

# Tangarewai Stream

## Identification:

### Significant Amenity Feature

## Location:

NZ Topo 50 – BL36

## Description

The section of the Tangarewai Stream identified as being a Significant Amenity Feature (SAF) extends almost 5km from its western end in the lower foothills of the Ruahine Range to its eastern end on the flats of the river terraces. It has an area of approximately 190ha, which includes the upper portion which is made up of a number of smaller tributaries. These all originate in the lower foothills and join together southwest of Ashley Clinton before flowing east towards SH50. The tributaries and the river flow through incised channels enclosed by rolling hills in the upper portions and abutting flatter terraces in the lower portions. Each channel is filled with a predominance of regenerating native vegetation and some pasture.

## Natural Science

### Geological/Geomorphological

Several incised river channels cut into the mudstone rolling foothills of the Ruahine Range the carved into the alluvial terraces of the Ruataniwha Plains.

### Hydrological

The Tangarewai Stream sources from the Ruahine Range, with the western most parts of the stream 6km from the eastern edge of the Range. Several smaller tributaries feed into stream that in turn combine to join the Tukipo River, which joins the Tukituki River at Pukeora Reserve just west of Waipukurau.

### Ecological

Each tributary appears to contain remnant and regenerating native vegetation, with species ranging from regenerating manuka through to larger podocarp such as totara. Three ASNCV areas are recognised in the District Plan that fall within the Tangarewai Stream SAF.

The southern most ASNCV covers 41ha and includes Monckton Scenic Reserve. This is a significant stand of forest which contains relatively young vegetation but does include black beech up to 80cm diameter, matai, totara and rimu to 75cm, and kahikatea to 90cm at breast height. Also located there is a matai of 45cm and a bole of 12m and 24m tall about 300 years old and a kahikatea with a bole of 24m, height of 33m and 260 years old.

The other two ASNCV are located on the northern tributary which rises near Wilson Cutting Road and Thomsen Road and total 51ha. Vegetation includes regenerating podocarp such as totara but also appears to contain (subject to ecological verification) remnant podocarp specimens.



Figure 120: Tangarewai Stream SAF (PNAP Areas indicated in Purple)

Perhaps because of difficulty in access due to their location within incised river channels, or perhaps through deliberate preservation such as Monckton Scenic Reserve and nearby A'Deanes Scenic Reserve, these areas are now the small examples of the native forest that once covered the whole flats in this area. This is a reason for their recognition because they contribute to the naturalness component of an outstanding natural landscape assessment.

Illustrating the possible deliberateness of the remaining forests existence, Miles & Sons timber mill was located on the corner of Ashley Clinton/Wilson Cutting Rd. This old mill site now only has two old wooden sheds to show its past presence, but was once a local feature established by George Miles in the 1920's and operated by him, his sons and others till after WWII.



Figure 121: Photo of Miles & Sons mill at Ashley Clinton





Tangarewai River  
1:45,000

Figure 122: Tangarewai Stream Significant Amenity Feature.





Figure 123: One of the two sheds that remain from the original Miles and Sons Mill at Ashley Clinton.

The stream flows through surrounding land use of open pasture, making the area of SAF the only sizable and connected length of native vegetation within this catchment downstream of the Ruahine Range boundary.

## Perceptual Memorability

The Tangarewai Stream and tributaries of the SAF are memorable for their combination of incised channel form emphasised by remnant and regenerating native vegetation. The stream channel and the tributaries are made more apparent by their contrast in terms of colour, vegetation and form with the adjacent rolling pastoral land. They invoke memories of what the land cover once was across the wider area.

## Legibility/Expressiveness

An expressive meandering pattern resulting from the stream's erosive action through the alluvial runoff from the Ruahine Range. Clear evidence of the erosion process of the river eating into the surface material and forming depressions and incised meandering patterns.

## Transient

The river valley has its own microclimates, with the sheltered valley characterised by heat in the summer, cold in the winter, and high waters during heavy rain periods throughout the year. Home for birdlife and song and the sound of flowing water are all characteristics of these sections of the river.

## Aesthetic

Indigenous vegetation through the valley system has a high degree of coherence and reinforces its vividness both as a feature and in harmony with the natural meanders of the river. The river follows an incised valley that contrasts with the intactness of the terraces it crosses, being clearly expressive of the softness of their underlying alluvial geology. These combine to give the valleys high aesthetic value.

## Naturalness

A high degree of perceived naturalness in the incised river valleys where the greatest presence of native vegetation prevails. The density and extent of indigenous vegetation that clothes the incised river valleys influences its assessment as a Significant Amenity Feature, reduced from a outstanding rating by the apparent results of pastoral activity in the channels.

## Associational Shared/Recognised

Streams and their spiritual and ecological health are valued by Māori for their Mauri. The value of the clean flowing river waters are recognised, with its attributes reflecting environmental well being. Valued for their clean water and the associated values this brings. These streams feed the aquifers, which flow under the Ruataniwha Plains, so have long terms values associated with that.

Public recognition of the values associated with this area are gained through its ASNCV status and also the presence of the Monckton Scenic Reserve with trees several hundred years old.

## Historical

Mapping of old forests by PJ Grant indicate that the proposed SAF would have been covered by the extensive podocarp forest that grew across the Ruataniwha terraces. This would suggest the possibility that trees within the stream valley may be several hundred years old if they survived milling and burning since the Matawhero Period.

A timber mill was located nearby on the corner of Ashley Clinton/Wilson Cutting Road and another was on Mill Road. Either one may have taken logs from the Tangarewai Stream area but the stream's steep sided terrain may have allowed some specimens to survive, or perhaps such survival was a deliberate recognition of the need to preserve some examples of what existed as common place over 100 years ago.



Figure 124: Miles and Sons Mill site at Ashley Clinton.

## Tangata Whenua

The river systems have great significance to iwi, particularly the rivers themselves for the mauri they bring. See ONF Introduction for details on the Deed of Settlement, associated responsibilities and cultural significance.

## Key Characteristics

The distinguishing characteristics of the Tangarewai Stream that cause it to form the SAF are the density of native vegetation, which includes (perhaps deliberately) original trees that survived the milling, burning and clearance over the last hundred plus years, plus its containment within a defined landscape setting.

The presence of such dense native vegetation contributes to fulfilment of the 'ecological' and 'naturalness' factors in the landscape assessment process, while the containment within the incised main valley system and more rolling lower tributaries contributes to the 'expressiveness' and 'coherence' aesthetic factors. Rarity and associational cultural values are also contributing factors.

## Potential Issues

Clearance or degradation of native vegetation throughout any part of the area. Damage to flora and fauna by pests or grazing animal. Establishment or spread of exotic plants within the areas and along stream margins. Earthworks and structures that remove native vegetation or reduce perceived naturalness.

## Potential Response

- Maintain and enhance indigenous vegetation throughout the ONF.
- Limit earthworks
- Restrict establishment or spread of exotic plants
- Limit built development
- The river system has great significance to iwi, particularly the river itself for the mauri it brings. See details in Overview above on the Deed of Settlement for associated responsibilities and cultural significance.

Figure 125: Tangarewai Stream aerial oblique photo



# Mangatewai River

## Identification: Significant Amenity Feature

### Location:

NZ Topo 50 – BL36

### Description

The section of the Mangatewai River identified as being a Significant Amenity Feature (SAF) extends almost 10km from the eastern edge of the Ruahine Range down to SH50. It has an area of approximately 530ha, which includes the upper portion which is made up of a number of smaller tributaries. These all originate in the Ruahine Range and join together just south of Te Wai Station at the end of Crump Road and Boyle Road.

The tributaries and river flow through incised channels enclosed by rolling hills in the upper portions and abutting flatter terraces in the lower portions. Each channel is filled with a mixture of regenerating native vegetation and pasture.

