The reserve has high recreational value. It requires a high standard of recreational facility and interpretation and visitor information, which should be suitable for school day trips as well as for casual visitors.

Map 27:
Hemi Matenga
Scenic Reserve



Linkages

Opportunities exist to link Hemi Matenga and other reserves with Tararua Forest Park. The co-operation of private landowners will be essential to create a protected corridor and the Department will discuss these options with them.

Objectives

- 1 Protection and preservation of the natural resources of the reserve, in particular kohekohe and rata.
- 2 Recreational facilities that will allow visitors to have a quality bush walk experience.
- 3 Legal protection or joint management with landowners of nearby areas, to form a natural corridor between the Tararua Range and the sea.
- 4 Increased public understanding and appreciation of natural and historic resources and recreational opportunities of the reserve.
- 5 Co-operative working relationship with tangata whenua to conserve natural and historic resources.

Implementation

- 1 Control possums and goats in accordance with the Conservancy wild animal control plan and fence the southern boundary to exclude stock.
- 2 Advocate legal protection of adjacent native forest.
- 3 Maintain existing tracks as high-standard core facilities, suitable for visitors with very little experience.
- 4 Investigate the provision of interpretation and visitor information to increase the public awareness of the reserve and nearby native forest.
- 5 Consult with tangata whenua on management of the reserve, in particular on interpretation and management of historic resources.

7.4 WAIKANAE ESTUARY SCIENTIFIC RESERVE

Conservation Unit No.:

R26019

Status:

Scientific Reserve

Area:

27.30 ha

Ecological District:

Foxton

Local Government:

KCDC/WRC

Description

Waikanae Estuary Scientific Reserve comprises a freshwater lake and saltwater lagoon network surrounded by dunes and sandy beaches at the mouth of the Waikanae River. Most of the reserve is dominated by river, old river channels, saltmarsh and tidal flats. Southward longshore sediment drift causes the position of the rivermouth to migrate periodically.

Values

This is one of the few estuary/wetland areas of any size in the southwestern North Island, and is listed in WERI as a nationally significant wetland habitat for waders, seabirds and waterfowl, both local and migratory. Amongst species regularly recorded at the estuary are wrybill, banded dotterel, variable oystercatcher, caspian tern and spoonbill.

Whitebait and other species of indigenous fish are present in the Waikanae River.

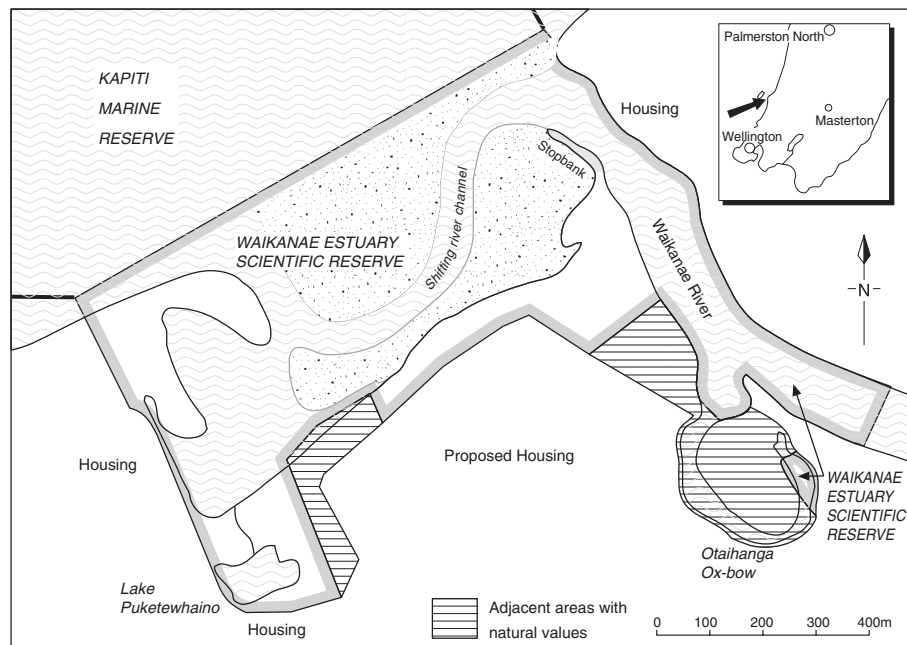
Salt marsh vegetation, both marsh covered during spring tides and areas of emergent marsh which are flushed with fresh water, is uncommon in

Wellington Conservancy and is thus regionally important. Other important vegetation communities are in the sand dunes and wetlands.

