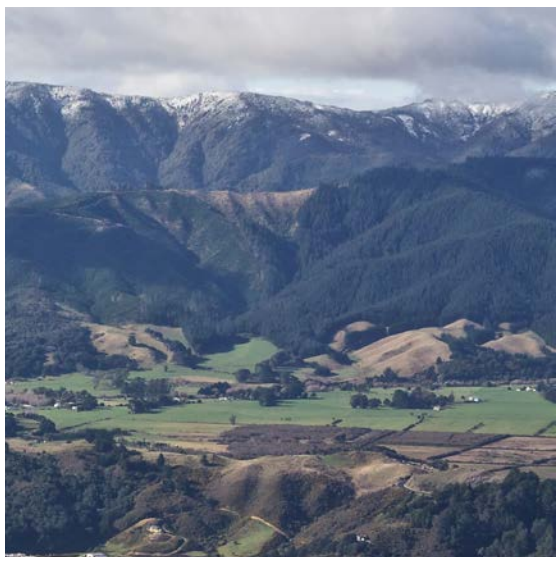

HUTT
LANDSCAPE STUDY
2012

Landscape Character Description

APRIL 2012

Boffa Miskell

ACKNOWLEDGEMENTS

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Greater Wellington Regional Council

Hutt Valley Tramping Club

Upper Hutt Rural Residents Association

Upper Hutt City Council

APRIL 2012

HUTT

LANDSCAPE STUDY 2012

Landscape Character Description

APRIL 2012

Boffa Miskell

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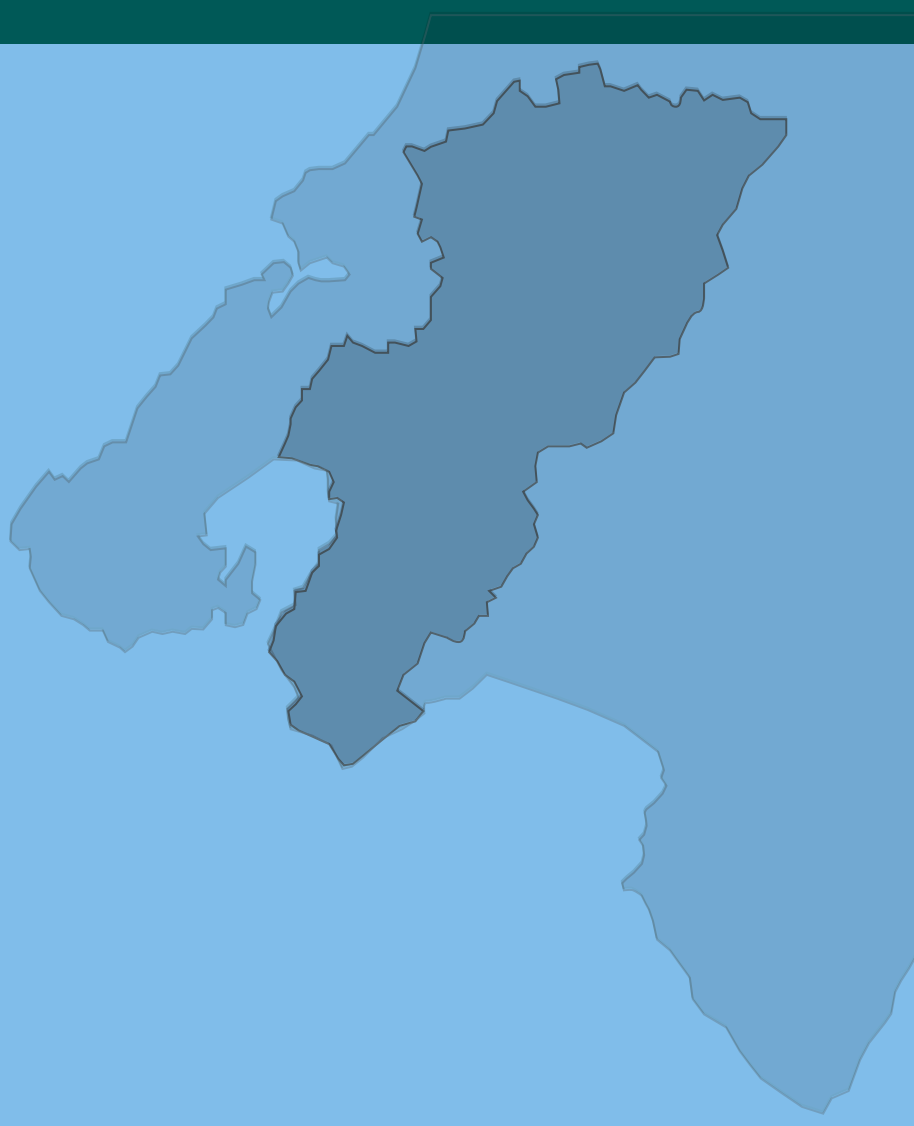
SECTION A: BACKGROUND



BACKGROUND AND METHODOLOGY

INTRODUCTION

This *Landscape Character Description* documents stage two of the *Hutt Landscape Study*, a comprehensive landscape assessment of the Lower and Upper Hutt districts.

The flow chart on the next page shows the study's structure; each stage informs the next. The spatial information gathered in Stage One was used for this Stage Two landscape character description. In turn, the character description can be used as the basis for Stage Three to occur at some time in the future.

STUDY AREA

The study area encompasses the combined area of Upper Hutt (UHCC) and Hutt City (HCC) referred to, for the purposes of the study, as the Hutt (refer to map, p11).

The study area includes urban areas in so far as the extent of urban areas are identified as a generic 'urban' character area, but a description of the urban area is beyond the scope of this report.

PURPOSE OF THE HUTT LANDSCAPE STUDY

The *Hutt Landscape Study* has been initiated to assist in the long-term development of planning measures for managing landscape change in the Hutt. All landscapes are dynamic; they continually change as a result of natural processes and changing land uses. However, people and groups can have conflicting views about the nature and rate of change that is acceptable in some landscapes, so regional and local councils seek to enable divergent views to be considered and addressed through planning provisions.

Policies 24 and 26 in the *Proposed Wellington Regional Policy Statement* (Proposed RPS) require that the region's outstanding natural features and landscapes (ONFs and ONLs), and significant amenity landscapes (SALs), be identified in district and regional plans. Neither Upper Hutt nor Hutt City currently identify ONFs, ONLs, or SALs in their respective district plans. However, since identification of these landscapes will be required under the operative RPS, this study will provide a solid basis for the identification these landscapes to be undertaken at some point in the future.

PURPOSE OF THE HUTT LANDSCAPE CHARACTER DESCRIPTION

In the proposed RPS, one of the methods for implementing policies 24 and 26 (mentioned above) is method 49, which requires the Wellington Regional Council, together with city and district councils, to: *"Develop and disseminate a regional landscape character description that describes and categorises the region's landscapes to assist with identifying outstanding natural features and landscapes, and significant amenity landscapes."*

The overall purpose of method 49 is to provide a comprehensive and consistent inventory of the region's landscapes for local authorities to use as the starting point for implementing policies 24 and 26. This *Landscape Character Description* document provides the landscape inventory for the Upper Hutt and Hutt city. As stated earlier, its purpose is to provide the basis for identifying outstanding natural features and landscapes, and significant amenity landscapes, in later evaluation stages.

WHAT IS LANDSCAPE CHARACTER AND CHARACTERISATION?

Landscape character *'is derived from a combination of land form, land cover and land use that makes one area different from another, rather than better or worse.*[1] Put simply, landscape character is that which makes an area unique.

New Zealand has been referred to as a land of '*little landscapes*'[2] . That is, there is considerable variation in New Zealand's landscape over relatively short distances and areas. These 'little landscapes' are distinct from one another and they more often than not occur in regional patterns. Within a region, communities identify with 'their' landscapes and often refer to them as having a particular combination of attributes and features that give them a distinctive 'character' [3].

Understanding landscape character is important because landscape character not only influences how we interact with and feel about the places where we live, work and play – it influences our culture and our imaginations. Conversely, we seek to shape the landscape to meet our needs. It is by paying proper regard to the existing character of our landscapes that informed and responsible decisions can be made regarding their management. We can endeavour, through understanding how places differ, to ensure that future development will be sensitive to location, and will contribute to environmental, social and economic objectives[4].

'Landscape characterisation' is the term used for the process of identifying, mapping and describing character areas. Each character area has a distinguishing combination of biophysical and cultural factors that makes it distinctive from adjacent character areas. Characterisation provides a sound descriptive and analytical basis for the understanding of landscape diversity and change; it also provides a context for the evaluation of 'special landscapes' such as outstanding natural landscapes and significant amenity landscapes. In turn, the recognition of these special landscapes provides the basis and justification for managing them in a particular way.

Scientists and other specialists such as geologists, ecologists and climatologists, categorise the landscape for different purposes relating to their specific disciplines and there is a wealth of information available from their work. Landscape characterisation draws upon that work, aiming to bring it together in a way that is meaningful to non-scientific people and relating it to the way people experience the landscape.

Essentially, landscape character is the interrelationship of three broad factors – landform, land cover and land use. Within these broad factors there are many variables; for instance, land cover can include a myriad of vegetation types and built forms. The way these varied factors combine produces areas of distinctive character. As with most regional and district landscape studies, the *Hutt Landscape Study* classifies the study area into a series of landscape character 'areas', by analysing these factors. It is a pragmatic approach which enables the complexity of often extensive and highly diverse areas of land to be described in a way that communities can readily recognise.

---

1 Landscape planning definitions discussed and agreed to by senior Boffa Miskell Landscape Architects March 2011
2 pp33-41, Our Changing 'Natural' Landscapes, by John Hayward, & Kevin O'Connor. in New Zealand, Where are You?(1981), Wellington, New Zealand Institute of Landscape Architects.
3 Ibid
4Landscape Character Network web site. www.landscapecharacter.org.uk

CURRENT PROJECT

STAGE 1:
WELLINGTON REGIONAL LANDSCAPE ATLAS
COMMISSIONED BY GWRC

GIS database of the region's spatial landscape information

Partial implementation of Method 49. Database completed April 2009 and available for use in Stages 2 & 3

STAGE 2:
HUTT LANDSCAPE CHARACTER DESCRIPTIONS
'THIS DOCUMENT'
COMMISSIONED BY GWRC

GIS analysis

Desktop review aerial photography, research background documents

Field survey

Identification of landscape character areas, mapping and descriptions

Verification of character descriptions by Steering Group and stakeholders

Finalise landscape character descriptions

Implementation of method 49 completed

FUTURE STAGES:
RECOMMENDED ONL/ ONF AND SALS
TO BE UNDERTAKEN BY UHCC AND HCC

Assess, identify and recommend proposed outstanding natural features and landscapes and significant amenity landscapes

Implementation of Policies 24 and 26 completed

FUTURE STAGES

Development of objectives, policies and rules and incorporation into the district plan

DISTRICT BOUNDARIES

HOW WILL THE LANDSCAPE CHARACTER DESCRIPTION BE USED?

The landscape character description will be used as a basis of the evaluation phase of the study (refer to flowchart, p9). The evaluation phase involves the use of value judgements that are required to identify and assess outstanding natural features and landscapes, and significant amenity landscapes.

The landscape character descriptions can also be used in a number of other ways, including:

- Providing a spatial framework for helping to develop district-wide policy in documents such as the District Plan, the Long Term Council Community Plan or Long Term Community Consultation Plan;
- Providing a resource document about the Hutt landscapes to assist landowners/applicants in preparing assessments of environmental effects (AEEs) and resource consent applications;
- Helping to assess development potential (i.e. identifying appropriate areas for managed development / growth on the urban fringes and in rural environments);
- Informing the siting, scale and design of particular types of development, such as rural residential development, wind farms, industrial areas etc;
- Contributing to landscape capacity studies, to identify areas suited to the supply of land for housing, rural activities and forestry use;
- Providing spatial information relevant to ensuring that local policies and practices are consistent with regional and national policy initiatives;
- Providing a base line against which future landscape change and the effect of landscape protection and management measures in the district plan can be monitored;
- Informing work on special areas, such as mapping and the rationale for having special policies for those areas.

LANDSCAPE DESCRIPTION METHODOLOGY

The methodology for carrying out the Hutt Landscape Study is summarised in the flow diagram shown on page 9. The different stages and various steps involved are shown. Stage One, the collation of spatial information within the Wellington Regional Council's geographic information system (GIS) database, was carried out in 2009.

Stage Two, (this landscape character description) has involved the following steps:

- analyse the landscape through review of GIS data, maps, aerial and land-based photographs, and field survey;
- identify character areas and their boundaries;
- map the landscape character areas; and
- describe each character area objectively.

In describing each character area, the aim is to create a mental image of that area through words, maps and photographs – and evoke a sense of what sets that area apart from any other.

The descriptions mention sites or features within landscape character areas that are significant components of the wider landscape, such as a geological formation, a stand of native forest, a stretch of coastline or an historic feature. These sites and features have often been identified by various specialists as having some particular importance. Communities, too, identify with them and seek to recognise them in some way – through naming them, featuring them in art and literature, or assigning them a special status or protection.

It should be noted, however, that the descriptions are not intended to assign value to sites, features or character areas. That will be addressed in future stages which would seek to evaluate landscapes. Nor will any particular courses of action be prescribed at any stage of the study in terms of value or how areas should be managed.

MAPPING LANDSCAPE CHARACTER AREAS

Landscape character areas are mapped to communicate their location and general spatial extent. However, the varied factors discussed above that distinguish one character area from another do not conveniently stop and start at a particular point or boundary. Consequently the mapping lines should be considered as 'zones of transition' rather than precise lines that mark absolute points of change between adjacent character areas.

The boundaries for this character study are mostly based on topographical features such as the tops of escarpments, ridgelines or hills, or waterways. Ridgelines form natural boundaries to visual catchments (as experienced from the valley floors) and, as such, are often logical boundaries for character areas, but that is not to say every ridgeline is a boundary to a character area. Nor is the top or bottom of a ridge or hill always the boundary for a character area; in some locations, such as where the plains adjoin the hills, the toe and lower slopes of the hills have been included in the plains character areas because they are an integral part of those local environments.

As noted earlier, urban areas are considered as part of the character area in which they occur.

Each of the character areas has been assigned a simple name. These are simply labels to distinguish one character area from another; there has been no attempt to assign names that encapsulate the full extent of all localities in each character area. For example, the Gollans Valley character area extends further than just that catchment but the label will assist people to visualise the general geographic location of the character area.

DATA SOURCES

Use of spatial data through geographic information systems (GIS) has been integral to this study. GIS is a powerful tool used for analysing, visualising and mapping spatial and non-spatial digital geographic data. GIS systematically organises graphic data to enable a person reading an electronic map to select or deselect specific information about the area under review.
Data from Greater Wellington Regional Council's *Wellington Region Geodatabase*[5], was the primary source of data for this study. The geodatabase was commissioned specifically for the landscape characterisation description project, prescribed in Method 49 of the Wellington Regional Policy Statement to be undertaken throughout the region.

The maps from the *Wellington Region Geodatabase* used in this study are: Geology, Geopreservation Sites, Soils, Elevation, Slope, Identified 'protected' natural areas, Identified Maori Cultural and Heritage Sites, and topographical features.

The maps presented in this report, based on sources other than *Wellington Region Geodatabase* are:

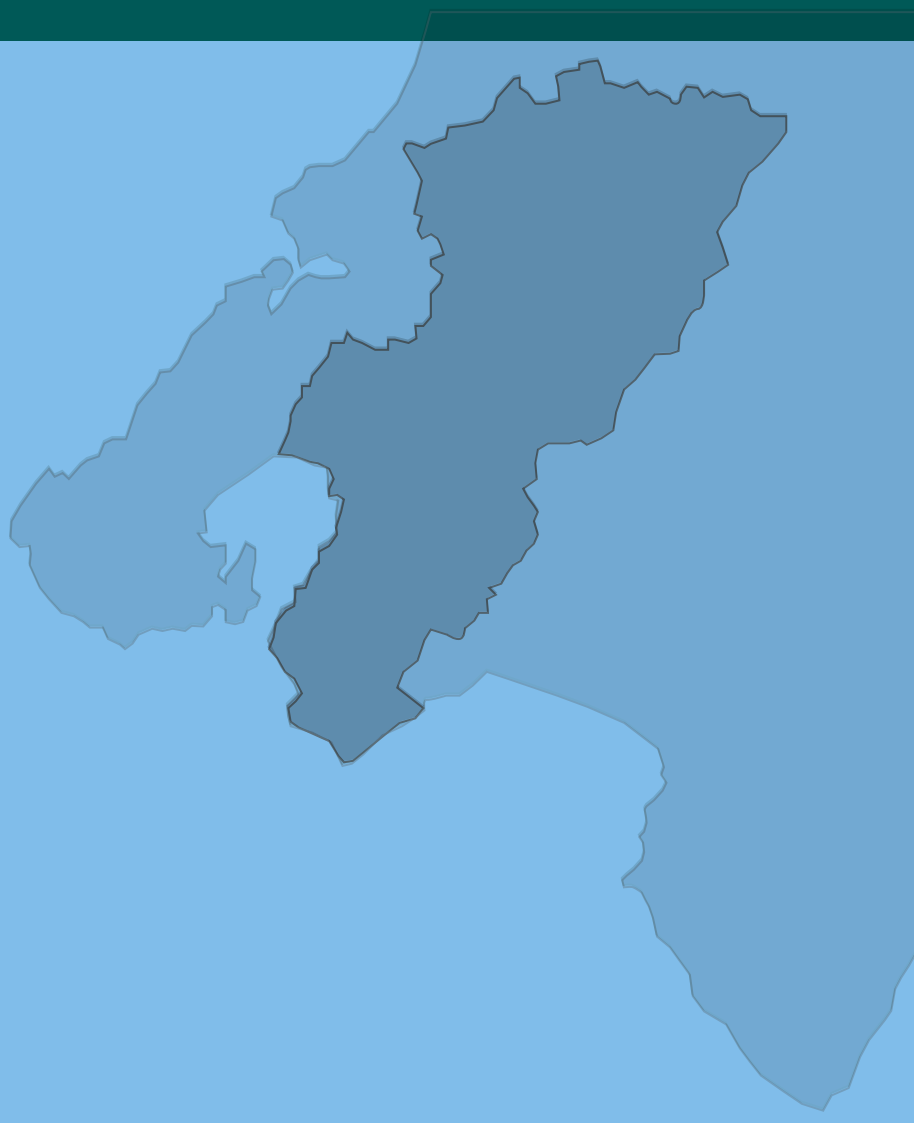
- Zoning - GIS layers provided by Hutt City and Upper Hutt City Councils
- Land Cover - Land Cover Database, version 2 (LCDB 2, 2001) from Terralink;
- Land Types - mapped by Landcare Research and digitised by Boffa Miskell Limited;
- Cultural, Heritage & Archaeology - GIS layers provided by Hutt City and Upper Hutt City Councils from district plan registers;
- Regional Parks - GWRC, DoC;
- Landscape Character Areas - created by Boffa Miskell Limited.

These maps, together with a brief description of each map are included in Appendices 3-10 at the end of this report. Further information and details on each map can be obtained by interrogating the datasets in the *Wellington Region Geodatabase*.

Appendices 1 and 2, contain a brief outline of the Hutt's Maori and European history, and settlement patterns.

5 Wellington Regional Landscape Atlas Prepared by Isthmus Group for Greater Wellington Regional Council, May,2009.

SECTION B: LANDSCAPE CHARACTER DESCRIPTIONS



BROAD LANDSCAPE TYPES

This section begins with a description of each of the four broad landscape types in the Hutt followed by descriptions of each of the 20 landscape character areas. Each landscape character area description includes a map, photographs, narrative and a summary of key landscape characteristics.

The Hutt comprises four broad, readily identifiable landscape types:

- Ranges
- Hill Country
- Valleys/ Basins
- Coast/Harbour

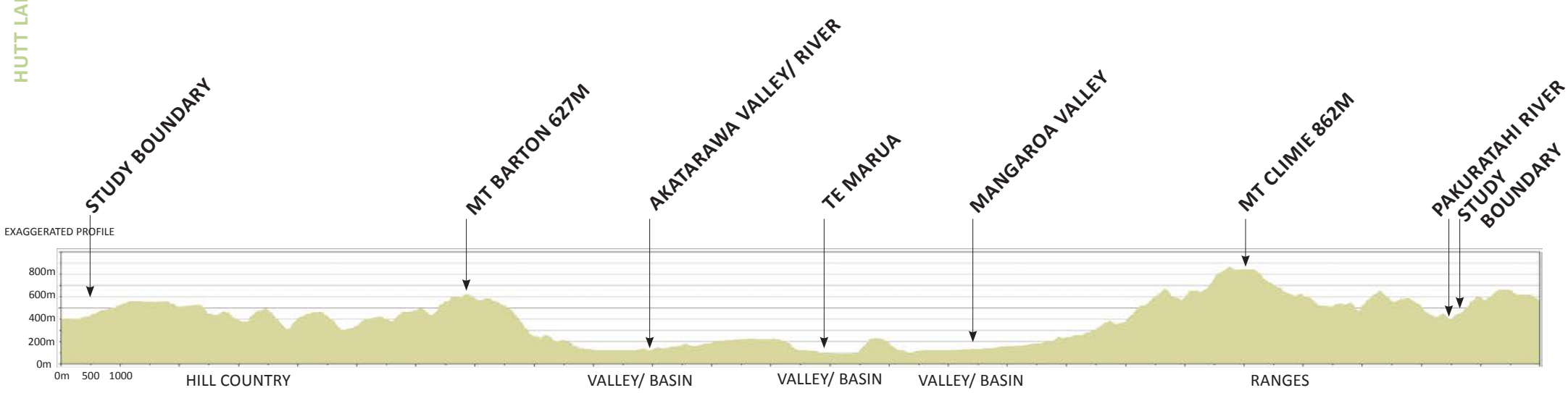
The “Ranges” area is almost entirely in public ownership and management, and comprises the steep, high land which encloses the Hutt to the north and east.

The area described as “Hill Country” occurs on the raised terrace lands which have been elevated by repeated uplifts. These landforms have subsequently eroded and warped by glacial, hydrologic forces and repeated tilting and uplifts to form the dissected moderately steep to rolling topography which characterises the hill country.

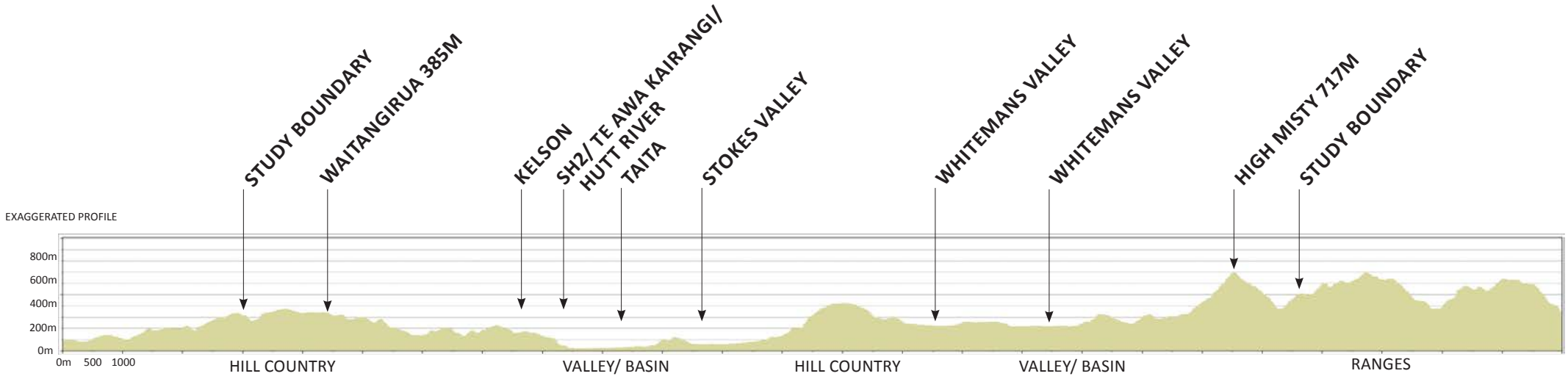
The group described as “Valleys/Basins” includes areas where alluvial deposits have formed relatively flat land. The largest of these being the lower and upper parts of the Hutt Valley. Secondary valleys/basins include: Mangaroa basin, Whitemans Valley, the lower Akatarawa River flats and the upper Wainuiomata Valley.

The “Coast/Harbour” includes approximately 40km of coastline from Korokoro Stream at Petone to Windy Point in Palliser Bay. This landscape type includes the harbour and three Islands; Matiu/Somes Island, Mākaro/ Ward Island and Mokopuna Island.