### Natural Science

#### Geological/Geomorphological

A collection of incised river channels, carrying shattered greywacke from the Ruahine Range's sandstone mudstone conglomerate of the Kaweka Terrane. East of the forest park, the tributaries are carved into the fossiliferous mudstone/sandy mudstone conglomerate of the lowland hills abutting the ranges before becoming incised into the extensive gravel alluvial flats of the terraces towards SH50.

### Hydrological

The Mangatewai River flows from the Ruahine Range, with the western most parts southern tributary abutting the Ruahine ONL. Many smaller tributaries feed into larger streams that in turn combine to form the main channel of the Mangatewai River. The River joins the Tupiko River 2km east of SH50, which then goes on to join the Tukituki River at Pukeora near Waipukurau.

### Ecological

Each tributary contains remnant and regenerating native vegetation, with species ranging from regenerating manuka through to beech and large podocarp such as totara.

Two separate areas are recognised in the District Plan as ASNCV for their ecological values. Of the two, the western one of 37ha is also recognised as a Recommended Area for Protection (RAP 38) in the DoC Protected Natural Area Programme (PNAP) survey 1994. This survey notes that:

*'This block of bush is the last significant area of forest left unprotected in the Mangatewai River. Its protection will give a corridor of protected land approximately 6km in length and extending to within 2km of SH50.'*

The PNAP survey notes the presence of *Clematis vitalba* as a potential threat, along with grazing stock as having an effect on regeneration and the presence of a small block of plantation pines nearby.

The second ASNCV (purple) of 32ha is located downstream of the RAP. It extends 1.8km along the river channel, containing a solid stand of podocarps in the lower portion of the mapped area.

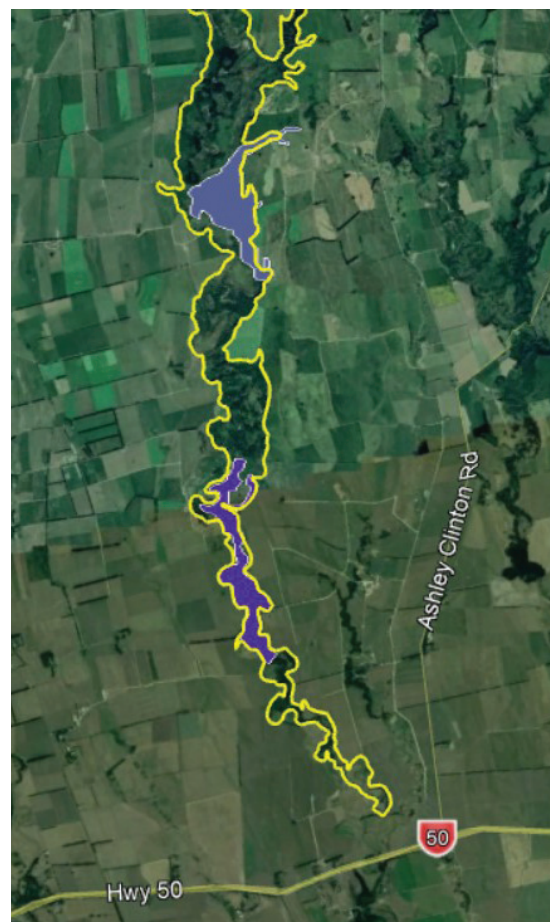


Figure 126: Areas recognised as ASNCV in the District Plan. Upper area also recognised in the DoC PNAP survey as a Recommended Area for Protection (RAP) and will be recognised in the Draft District Plan as a Significant Natural Area (SNA). All these fall within the Significant Amenity Feature recommended as part of the Outstanding Natural Landscape Assessment.

The river flows through surrounding land use of open pasture, making the area of SAF the only sizable and connected length of native vegetation within this catchment downstream of the Ruahine Range boundary.





Mangatewai  
1:120,000

## Perceptual Memorability

The Mangatewai River tributaries of the SAF are memorable for their combination of incised channel form emphasised by remnant and regenerating native vegetation. The river channel and the tributaries are made more apparent by their contrast in terms of colour, vegetation and form with the adjacent rolling and terrace pastoral land. They invoke memories of what the land cover once was across the wider area.

## Legibility/Expressiveness

An expressive meandering pattern resulting from the river's erosive action through the alluvial runoff from the Ruahine Range. Clear evidence of the erosion process of the river eating into the surface material and forming depressions and incised meandering patterns.



Figure 127: Mangatewai River incised meandering pattern across alluvial terraces.

## Transient

The river valley has its own microclimates, with the sheltered valley characterised by heat in the summer, cold in the winter, and high waters during heavy rain periods throughout the year. Home for birdlife and song and the sound of flowing water are all characteristics of these sections of the river.

## Aesthetic

Indigenous vegetation through the valley system has a high degree of coherence and reinforces its vividness both as a feature and in harmony with the natural meanders of the river. The river follows an incised valley that follows the grain through the rolling foothills of the land and contrasts with the intactness of the terraces it crosses, being clearly expressive of the softness of their underlying alluvial geology. These combine to give the valleys high aesthetic value.

## Naturalness

A high degree of perceived naturalness in the incised river valleys where the greatest presence of native vegetation prevails. The density and extent of indigenous vegetation that clothes the incised river valleys influences its assessment as a Significant Amenity Feature, reduced from a outstanding rating by the apparent results of pastoral activity in the channels.

## Associational Shared/Recognised

Streams and their spiritual and ecological health are valued by Māori for their Mauri. The value of the clean flowing river waters are recognised, with its attributes reflecting environmental well being. Valued for their clean water and the associated values this brings. These rivers feed the aquifers, which flow under the Ruataniwha Plains, so have long terms values associated with that.

## Historical

Mapping of old forests by PJ Grant indicate that the proposed SAF would have been covered by the extensive podocarp forest that grew across the Ruataniwha terraces. This would suggest the possibility that trees within the river valley may be old if they survived milling and burning since the Matawhero Period.

A timber mill was located nearby on the corner of Ashley Clinton/Wilson Cutting Road and another further away on Mill Road. The nearer one may have taken logs from the Mangatewai River area but the river's steep sided terrain may have allowed some specimens to survive.

## Tangata Whenua

The river systems have great significance to iwi, particularly the rivers themselves for the mauri they bring. See ONF Introduction for details on the Deed of Settlement, associated responsibilities and cultural significance.

## Key Characteristics

The distinguishing characteristics of the Mangatewai River that cause it to form the SAF are the density of native vegetation, which includes regeneration and may include original trees that survived the burning and clearance over the last hundred plus years, plus its containment within a defined landscape setting.

The presence of such dense native vegetation contributes to fulfilment of the 'ecological' and 'naturalness' factors in the landscape assessment process, while the containment within the incised main valley system and more rolling lower tributaries contributes to the 'expressiveness' and 'coherence' aesthetic factors. Rarity and associational cultural values are also contributing factors.

## Potential Issues

Clearance or degradation of native vegetation throughout any part of the area. Damage to flora and fauna by pests or grazing animal. Establishment or spread of exotic plants within the areas and along stream margins. Earthworks and structures that remove native vegetation or reduce perceived naturalness.



## Potential Response

- Maintain and enhance indigenous vegetation throughout the ONF.
- Limit earthworks
- Restrict establishment or spread of exotic plants
- Limit built development
- The river system has great significance to iwi, particularly the river itself for the mauri it brings. See details in Overview above on the Deed of Settlement for associated responsibilities and cultural significance.



Figure 128: Mangatewai River oblique aerial photo looking west up meandering course distinguished by regenerating native vegetation and incised landform.



# Makāretu River

## Identification: Significant Amenity Feature

### Location:

NZ Topo 50 – BL36

### Description

The section of the Makāretu River identified as being a Significant Amenity Feature (SAF) extends 7.5km from the lower foothills of the Ruahine Range down to the flats of the river terraces. It has an area of approximately 250ha.