The estuary has important historic connections for Maori, and at least three pa have been constructed in the vicinity. In the early phases of European settlement a ford allowed coaches to cross the Waikanae River close to the estuary, and an inn was situated nearby.

The reserve provides access to the beach and the Waikanae River and is a popular area for walking, bird watching and whitebaiting. Waikanae Scientific Reserve is contiguous with Kapiti Marine Reserve and provides a valuable continuum of protection from a freshwater river and estuarine area to the marine environment that ends at Kapiti Island. It provides an important opportunity to interpret these conservation values and involve the community in management of the reserve.

Map 28:
Waikanae Estuary
Scientific Reserve



Management Issues

Urban Development

Residential development on the southern and eastern boundaries is having an impact on the reserve. There has been an increase in the amount of stormwater runoff entering Lake Puketewhaino at the southern end of the reserve and the lagoon in the mudflats. The proximity of houses to the reserve boundary increases the risk of intrusion of domestic pets into the reserve and the potential for garden weeds to escape. Water quality in the Waikanae River has declined due to pollution from sewage and non-point discharges.

To sustain the natural resources and retain the natural character of the reserve, effective buffers are needed. The Department will seek to establish buffer areas in consultation with the Kapiti Coast District Council, Wellington Regional Council and landowners. The Department will advocate for the benefits of improved water quality to both Kapiti Coast District Council and Wellington Regional Council. [*refer River Management, below*]

The proposal for a traffic bridge over the Waikanae River between State Highway One and the coast may have an impact on the reserve, and the Department will seek to be involved in the planning for this proposal.

River Management

The Waikanae River is managed by the Wellington Regional Council to avoid damage to surrounding land from flooding and erosion. The Regional Council also has a role under the Resource Management Act to manage the freshwater in the river, the coastal marine area at the river mouth, and natural hazards.

Along with housing development, the management of the river has altered the natural character of the estuary, which once migrated over a larger area. However, continued river management will now probably be needed to retain the natural elements of the estuary. The cutting of the river mouth, for instance, helps reduce the erosion at the southern end of the reserve and reduces flood levels in the surrounding land.

The Department will liaise with the Wellington Regional Council to ensure that river management takes account of the scientific reserve.

Use

The reserve has high recreational use and already has tracks to direct public access. Whitebait fishing from the mouth of the Waikanae River is traditional and has been allowed by a gazette notice. Other fishing at the Waikanae River mouth, within the reserve, is in conflict with its classification as scientific reserve. The Department will investigate and consult with the public over the appropriateness of allowing fishing within the scientific reserve, and may seek bylaws under the Reserves Act to allow some fishing for species other than whitebait. There have been problems with vehicular damage to dune and saltmarsh environments and with dogs disturbing birdlife.

Objectives

- 1 Protection for scientific study, education and the benefit of the country, the indigenous ecological associations, soil types and geomorphological features of the reserve.
- 2 Greater appreciation by the public of the reserve's conservation values and greater involvement by the public in management.
- 3 Extension through purchase, agreed strategies or covenant, of estuary and river areas managed for conservation.
- 4 Co-operative working relationship with tangata whenua to conserve natural and historic resources.

Implementation

- 1 Prepare a site plan to minimise visitor impacts and provide for a high standard of recreational and interpretation facilities.
- 2 Investigate and negotiate the extension of reserve boundaries or management of adjacent natural areas to establish buffers for the reserve.
- 3 Provide opportunities for the local community to participate in reserve management, including Honorary Ranger involvement, and to gain a greater appreciation of the conservation values and issues relating to the reserve.
- 4 Advocate for improved water quality in the Waikanae River and Mazengarb Drain to enhance the habitat for freshwater fish, birds and indigenous plant communities.
- 5 Advocate for management of land and of land uses adjacent to the estuary and river and within the river catchment, that will not have an adverse effect on natural and historic resources.

- 6 Liaise with Kapiti Coast District Council and Wellington Regional Council on planning for and management of Waikanae River and nearby areas.
- 7 Continue to provide for whitebait fishing and investigate the appropriateness of fishing for other species within the reserve, and possibly seek bylaws under the Reserves Act to allow some fishing for other species.
- 8 Seek bylaws under the Reserves Act to restrict vehicle access in the reserve and allow dogs on a leash only.
- 9 Consult with tangata whenua on management of the reserve, in particular on interpretation and management of historic resources.