The cross sections A, B and C show the contrasting topography across the main axis of the Hutt Valley



SECTION A



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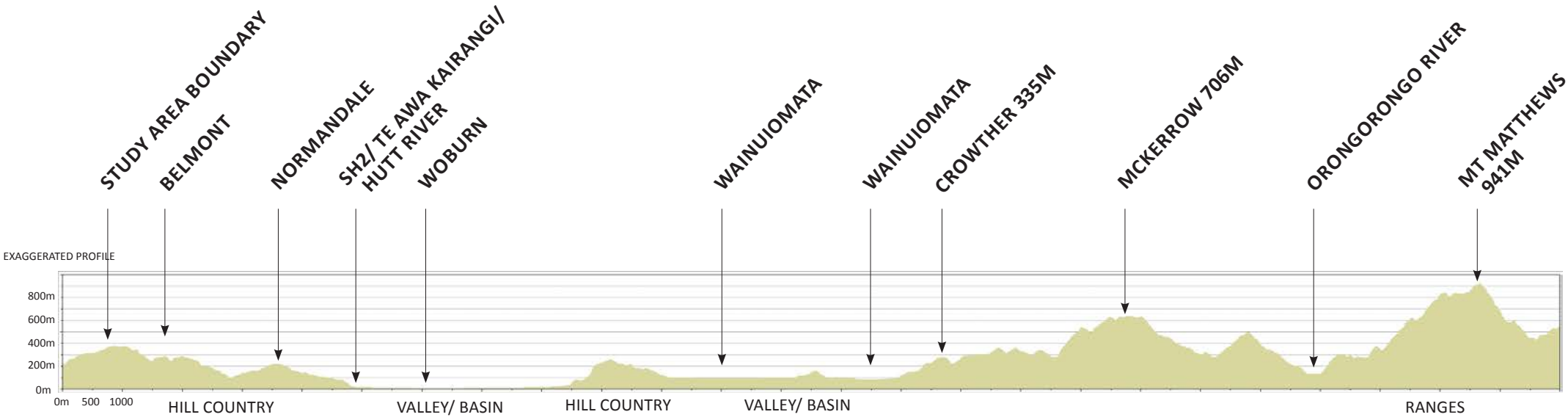
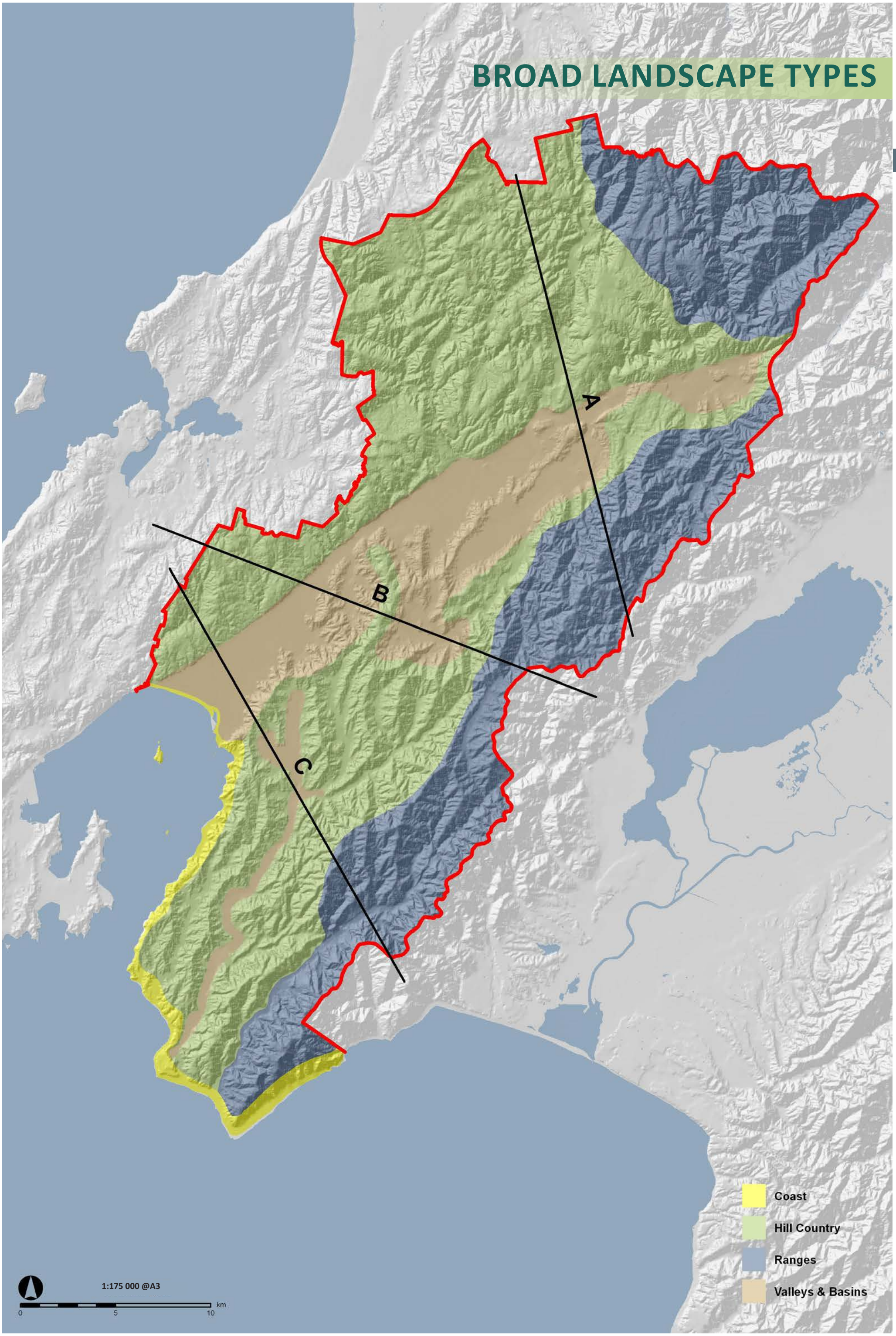


SECTION C

BROAD LANDSCAPE TYPES



RANGES

Approximately 31% of the total land area in the Hutt consists of elevated steeplands or ranges, and the majority of it is publicly owned and/or managed. This area includes parts of the Tararura and Rimutaka Forest Parks, the Hutt Water Collection Areas, Pakuratahi Forest, and four Water Collection Areas.

Tectonic and glacial processes have been pivotal in forming the ranges, whilst climatic conditions have determined the nature of current land uses and the distribution of vegetation.

The topography of the ranges is a result of continual geological uplift and rapid downcutting of stream systems through highly fractured bedrock material. The marked northeast-southwesterly orientation of the valleys and ridges throughout the ranges reflects the texture of the wider lower North Island landscape, resulting from the numerous faults which traverse the area in this direction.

The Tararua and Rimutaka Ranges enclose the northern and eastern sides of the Hutt. These ranges are recent geological features created in the last 2-3 million years by the uplift and faulting of old and brittle greywackes and argillites. Several of the faults are still considered to be active. The most recent significant activity was the 1855 movement of the West Wairarapa fault which tilted the entire Wellington Peninsula, lifting the southern end of the Rimutaka Ranges 6 metres and raising the Hutt Valley 1.8 to 2 metres. This earthquake created extensive slips throughout the Rimutaka Ranges, particularly in the Orongorongo valley and increased the fall of Te Awa Kairangi/Hutt River and its tributaries. Uplift is occurring in the Rimutakas at an average rate of 4m per 1,000 years.

The steepness of the hills being formed by ongoing uplift and the weak nature of the greywacke rock which underlies most of the Wellington region predispose the ranges to high rates of erosion. This is compounded by the climatic extremes experienced throughout the area and the effect of the climate on plant growth and distribution.

The steeplands in the vicinity of the Hutt Water Catchment Area (Tararua Range) are some of the steepest and highest in the Hutt, with peaks of 1000m - 1360m. The Pakuratahi and Wainuiomata/Orongorongo steeplands which adjoin the Rimutaka Ranges are somewhat lower with peaks around 700-900m.

The vulnerability of steepland soils to erosion is described as high to severe, but actual erosion is described as negligible if the vegetation cover is undisturbed. The land use classification for steepland areas predominately falls within classes 6, 7 and 8 which indicates that there are major limitations on their productive use.

Large areas of the steeplands still have original tracts of native vegetation, including some of the least modified forests in the region. In all these forests the key threat has been browsing by deer, goats and possums. The Hutt Water Collection Area includes extensive areas of silver beech and red beech forest which has not been modified, the largest areas of alpine tussocklands in the region, and the only alpine wet turf and subalpine sphagnum bog contained on Greater Wellington land. The Hutt Water Collection Area is one of the few areas in the region containing southern rata, a species endangered in the region by possum browsing.

The Rimutaka Ranges provide a dramatic backdrop to much of the Hutt Valley.

HILL COUNTRY

Hill country makes up the largest proportion of the Hutt study area (50%). The hill country includes the steep to rolling hills; an intermediate topography between the steeper, more elevated ranges and the low lying valleys/basins. The hill country has been typically formed from the remains of uplifted river terraces and old floodplains which have been elevated by 200m or more over the last 500,000 years. These alluvial deposits have subsequently weathered by a combination of ice, wind and water to form the dissected steep to rolling hill country.

Hill country throughout the Hutt is typically elevated around 200-400m asl but there is much variation within this broad landscape type. The most elevated hill country is the Whakatikei Hills which are around 700m on the western margin, although they are generally around 430m in height elsewhere. Although the Whakatikei Hills have some similarities with the 'ranges' they are significantly lower and more accurately described as hill country. There are four main areas of 'hill country' the Belmont/Hayward Hills, the hills surrounding Wainuiomata, coastal hills which form a backdrop to the narrow coastal platform, and the Southern Hills (between Upper Hutt and Mangaroa/Whitemans Valley).

In contrast to the steep and jagged ridges of the hill country north and west of the Hutt Valley, the Belmont Hills to the west are more rounded. The broad and undulating ridgetops of the Belmont Hills are a remnant of an uplifted gravel capped plain (peneplain). The sides of the uplifted block have, over millions of years, been smoothed through erosion into a series of steep gullies and valleys.

The steepness and poor soil quality makes much of the hill country of limited agricultural use. Large areas of the hill country were cleared of native forest for timber and with the intention of the land being farmed in the early 1900s. However, the land was found to be unsuitable for intensively grazed pasture. As a result, large portions have been left to revert to gorse and native shrubland. The lower and more gentle toe slopes that enclose the valleys and basins in close proximity to urban areas, have come under recent development pressure — predominantly for lifestyle blocks, or residential development.

Whilst the hill country has limited agricultural uses, the rock and gravel resource is valuable and there are a number of abandoned and operational quarries along the Wellington Fault escarpment.

Current landcover on the hill country is a diverse mix of exotic and native vegetation. The majority of the hill country supports native forest remnant, regenerating native forest, exotic and native scrub and production forestry. Less than half of all grazed land in the Hutt occurs within the hill country area.

The uplifted flood plains of Riverstone Terraces provide a flat area for recent residential development.

VALLEYS AND BASINS

Valleys and basins includes the flat parts of the Hutt and the low hills/slopes that enclose them. The main valleys and basins are the Hutt Valley with Stokes and Silverstream side valleys, as well as secondary valleys such as Mangaroa, Whitemans, Kaitoke and Wainuiomata. The valleys and basins comprises approximately 17% of the total land area in the Hutt Valley.

The flat fertile soils in these areas have been gradually built up by gravel and sediment deposits distributed by rivers and streams. Valleys such as Wainuiomata and Mangaroa were formed as the entire landscape east of the Wellington fault was tilted downwards toward the west. As the tilting progressed, stream gradients became flattened or actually reversed resulting in the buildup of headwaters and the formation of extensive areas of swamp and peat. Historically vegetation in these swampy depressions would have been primarily kahikatea/black beech/maire swamp forest, peat bogs with manuka and sphagnum. Totara dominated forests on excessively drained gravel terraces. There would also have been an abundance of podocarps, hinau, tawa and beech depending on local drainage and fertility.

Intact wetlands are extremely poorly represented in the Hutt and much reduced from previous times. A wide range of indigenous flora and fauna relies entirely on wetlands and lake margins and this biota is subsequently absent from the Hutt.

The urban areas are located primarily within the central Hutt Valley, and occupy a large proportion of the flat valley floor. Smaller pockets of urban and rural-residential development are also located in the secondary basins and valley floors, such as Stokes, Mangaroa and Wainuiomata Valleys.

Although detailed landcover data for the basins is not available, it generally consists of a mix of exotic and native plantings (local reserves, lawns, playing fields, private gardens, street trees etc) set within an urban framework. There are few sizeable indigenous remnants and no regional forest parks located within the basins. The few exceptions are Grants Bush on the Wallaceville campus and Bartons Bush at Trentham Memorial Park, Upper Hutt. However, on the whole, only a few scattered ecological sites of significance remain, mostly in private ownership.

Te Awa Kairangi/Hutt River has been instrumental in forming the central Hutt Valley and in determining the pattern and distribution of early settlement of the valley. Despite the extent of current urbanisation in the lower sections of Te Awa Kairangi/Hutt River it remains in surprisingly good condition due largely to its extensive forested headwaters. The continued health of this river relies on the wise management of these headwaters. The main threats to Te Awa Kairangi/Hutt River and its wildlife are pollution from industrial waste, sedimentation from land clearance and forestry, and disturbance of migratory fish passage by damming, diversion or channelling.

The fertile soil on the basin floor at Kaitoke was once covered in podocarp forest but is now mainly in pasture.

COAST

The coast (including the islands) comprises approximately 2% of the total land area in the Hutt Valley. It is a distinctive landscape type that occupies the narrow fringe of land along the coastline and comprises uplifted marine terraces, escarpments which rise steeply from the coastal platform, alluvial fans resulting from the deposition of gravel from the rivers that dissect the escarpment, coastal lakes and both rocky and sandy beaches.

The varied geological history of the coast is obvious. During interglacial periods, the sea level was much higher and the marine terraces that formed during these times are evident in places, particularly between the mouths of the Orongorongo and Wainioumata Rivers, and around Baring Head. Seismic activity has also played a significant role in the formation of the coastal environment. The most significant in recent times being the earthquake of 1855 which raised the southern end of the Rimutaka range, including the adjacent beaches, by approximately 6m. However this earthquake was just one of many. Earlier seismic events raised the beaches along the coast on several occasions. These ancient beaches are visible along the raised coastal platform as a slight ridge with a rocky sea bed exposed below them.

Seismic activity has also resulted in the formation of the two coastal lakes (Kohangapiripiri and Kohangatera) that are situated between Baring Head and Pencarrow Head. Once tidal inlets, these lakes have been cut off from the sea by the raising of the coastal platform that resulted from these earthquakes.

Within Wellington Harbour Te Awa Kairangi/Hutt River has played an important role in the formation of the coastline around the Eastern Bays. Sediment from the river, and to a lesser extent the smaller, Korokoro Stream, has been deposited along the eastern coast creating sandy beaches and a 350m wide area of flat land. Within the Wellington Harbour, Petone is the only other significant area of sandy beach. It also formed by the deposition of sediment from Te Awa Kairangi/Hutt River.

The three islands within Wellington Harbour are the remains of a now submerged valley system. The islands have mainly rocky shores. Matiu/Somes Island is the biggest island, encircled by high cliffs primarily covered in salt tolerant indigenous vegetation.

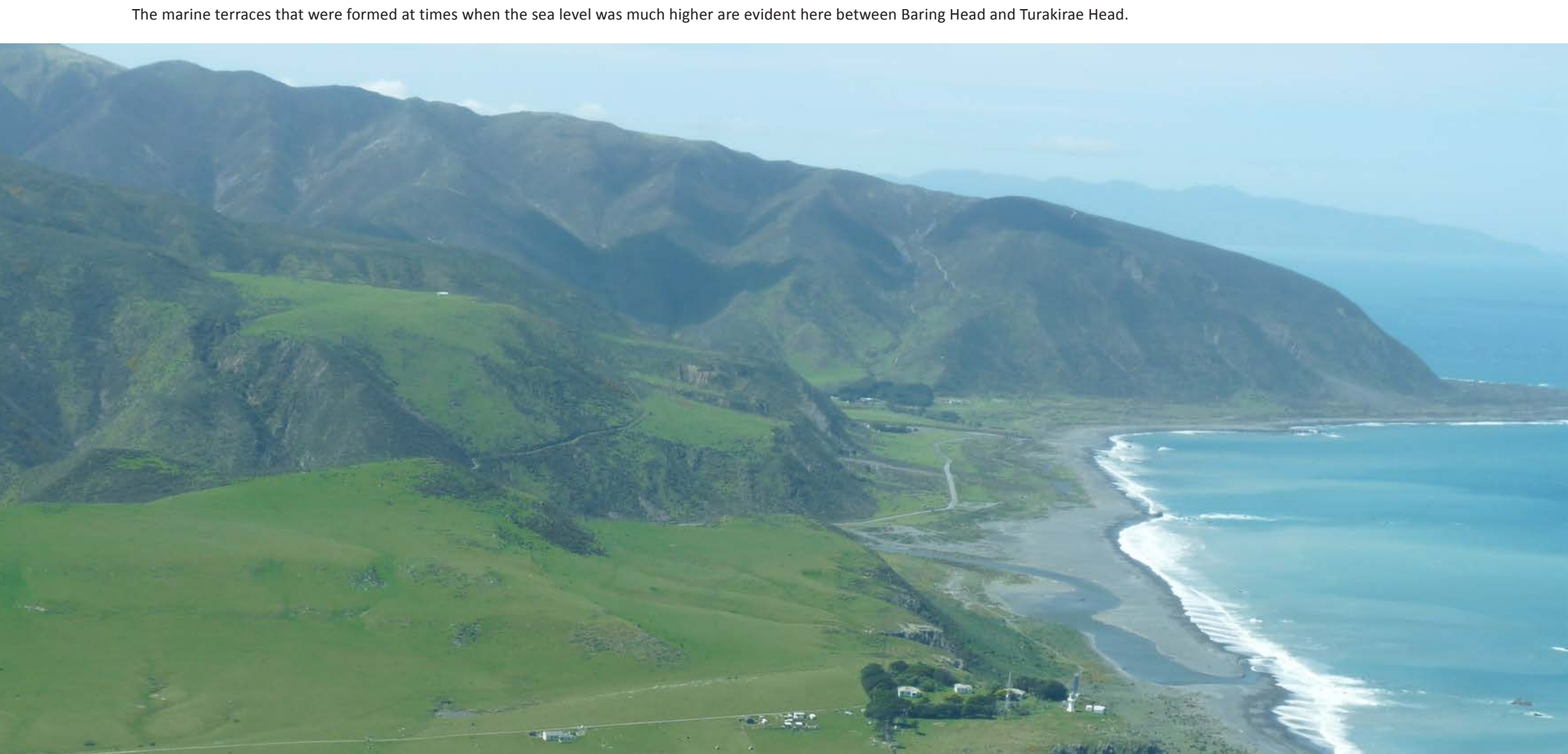
The vegetation patterns around the coast are strongly influenced by the exposure to the strong salt-laden winds and comprises hardy coastal shrubland species. At higher elevations patches of red and silver beech and kamahi occur on the escarpments, although in many areas of the escarpment the large scree and shingle slopes are absent of any significant woody vegetation. Within Wellington Harbour, along the eastern side, the vegetation comprises of coastal shrubland species, with lowland beech species occurring on the hills further north towards Petone.

Along the coast archaeological sites such as middens, pits and pa sites provide evidence of early Maori who used the coast as a route into the Wairarapa. Early Europeans also accessed the Wairarapa via the coast, and used the coastal platform to drive stock between Wellington and the Wairarapa.

Orongorongo Station, established in the early days of European settlement, occupies the coastal platform around much of the exposed south coast and extends up the Orongorongo Valley. Most of this land is grazed and consists of rough pasture and exotic and native scrubland species.

Since the early days of European settlement, the Eastern Bays have been a popular recreation destination for Wellingtonians. They are easily accessible by road from the Hutt Valley or via ferry from Wellington, and residential dwellings are located on much of the flat land and some of the lower hill slopes.

The marine terraces that were formed at times when the sea level was much higher are evident here between Baring Head and Turakirae Head.



HUTT LANDSCAPE CHARACTER AREAS

HUTT LANDSCAPE CHARACTER AREAS

HUTT VALLEY

The Hutt Valley character area includes the Hutt Valley floor and the lower portion of the slopes to the east. It extends from the Petone shoreline in the south-west to Emerald Hill in the north-east. The area is bounded on the north-west by the Wellington fault escarpment and Belmont Hills beyond. A series of hill systems, rising to peaks of up to 441m asl with steep slopes, enclose the valley on the south-east. SH2 runs along the south-west boundary of the character area following the Wellington fault line and Te Awa Kairangi/Hutt River.

Te Awa Kairangi/Hutt River is the dominant element of this landscape character area, and in combination with the Wellington fault has been instrumental in the formation of the entire valley. Te Awa Kairangi/Hutt River enters this character area at Birchville, where it flows south west and enters Wellington Harbour at Petone.

Prior to the earthquake in 1855, Te Awa Kairangi/Hutt River remained on the north-west side of Gear Island before entering the harbour. However, uplift resulting from this earthquake altered the lie of the land to such an extent that the river changed course, rendering the previously navigable river impassable.

At the time of European arrival, swampy marshlands extended several kilometres up the valley from the river mouth. Wetland species such as raupo, flax and toetoe dominated. Beyond this marshland, kahikatea, matai, puketea and rimu forest grew extensively on the valley floor, with totara, tawa and beech on the hill slopes. Following arrival of Europeans, the forests were milled for timber and to make way for farming, while attempts were made to make the swampy land suitable for habitation.

Most of the valley floor has been cleared of the original forest cover and other native vegetation with only a few small remnant stands and trees interspersed in some of the older residential areas remaining, particularly around the lower Silverstream valley.

Residential development, which covers approximately 59% of this character area, occupies much of the flat valley floor and also the floors of both the Stokes and Silverstream Valleys; in places, this development also extends up the lower hill slopes. The largest areas of flat land which remain undeveloped for urban/residential use are Te Awa Kairangi/Hutt River corridor and the areas that includes Rimutaka Prison, Trentham Military Camp and Trentham Racecourse, St Patricks College Silverstream and the former Agresearch campus at Wallaceville.

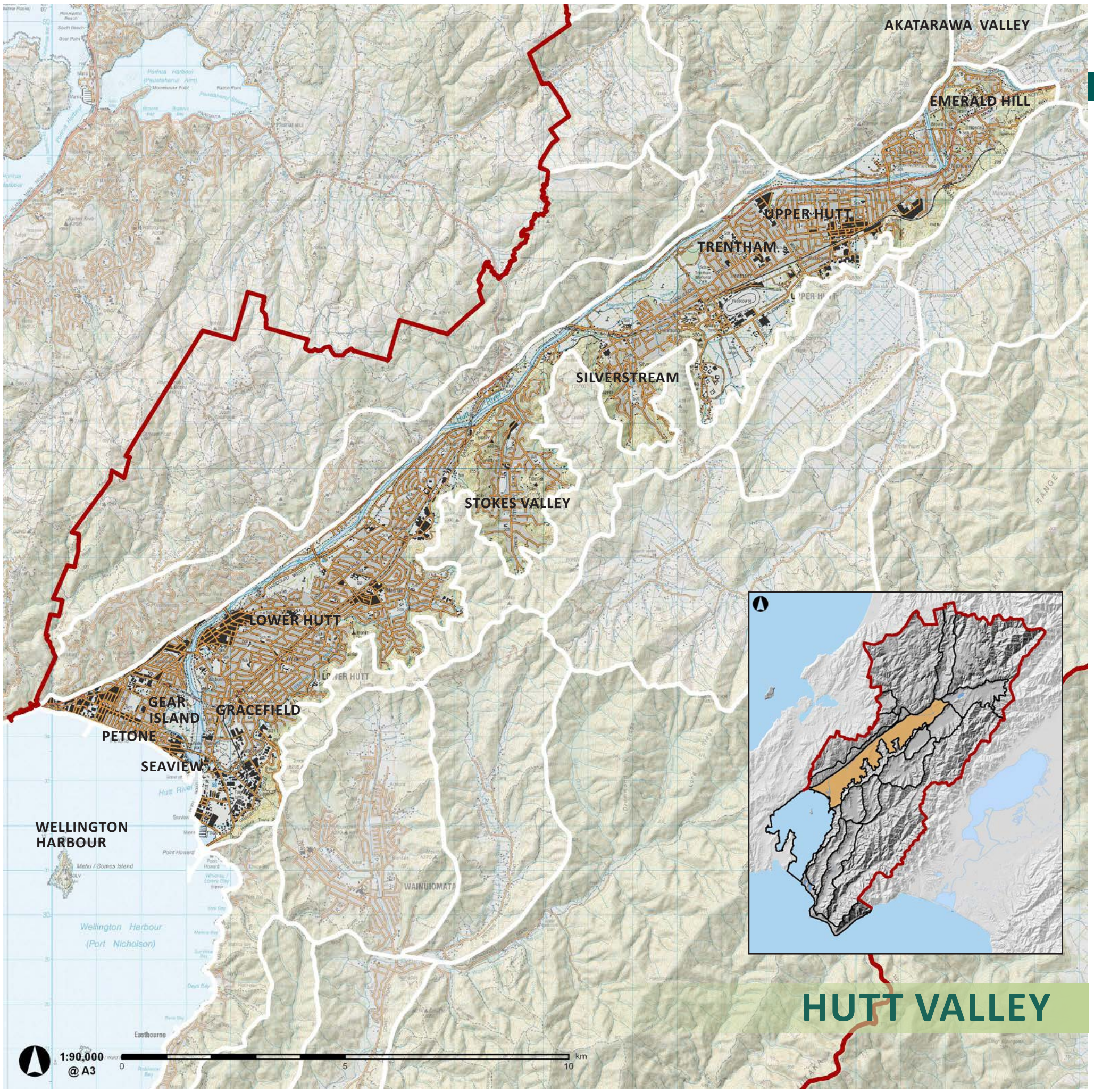
The Gracefield and Seaview areas, close to the harbour, were historically home to many large industries such as car manufacturing, railway workshops, wool scours and mills and soap, tobacco and biscuit factories. While, most of these large industries have closed, Gracefield and Seaview remain the main industrial areas in Lower Hutt. Commercial zoning now covers approximately 17% of this character area.

Control of the flooding of the river has been ongoing since European settlement, and has included channel realignments, removal of gravel, construction of flood banks and reinforcement of banks through the planting of willow. Large stop banks prevent flooding of the residential and urban areas that now cover much of the valley floor. The land between the stop banks and the river are free of development and provide an important open space and recreational resource for the residents of the Hutt Valley including the Hutt River Trail and several golf courses. Willows planted by the Regional Council as part of river management line most of the river banks, while stop banks and areas immediately adjoining are mainly mown grass, with flax and other native vegetation in places.

The Petone foreshore forms the south-western boundary of the character area.

Large stop banks have been built along the river to prevent flooding. This creates a significant area of open space around the river that is undeveloped and serves as an important recreational resource for residents of the Hutt Valley.

Land that was once swampy marshlands is now covered in residential development



Te Awa Kairangi/Hutt River now enters Wellington Harbour to the east of Gear Island, however prior to the 1855 earthquake it entered the harbour on the west side of Gear Island

WESTERN ESCARPMENT

The Western Escarpment character area includes the steep escarpment on the north-west side of the Hutt Valley from Riverstone Terraces in the north-east to Petone in the south-west. The Wellington fault line runs along the north-western edge of the Hutt Valley; the Belmont Hills have gradually been pushed up while the Eastern Hutt hills have gradually been tilted down, thus creating the Hutt Valley.

The Escarpment's steepness compared to the surrounding landscape makes it a very distinctive feature of the Hutt Valley and clearly defines the valley's western edge. At a more local scale, the Escarpment is fragmented by numerous steep gullies that drain the Western Hills, resulting in a topographically convoluted landscape.

From Kelson south, residential development is prominent. The pattern of the residential areas has been dictated by the dissected and steep topography, with development occurring on the higher flatter land, leaving the steep vegetated gullies and escarpment face undeveloped. At the very northern end, the recent Riverstone Terraces residential area is perched on a gently sloping terrace above the valley floor, and is not dissected by gullies.

In the vicinity of Manor Park/Haywards Hill Road there is a cluster of infrastructure, including operating and closed quarries, Haywards Substation, transmission lines, water reservoirs and SH58 (Haywards Hill Road). Further south, in Normandale, is the largest area of suburban commercial development around Dowse Drive and around Hebden cresent is an area that is zoned general business.

Residential areas occupy approximately 37% of the character area with the remainder being 'undeveloped'. The escarpment generally has a dense cover of native and exotic woody vegetation, which adds to its distinctiveness as a landform and as backdrop to the wider Hutt Valley landscape. The vegetation comprises a mix of mature exotic trees such as macrocarpa and pine, patches of gorse, small areas of pine plantation, and regenerating podocarp/tawa forest particularly in the gullies where moist, fertile conditions have allowed a dense under storey to thrive.

The escarpment between Haywards Hill Road and Riverstone Terraces is the longest section that is undeveloped. Keith George Memorial Park, on the escarpment south of the junction of SH2 and Fergusson Drive, is a significant 70ha remnant of tall native forest and provides an indication of what the escarpment vegetation would have once been like.

Evidence of Maori habitation is present in some places and includes stone walls from gardening sites, remnants of mills, and urupa.