Its upper tributaries all originate in the upper hills of the Ruahine Range, with the North Branch starting near Moorcock Saddle and the southern tributaries starting near Apiti Track, a long used access across the Range from Norsewood to Makieke Creek and then on to Apiti in Manawatū District. The river flows through incised channels enclosed by rolling hills in the upper portions and abutting flatter terraces in the lower portions before crossing the flat terraces of the Ruataniwha Plains as it approaches SH50. The channel is filled with a mixture of regenerating native vegetation and pasture.

## Natural Science

### Geological/Geomorphological

The incised river channel cuts into the pumiceous sandstone, sandy mudstone conglomerate of the Kidnappers Group in the rolling foothills of the Ruahine Range before flowing across the alluvial terraces of the Ruataniwha Plains.

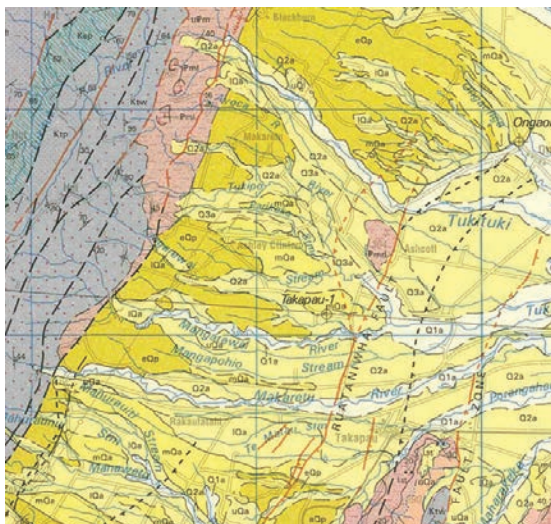


Figure 130: Makāretu River flows through sandstone-mudstone foothills before crossing alluvial terraces of the Ruataniwha Plains.

## Hydrological

The Makāretu River sources from high in the hills of the Ruahine Range. Several smaller tributaries feed into the Makāretu River, which joins the Maharakeke then Tukipo before joining the Tukituki River at Pukeora Reserve just west of Waipukurau.

## Ecological

The river channel contains remnant and regenerating native vegetation, with species ranging from regenerating manuka through to larger podocarp such as totara and rimu. Two ASNCV areas are recognised in the District Plan that fall within the Makāretu River SAF. These are in the mid length of the SAF located between Sylvania and Eastlea. The larger one of 23ha runs along the right bank (southern side) for a distance of 1.7km, while the smaller one of 4.8ha is located on the opposite side just below Paget Road.

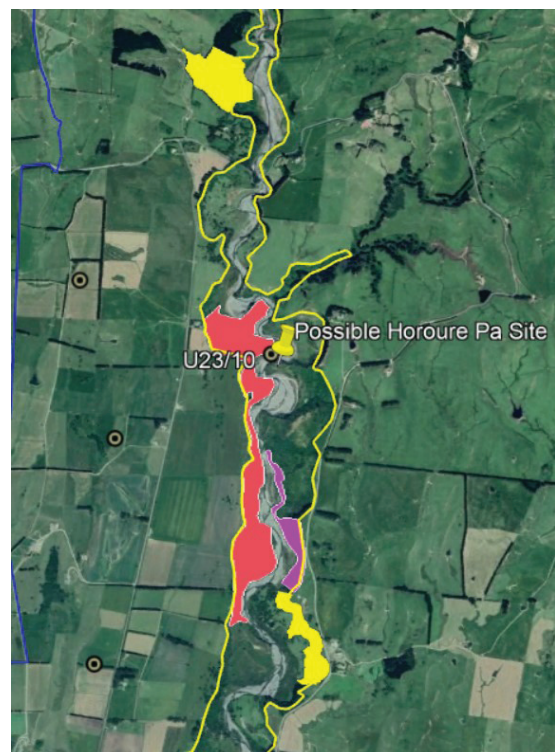


Figure 131: Mid portion of Makāretu River SAF: contains a number of items documented in the District Plan:  
Yellow line: Significant Amenity Feature (SAF) boundary  
Red and pink: two locations for ASNCV (to become SNA)  
Yellow area: two QEII covenant sites, Upstream one also RAP site  
Circles: two pā sites recorded in the District Plan.  
Yellow Peg: Possible site of Horoure Pa

Two QEII covenant areas are also located within the area identified as an SAF. The upstream one is approximately 9ha and is also identified by DoC in the PNAP study as RAP 39. It contains an area of podocarp-broadleaf forest with Rewarewa the dominant species plus kahikatea, rimu, matai and kamahi being common and skirted by black beech.



Makaretu River  
1:70,000



The downstream QEII area is 5.7ha and covers the escarpment adjacent to Paget Rd above the terraces and small oxbow pond on the northern side of the Makāretu River. Another RAP is located across the river and is encompassed by the larger red ASNCV. The RAP report describes the vegetation as similar to the other site, with mixed podocarp-broadleaf forest:

*Figure 129: Together the two RAP sites were chosen as representative of broadleaved forest on alluvia terraces and escarpments, with a diverse mix of species and contains the only significant area of rewarewa forest found during the survey. The small wetland adds considerably to the character of the RAP. (PNAP Survey 1994 RAP 39).*

The Makāretu River flows through surrounding land use of open pasture, making the area of SAF the only sizable and connected length of native vegetation within this catchment downstream of the Ruahine Range boundary.



*Figure 132: Recommended Area for Protection (RAP) site, ASNCV site in District Plan. Only significant area of rewarewa forest found during the RAP survey.*

## Perceptual Memorability

The Makāretu River SAF is memorable for its combination of incised channel form emphasised by remnant and regenerating native vegetation. The river channel and the tributaries are made more apparent by their contrast in terms of colour, vegetation and form with the adjacent rolling and terrace pastoral land. They invoke memories of what the land cover once was across the wider area.

## Legibility/Expressiveness

An expressive meandering pattern resulting from the river's erosive action through the alluvial runoff from the Ruahine Range. Clear evidence of the erosion process of the river eating into the surface material and forming depressions and incised meandering patterns.

## Transient

The river valley has its own microclimates, with the sheltered valley characterised by heat in the summer, cold in the winter, and high waters during heavy rain periods throughout the year. Home for birdlife and song and the sound of flowing water are all characteristics of these sections of the river.

## Aesthetic

Indigenous vegetation through the valley system has a high degree of coherence and reinforces its vividness both as a feature and in harmony with the natural meanders of the river. The river follows an incised valley that follows the grain through the rolling foothills of the land and contrasts with the intactness of the terraces it crosses, being clearly expressive of the softness of their underlying alluvial geology. These combine to give the valleys high aesthetic value.

## Naturalness

A high degree of perceived naturalness in the incised river valleys where the greatest presence of native vegetation prevails. The density and extent of indigenous vegetation that clothes the incised river valleys influences its assessment as a Significant Amenity Feature, reduced from a outstanding rating by the apparent results of pastoral activity in the channels.

## Associational Shared/Recognised

Streams and their spiritual and ecological health are valued by Māori for their Mauri. The value of the clean flowing river waters are recognised, with its attributes reflecting environmental well being. Valued for their clean water and the associated values this brings. These rivers feed the aquifers, which flow under the Ruataniwha Plains, so have long term values associated with that.

## Historical

Mapping of old forests by PJ Grant indicate that the proposed SAF would have been covered by the extensive podocarp forest that grew across the Ruataniwha terraces. This would suggest the possibility that trees within the river valley may be old if they survived milling and burning since the Matawhero Period.

A timber mill was located some distance away on the corner of Ashley Clinton/Wilson Cutting Road and another further away near Takapau. They may have taken logs from the Makāretu River area but the river's steep sided terrain may have allowed some specimens to survive. This may have contributed to the vegetation that has been recognised in the RAP study and ASNCV mapping and set aside in the QEII covenants.