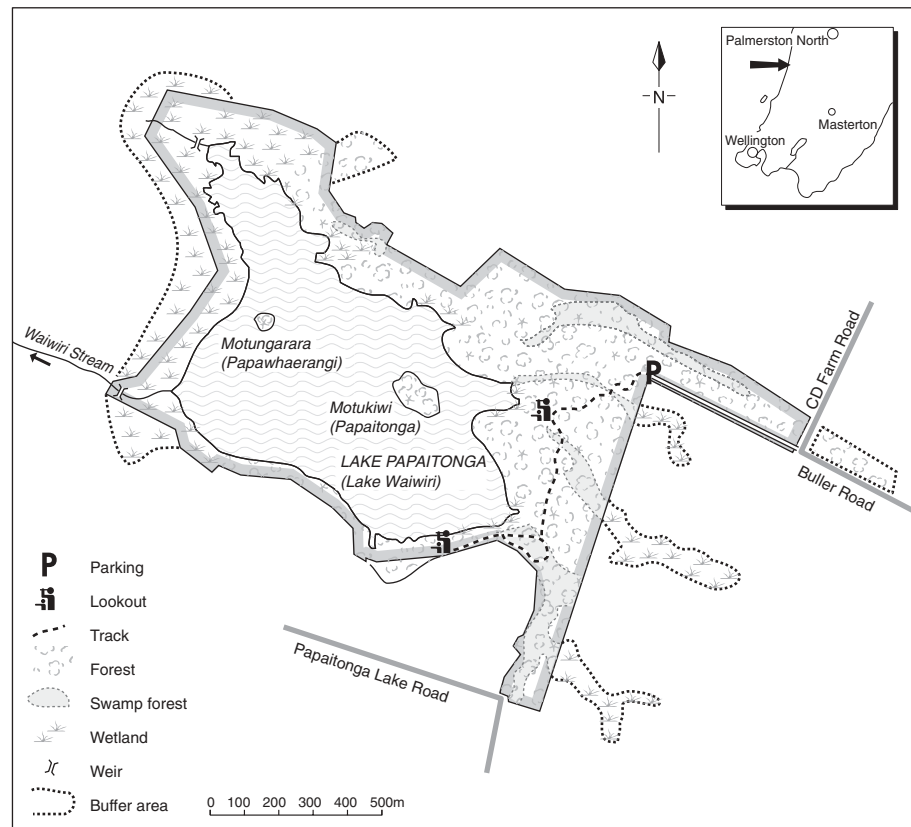
7.5 PAPAITONGA SCENIC RESERVE

Conservation Unit No.:	S25006
Status:	Scenic Reserve
Area:	120.69 ha
Ecological District:	Foxton
Local Government:	HDC/MWRC

Description

Wetland and coastal forest surround half the lake and the other half is adjoined by wetland which merges into farmland. The lake contains two small islands, Motukiwi (Papaitonga) and Motungarara (Papawhaerangi). The latter is an artificial island constructed by Muaupoko residents in 1820 to extend their village. The larger island is now dominated by karaka trees. The entire reserve is effectively an isolated “island” amidst farmland and market gardens.

Map 29:
Papaitonga
Scenic Reserve



Values

This is a very significant site for tangata whenua and for the history of the Horowhenua generally. The dune lake was originally named Waiwiri. The area was originally settled in the early 1800s. There are a number of pa and midden sites and possibly sunken canoes around the reserve. The tradition of gathering food and craft resources from the area continues today. The property was owned last century by Sir Walter Buller, who acquired it with the intention of preserving all the area surrounding the lake for future generations. Papaitonga was a very early scenic reserve, first formally set aside for the preservation of native bush in 1901.

The main area of forest is in very good condition and survives as a fragment of the forest types once typical of the Kapiti/Horowhenua dunelands. The reserve contains the only intact sequence from wetland to mature dry terrace forest in Wellington and the Horowhenua. The wetland forest associations of kahikatea/pukatea, tawa, and pukatea-tawa-swamp maire are now rare.

The population of *Powelliphanta* snails found in the reserve is one of the largest in Manawatu. The rich birdlife includes waterfowl, swamp birds and forest birds.

Tracks through the forest and to the lake margin give the public access to this historically and ecologically important area. The reserve has high scenic and recreational values for day trips close to Levin and SH1 and offers opportunities to interpret natural and historic resources to visitors.