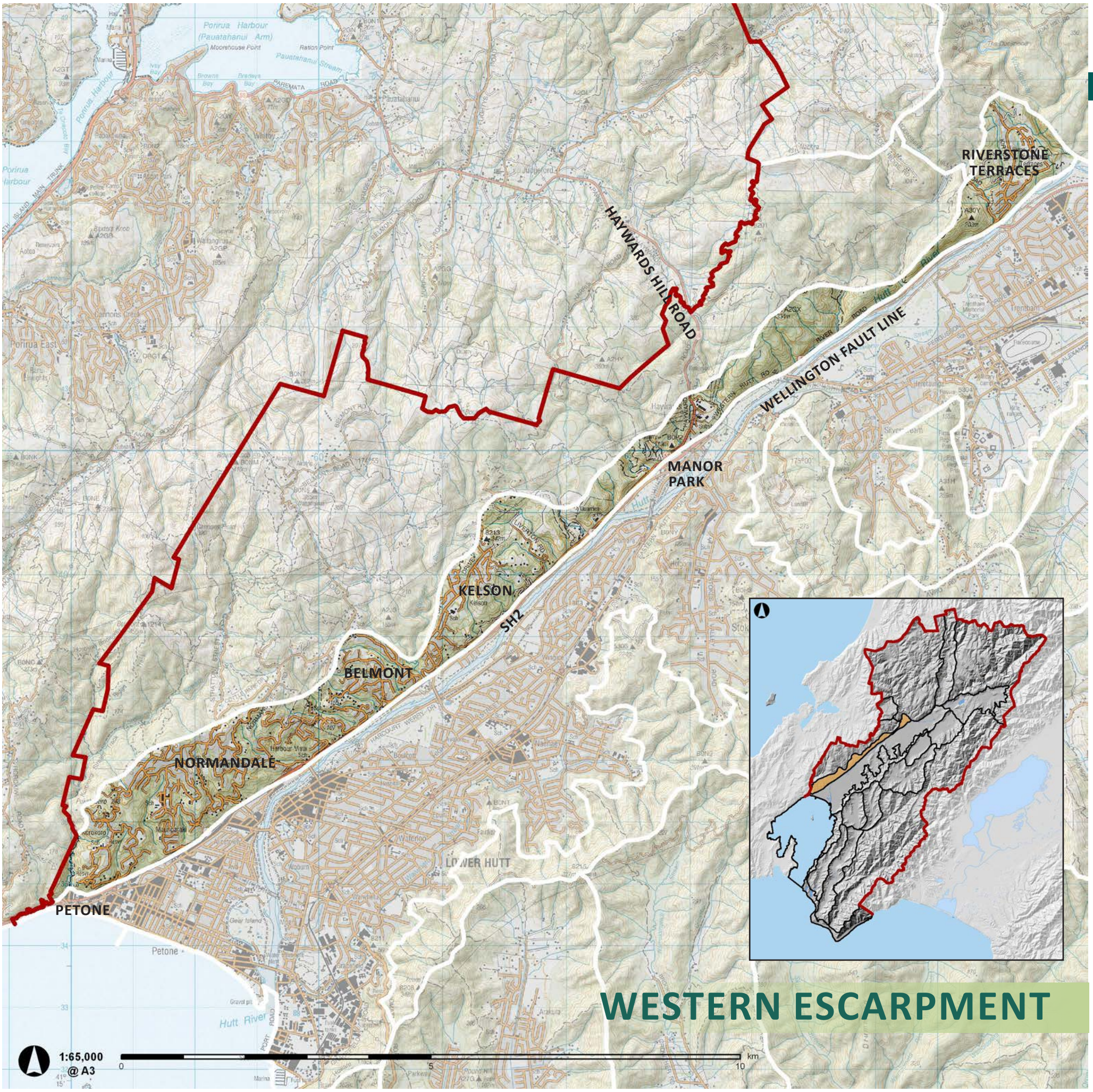
As in much of the Wellington Region, wind is frequent and has influenced the vegetation cover and the way residential subdivision has been developed; the escarpment is a significant barrier and lifts the wind and channels it through the gullies.

The Western Escarpment, which rises sharply above the Wellington fault line, forms a distinctive demarcation between the flat valley floor of the Hutt Valley and the Belmont Hills beyond.

The Escarpment vegetation is primarily regenerating podocarp/tawa forest interspersed with mature exotic trees (macrocarpa, pine) and patches of gorse.

Perched on the top of a gently sloping terrace, Riverstone Terraces is the most recently developed residential area on the Western Escarpment.

Around Haywards Hill Road there is a cluster of infrastructure which includes Belmont Quarry and numerous transmission lines.



WESTERN ESCARPMENT

The Western Escarpment is peppered with residential dwellings that are nestled into the hill slopes.

EASTERN HUTT HILLS

The Eastern Hutt Hills character area extends from Kingsley Heights (Upper Hutt) in the north-east to the Wainuiomata Road in the south-west. It includes the upper slopes of the hills on the eastern side of the Hutt Valley, up to a well defined ridge which reaches 441m asl above Stokes Valley. At the southern end, the hills separate the lower parts of the Hutt Valley from the adjacent Wainuiomata basin and Moores Valley catchments. Further north, the same line of hills separates Stokes Valley from the head of Whitemans Valley, and Upper Hutt from Wallaceville Swamp. Further north again, the Eastern Hutt Hills are much lower (approximately 240m asl) and separate Upper Hutt city from Mangaroa Valley. The character area also consists of a number of prominent spurs, including the spur that juts into the Hutt Valley between Pinehaven and Stokes Valley forming the 'divider' between Upper and Lower Hutt.

Originally, the Eastern Hutt Hills would have been covered in dense beech forest with podocarps, including rimu and kahikatea, on the lower slopes. However, most of this vegetation was felled for timber to make way for pasture and market gardens, and later, in the 20th century, urbanisation.

The slopes are now covered in a mix of regenerating indigenous vegetation including kanuka, lowland beech species and kamahi, although areas of gorse cover the drier areas such as spurs and north facing slopes. There are also some areas of pine plantation, particularly on the slopes around Pinehaven and in places, wilding pines.

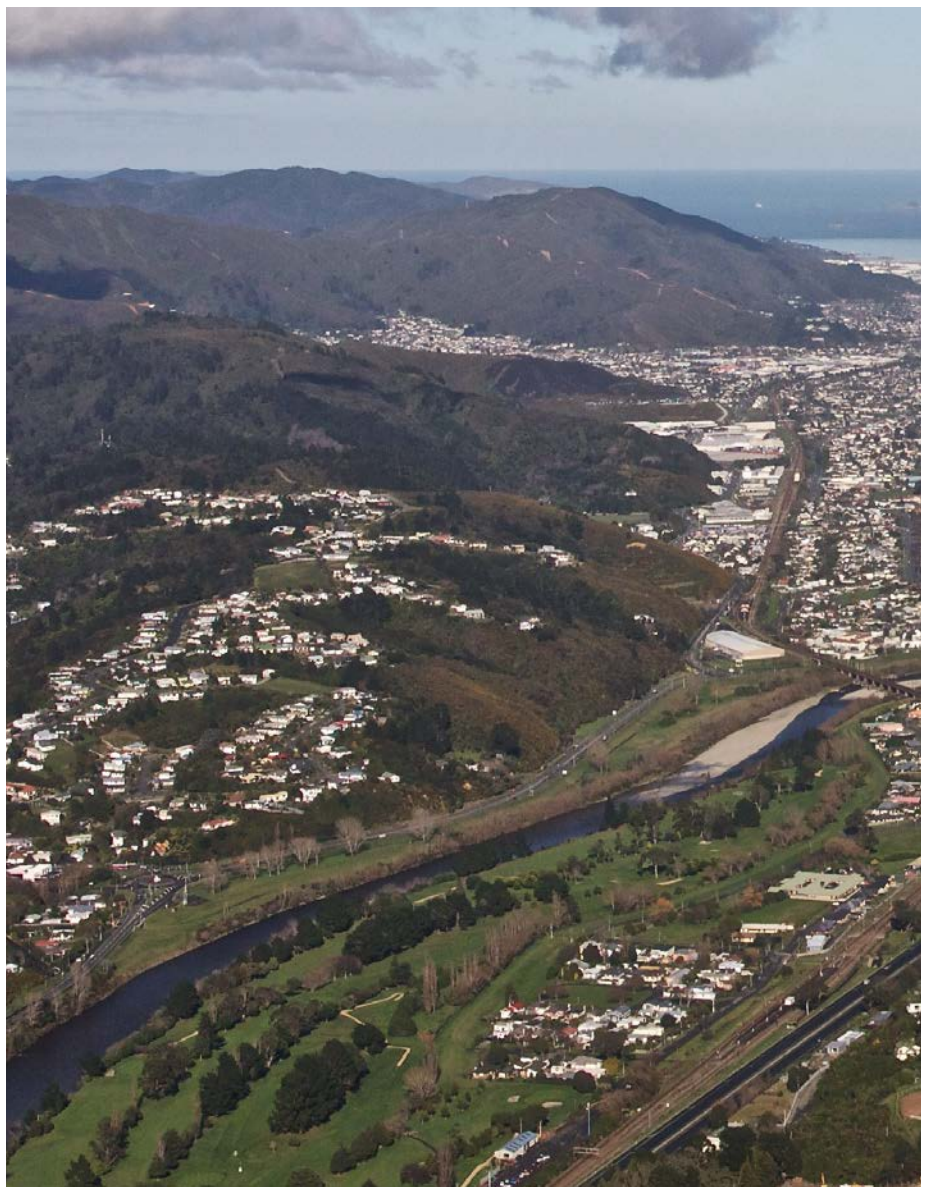
The Eastern Hutt hills provide a definitive landscape backdrop to the eastern side of the valley and together with the western fault escarpment they provides a distinct sense of enclosure, which characterises the Hutt Valley.

Historically, wild fire has been a problem in the Eastern Hutt hills and firebreaks have been formed to prevent the spread of fire, however the number of fires have diminished in recent years.

The area is largely free from any significant development, although there is a pocket of residential development clustered around Blue Mountains Road. Several roads (Blue Mountains Road and Wallaceville Road) provide access between the Hutt Valley and the valleys to the east. Several trig stations have been located on the high points on the ridge above the Hutt Valley. Other developments include water reservoirs and a landfill located above Stokes Valley.

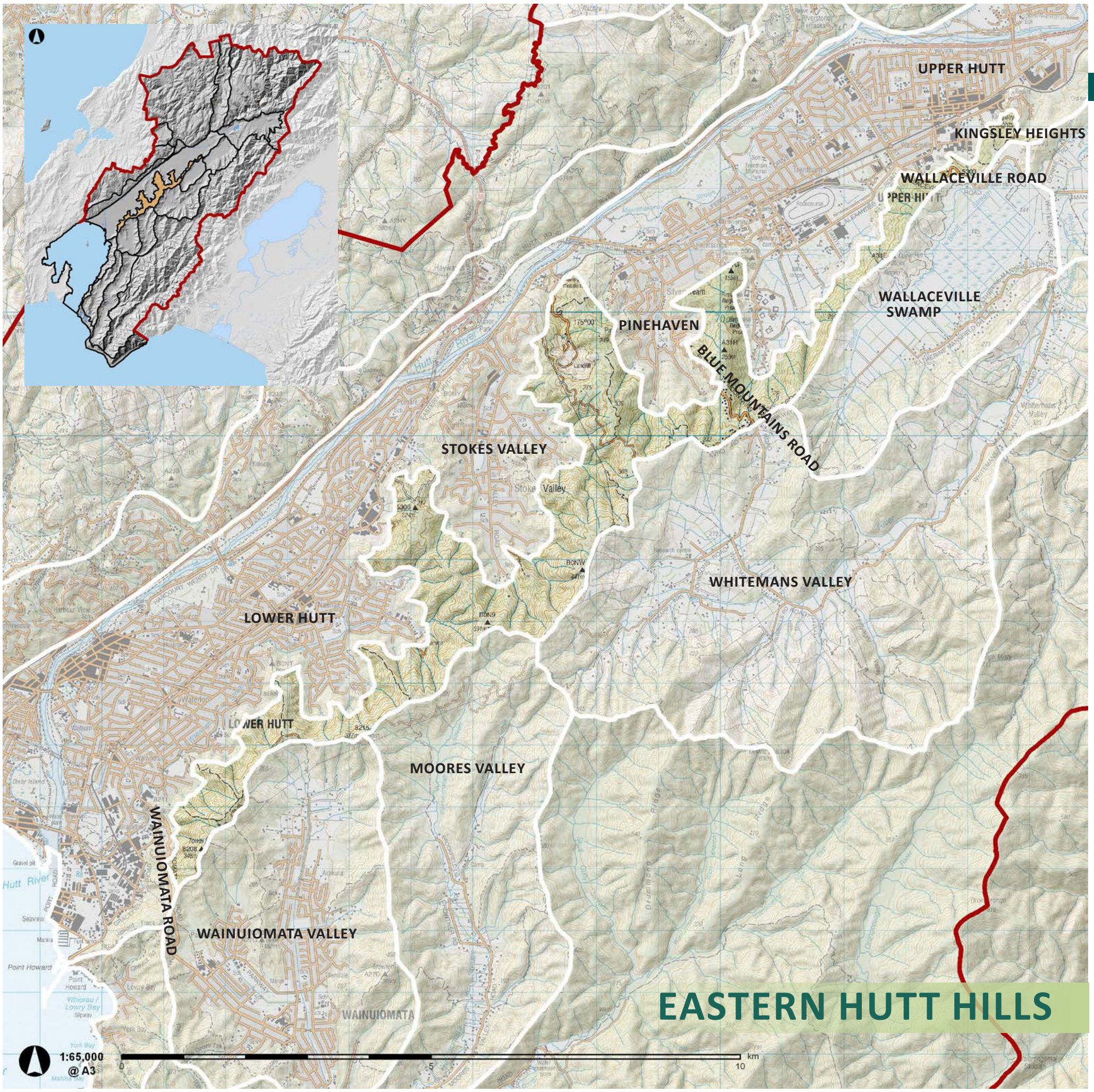
The Eastern Hutt Hills are covered in a mix of gorse, pine plantation and patches of native forest

The Eastern Hutt Hills provide a distinctive backdrop to the Hutt Valley extending as far as Petone in the south.



In the south the Eastern Hutt Hills separate the Hutt Valley from the adjacent Wainuiomata Valley.

In the north the Eastern Hutt Hills separate the Hutt Valley from the adjacent Mangaroa and Whitemans Valleys.



Fire breaks on the main ridges are a distinctive landmark on the Eastern Hills.

KAITOKE BASIN

The Kaitoke character area lies at the head of the Hutt Valley. It is a transitional landscape between Hutt Valley and the Wairarapa and acts as a gateway to the Rimutaka Hill for travellers on SH2.

The character area comprises two elevated basins flanked on either side by steep slopes. The hills enclosing the basin to the north rise steeply to peaks ranging between 242m asl and 705m asl. To the south, the basin is enclosed by a series of more gently sloping spurs separating river and stream valleys. Te Awa Kairangi/Hutt River has tributaries in the upper Kaitoke basin (Kaitoke Stream, Farm Creek and Pakuratahi River) and flows through the Te Awa Kairangi/Hutt River gorge before emerging in the lower basin.

The basins were formed as a result of tectonic activity. As the western hills of the Hutt Valley were pushed upwards, the Eastern Hutt hills were tilted downwards at an angle creating the Hutt Valley. The movement of the land on either side of the fault line has resulted in the buckling of adjacent land forming a series of humps and hollows. The basins are the hollows that have resulted from this buckling.

The flat-bottomed floors of the basins are predominantly grazed farmland, although this is broken up with stands of exotic and native trees which act to 'subdivide' the valley floor creating more intimate and enclosed areas. The slopes on the northern side of the basins are largely regenerating lowland beech species and kamahi, while patches of regenerating podocarp forest, particularly totara and kahikatea, are present on the valley floor. At the confluence of the Hutt and Pakuratahi Rivers is a stand of remnant podocarp forest with rimu, rata, hinau and kamahi as well as red beech on the lower slopes and black beech on the upper slopes. Remnant native forest also dominates Te Awa Kairangi/Hutt River gorge. Exotic pine plantations and patches of gorse and manuka cover the slopes leading up to Kaumatua Ridge and at the end of Plateau Road to the south of the basins.

SH2 runs through this area and provides access into the Wairarapa. Access into the Mangaroa Valley is also gained via Maymorn Road from Te Marua.

The area around Te Marua was settled by Europeans at least as early as 1820, although Maori inhabited the area before this time with Whakataka Pa located at the confluence of the Mangaroa River and Te Awa Kairangi/ Hutt River. In recent times, this area remains sparsely populated although there are enclaves of settlement around the edges of SH2 and at Plateau Road, where there is a school and a playcentre.

The Stuart Macaskill Storage Lakes which are located in the lower basin provide about half of Wellington's water; their size and appearance make them a dominant feature of the basin.

This character area provides several recreational opportunities. Kaitoke Regional Park (which also includes the Stuart Macaskill Storage Lakes) lies to the north and in places extends down on to the floor of the basin. The Park provides camping and walking tracks, with access via Kaitoke Waterworks Road. Other recreational opportunities in the Kaitoke character area include Camp Kaitoke, the gliding club, kart track and the shooting range, which are all accessed from SH2. The Kaitoke character area also includes southern access points into the Tararua Forest Park. The Pakuratahi Forest provides access to the Rimutaka rail trail and the historic Rimutaka Incline in the Wairarapa District, once the steepest section of rail in New Zealand.

The floors of the basins are 'subdivided' by stands of exotic and native trees which create more intimate and enclosed areas.

The basin floors are predominately grazed farmland.

Kaitoke Regional Park which lies within this character area provides camping and recreational opportunities and includes southern access points into the Tararua Forest Park.

The low vegetated hills separate the two basins which comprise this character area.

The Stuart Macaskill Storage Lakes, which are located within Kaitoki Regional Park provide about half of Wellington's water.

Exotic pine plantations and patches of gorse and manuka cover many of the lower slopes and grazed farm land dominates the floor of the basin.

MANGAROA VALLEY

Mangaroa Valley is a broad elevated valley located south-east of the Upper Hutt valley. It is separated from the Upper Hutt valley by a low line of hills (approximately 200m asl) barely 100m above the floor of the Mangaroa Valley. Pakuratahi Forest lies immediately to the east of this character area; in places the Forest extends on to the valley floor. South-east of the valley is Mt Climie, which at 862m asl is the second highest point in the Rimutaka Range.

The shallow Mangaroa River, with its headwaters in the Whitemans Valley, meanders south-west to north-east along the valley floor and joins Te Awa Kairangi/Hutt River at Te Marua.

The valley floor tends to be exposed to less wind than much of the Wellington region, and can experience heavy frosts in the winter.

The Mangaroa Valley is a clearly defined valley enclosed by steep forested slopes comprising a mix of regenerating beech and kamahi forest, exotic scrub and pine plantations. The pine plantations generally occupy the foot hills and provide an immediate backdrop to the activities on the valley floor. The valley floor is predominantly grazed pasture broken up by eucalyptus and pine shelter belts and stands of native and exotic trees. This, combined with the narrow roads and many barberry hedges, creates an enclosed and small-scale domesticated landscape. The valley contains a relatively high density of small rural properties and rural lifestyle blocks. The narrow, quiet roads of the valley are popular with road cyclists.

As in much of the tributaries of Te Awa Kairangi/Hutt River, the Mangaroa Valley was logged in the early 1900s. This led to the development of approximately 50 quarter acre properties around McLaren St at the northern end of the valley. Once the land was cleared, the valley floor was used for sheep and dairy farming.

A collection of Defence Department storage buildings located towards the north of the valley were established during World War II The scale of these is unfamiliar as they are much larger than would be generally found in a rural area. A military camp was also established at Maymorn during World War I.

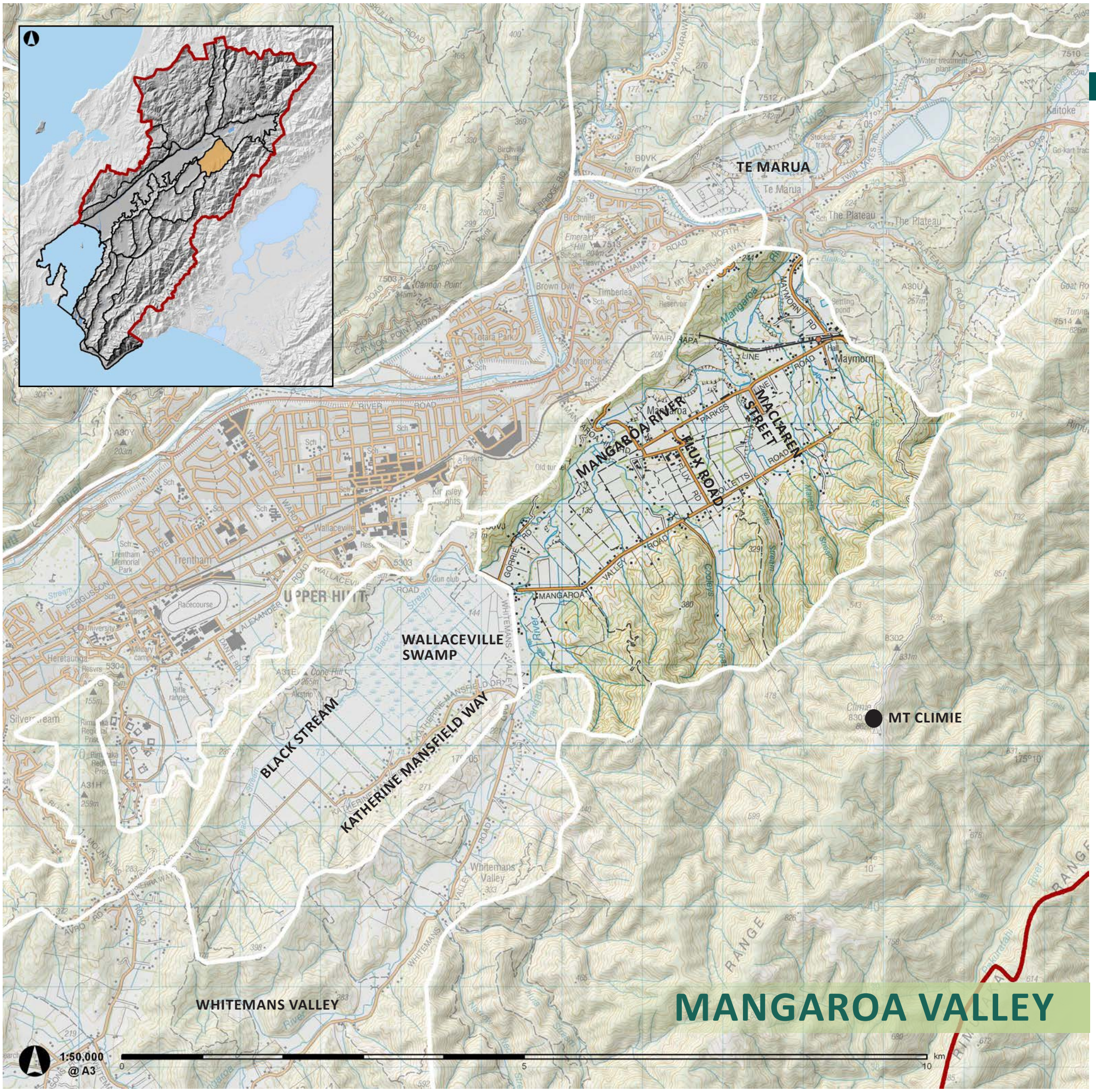
In the 1950s, the valley was used as a base for workers constructing the Rimutaka rail tunnel. Several dwellings and other structures relating to this early history are present at the northern end of the valley, where most of the settlement is located, including a primary school on Flux Road, which serves the Mangaroa Valley, and also students from surrounding areas.

Since the arrival of European settlers around the Hutt Valley, the Mangaroa Valley has been an important farming area. Today, small landholdings of 10ha or less dominate the valley floor, including rural lifestyle lots and small farmlets; dwellings and associated farm buildings make up the most of the structures in the valley.

The character of the Mangaroa Valley could change given that Upper Hutt City Council has recently identified the north-east side of Mangaroa Valley for urban development. The council has adopted the Maymorn Structure Plan in January 2012 as part of their Urban Growth Strategy .

The Mangaroa Valley is a broad elevated valley containing a relatively high density of rural lifestyle blocks and is separated from the Upper Hutt valley by a low line of hills

The narrow roads lined with hedges create an enclosed and small-scale domesticated landscape



MANGAROA VALLEY

Much of the flatland valley is in pasture for farming, while the hill slopes are covered in a mix of regenerating natives, exotic scrub and pine plantation.

WALLACEVILLE SWAMP

The Wallaceville Swamp character area is an elevated valley system east of the Hutt Valley, north of Whitemans Valley and south of Mangaroa valley. Black Stream, which flows through the Wallaceville Valley floor, is one of the main tributaries of the Mangaroa River. Following a series of earth movements, the headwaters of the valley are now slightly lower than the middle parts of drainage system, and are dominated by a wide peaty swamp. This swamp once covered much of the upper basin of the Wallaceville Valley, but has since been drained and much of this land has been converted to farmland. At the very southern end of the valley an area of lowland podocarp swamp remains that has been recognised as having high ecological value.

To the west, the valley is enclosed by a low range of hills (approximately 200m asl) that are barely 100m above the valley floor and separate the valley from the adjacent Hutt Valley. To the east, a range of hills with high points of 374m asl, 398m asl and 343m asl separate the valley from the headwaters of the Mangaroa Valley.

The climate in the valley is inclined to be cloudier than on the Wellington Peninsula with lower wind and a tendency for heavy frosts in the winter.

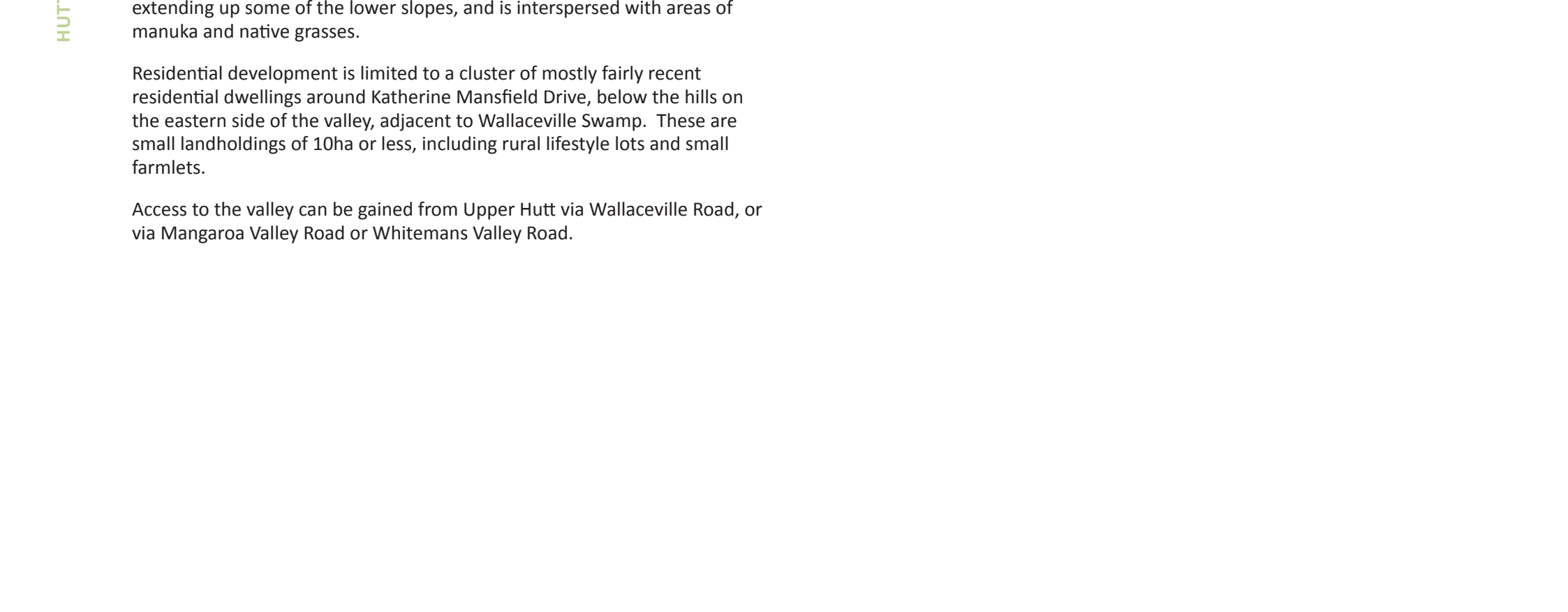
The slopes at the southern end of the valley are covered largely in beech, although there are areas of pine plantation and lowland podocarp forest remnants. Further north, the slopes are regenerating in kanuka with occasional patches of gorse. Pasture covers much of the valley floor, extending up some of the lower slopes, and is interspersed with areas of manuka and native grasses.