## Tangata Whenua

An old pā site is recorded in the District Plan as U23/10, existing mid way down the SAF area on the south side of the river. The plan describes one of the sites as follows:

*Small pā on defendable spur above river over 40m high above river flat with very steep sides. Only easy access along ridge less than 2m wide on north side. No defences other than about 10m length of 2m scarping along eastern side, near top. Small terrace*

Research by Patrick Parsons, noted historian, suggests that the pā was located on the north side of the Makāretu River, just opposite the District Plan suggested location. He suggests it would be the Horoure Pā site, located on a spur above the river



Figure 133: Possible Horoure Pā site on the Makāretu River

The river systems have great significance to iwi, particularly the rivers themselves for the mauri they bring. See ONF Introduction for details on the Deed of Settlement, associated responsibilities and cultural significance.



Figure 134: Possible Horoure Pā site on the Makāretu River. RAP Podocarp forest site

## Key Characteristics

The distinguishing characteristics of the Makāretu River that cause it to form the SAF are the density of native vegetation, which includes regeneration and may include original trees that survived the burning and clearance over the last hundred plus years, plus its containment within a defined landscape setting.

The presence of such dense native vegetation contributes to fulfilment of the 'ecological' and 'naturalness' factors in the landscape assessment process, while the containment within the incised main valley system and more rolling lower tributaries contributes to the 'expressiveness' and 'coherence' aesthetic factors. Rarity and associational cultural values are also contributing factors.

## Potential Issues

Clearance or degradation of native vegetation throughout any part of the area. Damage to flora and fauna by pests or grazing animal. Establishment or spread of exotic plants within the areas and along stream margins. Earthworks and structures that remove native vegetation or reduce perceived naturalness.

## Potential Response

- Maintain and enhance indigenous vegetation throughout the ONF.
- Discourage drainage of wetlands
- Limit earthworks
- Restrict establishment or spread of exotic plants
- Limit built development
- The river system has great significance to iwi, particularly the river itself for the mauri it brings. See details in Overview above on the Deed of Settlement for associated responsibilities and cultural significance.



Figure 135: Makāretu River aerial photo looking east.



# Te Aute Limestone Crest

## Identification: Significant Amenity Feature

### Location:

NZ Topo 50 – BL37

### Description

A length of tilted limestone ridge with exposed limestone edges (cuesta's) on the eastern edge. The ridge runs for 27km, starting at Pakipaki in Hastings District to the north and finishing west of Otane in CHB. 7km of the ridge lies within CHB district.



Figure 137: Looking north, Raukawa Limestone cuesta extends from west of Otane to Pakipaki (Hastings District)

## Natural Science

### Geological/Geomorphological

There are a series of exposed limestone tilted ridges that run along uplifted limestone plates through the central part of CHB. These are known as cuesta's, with a cuesta being a hill or ridge with a gentle slope (backslope) on one side, and a steep slope (frontslope) on the other.

In terms of geology and geomorphology, cuesta refers specifically to an asymmetric ridge with a long and gentle backslope called a dip slope that conforms with the dip of a resistant stratum or strata, called caprock. The outcrop of the caprock forms a steeper or even cliff-like frontslope (escarpment), cutting through the dipping strata that comprise the cuesta.(Wikipedia).

These tilted landforms and their associated exposed rock ridges are a characteristics of the limestone belt that runs north-south through a band south of CHB district. Recognisable for their distinctive form which is representative of the geological evolution of this part of the district.

Current formations were potentially caused by movement of the active Pokawa Fault Zone to the east. When such tectonic movement occurs in conjunction with the limestone overlay, cracking of the limestone layer and uplift occurs, with tilting of the surface plates and creation of the exposed ridge and eroded edge.

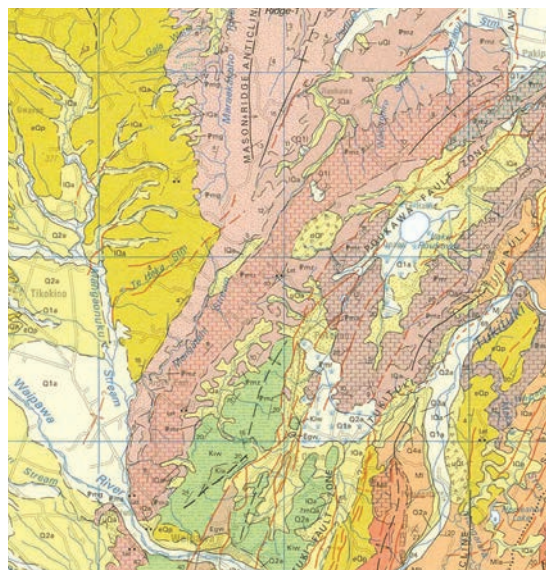


Figure 138: Raukawa limestone band extends from Waipawa River to Pakipaki (Hastings District)

Te Onepu Limestone is yellow-grey, coarse-grained limestone with well-developed cross-beds which forms the limestone ridge line.<sup>1</sup> The limestone ridge forms one of the prominent dip slopes that occur throughout central Hawke's Bay and is often quarried for agricultural use; very occasionally some layers are pure and are used in glass manufacture e.g. Pakipaki.<sup>2</sup>

### Ecological

It appears that the land cover was grass and fern at the time of sale of the Waipukurau Block in 1851. The original forest likely to have been destroyed by winds, floods and then fires over the preceding hundreds of years, although a large area of forest known as Raukawa Bush was located east of Argyll.

Figure 1:1 Institute of Geological and Nuclear Sciences, 1:250,000 Geology Map 8,

Figure 1: 'Hawke's Bay Land District', from An Encyclopaedia of New Zealand, edited by A. H. McLintock, originally published in 1966.



Figure 139: Native vegetation at Highfield on Raukawa Ridge Limestone cuesta.