Management Issues*Water*

Surrounding land-use changes over the last 140 years have altered the wetland processes. In particular drainage of wetland immediately to the west of the reserve boundary has had a profound effect on water levels in the lake system. This drainage, combined with a greatly accelerated natural sedimentation process in the lake, is threatening its future survival.

Water levels fluctuate in response to rainfall and watertable levels. The mana of the lake, the nature of its tapu islands and their visible relevance to tribal history depend on it being a lake not a flax swamp. Two weirs had been installed to control water levels in the lake, but this is in conflict with the interests of surrounding landowners. Farm runoff has altered the vegetation communities around the lake margin, and the natural wetland to the west of the lake which provided a buffer between the lake and farmland has been reduced.

Adjoining Areas

Areas of wetland to the west and east are contiguous with the wetlands within the reserve and the Department will be seeking protection and/or appropriate management in consultation with land owners to protect the lake. Small areas of adjacent forest are also of interest.

Objectives

- 1 Preservation and protection of the natural and historic resources of the wetland.
- 2 Enhancement of the wetland system and protection of the lake as an example of a wetland system that is disappearing elsewhere.
- 3 Provision for public access and increased understanding of the values of the reserve.
- 4 Co-operative working relationship with tangata whenua to protect natural and historic resources.

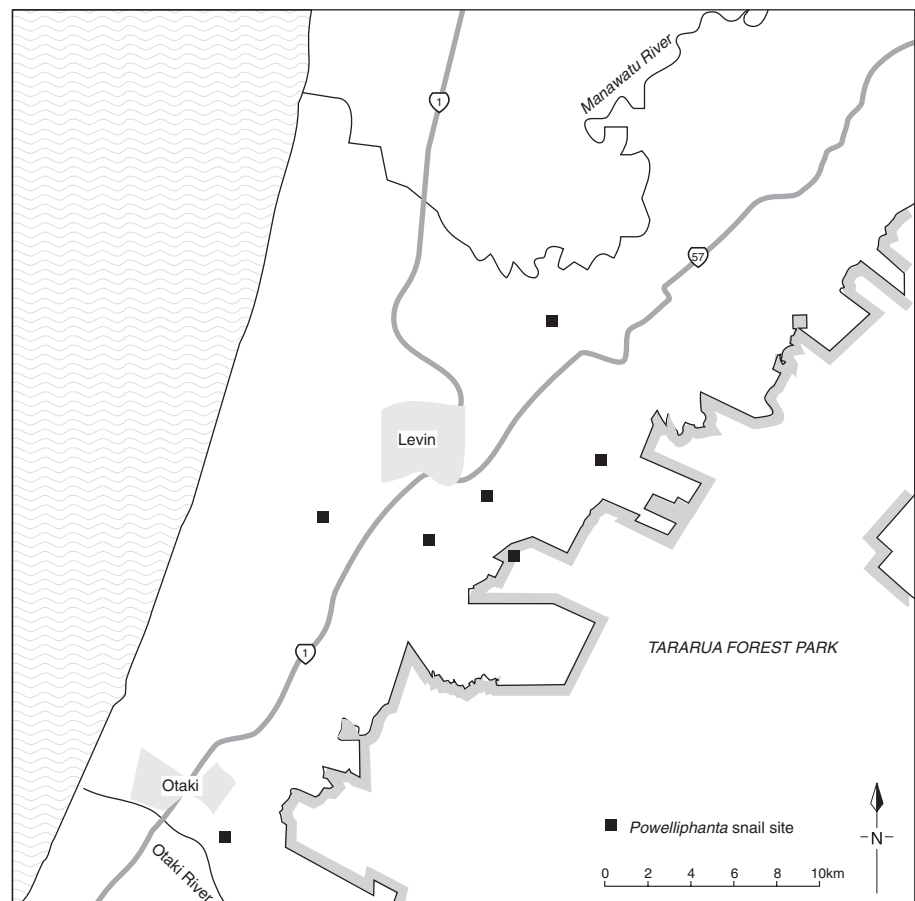
Implementation

- 1 Investigate the causes of changes in the watertable and advocate to MWRC and landowners appropriate mechanisms to control lake level.
- 2 Control lake levels by erecting weirs where feasible.
- 3 Seek to extend the buffer zone of protection around the lake, via land acquisition, covenant or via policies and plans under the Resource Management Act 1991.
- 4 Monitor predation on snail populations and implement predator control as required.
- 5 Maintain existing public access to the lake margin and provide interpretation and visitor information to increase the understanding and appreciation of the natural and historic values of the reserve.
- 6 Consult with tangata whenua on management of the lake, in particular historic resources and interpretation.
- 7 Consult with New Zealand Historic Places Trust if management actions require any disturbance of archaeological sites.