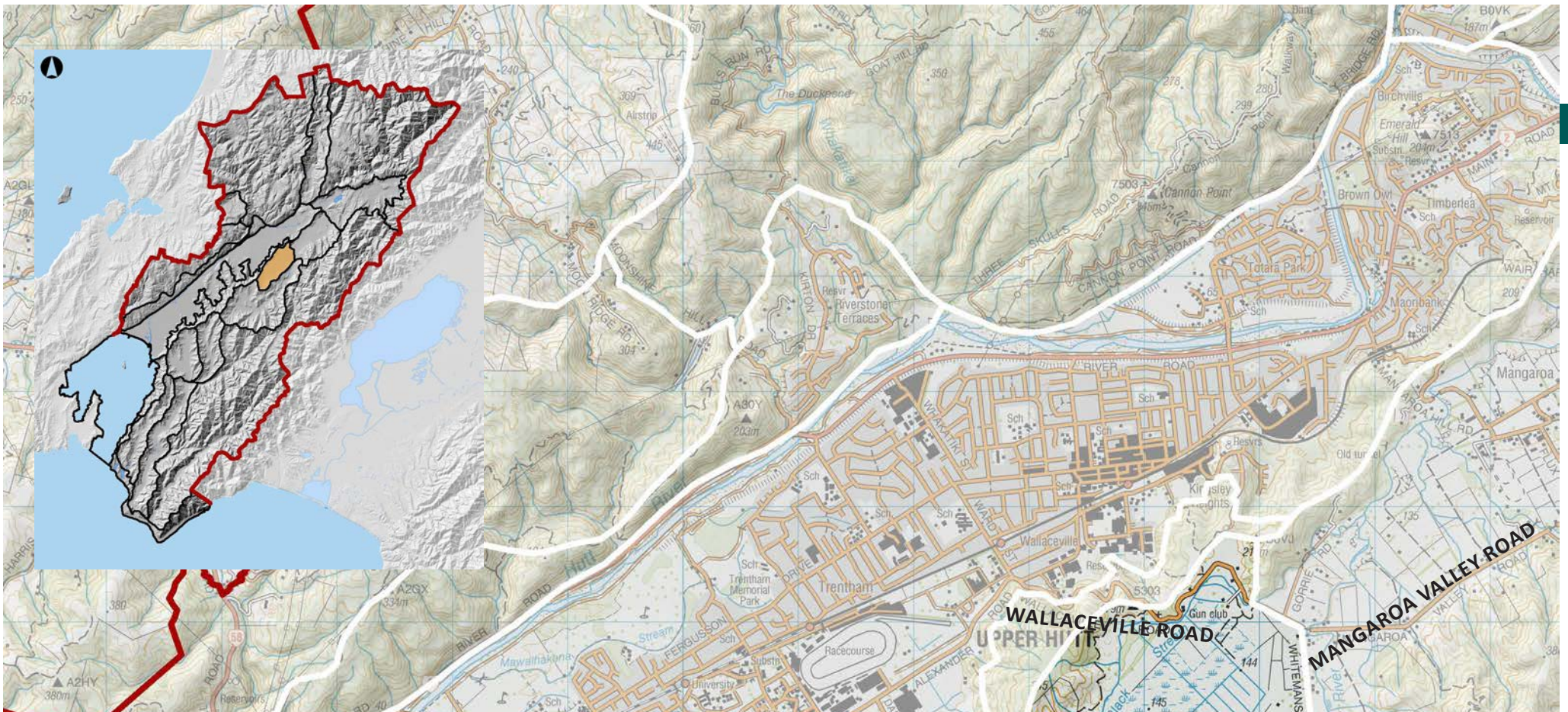
Residential development is limited to a cluster of mostly fairly recent residential dwellings around Katherine Mansfield Drive, below the hills on the eastern side of the valley, adjacent to Wallaceville Swamp. These are small landholdings of 10ha or less, including rural lifestyle lots and small farmlets.

Access to the valley can be gained from Upper Hutt via Wallaceville Road, or via Mangaroa Valley Road or Whitemans Valley Road.

Wallaceville swamp which formed as a result of the back-tilting of the valley caused by a succession of earthquakes along the Wellington Fault.

The rural residential development on Katherine Mansfield Way is located on the eastern side of the valley at the base of the hills, while the swamp which has since been drained covers most of the valley floor.





The flat valley floor is largely in pasture that is dissected by drainage channels

WHITEMANS VALLEY

The southern end of Whitemans Valley contains the headwaters of the Mangaroa River, which runs south to north to Te Marua. The upper part of the valley is a broad basin while the lower part is narrow and confined by steep hillsides. The river itself is generally shallow and takes a meandering route along the valley floor. The hills on either side of the valley are strongly rolling, rising to steep mountainous terrain in the south-east. To the west, a broad spur separates Whitemans Valley from the adjacent Wallaceville Swamp character area. The ridgeline to the south, which has peaks of 570m, 632m, 569m and 515m asl, forms the boundary of the Wainuiomata/ Orongorongo Water Collection Area .

The valley's separation from the Hutt Valley gives it an isolated and secluded feel and the surrounding hills makes the valley less windy than much of the Wellington region and more prone to frosts in the winter.

Access into Whitemans Valley is via the Whitemans Valley Road from Mangaroa Valley or via Blue Mountains Road which provides access from Silverstream. Four-wheel-drive access is also possible from Wainuiomata and from Stokes Valley.

The vegetation on the hill slopes is mixed. On many of the southern slopes and scattered in other areas of the valley, are large pine woodlots and plantations. Interspersed with these plantations are areas of regenerating native forest consisting of beech (mainly black and hard beech), rimu, rata, miro, kamahi and totara in early stages of succession. Further north, where the valley narrows, the vegetation on the hillsides is a mix of gorse, manuka and kanuka.

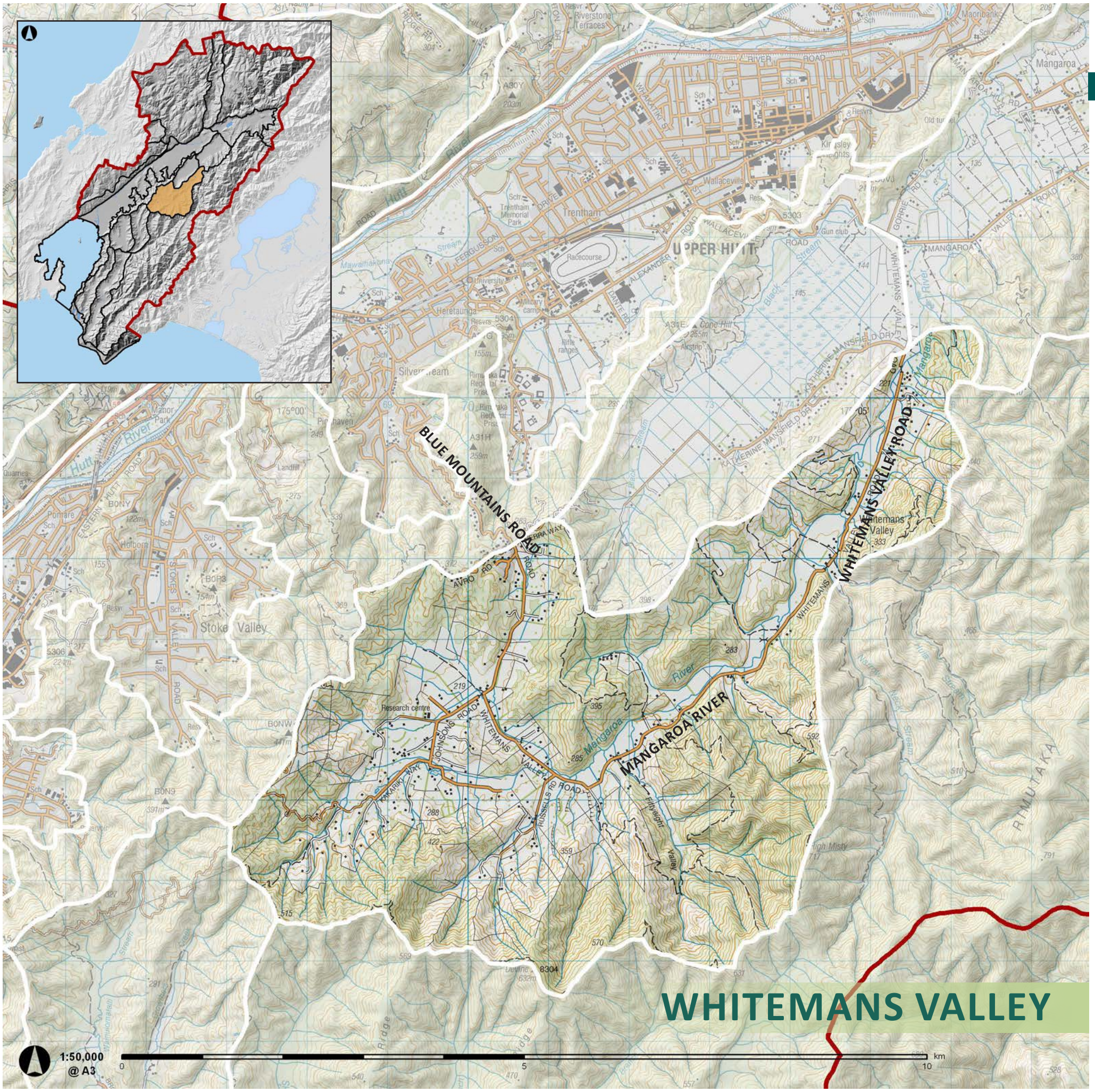
The valley floor and many of the lower slopes are in pasture and grazed by sheep and cattle. There are also some stands of exotic trees and shelter belts of eucalyptus and barberry hedges, some of which have been planted in association with residential dwellings, lifestyle blocks and small scale farms. Willows have been planted for flood protection along the edges of the river.

Whitemans Valley was one of the first valleys in the Upper Hutt region to be cleared by milling, which began in the 1850s. In 1871, the valley was settled by the Whiteman family. Since then, the valley has been extensively farmed, with much of the valley floor and lower slopes converted to grazing for sheep and dairy cows. An enclave of recently developed rural lifestyle blocks is located in the upper part of the valley.

The valley floor is mainly in pasture while the vegetation on the hill slopes is a mix of regenerating natives and exotic pine plantations.

An enclave of recently developed rural residential and lifestyle dwellings is located at the head of the valley, where the broad valley floor is generally in pasture.

In the lower part of Whitemans Valley, steep hillsides confine the shallow river which takes a meandering route along the valley floor.



The valley floor and many of the lower slopes are in pasture and grazed by sheep and cattle, interspersed with this are stands of exotic trees, shelter belts of eucalyptus and barberry hedges.

MOORES VALLEY

The Wainuiomata Stream flows along the bottom of Moores Valley. Two tributaries at the head of the valley: Crowthers Creek and Wanuiomataiti Stream are separated from each other by a narrow spur. The valley is contained by steep hillsides. The hills to the west separate Moores Valley from the Wainuiomata Valley where the town is situated, with Mowlem (400m asl) the highest point. The ridge to the east, which has peaks of 380m, 428m and 230m asl, forms the boundary of the Wainuiomata Water Collection Area. The slopes on both sides of the valley are very steep with the majority exceeding 35°.

The valley floor is gently undulating with gentle slopes of up to 8° and alluvial and largely low fertile, heavy clay soils. The valley floor is quite narrow, at the entrance into the valley, which creates a sense of confinement, but further up, the valley widens. The valley floor tends to experience heavier frosts and less wind that other areas in the Wellington region.

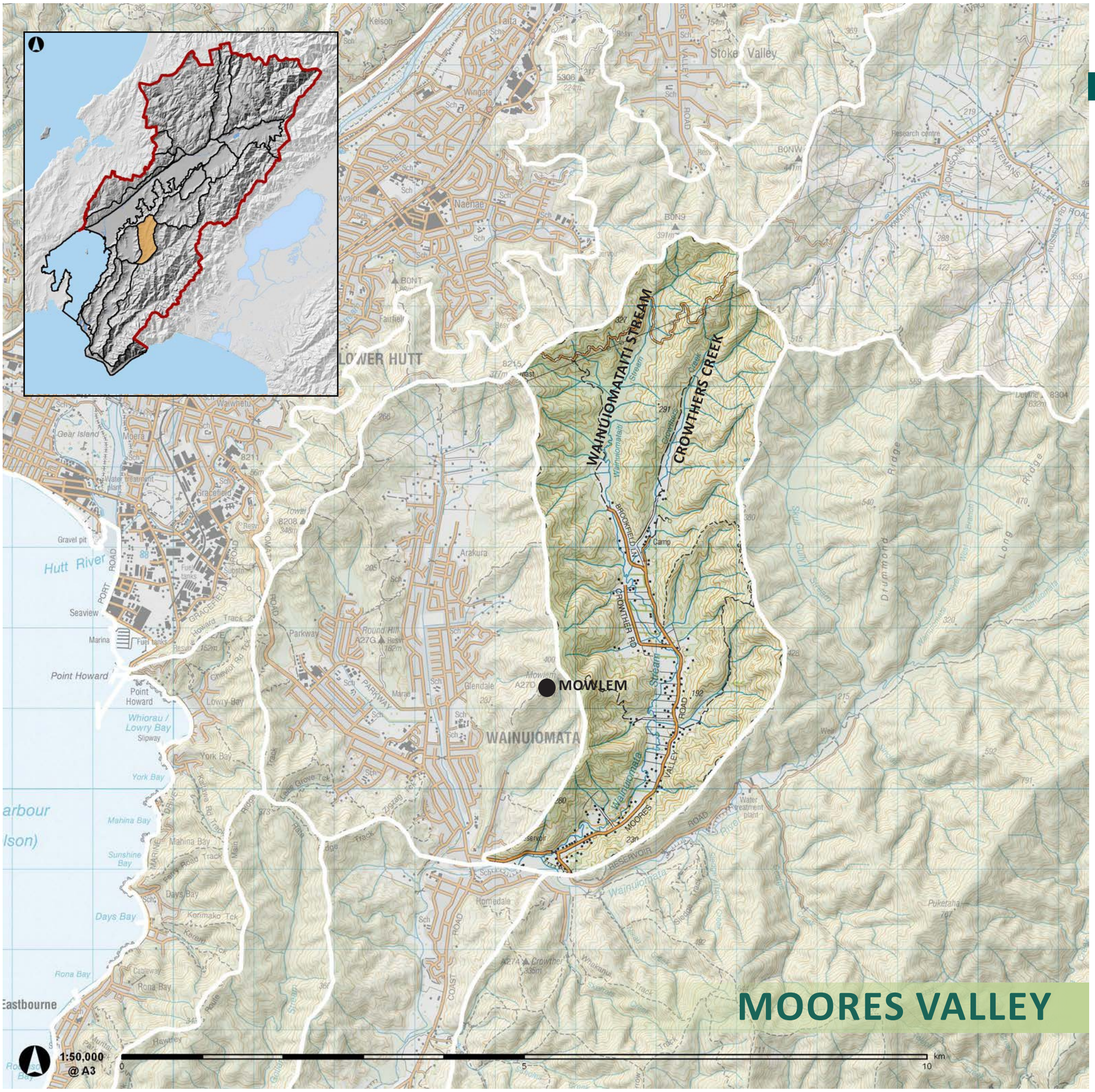
The upper hill slopes are covered in regenerating beech forest, consisting primarily of hard and black beech on the drier spurs and a mix of manuka, kanuka and gorse on the lower flanks. Several small plantations of pines are scattered along the slopes, the most significant of these is located about half way up the valley on the west-facing slopes. The predominately exotic vegetation on the valley floor is a mix of eucalyptus, macrocarpa, willow and pine shelter belts and amenity plantings associated with rural dwellings.

The linear settlement pattern through the valley results from most dwellings being situated close to the road. Small 'farmlet' and lifestyle blocks dominate with sheep the main type of stock. The upper reaches of the valley are more open due to the lower density of mature trees and large areas of pasture reverting to gorse. An enclave of recently developed rural residential properties is located in the upper valley. A plant nursery and the long established Brookfields Scout Camp are also located in the valley. Moores Valley, with its lifestyle blocks and well established hedgerows and amenity plantings, has a distinctive rural character which contrasts with the Wainuiomata Valley landscape character area where the main residential settlement is located.

The predominately exotic vegetation on the valley floor tends to be associated with rural dwellings.

Most dwellings are situated close to the road, creating a linear settlement pattern comprised mainly of lifestyle blocks.

The ridge to the east, seen here as the closer set of hills, forms the boundary of the Rimutaka Forest Park



The upper reaches of the valley are quite open with large areas of pasture reverting to gorse and patches of indigenous vegetation.

WAINUIOMATA BASIN

The Wainuiomata Basin landscape character area comprises the elevated basin at the head of the Wainuiomata Valley. It is surrounded by hills covered in a mix of mature and regenerating native vegetation. Wainuiomata Hill separates the area visually and spatially from the neighbouring Hutt Valley. The Wainuiomata Hill Road, which was put through in the 1860s provides access to the Hutt Valley. The surrounding hills are relatively consistent in height and include Towai (348m asl), Lowry (373m asl) and Mowlem (386m asl).

The northern end of the basin is bisected by a low ridge; Round Hill, which at 182m asl, is lower than the surrounding hills and separates Parkway from the other residential areas of Wainuiomata.

Geological events along the Wellington fault have played an important role in the formation of the Wainuiomata Valley. Tilting movements have resulted in the headwaters becoming back-tilted. As a consequence, in some areas the waterways have changed direction resulting in extensive ponding in the headwaters and the formation of large areas of swamp and flaxlands.

This swampy area has now been drained and much of it converted to residential development, however the alluvial and peat deposits in the valley floor are indicative of its origins. The hills surrounding the upper Wainuiomata basin are a mix of sandstone and mudstone.

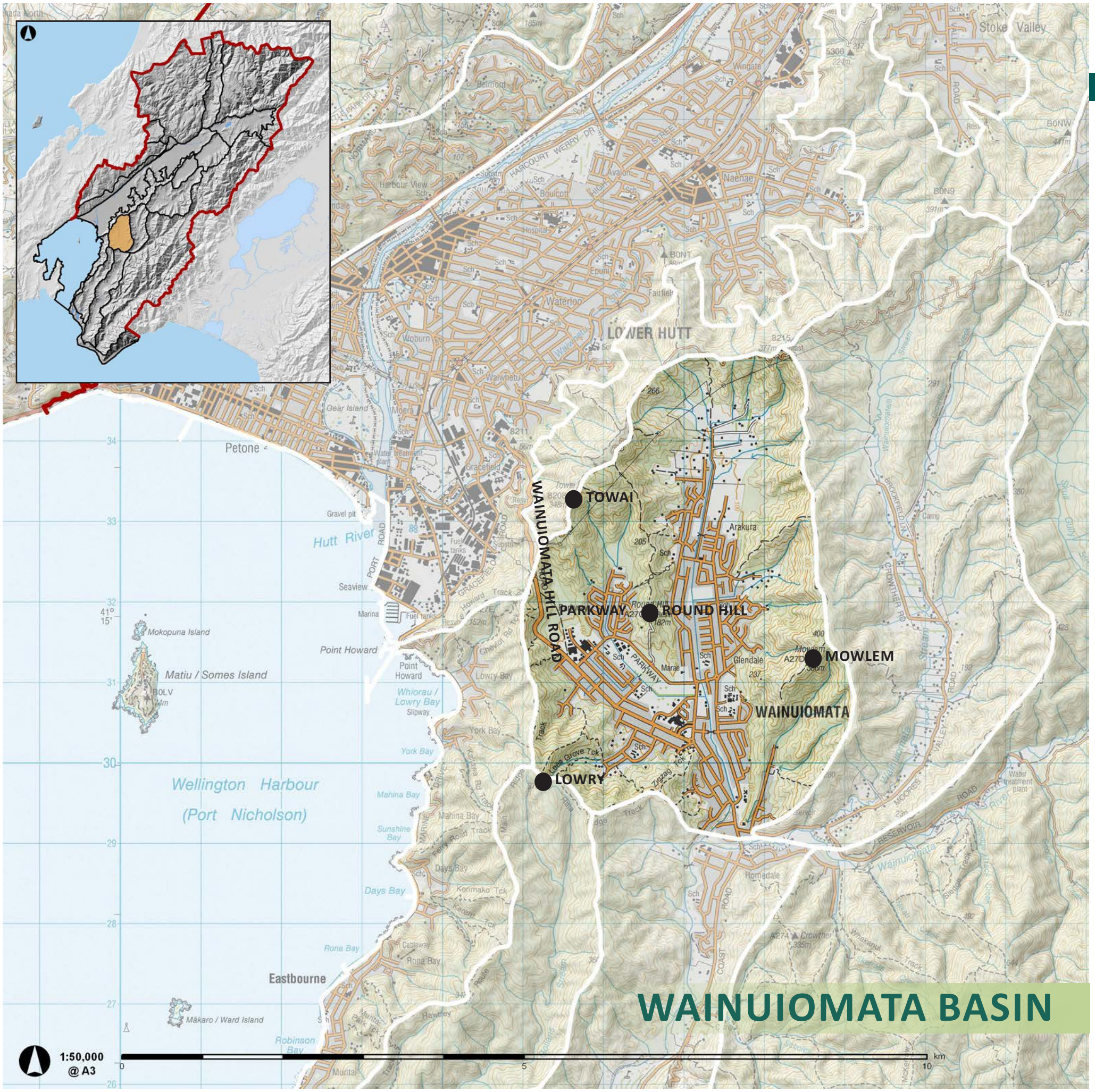
The hills surrounding the basin provide protection from the wind that characterises much of the Wellington region. As a result the basin has lower minimum temperatures in winter and higher maximum temperatures in summer than most other parts of Wellington and the Hutt Valley.

The hill slopes have a history of localised wild fire, although these have declined in recent years. The hills are now covered mostly in gorse with regenerating native forest in the gullies, but in places mature and semi-mature native forest remains. The southern slopes, which form part of the East Harbour Regional Park, are covered in advanced secondary beech forest on the drier slopes and complemented with conifer and broadleaf species, including the occasional rata, in the gullies. Urban development occupies much of the flat valley floor and in places pockets of residential housing have been developed on the lower parts of the enclosing slopes.

Wainuiomata's economy was initially based on timber milling from the forests surrounding the Wainuiomata River. A flax mill was also attempted but failed to be economically viable. Once the timber resources were exhausted and the forests cleared, dairy and sheep farming developed as mainstays of the local economy. However, it wasn't until after World War II that the town really began to expand with affordable housing providing accommodation for factory staff of the Lower Hutt industries attracting young families to the valley. Today approximately 33% of the Wainiomata Basin character area is zoned residential while 2.7% is zoned suburban commercial or business, and the remainder (64%) is 'undeveloped' openspace.

The surrounding vegetation covered hills form a significant backdrop for much of Wainuiomata and provide shelter from the wind that characterises much of the Wellington region.

Seismic events caused the head of the Wainuiomata Valley to become back tilted. This led to a ponding and the formation of large areas of wetland. This wetland has since been drained and is now mainly covered in urban development.



WAINUIOMATA BASIN

The vegetation on the western hills above the Wainuiomata Basin is made up of advanced secondary beech forest on the drier slopes and complemented with conifer and broadleaf species in the damper gullies.

The south east hills surrounding the Wainuiomata Basin are covered in a mix of gorse and regenerating native forest, with the various stages of growth providing evidence of earlier fires.

WAINUIOMATA VALLEY

The Wainuiomata Valley landscape character area includes the mid and lower sections of the Wainuiomata River Valley. The valley is relatively confined at the northern end near Homedale and also where it winds its way through the coastal hills in the south before discharging into the sea east of Baring Head. In between, the valley floor is relatively wide and flat with a meandering river channel flanked by farmland.

The valley floor consists of heavy clay soils of low fertility, which have a tendency to be swampy and are prone to heavy frost; there is less wind than other areas in the Wellington region. The hills on either side of the valley are generally steep with many of the hill slopes exceeding 35 °.

To the east, the character area is enclosed by a steep line of hills interrupted in several places by tributaries of the Wainuiomata River, including Catchpool Stream, Karaka Stream and Scholes Creek. These hills are adjacent to and continuous with the Rimutaka Forest Park, which in the region of Catchpool Stream extends to the floor of Wainuiomata Valley. To the west, a prominent ridge containing several named peaks, including Dilemma Hill (224m asl) and Sugarloaf (302) separates this character area from the adjacent and parallel Gollans catchment.

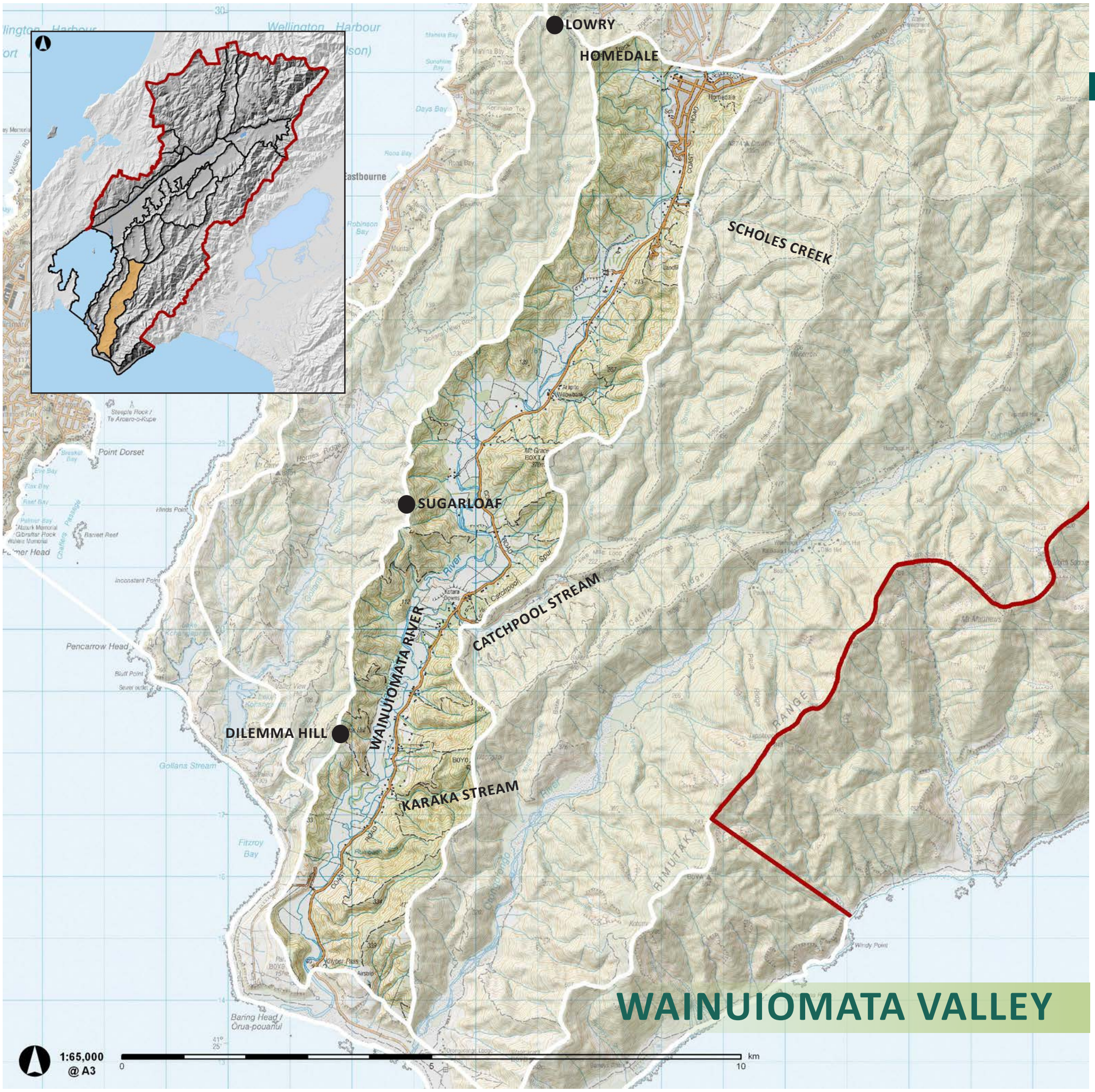
The hill slopes are covered in a mix of gorse and broom on the drier north-facing slopes, while the damper south-facing slopes and the gullies are covered in regenerating lowland beech and kamahi. The southern end of the Wainuiomata Valley also has several areas of pine plantation in various stages of growth and harvest. Further south towards the river mouth, the steep hillsides are slowly regenerating with species such as manuka and kanuka starting to suppress the gorse, and the effect of the proximity to the coast is evident in the tidal influence on the river and on the vegetation that must cope with salt laden southerly winds.