Figure 140: Raukawa Ridge Limestone cuesta aerial photo looking north

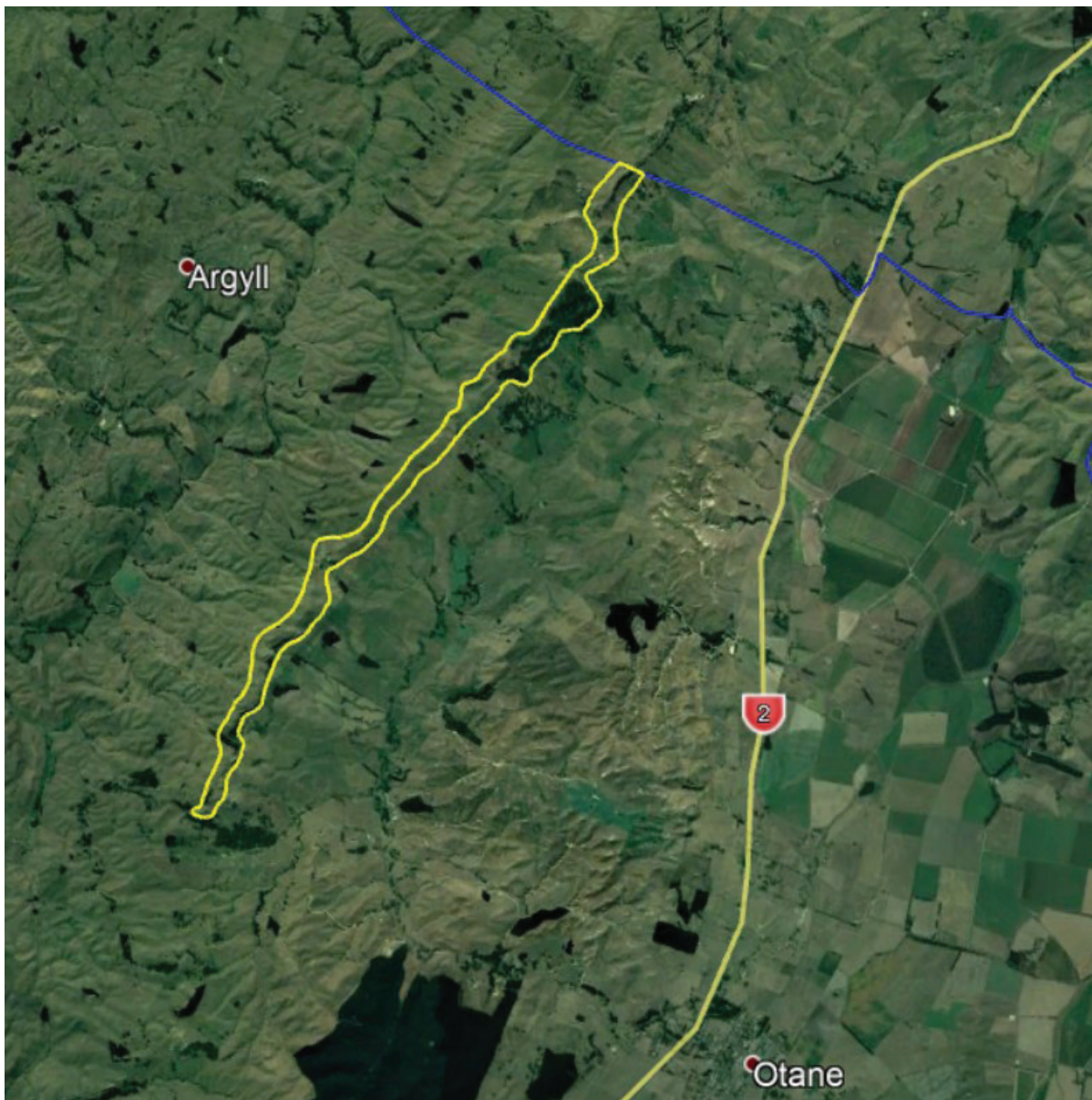


Figure 141: Raukawa Ridge Limestone cuesta.



Remnants of regenerating bush and secondary regrowth are present in the area of Highfield above College Road. This area was identified in the 1994 Protected Natural Area (PNA) programme as a Recommended Area for Protection (RAP) of High Significance, stating the following:

*Figure 136: 'Very little remains of the once extensive forest on the eastern side of the Heretaunga Ecological District and most of what is left is located on and around the Raukawa Range. The RAP is the best of these areas and well represents this forest type on the distinctive landform of the Raukawa Range.'*<sup>13</sup>

3 Heretaunga Ecological District Survey for PNA Programme 1994, Area 30

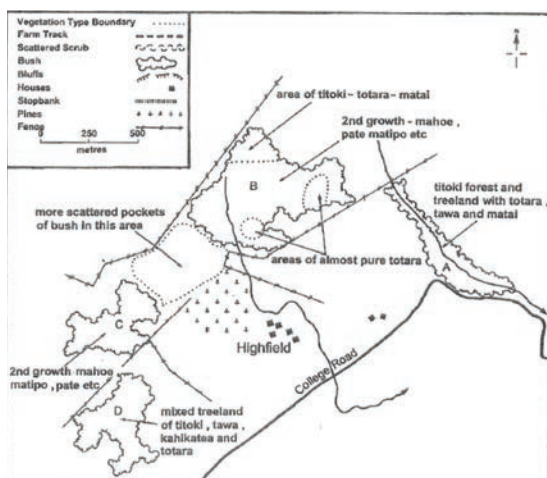


Figure 142: Highfield on Raukawa Range recognised in Protected Natural Area (PNA) programme (1994) as a Recommended Area for Protection (RAP).

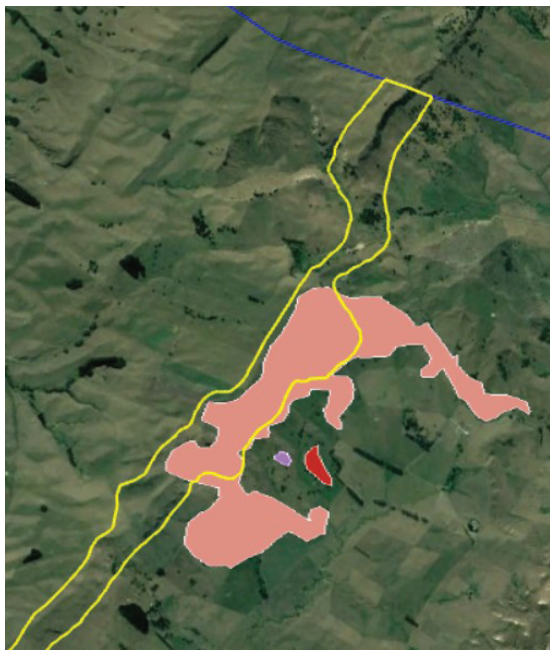


Figure 143: Area of Significant Nature Conservation Values (ASNCV) Site 23 in the Operative District Plan, noting the Limestone landforms and forest.

Threats were noted as domestic stock, goats and possums, some wind damage. Understory was lacking in some areas and there was a mass of nettle in another area. Much of the vegetation was second growth trees with some stands of totara, tawa, matai, mahoe and kahikatea.

This area of bush is also recorded as an Area of Significant Nature Conservation Values (ASNCV) Site 23 in the Operative District Plan, noting the Limestone landforms and forest.

## Hydrological

Hydrological processes have eroded the exposed limestone crust over millennia, but the area is generally dry with several water storage dams in the wider locality.

## Perceptual Memorability

Memorable as a clearly defined geological feature representative of the limestone belt that runs north-south through Central Hawke's Bay.

Limestone outcrops are a distinctive element of the District's landscape, with the outcrops being memorable due to their repetitive linear pattern and distinctive titled cuesta landform.

## Legibility/Expressiveness

Very clearly legible due to their classic cuesta form which is expressive of their geological history and uplifted formative process. Exposed rock from the limestone crust can be clearly seen in the pastoral setting atop the eastern facing front slopes.

## Transient

Light and shade changes highlight the landform through the day, colour variations highlight their form through the seasons.

## Aesthetic

High aesthetic value in terms of landform visibility and natural uplift and erosion processes.

## Naturalness

Natural in terms of uplift and erosion processes resulting in exposed geological features. Natural area of regenerating native vegetation. High perceived naturalness in terms of landform.

## Associational Shared/Recognised

Values recognised by PNA programme and ASNCV in terms of regenerating native vegetation. The ridge continues through to Pakipaki in Hastings District, which also recognises the limestone ridge feature in their district plan. Also Area just north of Argyll Road protected by QEII Covenant.

## Recreational

Located on private land so recreational opportunities are unknown.

## Historical

In laymans terms, the characteristics of the area were recognised when historian J.G.Wilson made the following comment on the geology of the area: (Quoted by Patrick Parsons in his book *Waipukurau. The history of a Country Town* p9)

*'The most conspicuous feature of our landscape is the irregular series of parallel ranges of hills two and in places three in number. These are composed of limestone on a sandstone base and range in elevation from 800 feet above sea level at the Sanitorium to 1800 feet on Mr Wall's. The ranges in most parts have a steep aspect to the east with fairly easy slope on the western side. Examination of the limestone reveals that the mass is composed of triturated shells, relics of untold numbers of shell fish or molluscs which lived and died on the floor of a shallow sea during a vast period of time, which though quite recent in geological terms was yet of millions of years duration. In process of time, slow movements of the earth's crust heaved up the once sea level and caused it to crack on parallel lines as it rose. The comparatively narrow width of the limestone ranges from the east to the west seems to indicate that they followed an ancient casot-line on their western edge. The limestone apparently lies upon a bed of sandstone of unknown but probably great depth. The sandstone was probably deposited by rivers having their source in the mountains of a long vanished continent.'*

## Tangata Whenua

The wider area has significance to tangata whenua, with Roto a Tara island Pā at Otane Wetland and numerous pits and terraces recorded east of that area. Any particular association with the limestone formations or cuesta's are not known.