7.6 SNAIL RESERVES, HOROWHENUA

Conservation Unit No.:	S25017	S25026	S25033
Status:	Koputaroa Scientific Reserve	Covenant	Proposed Makahika Stream Scientific Reserve
Area:	9.4 ha	3.0 ha	35 ha
Ecological District:	Manawatu Plains	Manawatu Plains	Tararua
Local Government:	HDC/MWRC	KCDC/MWRC	HDC/MWRC

Map 30:
Snail Reserves,
Horowhenua



Description

The giant native land snail *Powelliphanta traversi* occurs naturally only in the Horowhenua. There are two subspecies: *Powelliphanta traversi traversi* (which has four forms recognised) and *Powelliphanta traversi otaki*.

The snail populations are found in moist, sheltered areas of scrub and forest along the fringes of the foothills to the western Tararua Ranges and on alluvial floodplain.

All *Powelliphanta* snails are protected under the Wildlife Act 1953. The Department has gained legal protection of three sites specifically for protection of *Powelliphanta* species: Koputaroa Scientific Reserve, Hillas Covenant and newly acquired land on Makahika Stream. Snails are also present in western Tararua Forest Park and Papaitonga Scenic Reserve.

Reserves managed by Horowhenua District Council also contain *Powelliphanta* populations: Kimberley Scenic Reserve and Waiopēhu Scenic Reserve. The Department provides management advice for these reserves.

Values

Powelliphanta snails are nationally threatened. The Department ranks *Powelliphanta traversi otaki* in the highest priority category for conservation action. *Powelliphanta traversi traversi* is ranked in the second highest priority category for conservation action, and none of its habitat is protected.

Koputaroa Scientific Reserve also contains the nationally threatened brown mudfish, *Neochanna apoda*.

The reserves are also vulnerable remnants of vegetation communities and habitat of the foothills and plains of this area.

Management Issues*Protection and Management*

The snails' remaining habitats are small, and the species is vulnerable to changes in habitat. The Department will be continuing to seek legal protection of snail habitat. Where snails are present on reserves administered by local government, the Department will provide advice on management to protect the snails. Broad-scale clearance of *Tradescantia* (wandering Jew) is not favoured by the Department as snails have only survived at some sites because of the presence of this plant.

Predators

Snails are preyed on by birds, rats, pigs and possums. Trampling by stock and humans also has a detrimental impact. Fencing between snail populations and forest containing pigs and goats is desirable. Predator control is also required. When rat poisoning is undertaken, snail populations increase markedly. It appears that the snails can survive at low population levels in even very small (1 ha) remnants of native vegetation if ground conditions are suitable and predation effects are alleviated.

Diversity

The populations of snails are genetically variable and further taxonomic study may reclassify the forms that are currently recognised. Researchers advise that snail populations should be kept isolated to minimise genetic mixing until more is understood about the taxonomic relationships between populations.

-
- Objectives**
- 1 Protection of all forms of *Powelliphanta*.
 - 2 Protection of natural resources of these areas managed by the Department, with priority on protection of *Powelliphanta* species, forms and habitats.
- Implementation**
- 1 Work with private land owners and councils to seek legal protection of any *Powelliphanta* habitat by appropriate means and as a priority the habitat of *Powelliphanta traversi traversi* forma “Tataruaenis” habitat.
 - 2 Maintain a programme of animal pest control in protected *Powelliphanta* habitats.
 - 3 Undertake and support research and implement monitoring programmes for all *Powelliphanta* populations recorded.
 - 4 Implement recommendations of any recovery plan for *Powelliphanta traversi*.
 - 5 Fence *Powelliphanta* reserves where they are adjacent to stocked pasture.
 - 6 Investigate and implement methods of weed control and revegetation programmes which minimise disturbance to *Powelliphanta* populations and enhance their habitat quality.
 - 7 Allow for transfer of *Powelliphanta* to safe locations as required only when investigation determines that no other forms of the snail already exist at, or in close proximity to, those sites, or that populations are genetically identical.
 - 8 Liaise with and advise District Councils regarding appropriate management of reserves containing *Powelliphanta* vested in them, to ensure protection of the species and its preferred habitats, and to enhance populations and habitats where possible.
 - 9 Seek to classify the recently acquired area on Makahika Stream, as Makahika Scientific Reserve.