The majority of the Wainuiomata Valley floor is in pasture and farmed. Historically, the valley floor and surrounding hillsides would have been covered with dense podocarp-broadleaf forest, however this was milled in the 1850s and 1860s to meet the demand for timber in the Wellington region, and then converted to farmland.

The upper reaches of the Wainuiomata Valley are characterised by established and recently developed small scale lifestyle blocks while the lower reaches of the Valley continue to support larger scale pastoral farming.

Gorse covers large areas of the hill slopes although native species are beginning to overtop in the damper gully areas.

The majority of the Wainuiomata Valley floor is grazed farmland with scattered areas of gorse and remnant native vegetation.



WAINUIOMATA VALLEY

Near the mouth of the Wainuiomata River, the valley narrows.

The southern end of the Wainuiomata Valley has several areas of pine plantation on the hill slopes.

GOLLANS VALLEY

The Gollans Valley character area encompasses Gollans and Cameron catchments, two parallel valley systems that generally flow in a north-south direction and lie between the eastern coast of Wellington Harbour and Wainiuomata Valley.

Gollans Stream, the catchment to the east, has its headwaters around Mt Lowry, which at 373m asl is part of the ridgeline that separates this character area from the adjacent Wainuiomata Basin. Butterfly Creek, one of the major tributaries, joins Gollans Stream about half way down. The stream then drains into Lake Kohangatera before discharging into the sea.

Cameron Creek, running parallel to the lower part of the Gollans Stream Valley, is a much smaller catchment and has its headwaters around Mt Cameron which at 252m asl is one of the high points that separates Cameron Valley from the South Coast character area. The creek drains into Lake Kohangapiripiri before discharging into the sea.

The very southern part of these catchments, and the northern headwaters of Gollans Stream Valley, lie within of the East Harbour Regional Park (refer to Appendix 10).

The valley floors consist of heavy clay soils of low fertility, which have a tendency to be swampy and are prone to heavy frost; there is less wind than other areas in the Wellington region. The hills on either side of the valleys are generally steep with many of the hill slopes exceeding 35 °.

Around the headwaters of Gollans Valley the ridges are dominated by lowland beech species and kamahi, while podocarp/broadleaf associations dominate the valley floor. In pockets around the Butterfly Creek valley floor are areas of regenerating puketea, kahikatea and nikau.

Further down the valley the floor is primarily in pasture and is grazed, while the slopes on either side are covered in a mix of gorse and broom, with some indigenous broadleaf species on the damper south-facing slopes. Below the farmland the valley floor becomes quite swampy and the vegetation is mainly indigenous wetland species.

The vegetation around Cameron Valley consists of far more gorse and broom with the ridges primarily covered in exotic grassland. The exception are the southern slopes of Mt Cameron, which in the damper gullies have patches of kamahi and beech.

Aside from a few buildings associated with farming activities in the central area of Gollans Stream, buildings and structures are absent from both valleys. Access to this farm is gained via a road that leads from Camp Bay on the eastern side of Wellington Harbour.

Butterfly Creek is a popular recreation area for trampers and walkers and is accessible from tracks leading over the hill from Eastbourne.

The lower part of Gollans Valley is in pasture and is grazed while the slopes on either side of the valley floor are covered in a mix of gorse and broom, with some indigenous broadleaf species in some of the damper areas.

GOLLANS VALLEY

In the lower Cameron Creek the valley floor is dominated by wetland species while the surrounding slopes are a mix of regenerating natives and gorse and broom.

Cameron Creek flows into Lake Kohangapiripiri before discharging into the sea.

WELLINGTON HARBOUR

Te Whanganui-a-Tara, Wellington Harbour is a key element of both the Lower Hutt and Wellington landscapes. Covering an area of 70km^2, the harbour has tectonic origins and the Wellington fault lies along its north-western shore. This is the same fault line that Te Awa Kairangi/Hutt River follows. Much earlier in its geological history, the drainage systems of the Wellington Basin were quite different. Te Awa Kairangi/Hutt River followed the Wellington fault and drained into what we now know as Cook Strait somewhere between Miramar and Kilbirnie. The land to the south-east of this fault line was pushed downwards and eventually became submerged. The three islands that we see in Wellington Harbour today are the tops of these drowned valleys.

Today Te Awa Kairangi/Hutt River discharges into the Wellington Harbour at the eastern end of Petone beach. The sediment from the river is carried out into the harbour, where tidal action washes it back toward the shore. Deposition has smoothed out the harbour floor and raised it up particularly on the south-eastern margins. The build up of this sediment has resulted in the formation of the flat land and shallow sandy beaches in the Eastern Bays and at Petone.

Wellington Harbour features in the Maori story of the creation of New Zealand, which describes the North Island as a huge fish caught by Maui. Wellington harbour and Lake Wairarapa are the eyes of the fish.

According to Maori legend the harbour was once a lake that was occupied by two taniwha Whaitaitai and Ngake. Ngake became frustrated with his confinement in the harbour and forced his way out to the coast forming the entrance to Wellington harbour. His companion, Whaitaitai tried to follow but got stuck. The Miramar peninsula is in part the body of Whaitaitai.

The area around the Harbour has been inhabited by Maori since the 1100s. Evidence of this early settlement can be found in a number of archaeological sites such as pa sites, middens and pits, some of which are moa hunter sites.

Equally important in the history of Wellington Harbour is the arrival of European settlers. Members of the New Zealand Company arrived on board the 'Tory' in 1839 and set up camp on Petone Beach. Initially the lower reaches of Te Awa Kairangi/Hutt River were the focus for settlements, with settlements at Petone and further inland the town of Brittania was developed. The latter settlement, however, was short lived as severe flooding forced inhabitants to relocate to what is now Wellington city.

Near the centre of the harbour, Matiu/Somes Island is the largest of the three islands (25 ha). At a height of 74m asl, the top of the island is a gently undulating platform that drops off sharply towards a rocky shoreline. The island topography is dissected by a number of gullies, including one on the south-western side that is particularly distinctive. These gullies form damper microclimates and have allowed native salt and wind tolerant vegetation to flourish.

In 1995, Matiu/Somes Island became a Department of Conservation scientific and historic reserve. Since then rats and other pests have been eradicated from the island. With the help of supplementary planting by volunteers, the native vegetation is now regenerating. The removal of pests on the island has also meant that it provides ideal habitat for tuatara, weta and native birds. The flat top of the island is primarily in pasture and is used for grazing.

Matiu/Somes Island has an interesting history. Named by Kupe after one of his daughters, it was originally used by early Maori as a strategic pa, as it was easy to secure and defend. Later, at the time of early European settlement it became a quarantine station, initially for both humans and animals. The human quarantine facilities closed in 1920, while the animal quarantine station remained until the 1980s.

During the world wars, the island was used as an internment camp of 'enemy aliens', and five gun emplacements were built. Evidence of this recent history is visible on the island today, with the gun emplacements and number of buildings related to the animal quarantine station remaining. Several resident Department of Conservation staff are based permanently on the island. The island also receives approximately 10,000 visitors a year, who come to enjoy the short walks around the island and to appreciate the wildlife.

Off the northern point of Matiu/Somes Island, is the much smaller Mokopuna Island. This is vegetated almost entirely in hardy native coastal species. The island is a bird reserve and is used by little blue penguins and gulls for nesting. No landing is allowed on the island.

Lying off the coast of Eastbourne, Mākaro/Ward Island (the Maori name, Mākaro also derives from one of Kupe's daughters) is exposed to salt laden gales; vegetation is salt tolerant and consists mainly of taupata.

The entrance to the harbour has a notorious reputation with a number of boats running aground on Barrett Reef, including the interisland ferry, the Wahine, which grounded during a storm in 1968 resulting in the loss of 53 lives.

With lack of wind rarely a problem, sailing and wind surfing are popular recreation activities on the harbour. Fishing, both from on-shore, and from boats is also popular.

Sediment from Te Awa Kairangi/Hutt River deposited at Petone forming a sandy beach, one of the few in Wellington Harbour.

The three islands within Wellington Harbour are the tops of drowned river valley systems.

WELLINGTON HARBOUR

Situated in the centre of Wellington Harbour, Matiu/Somes Island is primarily covered in revegetating native forest. Its pest free status provides an ideal habitat for little blue penguins, tuatara and giant weta.

EASTERN BAYS

The Eastern Bays character area lies on the eastern side of Wellington Harbour, between Point Arthur in the south and Port Howard in the north. The coastline of this character area comprises a series of small sandy bays separated by rocky headlands. Flat land is scarce, with the largest flat areas located in Days Bay, Lowry Bay and Eastbourne, where the meeting of sediment-laden currents has allowed build up of the foreshore. Elsewhere, the land rises steeply from the water to a sharp ridge that varies in height from 230m asl to 370m asl and separates the coast from the Wainuiomata basin and Gollans Stream catchments.

The steep hill slopes are covered primarily in lowland beech forest in various stages of regeneration. Although there is also a stand of large old pines above York Bay. These hills have had a history of localised wild fire and evidence of these fires is visible on several hill slopes. The majority of the forest covered slopes are part of the East Harbour Regional Park.

The relatively sheltered bays and slopes with sunny aspect have long been a favourable place for human settlement. The eastern coast of the harbour was originally occupied by Maori who had settlements in the sheltered bays, including Port Howard, Days Bay and the areas north and south of what is now Eastbourne.

The coast provided an important transport link to and from Wairarapa for Maori, and for early farming settlers who used it as a route to run stock.

Towards the late 1800s, the Eastern Bays become a recreational destination for Wellingtonians. A large pavilion was developed in Days Bay for dining and dancing, as well as an amusement park, a hotel and a food kiosk. Shortly before World War I the land around Days Bay was subdivided for housing and following the development of better roads and cars, the Eastern Bays became and have continued to be a popular residential area.

Residential zoning covers 29% of the character area and currently dwellings occupy the narrow coastal flats in Days Bay, Eastbourne and Lowry Bay, and along the shoreline. The dwellings are interspersed with a mix of exotic and native vegetation including Norfolk pines (which were planted as the earliest Anzac memorial in the area), ngaio, pohutukawa and macrocarpa. In places, there is residential development on the lower slopes, where it is nestled into the remnant beech and regenerating native forest.

Suburban commercial and general business zoning comprise 0.2% of the character area.

A number of wharfs and boat sheds are scattered along the shore line which are an important feature, and a link to the maritime history of the area; of particular note is the Rona Bay wharf. It is on this shore that many of the survivors of the 1968 Wahine disaster managed to struggle ashore; a memorial to this event has recently been erected.

The coastal area provides many recreation opportunities with several walking tracks leading from the coast to the ridge and beyond. The coastline itself is a key recreational area for the local and wider Wellington population, for activities including boating, surfing, fishing, and swimming.

The sediment laden currents have deposited at Eastbourne forming one of the largest areas of flat land along the eastern coast.

Houses are nestled into the vegetation on the hill slopes

The steep hill slopes are covered primarily in lowland beech forest in various stages of regeneration.

Recreational activities including boating are popular along the coast.

Days Bay, one of the few areas of flat land on the eastern coast of Wellington Harbour.

EASTERN BAYS

The land rises steeply from the water to a sharp vegetated ridge

SOUTH COAST

The South Coast character area extends from Point Arthur in Wellington Harbour to Mukamukaiti Stream in Palliser Bay. In general, the landscape comprises steep coastal escarpment, and exposed headlands with a flattish coastal shore platform varying from 100-500m wide. The shore platform, has been formed by uplift of the coast, most recently by the 1855 earthquake. The coastal area is abruptly defined by the steep to very steep coastal escarpment and hill slopes immediately behind the shore platform. Between Pencarrow Head and Point Arthur, the coast is oriented towards Wellington Harbour. Here the coastline is almost entirely rocky and a narrow coastal platform allows a well defined gravel road to wind its way along the coast between the shore and the steeply rising slope to the east. These slopes rise to a ridge that varies in height from approximately 150m asl to a high point of 252m asl (Mt Cameron).

Pencarrow Head featured early in New Zealand Company plans to protect shipping and as early as 1842 a temporary white beacon was erected there. Later this was replaced with a more permanent lighthouse, together with a second, low level lighthouse. Despite these precautions, the harbour entrance remains dangerous to shipping with at least 20 ship wrecks recorded at Pencarrow Head, the most recent in 1981.

South-east of Pencarrow Head, the coastal platform widens to between 100m and 200m. In places, the otherwise rocky shore line is broken up with rugged sandy beaches that drop steeply into the sea. Slightly inland from this shore line are two regionally important coastal lakes. Lakes Kohangapiripiri and Kohangatera were once tidal inlets, but over time wave action and earthquakes have raised the foreshore and created bars to the sea. The lakes now support a rich succession of wetland vegetation, including oioi, raupo, toetoe, flax and giant umbrella sedge.

Further in a south-easterly direction, the next prominent headland, Baring Head, is highly visible. Recently, 284.6 ha of land has been added to East Harbour Regional Park, including Baring Head and the land between Fitzroy Bay and Wainuiomata River valley.

The Wainuiomata and Orongorongo Rivers discharge to the sea between Baring Head and Turakirae Head. The gravel and sediment discharged from these rivers has built up along the coast, forming thick sand and gravel beaches. The Fitzroy Bay area has been mined for sand and shingle since the 1920s, and this operation continues today. Along this section of coast, the coastal platform is between 200 and 500m wide. Just west of the Orongorongo River mouth the land rises steeply to a bench approximately 100m asl. Beyond this, the hill slopes consist largely of scree and shingle and rise to a high point of 477m asl. East of Orongorongo River and beyond Turakirae Head the coastal escarpment rises to 864m asl.

The coastal platform at Turakirae Head and environs shows evidence of uplift with a series of raised beaches caused by several earthquakes that have occurred over many hundreds of years. The 1855 earthquake was not the first to raise the coastal platform; about 500 years ago the Haowhenua Earthquake resulted in an even larger uplift. Prior to this were at least three similar events. The raised beaches at Turakirae Head, which are home to a fur seal colony, are included in a DoC Scientific Reserve and are internationally recognised in geological circles.

Rainfall is fairly consistent year round on the coast, and sea fogs increase humidity. The area is extremely exposed, particularly to the north-westerly and southerly winds. The steep hillsides around the headlands were once farmed but are now reverting to salt and wind-tolerant native species, including coastal shrubland and alluvial herbfields.

Near the mouths of the Wainuiomata and Orongorongo Rivers are several groves of karaka. These were planted as a food source by early Maori who used the coast as an access route between the Heretaunga (Hutt) and Wairarapa Valleys. The south coast has a myriad of scattered archaeological sites associated with Maori occupation such as middens, pa sites and pits.

Early European settlers also used the coast as a route to and from the Wairarapa. However, this was a difficult route, which was impassable at high tide and dangerous even at low tide. In places, stock had to be lifted down through the rocks. The earthquake in 1855, which raised the beaches enlarging the coastal platform, made the route easier. Following the construction of the Rimutaka Hill Road in 1856 this route became less used.

Other than some gravel roads and tracks, the coast remains free from any significant development and is popular for tramping, mountain biking, surfing and fishing, and on a fine day there are views to the Kaikoura Ranges in the South Island. The route around the coast also provides access to Orongorongo Station, a large sheep farm at the base of the Orongorongo Valley.

The raised beaches at Baring Head were formed during past ice ages when the sea level was much higher than today.

The coastal lakes were once tidal inlets, but successive earthquakes raised the level of the beach, cutting the lakes off from the ocean.

CAMP BAY
PENCARROW HEAD
LAKE KOHANGAPIRIPIRI
LAKE KOHANGATERA
FITZROY BAY
BARING HEAD
TURAKIRAE HEAD
WAINUIOMATA RIVER
ORONGORONGO RIVER
MUKAMUKAITI STREAM
PALLISER BAY
RIMUTAKA RANGE
Point Dorset
Steeple Rock / Te Aroaro-o-Kupe
Hinds Point
Barrett Reef
Inconstant Point
Pencarrow Head
Lake Kohangapiripiri
Lake Kohangatera
Gollans Stream
Fitzroy Bay
Khyber Pass
Baring Head / Ōrua-pouanui
Turakirae Head
Windy Point
Fishermans Rock
1:55,000 @ A3
0
5
10
km

SOUTH COAST

The landscape of the South Coast consists of steep coastal escarpment, exposed headlands with a flat coastal shore platform.

BELMONT HILLS

The Belmont Hills character area includes the rounded hilltops and slopes above the Wellington Fault escarpment, adjacent to the lower reaches of Te Awa Kairangi/Hutt River. The hills with their distinctive flat tops form part of a central plateau separating Wellington Harbour and the Hutt Valley from Porirua Harbour. This plateau is part of an ancient peneplain that has been uplifted and subjected to the freeze-thaw action of the most recent ice age, which has had a smoothing influence on ridge tops and spurs. At 410m asl, Round Knob is the highest point on this part of the peneplain. Broad basins, gullies and fault-defined valleys create diverse microclimates within the character area.

As in much of the Wellington region, wind in this character area is significant at times, with the gullies channelling and eddying the wind which shapes the vegetation.

Much of this character area is part of the Belmont Regional Park, the first park in New Zealand to combine land for recreation, conservation and farming purposes. In pre-European times this would have been covered in podocarp forest. However, the elevated and open hilltops are now in pasture and grazed primarily by sheep. In the lower and more sheltered slopes and gullies, broadleaf indigenous hardwoods are present, although there are also large sections of gorse and broom and some pine plantations, particularly in the area to the east of Haywards Hill Road (SH58).

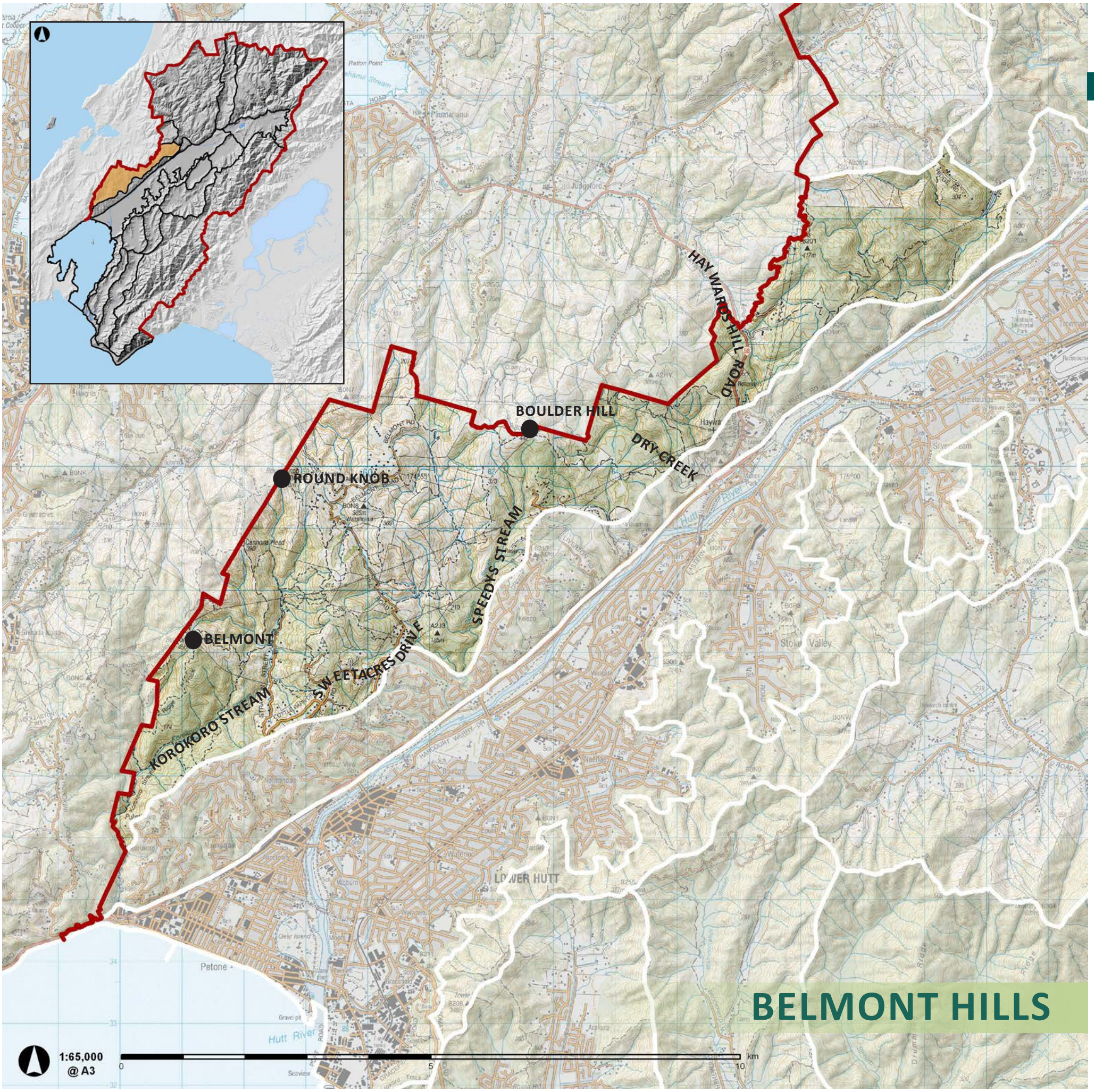
West of Haywards Hill Road, remnant native forest around Dry Creek includes pukatea, matai and kahikatea. The Korokoro Valley has significant stands of rimu/rata/tawa/kohekohe and is one of the few such areas in the region. Due to the increased demand for water supply, Korokoro Stream was dammed in the early 1900s to provide for the growing needs of Petone. The dam has not supplied water since 1962, but it remains a focal point in Belmont Regional Park.

The area has a varied history. Maori used two major routes linking Wellington and Porirua harbours. One began from the Korokoro Stream mouth that wound over the hills before descending into Porirua Harbour. The other ran from Pauatahanui arm of Porirua Harbour south over the hills, and exiting at Normandale road. This latter route which is now known as the Old Coach Road was a proposed road connection between the two harbours in the 1850s, and was used by coaches until the mid 1880s when it was abandoned in preference to the Haywards Hill Road. Today Old Coach Road is part of the track system in Belmont Regional Park and the section between the sealed normandale road end and belmont Road junction is registered with the Historic Places Trust as a Category II Historic Place.

Belmont Regional Park also has a military history; during World War II, 62 concrete magazines were built to store army munitions for the Pacific Campaign in the area north of Waitangirua (385m asl). Access to these magazines was via Old Coach Road.

Easily accessible from Porirua and the Hutt Valley, the Belmont Hills including Belmont Regional Park, are popular for recreational activities such as walking, running, horse riding and mountain biking. Generally, development in the area is sparse, although the area surrounding Sweetacres Drive, Stratton Street and upper Kelson contains a number of small farms and lifestyle blocks.

The Belmont character area includes the rounded hilltops and slopes above the Wellington Fault escarpment that separate the Hutt valley from Porirua Harbour. The elevated hilltops and basins are now primarily in pasture for grazing by sheep.



BELMONT HILLS

Many of the hilltops around Belmont are in pasture for grazing with broad leaf indigenous hardwoods present in the gullies and the sheltered slopes.

MOONSHINE BASIN

The Moonshine Basin character area is a small elevated basin that sits about 200-300m above the Hutt Valley. This basin is part of an ancient peneplain that has been uplifted. The freeze-thaw action associated with the most recent ice age has had a softening effect, rounding the spurs and filling in the gullies, creating a gentle undulating landscape that is distinct from the surrounding area, which is generally quite steep. A steep ridgeline rising to a height of 468m asl forms the north-western boundary to this character area.

The Moonshine Basin is located on the boundary of Upper Hutt City and Porirua City at the head of two catchments; to the east the Whakatikei River flows into Te Awa Kairangi/Hutt River and to the west streams drain in the opposite direction into the Pauatahanui catchment.

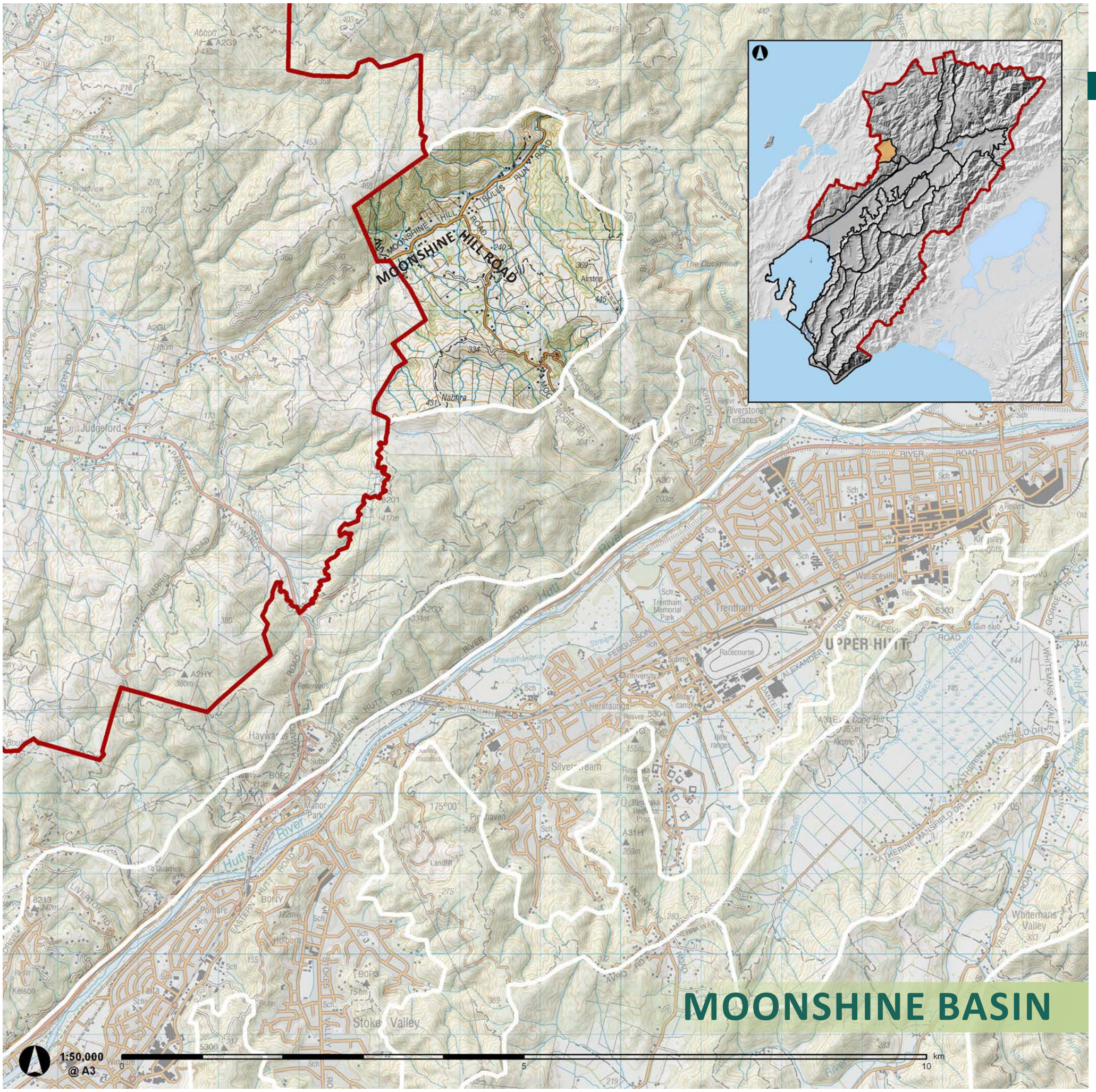
From the Hutt Valley, access to the basin is via Moonshine Hill Road; beyond the basin the road continues through to Judgeford. The basin has an enclosed character that is distinct from the Hutt Valley.