## Key Characteristics

High aesthetic values of visibility and legibility of exposed limestone unbuilt landform that is clearly expressive of its geological origins. Visibility is assisted by lack of pine plantations, which have been planted on other limestone ridges in the area. Ecological values of Highfield native vegetation, recognised as high significance in PNA assessment.

## Potential Issues

Clearance or degradation of native vegetation throughout any part of the area. Damage to flora and fauna by pests or grazing animal. Establishment or spread of exotic weeds within the Highfield native vegetation and wider area. Introduction of pine plantations or rogue pines. Large scale earthworks .

## Potential Response

- Maintain and enhance indigenous vegetation at Highfield and other areas
- Restrict establishment pine plantations or spread of rogue pines
- Discourage grazing, particularly by cattle or large animals at Highfield
- Limit earthworks
- Discourage development which would destroy cultural features/values and Restrict development which could compromise cultural features/values.



Figure 144: Aerial photo of wetland enhancement protected by QEII Covenant



# Lake Whatuma

## Identification:

### Significant Amenity Feature

## Location:

NZ Topo 50 – BL37, BL38

## Description

Shallow lake south of Waipukurau township.

## Natural Science

### Geological/Geomorphological

Lake Whatuma was formed on alluvial gravels and sands on the bed of the original Lake Ruataniwha, which extended across the Ruataniwha Plains. Uplifted over millennia, Lake Ruataniwha was formed by an inland sea that became isolated inland of the coastal uplift known as the Eastern Highlands. Limestone deposits were laid down and form a characteristic part of the local landscape, such as Tourere Range to the west.

### Ecological

Originally surrounded by tall forest and home to large variety of bird life, highly valued for its food source to Māori from within the water and the surrounding bush. Now much depleted but has potential to undergo restoration.

Endemic fungus, known as white basket fungus (*Ileodictyon cibarium*) sourced from the area and used as a local delicacy by Māori.

Listed as an ASNCV in the operative District Plan and identified as an Recommended Area of Protection (RAP) in the DoC Heretaunga Ecological District Survey Report for the Protected Natural Areas Programme (PNAP) (May 1994, RAP 41). At that time it was noted as having high significance and being one of the Heretaunga Ecological District's outstanding wetlands, stating that Lake Whatuma supports high waterfowl and wader populations and is home to several threatened species.

Ecological health has declined since that time.

### Hydrological

Shallow lake that sometimes dries out in drought but reappears once the rains return. Water flows into the lake from the Ngahape Stream, which is supplemented by various springs along its course. Included in its watershed is the eastern face of the Tourere Range. Lake Whatuma is drained to the south through floodgates under Pōrangahau Road at Kiorerau Stream to a basin that once held a second lake, being Lake Ongatoro. Later to become

the Ongatoro Swamp after draining of that lake, and now farmland except in heavy rain when the lake briefly reappears. Water from that area, and from Kiorerau Stream, joins into Mangaohara Stream then Mangatarata Stream before joining the Tukituki River 3km upstream of Tamumu Bridge.

Lake Whatuma can also drain to the north under SH2 near the airport entry drive and into the Tukituki River

## Perceptual Memorability

Memorable as a picturesque water body with long historic associations. Attractive setting as seen from the surrounding ridgelines and water edge. Memorable for its location so close to the town centre, which is possibly the reason the town was established there in the first place.

## Legibility/Expressiveness

Clearly expressive of overland flow and historic drainage patterns. When considered in the knowledge of the original Lake Ruataniwha, its location can be recognised as derived from uplift of the seabed and laying down of limestone material that now forms the base rock of the local area.

## Transient

Home of birds, particularly ducks, and subject to mists and changing light and reflections.

## Aesthetic

High aesthetic appeal due to its extent, viewing points and backdrop of unbuilt limestone cuesta to the western skyline. Enclosing vegetation on the west gives a backdrop to the water from urban viewpoints on Pōrangahau Road, and expansive unbuilt farmland gives a perceived rural character which enhances amenity.

## Naturalness

Moderate perceived naturalness due to its expanse and presence in an otherwise dry setting, however ecological naturalness is low due to poor water quality and exotic vegetation. Ecological naturalness would be enhanced with improved water quality and native riparian planting.

## Associational Shared/Recognised

Valued today as a scenic feature for housing along the Pōrangahau Road ridgeline. Clearly of high value to Māori over past times. Recognised as of particular value to Māori in the Heretaunga Tamatea Deed of Settlement and recently passed Act.





## Recreational

Understood to have been used for kayaking, boating, swimming and fishing, but reduced water quality has lowered the attractiveness of the lake for these activities.

## Historical

Forest extended over the wider area, but was damaged over time by factors such as storms and burning. Floods and wind are considered to have caused significant damage over the last 500 years, although the area surrounding the lake is recorded as having significant forest in the mid 1,800's. It was said that around 900 tangata whenua lived around the lake's edges in 1852. Originally known as Lake Whatuma by Māori.

## Tangata Whenua

Purchase of the Waipukurau Block of 279,000ha was concluded on 4 November 1851 after nearly a year of negotiations led by Government Land Commissioner Donald McLean. The price paid was 4,800 pounds. The deed was signed by 377 natives, plus witnesses. There were 191 hapū, with each receiving 9 pounds. The sale was opposed by missionary William Colenso who had concerns for the welfare of Māori with these transactions and counselled them 'never to part with the whole of their land and when you part with any, be sure to have a good natural boundary between.' (Waipukurau, Patrick Parsons p37).

Hapū of Heretaunga Tamatea protested the loss of Whatumā (later called Lake Whatuma), which many believed had been entirely reserved from the Waipukurau sale because of its importance as a source of food including eels, freshwater mussels and other freshwater fish, several species of birds, and raupō pollen. A number of pā located around the lake housed a significant permanent population, and hapū from an extensive surrounding area travelled to the lake to gather resources on a seasonal basis.

Ownership of the lake remained contested, but the crown sold it in three lots between 1863- 1875 and part was resold by a Pakeha landowner in 1893. Access was negotiated by Ihaia Hutana over a 5 acre fishing reserve on the western shore, which was approved in 1901 but at an annual rental of 5% of the reserve's value. This continued until 1949 when rent ceased to be paid due to the death of Ihaia Hutana's son and because the site was no longer useful for fishing.

Whatuma was a significant mahinga kai for Tamatea tangata whenua and derives its name from its use as a plentiful source of kai.

It has been suggested that the settlement surrounding Waipukurau arose due to the lake and its abundant resources. It was a major source for eel, with Short Fin Eel still being commercially fished at the time of the RAP report in 1994. Around the lake was forest known as a source of kererū.

The name of the lake is said to be a reference to the lake's first discoverers eating until they were fully satisfied. Records exist of there being competition over the lake's resources. Over time many hapū utilised the lake's resources. Tīpuna identified as having fished the lake included Toroiwaho, Te Aomataura, Rangitotohu, Te Rangitekahutia, Te Kikiri, Parakiore, Te Hauapu, Tapuhara, Te Rangikataepa and Pareihe. Ngāti Mārau has a strong affiliation with Whatuma. Current hapū associated with Whatuma are Ngāi Toroiwaho, Ngāti Mārau and Ngāi Tahu ki Takapau.

The lake and its environs contained eels, fresh water mussels, toitoi, patete, kōkopu, birds and kōareare. while birds were hunted including kakapo, kiwi, weka, pigeons, tui, kokako, kaka, huia, pukeko. Moa were also once present, with large bones being found in the area. During the eeling season it was a tradition for Māori families to spend a considerable time at the lake, which would alternate as a food source with fishing season on the coast.

Up until the 1940s the hapū located at Tapairu, Whatarākai, Mataweka and Takapau undertook regular food-gathering excursions to Whatuma, particularly for tuna, kōkopu, kākahi and native birds. Continuing drainage and the impact of surrounding land use changes meant that by the 1950s, the lake had degraded as a food source.

The Heretaunga Tamatea Deed of Settlement was signed on 26 September 2015. In that document it records the following in the background (2.2) to the deed.

Before the arrival of Europeans, a system of wetlands, swamps, and lakes extended from the Heretaunga plains through the Pekapeka wetlands and the Nga Puna-a-Tara to the Whatuma lake system in the south. This, together with the area's coastal fisheries and extensive bush, provided extremely rich sources of food, as well as medicine and materials for the region's peoples. The names of the rivers, streams, natural features, fauna and flora of Heretaunga Tamatea illustrate the long association between the land and the people it sustained.

It states that a number of pā located around the lake housed a significant permanent population, and hapū from an extensive surrounding area travelled to the lake to gather resources on a seasonal basis.

One such pā was Moana Irokia Pā, west of the existing Woburn Homestead, while three other pā were located in close proximity: Kaimanawa Pā near the bottom of Pukeora Scenic Road, Toto o Puna Pā near Lindsay Road/Scenic Road intersection, and Pukekaihou Pā in Waipukurau on the hill at Hunter Memorial Park.

The Deed of Settlement acknowledges that the hapū of Heretaunga Tamatea define themselves through these waterways (including Whatuma). These waterways, which they consider taonga, lie at the heart of the spiritual and physical wellbeing and the identity and culture of Heretaunga Tamatea. The hapū of Heretaunga Tamatea have responsibilities to protect these waterways.

As part of the redress, the fee simple estate in Lake Whatuma property was vested in the governance entity as the administering body as a recreation reserve.

## Key Characteristics

Whatuma has strong historic cultural associations for Māori and with the original establishment of the town. Its physical qualities have been greatly diminished over time and would benefit from enhanced water quality, fish life and increased endemic riparian vegetation. High cultural values exemplified by the presence of *Ileodictyon cibarium*. It has high aesthetic values which are contributed to by the unbuilt nature of periphery and openness of the western backdrop.

## Potential Issues

Further degradation of aquatic life, water quality, quantity, willows and exotic vegetation, additional drainage and loss of any native riparian vegetation. Enclosure by subdivision or building development which could privatise views or access. Further subdivision and pine plantations that will disrupt the openness of the basin. Opportunities for enhancement of water quality, quantity, fresh water aquatic life, ecology, recreation, surrounding native vegetation and overall amenity may be possible as community initiatives.

## Potential Response

- Maintain and enhance water quality, quantity, aquatic life and indigenous vegetation throughout the SAF
- Discourage drainage
- Discourage establishment or spread of exotic plants
- Limit built development on immediate surrounds
- The lake has great significance to iwi, particularly for the mauri it brings. See details on the Deed of Settlement for associated responsibilities and cultural significance.



Figure 145: Aerial oblique photo looking north of Lake Whatuma, Waipukurau township beyond.



# Porangahau Inland Dunes (Sand Plain)

## Identification:

### Significant Amenity Feature

## Location:

NZ Topo 50 – BM 39 & BM 38

## Description

Dune system (Sand Plain) located behind the Pōrangahau foredune.

## Natural Science

### Geological/Geomorphological

The Pōrangahau inland dunes are recognised by the NZ Geopreservation Inventory as nationally significant. It is a rare dune system and exists on one of only a few infilled coastal embayment's (well-sorted aeolian deposits) between Hawke's Bay and Cape Palliser<sup>1</sup>. This area consists of active dunes, consolidated dune ridges, flats and hollows, and a variety of wetlands.

The orientation of this parabolic dunefield at Pōrangahau is unique in the New Zealand context, as it is the only example which is moving towards the ocean. There is a series of small sand hills located approximately 1km inland of the estuary which are the source of these parabolic dunes<sup>2</sup>, with the migrating dune pattern clearly evident in the aerial imagery taken in 1976.

There has been a significant amount of modification to this dunefield including vegetation clearance, construction of drainage channels, pine plantations (which have stabilised parts of the dunefield), grazing, earthworks and even the recent installation of a centre pivot.

1 <http://www.geomarine.org.nz/NZGI/>

2 The Location and Orientation of Coastal Parabolic Sand Dunes in New Zealand, 1989, Christine A. Muckersie. Pg 59.

## Ecological

The rear dune area has historically been cleared of native landcover, including burning and grazing, progressively being converted for productive use (forestry and pasture), with flattening of the dune system evident in the aerial photography of the area. This extensive modification is a key reason for recognition as a SAF (rather than an ONF). The majority of this identified area is located within a DoC Recommended Area for Protection (RAP 22 – Eastern Hawke's Bay Ecological District).

The Pōrangahau sand plain is ecologically important because it supports a population of matagouri (*Discaria toumatou* - Threatened species), which is only present in a few locations in the North Island (but not threatened naturally)<sup>3</sup>. The smaller dune field south of the Pōrangahau River is the only known location of *Austrofestuca littoralis*, a rare coastal tussock, in Hawke's Bay<sup>4</sup>.

The dune ridges, hollows and wetland areas collectively hold a diverse range of native plant communities. Some of the other identified species include; *Oleria solandri*, *Ozothamnus leptophyllus*, *Coprosma acerosa*, *Pimelia spp*, *Myoporum laetum*, *Cordyline australis*, *Juncus spp*, *Ficinia nodosa*, *Cyperus ustulatus* and *Typha orientalis*.

In conjunction with the adjacent Estuary/Foredune and Parimahu ONF's, this area provides an important habitat for; shore and wading birds (who breed here or pass through it seasonally), a characteristic range of sandy shore invertebrates and also lizards (skink and gecko)<sup>5</sup>.

3 Hawke's Bay Conservancy CMS 1994-2004. Pg 62 and 76.

4 Summary of recreation, landscape and ecology values associated with water bodies in Hawke's Bay – Hawke's Bay Regional Council 2018.

5 Recommended Areas for Protection 22 – Eastern Hawke's Bay



Figure 146: Historic Aerial of Pōrangahau Dunefield



Porangahau Inland Dunes  
1:80,000



## Hydrological

The sand plain appears to have undergone a lot of modifications, however there are still some remaining natural hydrological patterns which drain into the adjacent estuary.

## Perceptual Memorability

The parabolic dune system is highly memorable where it remains intact, however much of the Inland Dune system has been modified for productive purposes. Dynamic patterns have emerged through the erosion process, which contributes to the memorability of this area.

## Legibility/Expressiveness

Dune patterns clearly legible where they remain at Pōrangahau.

## Transient

The transient influences along the coast include onshore/offshore winds, sea spray and coastal birds.

## Aesthetic

The extensive linear nature of this feature demonstrates a large scale active coastal edge with dynamic erosion processes clearly visible, particularly when viewed from the beach. The active coastal edge is a prominent illustration of the power of the sea and of nature, with a beach of up to 300m separating the coast from the estuary. The dune and estuary features at Pōrangahau can both be appreciated.

## Naturalness

There is a high degree of perceived naturalness in terms of the coastal processes of this dynamic landform. There is a lower degree of natural processes at the Pōrangahau Inland Dunes than the adjacent Pōrangahau Foredune and Estuary because of the modifications to coastal features such as wetlands and long dunes that are normally associated with parabolic dunefields.

## Associational Shared/Recognised

Coastal dune systems are recognised as an important and diminishing resource throughout the country. The inland dunes at Pōrangahau have been diminished by farming activities which has reduced the intact dune system to a narrow strip along the estuary edge.

The wider sand plain was recognised by DoC as a recommended area for protection in the 1990's, but is now unlikely to still have those shared values due to the modifications which have occurred.

The pōrangahau sand plain was also once famous for its cabbage trees<sup>6</sup>.