Part of the Akatarawa Forest and future Water Collection Area occupies the north-eastern side of the character area. On the northern slopes there are areas of regenerating podocarp/tawa forest together with pine plantations and exotic woodlots, which also occur in occasional patches on the basin floor. Manuka and kanuka is present in some of the gullies but pasture covers much of the more gentle slopes and rolling basin floor.

The settlement pattern in the valley is linear with most dwellings positioned close to the roads. Small rural properties and lifestyle blocks of 10 ha and less dominate the valley, particularly in close proximity to the road, with larger pastoral farming on the hill country.

The Moonshine Basin character area, seen in the top of this picture, is a small basin perched above the western escarpment.

Small rural properties and lifestyle blocks of 10 ha and less dominate the valley particularly in close proximity to the road, with larger pastoral farming on the hill country.



MOONSHINE BASIN

The freeze-thaw action associated with the most recent ice age has had a softening effect, rounding the spurs and filling in the gullies, creating a gentle undulating landscape.

WHAKATIKEI HILLS

The Whakatikei character area marks the northwest extent of the Upper Hutt City district, located between Akatarawa River and Horokiri Stream in Porirua catchment. The northern boundary of the character area adjoins the Kāpiti Coast District and the western boundary is shared with Porirua City.

The area is made up of an intricate series of gullies, spurs and valleys creating a convoluted, dissected landscape with the rivers draining generally southward and eventually to the Akatarawa River and Te Awa Kairangi/Hutt River. The highest peaks Wainui (722m asl), Titi (613m asl) and Maunganui (708m asl) form the northern boundary of this character area, and also provide the backdrop to the neighbouring districts. Most of the character area lies within the Akatarawa Forest

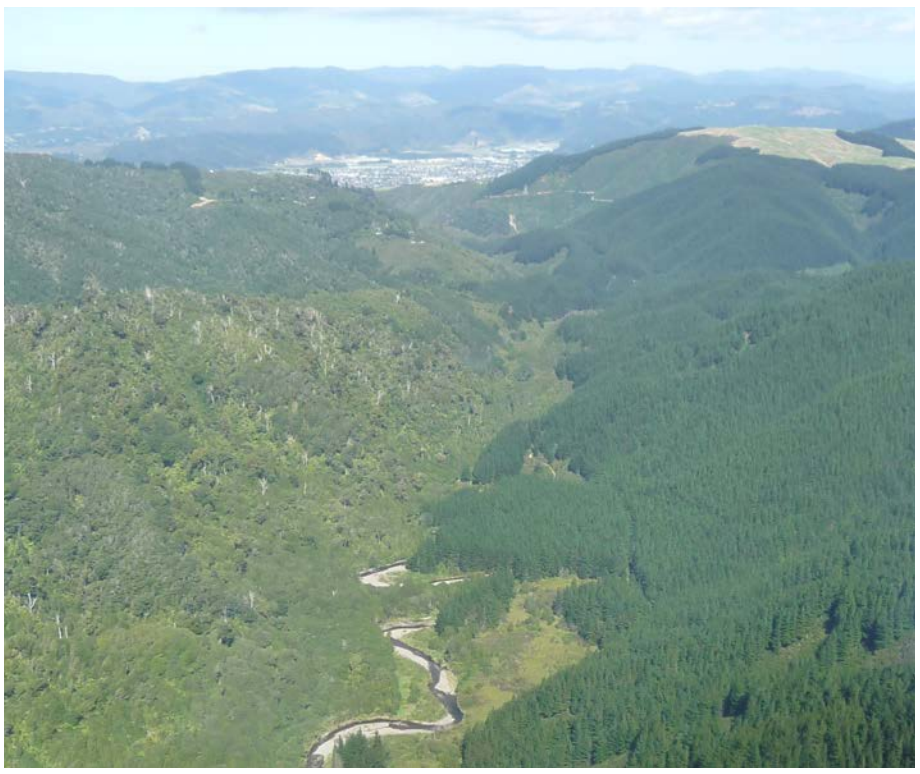
Since arrival of Europeans, the indigenous forest cover and composition in this character area has changed significantly through the introduction of animals and fires, but mostly through logging of native timber. The period 1900-1920, saw the arrival of many families to the area who were associated with logging and milling.

Forestry remains an important industry in this area with large plantation pine forest in various stages of growth/harvest covering many of the southern slopes. Most of the character area supports a mix of original and regenerating native forest, comprising lowland montane communities, including red beech, miro, rimu, montane totara and kamahi. This forest is at various stages of regeneration, having been burnt-over on numerous occasions; some areas are quite young while in others regeneration is well advanced. Its large size, species composition and its relative intactness make this an important area of indigenous forest.

There is very little built development with the exception of three transmission lines passing through the north-west corner, and access roads and forestry tracks. With the absence of public roads into the interior and access limited to a network of four-wheel-drive tracks, the area remains relatively wild and remote. The area has long been important for recreation, particularly for four-wheel-drive clubs, trail bikers, hunters and trampers; it is also the location for the Karapoti Classic, a popular mountain bike race.

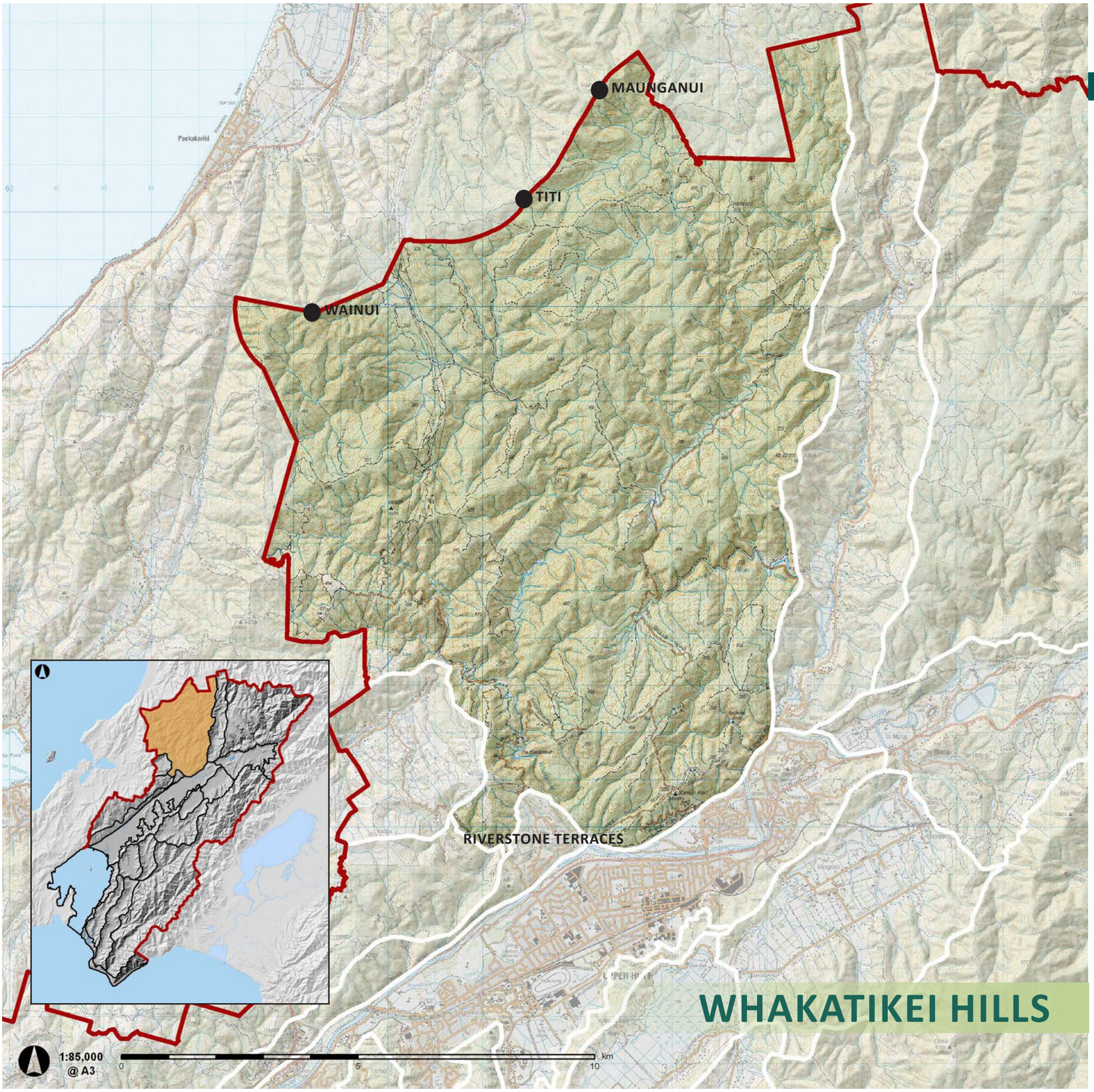
The Whakatikei River drains into Te Awa Kairangi/Hutt River.

Vegetation is a mix of plantation forestry and original and regenerating native forest.



Birch spur road winds its way from Riverstone Terraces along the edge of the Whakatikei Valley.

The character area supports a mix of original and regenerating native forest, made up of red beech, miro, rimu, montane totara and kamahi



An intricate series of gullies, spurs and valleys creates a convoluted, dissected landscape.

AKATARAWA VALLEY

The Akatarawa Valley is a narrow, north-south aligned valley that lies to the north of the Upper Hutt valley. The valley is enclosed by steep, convoluted slopes, which are dissected by the deep gullies of Akatarawa River tributaries.

The Akatarawa Valley slices through the large block of more dissected hill country to its east and west. It is more or less completely bounded by land owned and administered by GWRC, with Akatarawa Forest to the west and Kaitoke Regional Park and Tararua Forest Park to the east.

Akatarawa Road winds its way along the valley floor providing a connection between the Hutt Valley and Kāpiti Coast. Towards the head of the valley the road veers away from the Akatarawa River and instead follows Bull Stream, which is one of the major tributaries.

The very steep, densely forested slopes of the valley, and its wild, rugged feel, make it distinctive from many of the other easily accessible valley systems in the study area. These slopes are largely covered in dense regenerating podocarp forest comprising mainly rata and rimu, over a canopy of tawa and kamahi, interspersed with patches of kanuka, manuka, gorse and broom. In addition to indigenous vegetation, large areas of exotic pine plantation cover sections of the hill slopes and extend on to the valley floor. Some of these plantations in the lower valley are continuous with the Akatarawa Forest, an area that has been logged extensively since the late 1800s. Between 1900 and 1920 many families associated with logging and sawmilling moved into the valley. However since the 1950s many of the hill slopes have been allowed to regenerate.

By contrast the vegetation on the gently undulating valley floor is more sparse, consisting of a mix of native and exotic trees and shelter belts, although in places there are areas of pine plantations. In winter, the valley floor experiences regular frosts and can be cooler than the surrounding region due to cold air inversions.

The valley has long been an access route between the Kāpiti Coast and Wellington, and was used by early Maori. Later a coach road was established along the same route. This route was considered for an early rail link between the Hutt Valley and the Kāpiti coast, but was abandoned in the 1870s when a direct line between the Wellington City and Porirua via Johnsonville was built.

The valley is sparsely populated with nearly all of the settlement clustered at the southern end adjacent to the road, although further up the valley is a cluster of residential properties known as Cloustonville.

Most of the narrow valley floor, is divided into small lifestyle blocks and there are several commercial operations including a sawmill, blueberry farms, Staglands Wildlife Park and Wellesley Country Park events venue.

Much of the narrow valley floor is divided into small lifestyle blocks and is in pasture for grazing.

The Akatarawa River - one of the main tributaries of Te Awa Kairangi/Hutt River.

BULLSTREAM

CLOUSTONVILLE

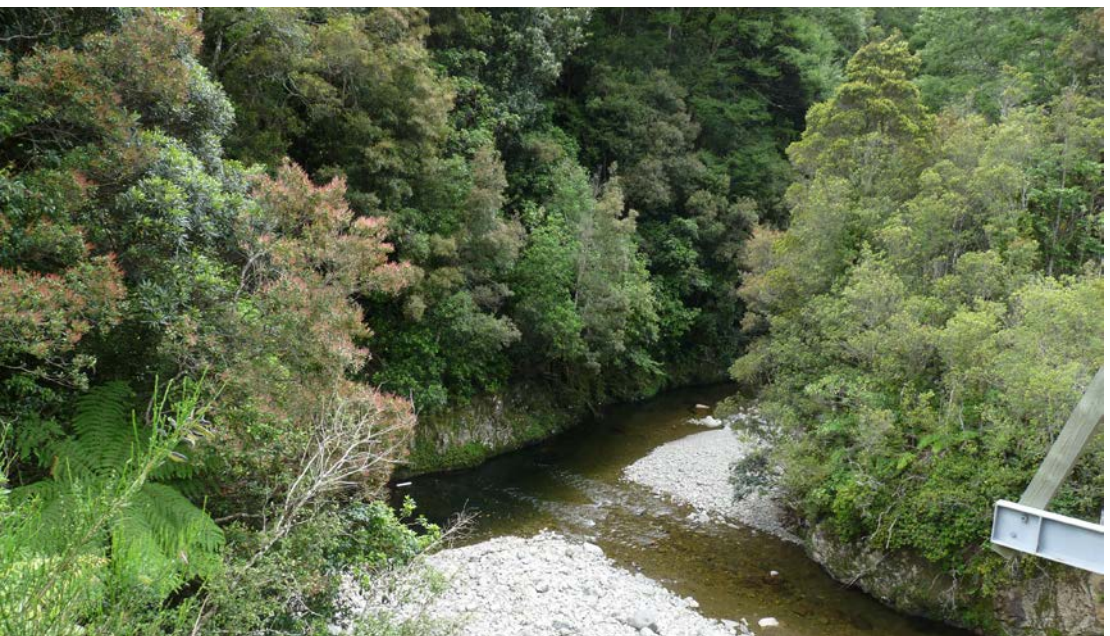
AKATARAWA RIVER

AKATARAWA VALLEY

1:65,000 @ A3

0 5 10 km

In places Akatarawa Valley is quite enclosed with the slopes rising steeply from the river.



Large areas of exotic pine plantation cover sections of the hill slopes and extend on to the valley floor

HUTT HEADWATERS

The Hutt Headwaters character area includes the southern tip of the steep forested Tararua Ranges, which provide a substantial physical barrier between the Hutt Valley and the Wairarapa Valley to the north-east. The character area consists of parallel ranges interspersed with deep river valleys. The eastern boundary of this character area is Marchant Ridge which forms part of the skyline of the Tararuas when viewed from Wellington, while Renata Ridge forms the boundary to the north. Tararua Forest Park lies to the north with only a small part of it, to the east of the Akatarawa Valley, lying within the character area. The Hutt Water Collection Area and Kaitoke Regional Park overlay most of the character area.

The slopes are typically steep (26-35°) to very steep (>35°), with peaks reaching up to 1529m asl (Mt Hector/Pukemoumou). The relatively consistent height of the Tararua summits is an indication that they were once part of an ancient plain. This plain has since been squeezed and uplifted, and weathering and erosion have contributed to the form of the existing Tararua Ranges.

In the valley floors and lower slopes, the vegetation is primarily podocarp forest with a canopy of rata and rimu over an under storey of tawa and kamahi. Further up, above 500-550m, beech forest dominates, reflecting the increased rainfall and colder temperatures of higher altitudes. This is mainly silver beech although red beech is also present particularly in lower, more fertile sites.

Above the tree-line is a band of sub-alpine scrub. The dominant species is leatherwood although Dracophyllum and mountain kiokio are also present. Beyond the sub-alpine scrub, the tops are covered in alpine tussock grasslands and herbfields. These areas are snow-covered for many of the winter months.

Maori regularly travelled through the Ranges between Wairarapa, Kāpiti Coast, Porirua and Hutt Valley, and this is reflected in the names of the peaks and streams in this character area. Archaeological evidence of the Maori history of the ranges is plentiful with a number of adzes, obsidian flakes and umu found along frequently travelled routes.

Exploration into the Tararuas by early Europeans was motivated by a need to survey the plains to the east and west of the Ranges for occupation by new settlers. This required triangulation using sight lines from the highest peaks.

Today, Te Awa Kairangi/Hutt River catchment, which mainly originates in the Tararua Ranges, provides half of the water supply for the Wellington urban area.

The steep and densely forested landscape has long provided an allure for recreation such as tramping and hunting, with tramping tracks forming the only access into the area. Despite the rugged landscape and severe climate, the Tararua Ranges are now one of the most frequented alpine areas in the country, due in part to its close proximity to Wellington and other large urban areas. Pakuratahi Forks is also a well-used recreation area in Kaitoke Regional Park, providing camping, picnicking and swimming, and access to the Hutt Gorge which is a popular place for rafting.

Te Awa Kairangi/Hutt River near Pakuratahi forks

Headwaters of the Te Awa Kairangi/Hutt River consists of a large intact area of mature indigenous forest and provides water for Wellington.

The rugged landscape of the Tararua Ranges is a popular recreation area for trampers and hunters.

Lower slopes and valley floors are generally covered in dense podocarp forest while on higher slopes beech species dominate.

RIMUTAKA RANGES

The Rimutaka Ranges provide visual and physical separation between the Wairarapa and the Hutt Valley districts. The Rimutaka Ranges character area comprises the western part of the Rimutaka Ranges; the eastern part of the Ranges are situated in the Wairarapa District. The area extends from the Rimutaka Hill Road (SH2) north of Upper Hutt, to Turakirae Head on the south coast.

The character area comprises a series of parallel valleys and ridges, aligned to the north-east/south-west, that are also parallel to the major faults in the area. The West Wairarapa Fault lies immediately east of the Rimutaka Range and the 1855 earthquake, which was the most recent significant upthrust of this fault, lifted the Ranges by three metres.

The north-east/south-west trend of the Rimutaka and Tararua Ranges reflects their formative faulting and uplifting processes and consequentially distinctive grain of the topography of the Lower North Island. The ranges are slightly lower than the nearby Tararua Ranges, the highest peak being Mt Matthews (941m asl).

The entire length of the Orongorongo River, and the headwaters of the Wainuiomata River lie within this character area and drain to the south coast. Several streams drain into the Mangaroa Valley and further north the Pakuratahi River flows northwards into the Kaitoke Basin.

The lower reaches of the Orongorongo Valley are the only sizeable farmed area; grazed by sheep and cattle, the surrounding hillsides are covered in rough pasture and low native scrub such as tauhinu.

The Rimutaka Range is predominantly covered with indigenous forest dominated by beech and kamahi vegetation communities, particularly red, black and silver beech; the red beech drops out at higher altitudes and the black beech tends to be present at lower altitudes. At lower altitudes, there are also pockets of totara and miro forest. In the north, in the lower reaches of the Pakuratahi River and on the slopes above, are some areas of pine plantation.

The original forest at the southern end of the range has been destroyed by fire and in this area the vegetation is now primarily early successional species such as manuka with some emergent rewarewa.

Most of the mountainous character area is owned and managed as forest park, water collection areas, or regional forest. By the 1920s the increased demand for water supply resulted in the development of the upper Orongorongo River as a water collection area. The water treatment plant in the upper Wainuiomata River provides 20% of the water for Wellington urban area. The 22,000 ha Rimutaka Forest Park, which is managed by the Department of Conservation, encompasses much of the Rimutaka Range, although a large portion of this Park lies to the east of this character area and is in the Wairarapa District.

Further north, the Pakuratahi Forest is managed by Greater Wellington Regional Council. This area is also proposed as a future water collection area. Within the character area itself there is an absence of public roads, creating a sense of rugged remoteness.

Easily accessible from Wellington, the Rimutaka Ranges are popular with hunters and trampers, and contain a long-established network of tracks.

Catchpool Stream is one of the most well-used entry points into the Forest Park, providing access into the Orongorongo Valley.

A railway established in 1878 between the Hutt Valley and Featherston reached the summit of the range via a series of tunnels, however the steep descent into the Wairarapa required the patented Fell system which allowed descent on steeper gradients. This section of the railway was known as the Rimutaka Incline and remained in use until the Rimutaka rail tunnel opened in 1955. The land which falls into two districts is now jointly managed by Department of Conservation (Wairarapa District) and Greater Wellington Regional Council (Hutt District) and the benched track has been converted into a cycleway, the Rimutaka Rail Trail, providing access between Upper Hutt and the Wairarapa Valley.

There are numerous huts in the Orongorongo Valley, some privately owned and some owned by DoC.

Catchpool Road provides access into the Orongorongo Valley and Rimutaka Forest Park.

Fire has destroyed much of the original forest at the southern end of the Rimutaka ranges; early successional species such as manuka now dominate with some emergent rewarewa.

The snow covered Rimutaka Ranges provide a backdrop much of the Hutt Valley

RIMUTAKA RANGES

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APPENDICES

1. MAORI HISTORY
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3. IDENTIFIED HERITAGE SITES
4. GEOLOGY
5. GEOPRESERVATION SITES
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APPENDIX 1: MAORI CULTURAL HISTORY

When Maori first arrived in the Hutt Valley it was a place of dense forest of tall timber but also a place abundant with the all important food sources, such as large birds on both the forest floor and in the lofty canopy. The river Te Awa Kairangi was not only a major feature in the landscape, but was also the major highway up the valley with waka able to reach around Upper Hutt, before the uplift of 1855. At the harbour end of the valley the swamps like Te Mome and around Te Awa Mutu and Waiwhetu Streams, were another valuable food store for Maori. These swamps were later seen as a major impediment to housing and farming when the New Zealand Company settlers arrived in the Hutt in 1840.

The Polynesian explorer Kupe arrived in what is now known as Wellington Harbour and he and his family and crew are remembered in the many place names in and around the harbour. Names such as Mātiu and Makāro or Somes and Ward Islands remembered Kupe's nieces and remain strongly connected to the Hutt with fresh water bubbling into the harbour from the Hutt aquifers close to Mātiu. Kupe did not stay, but the markers he left in the landscape did.

The earliest settlements by Maori in this part of the Hutt Valley were of the hapu descended from Whatonga and his two sons, the half brothers Tautoki (the father of Rangitane) and Tara, after whom Wellington Harbour was named (Te Whanganui a Tara). Tara's people occupied Wellington's South Coast and around the harbour to Fitzroy Bay. Tautoki's people were located in the Wairarapa and in the Upper Hutt valley to the south coast around Turakirae. The population was sparse and mobile, however Pā were established as far north as Pakuratahi. Maori predominantly lived on the coast where the food resource was rich and varied. From the coast hunting parties ventured far inland to draw on those stocks and then returned to the coast.

Tautoki also established the first Pā at Parangarahu/Fitzroy Bay near Baring Head. This Pā was to be a refuge for the people of his half brother Taraika when his Pā, at Whetu Kairangi/Worser Bay, was sacked many centuries ago. This was one of many coastal Pā and kainga such as at the mouth of the Orongorongo River and Korohiwi, Okiwi-nui, Oruamotoro, and Owhiti around the east harbour. Parangarahu Pā ruled over the broad sweep of Fitzroy Bay and its rich marine resources of shell fish and fin fish. Close by are the two Lakes Kohangapiripiri and Kohangatera which, along with the stream feeding into them, supplied Maori with tuna/eel and kokopu along with raupo for houses.

The Orongorongo valley has changed radically over the years as a result of earth movements and Turakirae Head is the model for students studying tectonic movements in Aotearoa and is an outstanding landscape for many reasons. It was also to become the meeting point of the takiwa of Te Atiawa to the west and Ngati Kahungunu into Palliser Bay. Orongorongo like the neighbouring Wainuiomata Rivers were paths for Maori to go birding as well as fishing for tuna/eel. Tracks took people over the Rimutaka range between the Wairarapa and Te Whanganui a Tara, however the main trails were around the coastline.

The Upper Hutt Valley landscape was dominated by the snowy peaks of the Tararua Range at the head of the valley and to the West, and Rimutaka/Remutaka to the east. The tribes did not dominate the landscape and often simply moved through the area gathering food where required from the forest, rivers, streams and swamps. The upper valley was and still is the domain of the tuna/long-finned eel along with the pakura/swamp hen or pukeko (hence Pakuratahi).

The nature of the valley dominated by tall podocarp forest finally gave way to the swamp lands near Te Whanganui a Tara/the great harbour of Tara. The valley was and is, dissected by Te Awakairangi/Heretaunga/Hutt River. It was a bigger river before the uplift of 1855. It was deeper and had a more complex and extensive mouth with many islands and channels bringing together the Waiwhetu and Awa Mutu streams with the Hutt River to exit together into the harbour.

To the west the Korokoro Stream cuts through the western hills with dense forest still remaining in parts. Its full name is Te Korokoro o te Mana – the throat/food supply of Te Mana, which indicates its importance for sustaining the Pā and kāinga. At Maungaraki is the lookout of Puketirotiro, where those from Pito-one Pā could spy both up the valley and across the harbour looking for the smoke of the fires of parties which might seek to invade.

Ngai Tara and Tautoki's people were displaced and intermingled with Ngati Ira when they, like Whatonga long before them, migrated from the east coast. It was the Ngati Ira hapu of Ngati Rakaiwhakairi and Ngati Kahukuraahitia who were attacked by the musket taua (war party) in 1819-20 and again in 1821-1822 and were forced to retreat to live with their kin in the Wairarapa.