## Recreational

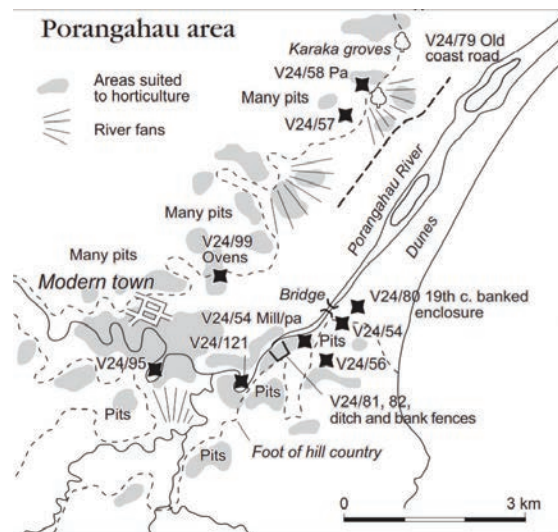
This area of SAF is on private land and is not considered to hold specific recreational values.

## Historical

The beach was a highway for Māori and then also for early European. An inland walking track was however more frequently used between Kairakau (entering the Mangakuri Valley), Aramoana, Pourerere, Blackhead and Parimahu at the northern end of Pōrangahau beach.

## Tangata Whenua

Pōrangahau Inland Dunes (Sand Plain) is highly valued by tangata whenua with at least 11 recorded pā sites located around the periphery of the Pōrangahau inland dunes. While the concentrations of pits at both the southern and northern end of the area lie inland of this ONF overlay, they highlight the extensiveness of settlement in the area.

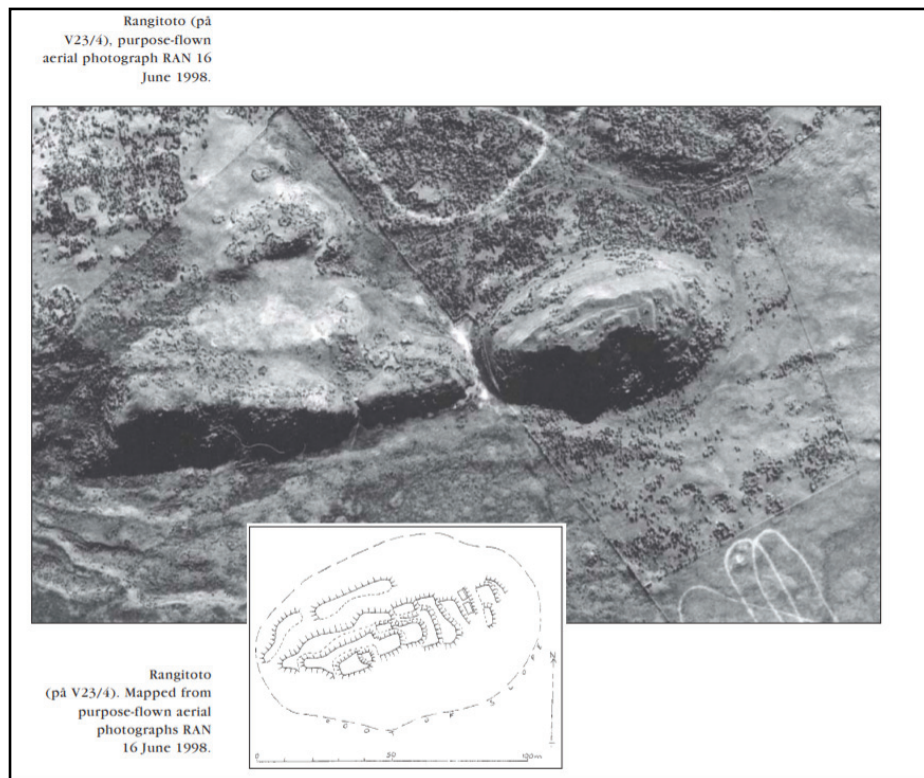


**Figure 147: Archaeological Map of the Pōrangahau Area**  
Archaeological Survey of the Southern Hawke's Bay Coast from the air,  
Department of Conservation- Science for Conservation 202

This area is part of the transpeninsular route stretching from Cape Kidnappers to Cape Turnagain which is plentiful in Māori archaeological sites, spanning centuries of occupation. The coast has always been significant as a traditional food gathering area, as a source of cultural materials and as a place of cultural significance (historical and legendary).

Rangitoto Pā is located on a small hill approximately 110m long, which is a remnant of the former coastline, positioned 900m inland from today's coastline.

<sup>6</sup> Recommended Areas for Protection 22 – Eastern Hawke's Bay Ecological District. Pg 80



**Figure 148: Rangitoto Pa**

Archaeological Survey of the Southern Hawke's Bay Coast from the air, Department of Conservation - Science for Conservation 202

This area is a focal point of a series of māori archaeological sites collectively referred to as Parimahu. It is possible that this is the pā that Te Angiangi resided in when in the Parimahu area<sup>7</sup>. The 1998 survey photographs clearly identified a number of terraces and pits across the site. A large stone is positioned 10m north of the hill, which is either a grinding stone (hoanga) or a ceremonial stone (tuahu). However, over time the prominence of the terraces and pits appears to be reducing<sup>8</sup>.

This area is close to the pā Sites recorded as V24/57 and V24/58 which sit either side of a stream valley approximately 5km north-east of Pōrangahau Township, on the last row of foothills before the sand plain.

## Key Characteristics

The high landscape values of this location relate to the geomorphology which is exhibited through both remnant and active coastal processes. This is a highly expressive dune system. The uniqueness of the seaward parabolic dune movement and rich cultural components (particularly Rangitoto Pa) elevated the value of this area, however the extent of modifications reduce the status down to SAF from a potential ONF. The SAF is focused on the northern end of the Sand Plain, as this appears to have undergone less landform modification.

<sup>7</sup> Central Hawke's Bay District Council - Aramoana Beach, Historical and Archaeological Report (2001). Patrick Parsons.

<sup>8</sup> Archaeological Survey of the southern Hawke's Bay coast from the air. Science for Conservation 202. Kevin L. Jones and Vanessa Tanner. Pg

## Potential Issues

Ongoing farming activities remain the primary threat to areas of indigenous vegetation, with earthworks (drainage), clearance, grazing and production forestry all contributing to disturbance. Matagouri is being threatened by stock grazing and could be lost if grazing was intensified.

Exotic plants such as marram grass, pampas and wilding pines may displace other native sand binding plants (e.g. pingao and spinifex), while mammals (e.g. rodents, mustelids, cats, dogs and hedgehogs) are an ongoing threat to native fauna (e.g. birds and lizards) and terrestrial invertebrates. There is an opportunity here for ecological restoration.

Specific sites of cultural significance should not be further compromised.

## Potential Response

- Maintain and enhance indigenous vegetation throughout the ONF.
- Restrict establishment or spread of exotic plants
- Discourage drainage of wetlands
- Limit earthworks
- Limit built development
- Discourage development which would destroy cultural features/values and Restrict development which could compromise cultural features/values.





**PART D**  
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## Existing Information

Existing information that was drawn on for the preparation of the landscape assessment included the following:

- District Plan Boundary and cadastral information from Quickmap
- Topographic and NZTopo50 mapping from Quickmap and LINZ
- Aerial photography from Quickmap, CHBDC & Google Maps
- Conservation significance information from DoC websites, CHBDC database, QEII sites, PNA studies.
- DoC Actively Managed Historic Places
- Operative CHB District Plan
- Case law including;
  - *Pigeon Bay Aquaculture Ltd and others v Canterbury Regional Council* [1999] C32/99,
  - *Wakatipu Environmental Society v Queenstown Lakes District Council* [2001] C075/2001
  - *Long Bay Okura Great Park Society Inc v North Shore City Council* [2008] NZEnvC 078
  - *Upper Clutha Tracks Trust v Queenstown Lakes District Council* [2010] NZEnvC 432
- Oblique aerial photographs taken on two flights over the District on 8 May 2018 and 1 June 2018
- GIS layers supplied by CHBDC