This taua was followed by several waves of migration to the west coast, around Waikanae and Kapiti, of Ngati Toa and their kin from Ngati Koata, Ngati Rarua from Kawhia along with the Ngati Awa iwi of Ngati Tama, and Ngati Mutunga and Te Atiawa from Northern Taranaki. Between 1820 and 1830 Ngati Tama and Ngati Mutunga came into Te Whanganui a Tara and established settlements around the harbour. During this period of migration the fighting chiefs of Te Atiawa from Nga Motu (New Plymouth) settled in the Wairarapa. They returned from the Wairarapa in 1835 when Ngati Tama and Ngati Mutunga departed for the Chatham Islands, with Te Atiawa taking over places such as Waiwhetu, Ngauranga, Pipitea, and others predominantly around the harbour. After 1842 some of Ngati Tama returned to Wellington from the Chatham Islands and sought to take up their interests again in the Wellington region.

The first of the main heke from Taranaki in 1822 was known as 'Tataramoa' or 'bramble bush' migration. This migration comprised Ngati Awa iwi and a contingent of Ngati Toa led by Te Rauparaha. This was a deliberate migration to the southern region of the North Island. Ngati Awa and Ngati Toa's intention was to establish permanent settlements to facilitate further migration of their kin to Te Whanganui a Tara and its environs.

The 'Nihoputa' or 'boars tusk' migration was next and included a large group of Ngati Tama, Ngati Mutunga, and Te Atiawa. Ngati Toa, who was now established on Kapiti Island following a series of engagements with Muaupoko and Rangitane for control over the Kapiti Coast, was pleased with the arrival of their north Taranaki allies and the augmentation of their forces in the region. [1] Ngati Mutunga and Te Atiawa established settlements in Waikanae and Ngati Tama people went to Ohariu. Eventually, Ngati Mutunga, and Te Atiawa moved into Wellington Harbour.

[1] Waitangi Tribunal report - Te Whanganui a Tara me ona Takiwa: Report on the Wellington District p 22

The final heke from the Nga Motu (New Plymouth) area, after yet another attack by Waikato, are referred to in Taranaki traditions as Tama te Uaua and Paukena. In 1832 a very large group of Te Atiawa, along with others from Ngati Tama and Ngati Mutunga migrated south. They settled at Waikanae and fought in the last battle with the Whatonga descendants at Heretaunga (Upper Hutt) against Rakaiwhakairi and Ngati Kahukuraahitia who then retreated to the Wairarapa.

After the arrival of the Tama te Uaua the dominance of Te Rauparaha over the alliance of the Kawhia and Taranaki tribes changed and the move into Te Whanganui a Tara saw the growth the independence of the Taranaki tribes. The traditional alliance between Ngati Toa and Ngati Awa began to disintegrate, particularly leading up to and after the battle of Haowhenua in 1834.

The next major event in these turbulent times was the departure of Ngati Mutunga and Ngati Tama to Wharekauri Chatham Islands on the brig Lord Rodney and the panui of land to their Te Atiawa kin who were returning from the Wairarapa.

The final event in tangata whenua relations was the agreement between Ngati Kahungunu and Te Atiawa/Taranaki whanui to respect each other is rohe with a common boundary at the top of the Rimutaka Range.

This led to the establishment of kainga/permanent settlements in the Hutt Valley. Throughout the early phases of European settlement in Te Whanganui a Tara iwi maintained their ahi kaa and presence in the Hutt Valley and this continues to the present day.

The main tangata whenua groups around the northern side of the harbour today are from various hapū of Te Atiawa. They originate largely from Ngā Motu (New Plymouth) in Taranaki.

The arrival of Taranaki people in Wellington, along with the introduction of potatoes, melons and wheat saw the more extensive use of horticulture. This was to make significant changes to the landscape through clearings which started with those used to encourage the growth of aruhe/fern root.

Ngati Toa interests in the Hutt Valley are through its relationship with Ngati Rangatahi and Ngati Haua, who came to the area from around Taumaranui and resided around the Boulcott area. This was then followed by the arrival of Ngati Tama people who were forced out of the Kaiwharawhara area in Wellington and then settled around Lower Hutt and then into Upper Hutt. When Europeans arrived in Te Whanganui a Tara, there were several Ngati Awa pa sites in the Hutt Valley including Pito-one, Waiwhetu, Ngauranga, Hikoikoi, along with many villages. Ngati Tama and Ngati Rangatahi were residing in the Hutt Valley in the 1840s and had established land and resource use rights. By the mid 1840s Ngati Rangatahi had been relocated by the Crown to Rangitikei. [2]

The turbulent Maori history of the Hutt Valley and Wellington did not have as dramatic effect on the landscape as tectonic events have. Starting from the event labelled by Maori as Haowhenua around 1460, which was probably a major earthquake, probable uplift and possible tsunami. Then after the start of colonisation there were the major earthquakes in 1848 and again much larger in 1855. These events also caused significant uplifts in many places particularly at Turakirae, but more significant was the uplift of the lower Hutt River, draining the swamps of Te Mome and making the river much shallower.

Perhaps because of the changes in the tangata whenua of the Hutt Valley, the long standing traditions associated with place are not as great as for areas such as Taranaki where people remained on the land for many generations. The arrival of European colonists in 1840 meant that some Maori traditions in the Hutt had not fully developed before the next major demographic change was to radically change the environment. Maori were displaced from many places and often became pushed to the margins.

[2] Waitangi Tribunal report - Te Whanganui a Tara me ona Takiwa: Report on the Wellington District p 188

APPENDIX 2: EUROPEAN HISTORY AND SETTLEMENT

FIRST SETTLERS

In his first voyage (1769-1771), James Cook passed Port Nicholson and although he did not enter it he called it a 'promising harbour'. Several decades later in 1826, the ship 'Rosanna' entered the harbour as part of a search for suitable land on which to settle. The 'Rosanna' was sent to New Zealand from Britain by an organisation known as the New Zealand Company. Following several days of surveying the harbour, it was decided that the southwest side of the harbour was preferable for settlement.

The New Zealand Company was set up with the intention of providing an organised approach to colonising New Zealand. It was formed as a reaction to the great depression in Britain, as emigration to New Zealand was seen as a way to reduce the problems associated with over-population.

Despite the earlier interest in the southwest side of the harbour as a location for development, when Colonel William Wakefield (also on behalf of the New Zealand Company) arrived over a decade later in 1839 with the intention of acquiring land on which to settle, he was quite clearly taken with the river valley at the northern end of the harbour. The fertile soil and the ease of access made this valley an attractive place to settle.

Shortly after his arrival in New Zealand Colonel William Wakefield met with Rangatira (chiefs) of Te Atiawa in the Wellington and Hutt regions with the intention of purchasing land from them on behalf of the New Zealand Company. An agreement was formed which described the boundaries of the purchase and provided for one-tenth of the land purchased to be reserved for the signatory chiefs and their families. The explanation of the transaction to the Maori chiefs who signed the deed was inadequate and there was dispute among the Maori as to who owned the land. This later resulted in conflict between European settlers and Maori over the land. However the agreement formed the foundation of what is now the Wellington Tenths Trust.

The first settlers to the Hutt Valley arrived on the 'Aurora' in February 1840 and established a settlement at Pito-one beach. Plans for the settlement at Petone (transliteration of Pito-one) had been brought from Britain but failed to take into account the topography and conditions of the land and had to be abandoned. Subsequent settlers established a settlement further up Te Awa Kairangi/Hutt River known as Britannia, however within a few months the river flooded the newly developed settlement prompting the decision to move to Thorndon. As much of the surrounding land was too swampy to be suitable for farming, only a few settlers remained at Petone to take up farming under the constant threat of flooding.

FLOODING IN TE AWA KAIRANGI/ HUTT RIVER

The 1855 earthquake raised the level of the Hutt Valley, draining much of the swampy land in the river valley and making the previously navigable river impassable. However, following the earthquake, the valley continued to be flooded regularly. The removal of native forest in the river catchment, which previously had slowed water flow, exacerbated the flooding problems. Consequently, many people built their houses on high piles, but even so the ground floor of houses was often inundated when the river flooded, the most notable of these flooding events being 1858. Flood management continues to be a feature of the valley with the construction of stop banks and the avoidance of development close to the river which has resulted in open space in this area including Te Awa Kairangi/Hutt River Trail and several golf clubs.

QUARANTINE FACILITY ON MATIU/ SOMES ISLAND

With the increase in settlers arriving in the Port Nicholson region it was necessary to set up a human quarantine station. This facility was developed on Matiu/Somes Island in 1872 shortly after the arrival of the immigrant ship 'England' arrived flying the yellow quarantine flag. From the early 1880s the island also served as an animal quarantine station. The human quarantine station closed in the 1920s, however it remained an animal quarantine station until the 1980s. Many of the existing buildings on the island are testament to its history as an animal quarantine station. The island is now managed by the Department of Conservation as a scientific and historic reserve. Rats and other pests were eradicated from the island in the late 1980s which makes it the ideal habitat for native plants, birds, reptiles and invertebrates.

GROWTH IN THE LOWER HUTT VALLEY

Despite the regular flooding the population in the Hutt Valley increased rapidly in the 1880s and probably as a result of this population increase, steps were taken in the 1890s to prevent flooding. The building of the stop banks in 1900 reduced the regular inundation and Petone began to flourish as an industrial centre.

In contrast, Lower Hutt and the surrounding area were mainly used for market gardens which supplied the growing needs Wellington. In the 1920s the government purchased large areas of land to be used for residential development which replaced many of these market gardens. In 1941 the city of Lower Hutt was constituted. Later that decade state housing for 20,000 people was built. This included the state housing scheme in Naenae. It was designed by Austrian Architect Ernst Plischke in accordance with the garden city ideals which focused on a community centre, with land set aside for industry with curvilinear streets and houses placed amongst parkland. Many of the new residents commuted by train to Wellington, or found jobs in the valley's rapidly expanding industrial sector. Petone and neighbouring Gracefield were particularly known for their industrial development and until the 1980s had woollen mills, railway workshops, meat processors and car assembly plants. Lower Hutt has continued to grow steadily and manufacturing remains important for the economy of the area.

The valley floor of the Hutt Valley has changed significantly since arrival of European settlers. Once a wetland dominated by flax and lowland forest, the area has been transformed by industrial and residential development.

GROWTH IN THE UPPER HUTT VALLEY

While settlement in Lower Hutt began shortly after the first arrival of European immigrants, development was slow in the upper reaches of Te Awa Kairangi/Hutt River as a result of its difficult access. The completion of the road through the Taita Gorge in 1847 led to progressive development in Upper Hutt and was accompanied by the clearing of dense native forest to make way for houses and farming in the area. Pastoral farming with a focus on dairying remained the primary industry around the Upper Hutt region until after World War II. Upper Hutt has continued to grow as a commercial and residential centre on the flat valley floor. More recently residential areas have been developed on the hills to the north east of the central business district and at Riverstone Terraces. In the adjacent Mangaroa Valley larger rural properties have been subdivided into smaller rural lifestyle blocks.

ACCESS TO THE WAIRARAPA VALLEY

From the 1850s onwards the upper reaches of the Hutt Valley provided the main access route into the Wairarapa Valley. Prior to this access into the Wairarapa was via the coast. This was a difficult route, which was impassable at high tide and dangerous even at low tide. In places stock had to be lifted down through the rocks; although later a slot was dug out so they could be driven through. William 'Okiwi' Brown was believed to be the first European to settle in the eastern bays and provided overnight grazing and accommodation en route to the Wairarapa.

Evidence of much earlier Maori settlements can be found along this coast, with a number of middens, pits and pa sites still visible today.

The 1855 earthquake raised the beaches making this route easier but it was still considered hazardous. Once the Rimutaka Hill Road was opened to vehicles in 1856, providing a more direct route to the Wairarapa Valley, the coastal route gradually fell into disuse.

The opening of the Rimutaka Hill Road secured Upper Hutt as a staging post for people travelling further north. Towards the end of the century, hotels and small townships sprung up along the route to the Wairarapa and later around the saw mills.

In 1878, following 8 years of construction, the rail line over the Rimutaka Hill was opened. It took trains over the Rimutaka Range using the specially designed Fell system that allowed a slow descent and assisted assent on the steep Wairarapa side. With the railway came larger scale subdivision of land and the establishment of adjacent townships: Trentham, Mawaihakona and Gower. By the mid twentieth century farming around Upper Hutt was being replaced by extensive housing developments from Pinehaven and Silverstream in the south to Totara Park and Te Marua in the north-west. This urban development continued and in 1966 the City of Upper Hutt was constituted.

ACCESS TO THE WEST

With the increase in the population of the Hutt Valley during the 1850s a road was proposed connecting Belmont to Pauatahanui, a route that was to become known as the 'Old Coach Road'. This route had initially been one of the routes used by Maori connecting Porirua and the Hutt Valley. It was not until 1872 that this road was completed to a standard that could be used by horse-drawn vehicles. With the building of Haywards Hill Road (now SH58) in 1890, use of the Belmont to Pauatahanui Road gradually declined, although it was later used by the Army to provide access to a series of magazines that were built during World War II to store ammunition. Although the route is no longer accessible to vehicles, it is popular with walkers, runners, mountain bikers and horse trekkers.

EAST HARBOUR AND SOUTHERN COAST

In addition to its importance as an access route to the Wairarapa, Pencarrow Head was significant in the danger it posed to shipping. A temporary white beacon was erected here in 1842, however this failed to prevent a number of shipwrecks, and in 1859 it was replaced with New Zealand's first light. Later, in 1906, an additional light house was built on the shoreline at Pencarrow Head and in 1935 another lighthouse built was erected at Baring Head. Despite these precautions the route remains dangerous to shipping.

From early days the East Harbour Coast has had important recreational ties for Wellingtonians as it gained popularity for walking and picnics. Shortly before World War I the land around Days Bay was subdivided for housing and following the development of better roads and cars, the East Harbour coast became and has continued to be, a popular residential area.

WAINUIOMATA

Settlement in the Wainuiomata Valley was slow at first as the access to the valley was difficult and required all supplies to be carried in on foot. The hill road was constructed in the 1860s, allowing easier access to the valley. Large timber resources in the valley fed two saw mills and a number of settlements sprang up in association with these mills. A flax mill operated in the northern end of the Wainuomata Valley for some time around the 1880s but the valley's tendency to flood proved to make this difficult. Cropping was attempted but generally sheep and dairy farming were the mainstays once the land was cleared.

In 1919 the Mata Milk Cooperative was formed and the problem of marketing dairy produce was solved as farmers were able to take their milk to the local factory to be processed and sold on their behalf. However, the factory only lasted about a decade, at which point it closed and a Hutt Valley contractor collected the milk from the valley for processing.

Following World War II settlement in the valley increased dramatically with much of the land that was previously farm land being converted to residential subdivisions. Today farming takes place on only a few Coast Road properties with much of the rural land broken up into lifestyle blocks.

MILITARY HISTORY IN THE HUTT VALLEY

During World War I the army built a large training camp at Trentham, which is located at the southern end of the Upper Hutt basin. A second camp was constructed in the northern end of the Upper Hut basin at Maymorn to cope with the overflow from the Trentham Military Camp.

Trentham Military Camp was used again during World War II and since then has become a permanent facility. The nearby Trentham racecourse was built in 1906 and was used both as a military hospital and as an accommodation facility for American troops during the World War II.

Stokes Valley also has a military past; during World War II an American base was built at the foot of the valley. Following the war the Lower Hutt City Council developed the area for housing.

On the other side of the Hutt Valley, in Belmont Regional Park, 62 concrete ammunitions magazines were built to store munitions for the Pacific Campaign.

SAWMILLING

The timber trade was important in the Hutt Valley's early economic growth and many sawmills operated in the Valley and its tributaries during this period. By the early 1840s much of the native forest had been cleared off the flat lands in the Hutt Valley. Prior to this the Valley had been covered in dense bush and wetland vegetation and had been home to a rich diversity of native birds. Initially the timber felled in the upper Valley had to be sent to the lower Hutt Valley to be milled but by the mid 1850s timber was also being milled in upper reaches of the Hutt Valley. For almost a century sawmilling remained an important part of the economy in Upper Hutt, reaching a peak over the period of 1900-1920.

Once the relatively flat areas had been cleared around Mangaroa Valley, Whitemans Valley, Pinehaven, Silverstream, Stokes Valley and the Hutt Valley itself, milling and clearing of native bush moved to the surrounding hills while the valleys floors were converted to farmland. During the early part of the twentieth century the area around Akatarawa Valley in particular saw an influx of families associated with logging and sawmilling, resulting in the removal of large areas of native bush. Forestry remains a significant land use in the Akatarawa Valley.

Timber milling was also one of the early industries around Wainuiomata particularly between the 1860s and 1880s.

Forestry remains an important industry in the Hutt Valley with many exotic pine plantations on the steep surrounding hill sides.

APPENDIX 3: IDENTIFIED HERITAGE SITES

Historic heritage includes sites where physical traces of a past activity remain such as buildings, sites of human occupation and burial and archaeological sites. It also includes sites that are significant for their spiritual or historical associations. Heritage sites are important linkages to the past and provide insight into the way the Hutt communities and settlements have developed. They also contribute to the character and amenity value of a location or area.

The archaeological sites in the Hutt City District Plan have been originally derived from the New Zealand Archaeological Association site recording scheme, but consist of only those 66 sites which have been subsequently registered by the Historic Places Trust. These archaeological sites are predominantly concentrated along the south-west coast and include remnants of middens, pa, terraces, karaka trees, and ovens.

Hutt City also has a number of listed sites of historic, cultural and spiritual heritage significance in its District Plan. These sites have been listed separately under 'significant cultural resources' (sites of significance to Maori culture) and 'significant archaeological resources'. The cultural resources have been compiled from various literature sources (listed below) and are distributed predominantly on the western hills, the mouth of Te Awa Kairangi/Hutt River, and along the coast.

Early European settlers established a route in the 1850s linking Belmont to Pauatahanui which followed a route used by Maori, and is now known as Old Coach Road. Evidence of this route can be found in several places and these, along with adjacent homestead sites have been identified as significant cultural resource sites in the Hutt City District Plan. The New Zealand Archaeological Association also identifies a number of small quarries along this route.

At the southern end of the western escarpment are several sites that have been recognised in the Hutt City District Plan as significant cultural resource sites, including a pa and lookout sites.

Around the eastern bays there are a number of locations where there are remains of old village sites, and middens that provide evidence of early Maori settlement in the area and have been listed as significant cultural resource sites and significant archaeological sites in the Hutt City District Plan. A number of the wharfs around the eastern bays are listed as historic heritage sites and relate to the more recent European settlement in the area.

Further south around the coast and clustered around the coastal lakes are a number of former pa sites. These are often located on the ridge tops or on raised coastal platforms, and would have allowed views over Cook Strait. Further evidence of early Maori habitation in this area includes terraces, karaka trees that were planted as a food source, pits, ovens and walls.

Middens and ovens have also been found in the Tararua Ranges, where the forests were an important food resource and the river valleys and ridgetops provided access routes across the mountains. These sites have been recognised by Upper Hutt City Council and the New Zealand Archaeological Association.

Matiu/Somes Island has several sites that relate to its early history as a pa site, quarantine station and military past. These have been recognised by the New Zealand Archaeological Association as archaeological sites.

By comparison to Lower Hutt, Upper Hutt has few recorded heritage sites and very little remaining evidence of Maori settlement. The heritage schedule in the Upper Hutt District Plan includes 24 sites and includes New Zealand Historic Places Trust category I and category II buildings and items of significance to Maori. These sites are primarily scattered throughout the central valley, with a few located about the historic Rimutaka railway line. In addition to scheduled sites in the District Plan, the map includes a handful of additional New Zealand Archaeological Association sites associated with infrastructure (bridges, piping etc), and a few additional New Zealand Historic Places Trust sites (i.e. Upper Hutt Blockhouse, some residential houses in the Chatsworth area) that are not included on the district plan schedule.

A comprehensive Ecology/Heritage Verification Study was prepared by Boffa Miskell Limited for Upper Hutt City Council in 1995. This study, recommended the inclusion of 60 items in the district plan schedule of historic items. The list included pre-history, Maori, transportation, early settler, recreational and military items. However, the complete list of recommended sites have as yet not been formally incorporated into the District Plan.

The New Zealand Archaeological Association and the Upper Hutt District Council recognise a number of sites associated with the railway that connected Upper Hutt to the Wairarapa via the Rimutaka incline. These sites include railway bridges and tunnels of the railway line that have since been converted into a recreation trail used by cyclists and walkers.

While not formally identified as historic heritage items, the New Zealand Historic Places Trust recognises a number of other sites as having historic value. These include the buildings in Mangaroa Valley that relate to early farming activities in the valley; and the Norfolk pines that line the foreshore at Eastbourne and are the earliest Anzac memorial in the area.

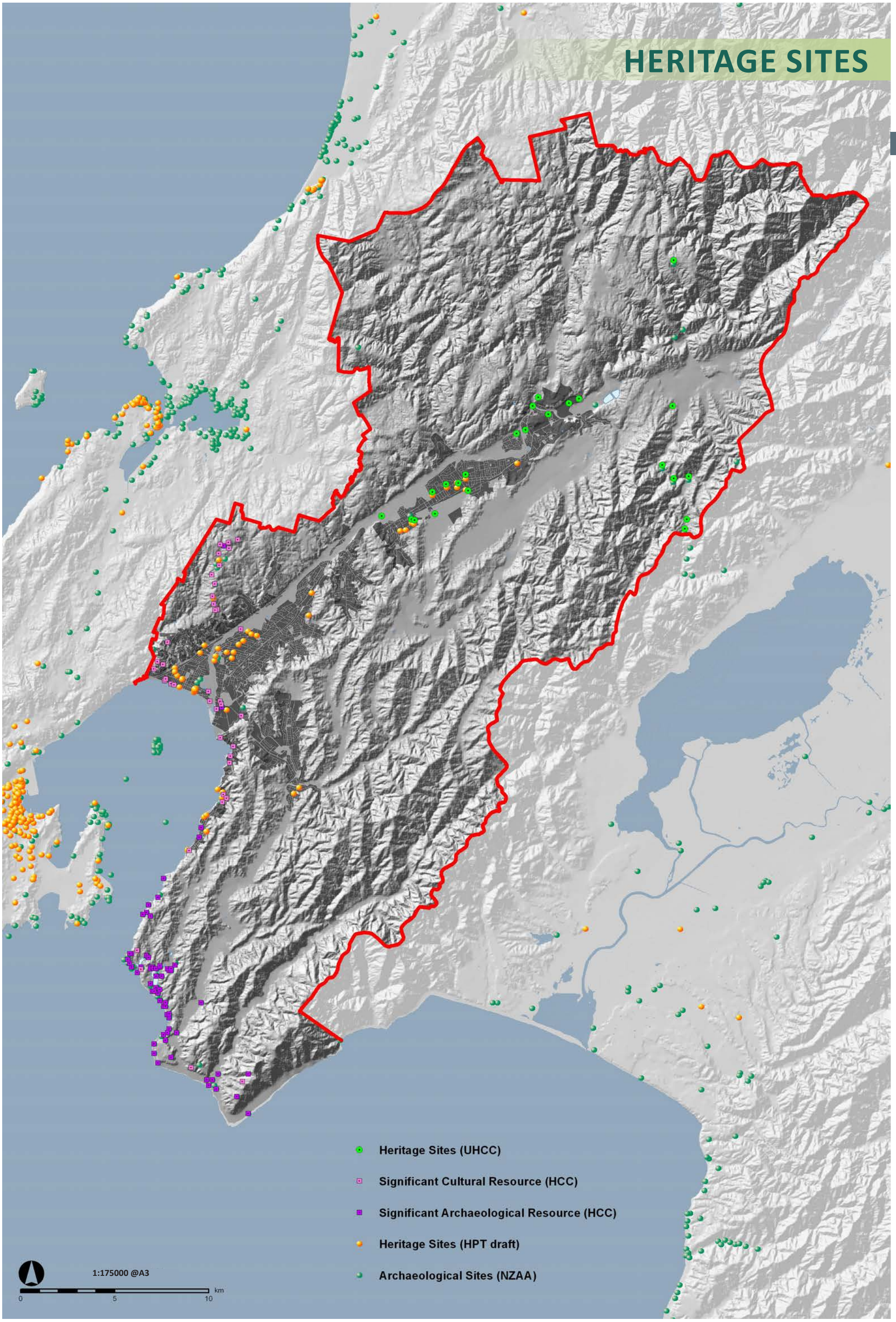
GIS DATA SETS USED:

- Draft Historic Places Trust Listed Sites- New Within Wainuiomata, Lower Hutt and Upper Hutt there are several buildings that have been identified by the historic places trust for their heritage value that relate to early European settlement in the area. In general these include houses, and significant buildings such as railway stations and churches.
- New Zealand Archaeological Sites. New Zealand Archaeological Association
- Hutt City Council District Plan: Significant archaeological resource sites and significant cultural resource sites
- Upper Hutt City Council District Plan: Heritage site

The information from these data sets often overlap and one site may be identified in several of the data sets.

The south coast provided a route for early Maori between Wellington Harbour and the Wairarapa. Karaka trees, shown in the left of the photo, were planted to provide a source of food.

HERITAGE SITES



APPENDIX 4: GEOLOGY

The landscape consists of a diverse range of landforms from the Tararua Ranges, which form a backdrop and the northern boundary to the Hutt Valley, the central Hutt Valley, drowned river basins, the coast and the dissected western and eastern hill country. The modern landscape of the Hutt Valley has been shaped by various natural processes, including sea level and climatic changes, hydrology and faulting.

The Wellington region is traversed by a number of faults, which were collectively responsible for pushing up the Rimutaka, Tararua and Ruahine Ranges. Among these is the active Wellington Fault which has had an important role in shaping the geology of the Hutt area. The Wellington Fault extends from near Sinclair Head on the south Wellington coast, follows the foot of the hills flanking SH2 along the Hutt Valley, passing through the Brown Owl Saddle, Upper Hutt then splitting to run along the Eastern Te Awa Kairangi/Hutt River and Tauherenikau River in the Tararua Range. The hills west of the fault line have been pushed up creating the Western Hills/ Belmont Hills, and east of the fault line the land has been tilted down to create the Hutt Valley.

The elevated tops of the Western Hills have a distinctive flat to rolling form which are the remnant flat tops of an ancient peneplain originating from uplifted seafloor, now largely eroded from the outer edges. This peneplain is also known as the Kaukau Surface.

The down-tilting of the land east of the Wellington fault was accompanied by buckling movements which produced a series of basins along the fault line (i.e. Upper Hutt Basin, Te Marua Basin, Pakuratahi Basin). These basins have been separated by high areas through which Te Awa Kairangi/Hutt River has flowed, and deposited sand and gravel across the valley floor, infilling the depressions. Valleys such as Wainuiomata and Mangaroa were formed as the land east of the Wellington fault tilted downwards toward the west. As the tilting progressed, stream gradients became flattened or actually reversed resulting in the buildup of headwaters and the formation of extensive areas of swamp such as the Wallaceville swamp.

During times of low sea level, Te Awa Kairangi/Hutt River cut a channel out to sea which spread gravels across the floor of the Hutt Valley. These gravel deposits formed the supply beds for the artesian water. Matiu/Somes Island is all that is visible of the top of a submerged ridge system running north-south along the floor of the Wellington Harbour.

A large supply of very pure artesian water is present under the floor of the Lower Hutt Valley. Confined aquifers occur at depths of 20-40m, but deeper aquifers exist up to 120m below the surface. The aquifers are recharged by rainwater and infiltration of Te Awa Kairangi/Hutt River between Avalon and the Taita Gorge.

Uplift, is evident along much of the coast, particularly where this activity has revealed marine terraces and a series of raised benches such as at Turakirae Head and Baring Head, and wave cut terraces on Matiu/Somes Island.

Glacial periods or a series of 'ice ages' have also had a pivotal influence on the geology of the Hutt district. During these ice ages, bare hillsides around the Hutt Valley were eroded and shattered by frost and small glaciers filled many of the high valleys in the Tararua Ranges.

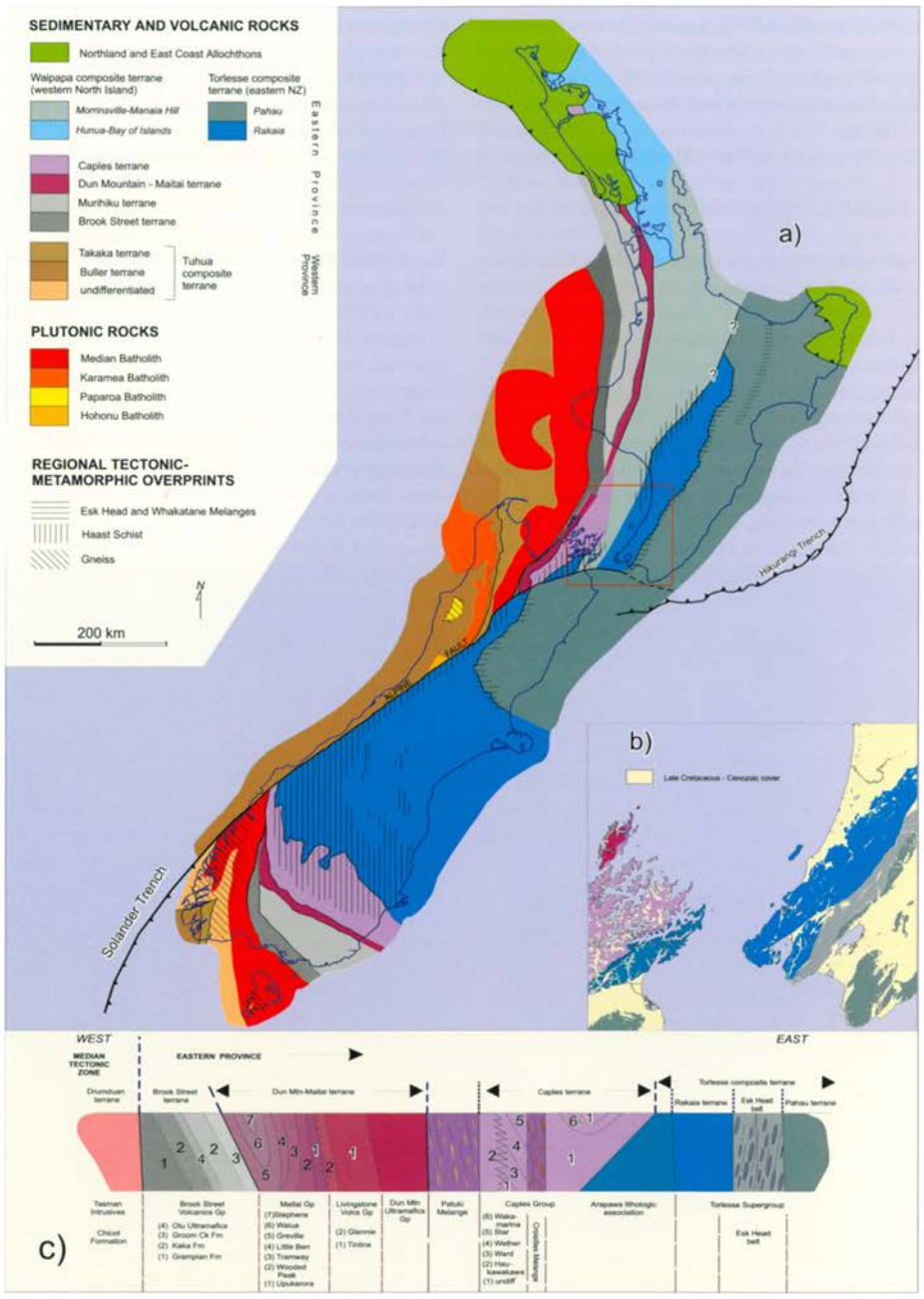


Figure 8a) Basement (pre-Late Cretaceous) geological map of New Zealand. Units are grouped according to major, rather than sole, rock type. Nomenclature and boundaries of North Island Torlesse and Waipapa terranes are controversial; parts of Morrinsville-Manaia Hill and Pahau units may be correlative. Northland and East Coast Allochthons were emplaced in the Early Miocene; all other units were in mutual juxtaposition by the Late Cretaceous. Adapted from Black (1994), Mortimer (1995), Mortimer *et al.* (1997, 1999) and references therein.
b) Basement rocks subdivided into tectonostratigraphic terranes for the Wellington area.
c) Cartoon cross section through basement rocks of Marlborough/Wellington area illustrating structural style and relationships.

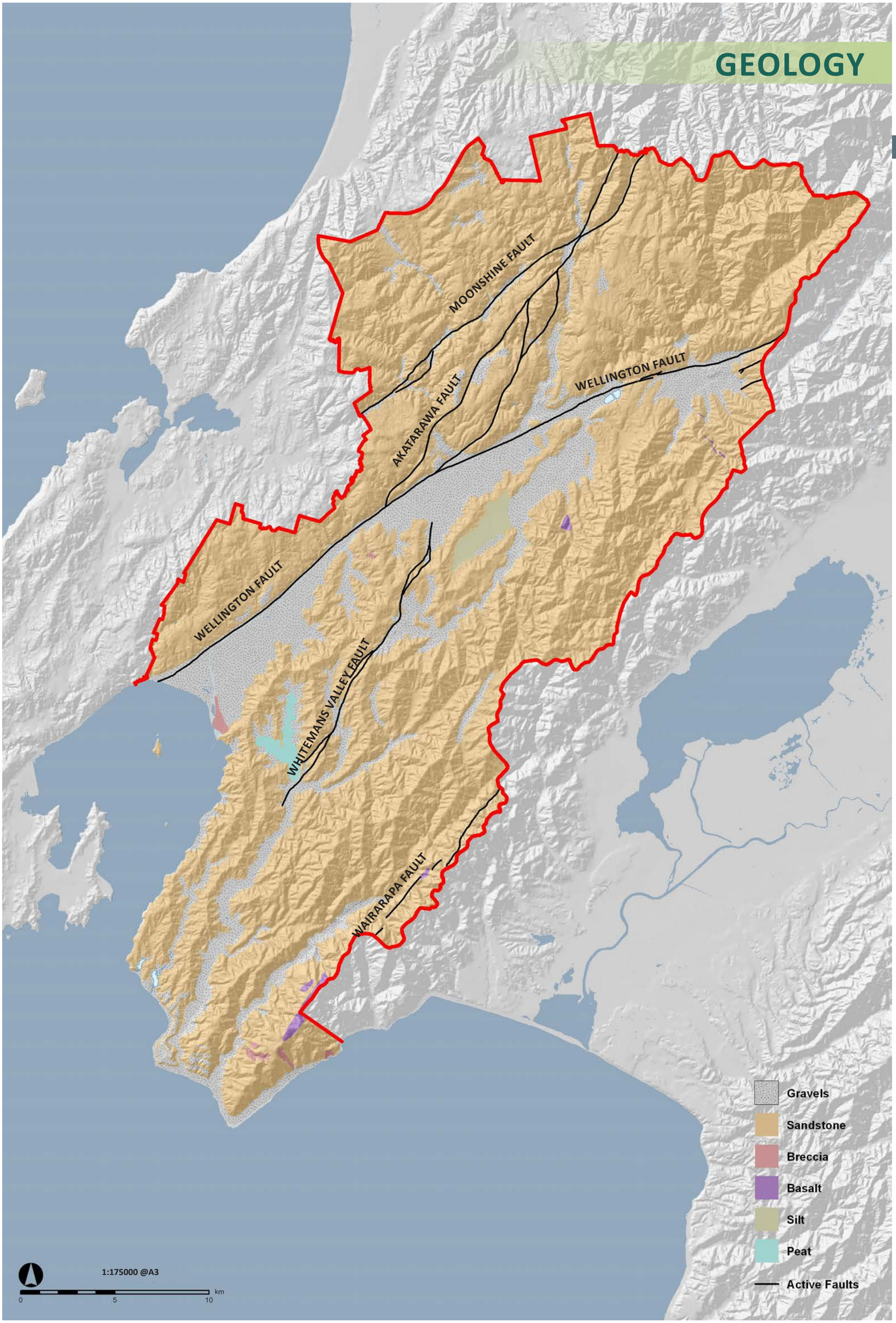
Source: Institute of Geological and Nuclear Sciences Ltd. (2000) Geology of the Wellington Area. Begg. J & Johnston. M (compilers).

GIS DATA SETS USED:

- Geology study
- Active Faults study

The landscape is made up of a diverse range of landforms from ranges and hills to valleys and coastal beaches.

GEOLOGY


MOONSHINE FAULT
AKATARAWA FAULT
WELLINGTON FAULT
WELLINGTON FAULT
WHITEMANS VALLEY FAULT
WAIRARAPA FAULT
Gravels
Sandstone
Breccia
Basalt
Silt
Peat
Active Faults
1:175000 @A3
km
0
5
10

APPENDIX 5: GEOPRESERVATION SITES

The New Zealand Geopreservation Inventory[1] highlights the 'best examples of the wide diversity of natural physical features and processes that together characterise each part of New Zealand and document its long complex geological history, the formation of its landforms and evolution of its unique biota'.

New Zealand has a unique and diverse range of natural landforms, geology and soil heritage, due to its location and formative processes. The New Zealand Geopreservation Inventory 'aims to identify and list information about all the internationally, nationally and many of the regionally important earth science sites throughout New Zealand, irrespective of their current protected status'.

Within the Hutt there are 14 recognised sites and landscapes of geological importance, ranging from Wallaceville Swamp to Te Awa Kairangi/Hutt River Alluvial Terraces and the Baring Head Marine Terraces.

Each site is listed for its importance and significance.

For importance, the inventory categorises the sites into three levels (A-C):

A: international: site of international scientific importance.

B: national: site of national scientific, educational or aesthetic importance.

C: regional: site of regional scientific, educational or aesthetic importance.

1 Geological Society of New Zealand. 1996.

For vulnerablity, each site has been classified (1-5) depending on its percieved vulnerablity to human activities:

1: Highly vulnerable to destruction or major modification by humans

2: Moderately vulnerable to modification by humans

3: Unlikely to be damaged by humans

4: Could be improved by human activity

5: Site already destroyed (not necessaily by human activity)

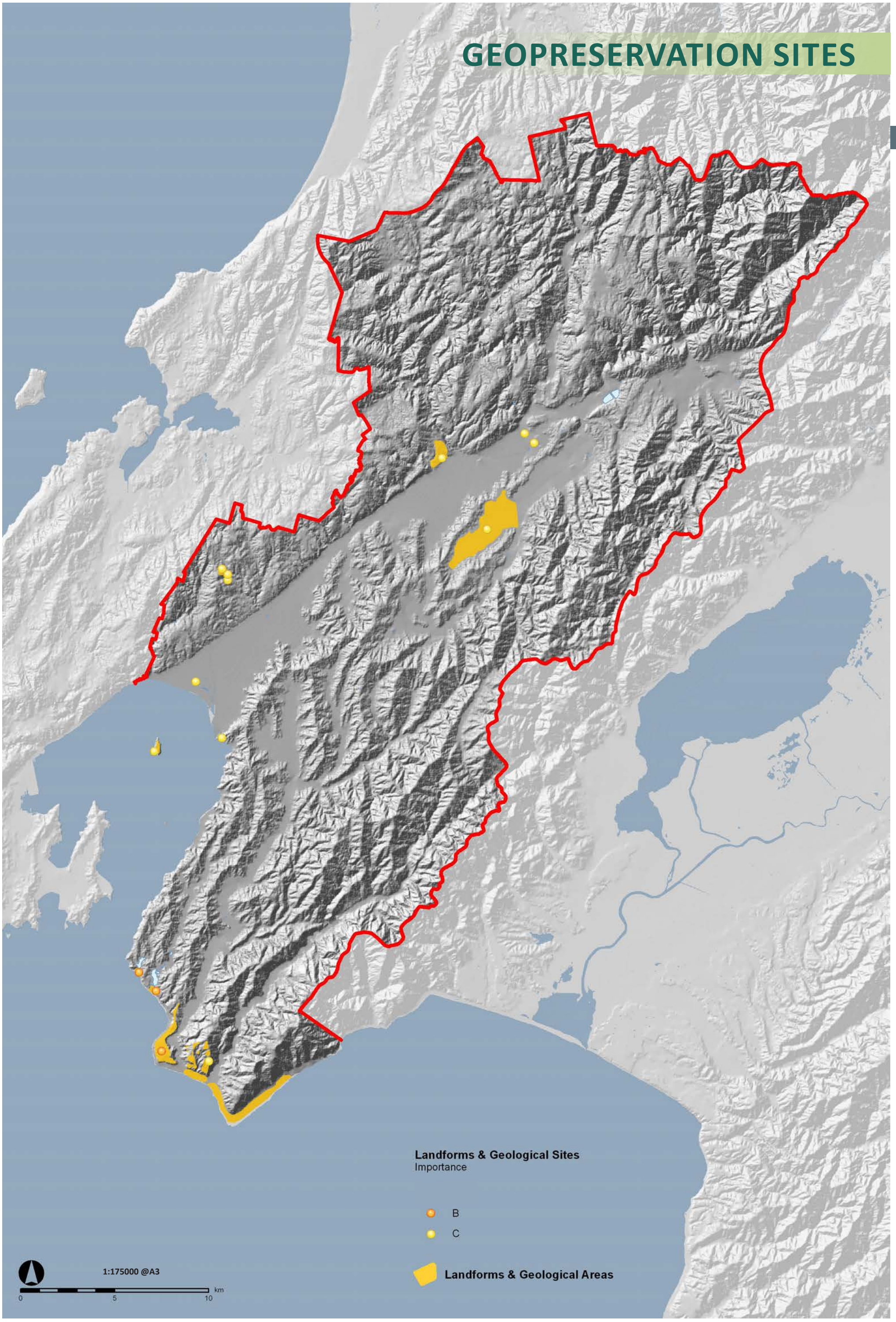
GIS DATA SETS USED:

- Geopreservation pts study
- Geopreservaton study

Geopreservation Site Detail			
Name	**Location**	Importance	Vulnerability
Orongorongo River uplifted marine terraces	Orongorongo River mouth.	C	3
Baring Head marine terraces	Baring Head, SE entrance to Wellington Harbour.	B	3
Lake Kohangatera raised beach	2 km SE of Pencarrow Lighthouse.	B	2
Lake Kohangapiripiri raised beach	1 km SE of Pencarrow Lighthouse.	B	2
Matiu/Somes Island marine terraces	Matiu/Somes Island, Wellington Harbour.	C	3
Howard Road fossil gully	Howard Road, Point Howard.	C	3
William Street uplifted beach ridge, Petone	William Street, Petone.	C	1
Hill Road block fields	Mantling slopes to the southwest of Hill Road, Belmont.	C	3
Belmont solifluction lobes	Belmont.	C	3
Belmont block field	Belmont plateau.	C	3
Wallaceville Quaternary swamp	Wallaceville (Mangaroa) Swamp, 5 km long by 1.6 km wide drained by Black Stream in a basin between Whitemans Valley and Hutt Valley, west of Trentham.	C	2
Hutt River alluvial terraces	West of Upper Hutt.	C	3
Radiata Grove red weathered site, Wellington	Street in suburb of Upper Hutt.	C	3
Wellington Fault, Harcourt Park faulted terraces	Harcourt Park, Upper Hutt.	C	2

Wallaceville Quaternary Swamp is a listed geopreservation site

GEOPRESERVATION SITES



APPENDIX 6: SOILS

In broad terms, Hutt District soils fall into three general groups according to whether they occur on either: river flats, swamps, sand dunes; low lying, rolling hills; or on the moderately steep to steep ranges.

Although there is no specific soil information for the plains and valleys in the Hutt which are identified as 'urban areas' in the GIS dataset, soils in these areas have been gradually built up by gravel and silt deposits distributed by rivers and streams. Soils of the river flats and valley floors are among the most fertile in the Hutt Valley. In the river basins (i.e. the Wainuiomata basin) the soils are silt and clay loams. In basins such as the Mangaroa Valley (Wallaceville Swamp), where the tilting of the land has created a depression, the surface of the soil is continuously wet, and decomposing organic matter has accumulated as peat (organic/ gley soils).

The thin soils of the eastern and western hills are primarily derived from the weathering of the underlying greywacke rock. The more gently rolling tops of the western hills have accumulated a layer of loess (wind-blown dust from the ice ages) and small amounts of volcanic ash (yellow-brown earths and yellow-brown loams) are present on some rounded hill crests. A band of yellow-grey soils, similar in characteristics to yellow-brown but with a weaker structure occur around the southern coast. Within the rolling hill country there are a number of local soil types, however, these have been simplified on the soils map as the yellow-brown and yellow-grey series.

The moderately steep to steep slopes which typify the ranges are thin and derived almost solely from the underlying greywacke rocks (yellow-brown earths). These slopes are highly vulnerable to erosion and slips, particularly when vegetation cover is removed.

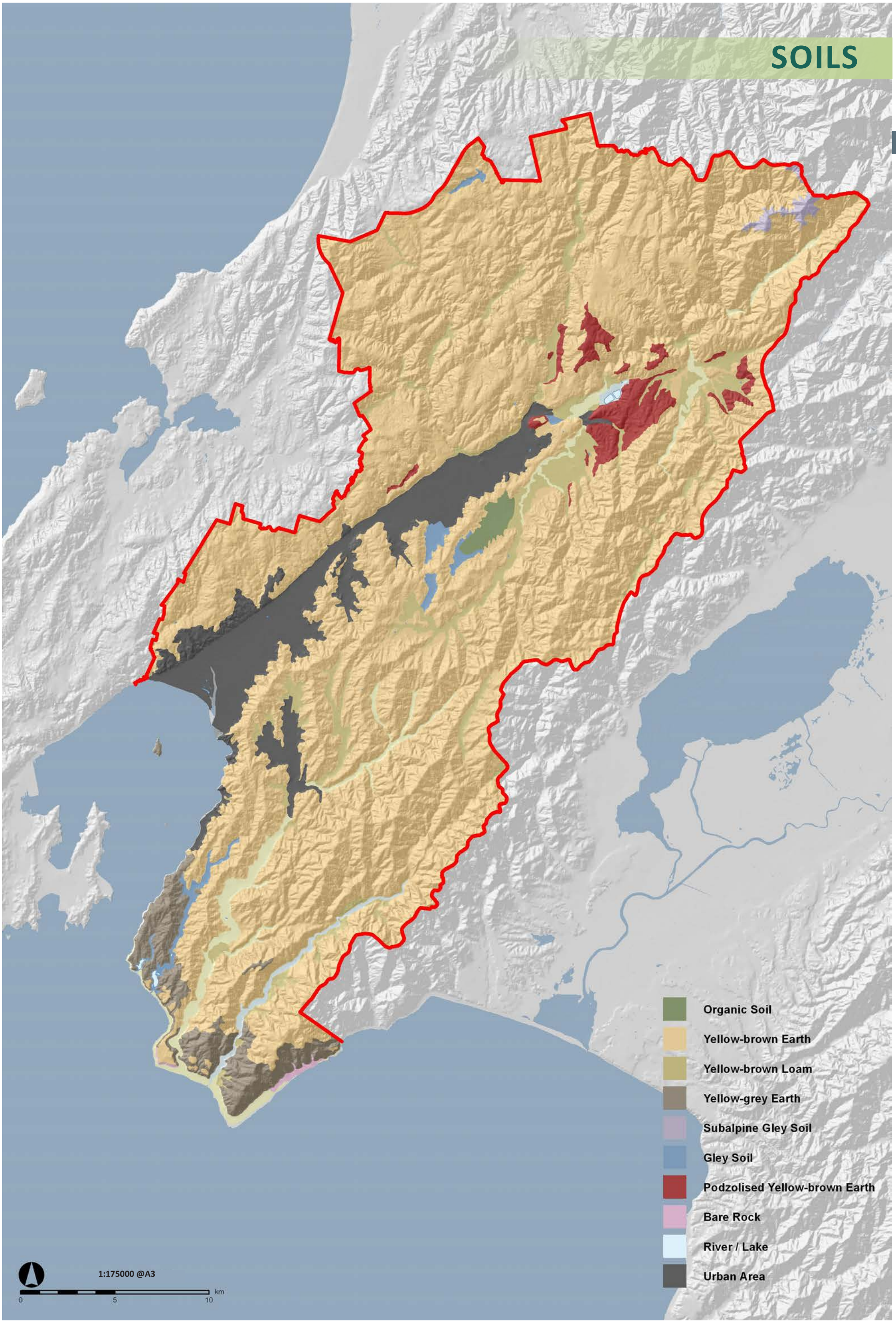
The key characteristics which differentiate variation in soil conditions across the Hutt are:

- Fertility (i.e. decreased where greater leaching has occurred in the ranges);
- Moisture levels (an increase in the general wetness of the soils in the ranges);
- Thickness of topsoil and accumulation of raw humus on the surface (decreasing thickness and increased accumulation of humus in the ranges);
- Proportions of clay particles in the subsoils (decreasing quantities of clay in the ranges).

GIS DATA SETS USED:

- nzlri soils study

SOILS


Organic Soil
Yellow-brown Earth
Yellow-brown Loam
Yellow-grey Earth
Subalpine Gley Soil
Gley Soil
Podzolised Yellow-brown Earth
Bare Rock
River / Lake
Urban Area
1:175000 @A3
km
0
5
10

APPENDIX 7: ELEVATION & SLOPE

Elevation and slope are highly variable given the topography which varies from high axial ranges, river flood plains, elevated river basins and dissected rolling hills to coastal margins.

The Tararua and Rimutaka Ranges lie at the southern tip of the North Island axial ranges and define the northern and eastern extent of the study area and physically separate the Hutt Valley from the Wairarapa Plains. Alpha (1361m) the highest peak, and several other nearby peaks over 1000m, are all located at the southern end of the Tararua Ranges near the north-eastern boundary of Upper Hutt. The Rimutaka Ranges are generally lower than the Tararua Ranges, with high points between 700 and 900m. The western hills are lower still with high points between 400m and 700m.

The Tararua and Rimutaka Ranges have predominantly steep to very steep topography with a network of sharp ridges, hills and mountain tops, and steep-sided stream and river gullies. The foothills of the ranges, while of lower elevations, typically have very steep to steep slopes and sharp ridges. Some parts of the Akatarawa Hills have more gentle slopes with some rounded tops. The Belmont Hills to the west of the valley have distinct flattish and rolling ridges and hill tops expressive of their peneplain origin.

The central part of the study area is dominated by a series of flat valley floors separated by low hills. The Hutt Valley dominates the central part of the study area extending 24km from Petone to Brown Owl. The Hutt Valley is broadest at the harbour end, narrowing to Taita Gorge near Haywards Hill and again near Brown Owl at the confluence of the Hutt and Akatarawa Rivers. Other valley systems also offer flat enclosed basins such as Kaitoke Basin, Mangaroa Valley, Whitemans Valley, and Wainuiomata Valley. Several river and stream valleys have narrow but flat valley floors (Wainuiomata, Gollans, and lower parts of the Akatarawa valley).

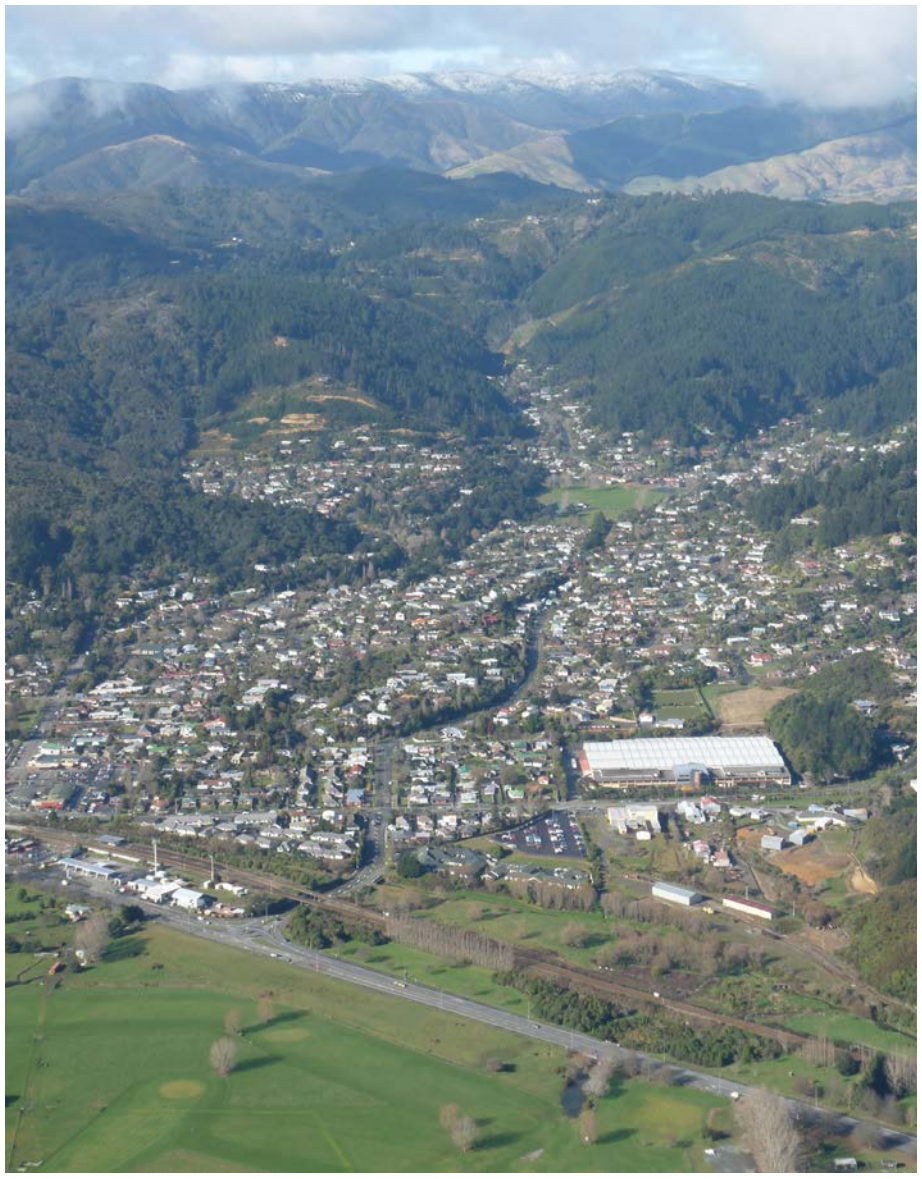
Glacial and river erosion have left the hills and ranges heavily dissected and created numerous river valleys — amongst these, the Orongorongo, Wainuiomata and Gollans Rivers. Due to the tilting and various uplift activities, many of the headwaters have filled with sediment to create flat valleys such as Wainuiomata, Mangaroa and Whitemans Valley.

There is approximately 40km of coastline, the majority of which adjoins the ranges and hill country. Te Awa Kairangi/Hutt River delta has created a long shallow sandy beach at the head of the harbour and smaller, steeper gravel beaches have formed at mouths of the Orongorongo, Wainuomata and Gollans Rivers. Uplifted marine terraces and beaches provide narrow coastal platforms at the toe of the hills and ranges, flanked by steep rocky escarpments and coastal hills. The slightly broader flat coastal plain at Eastbourne is a result of the meeting of sea currents depositing the sediments from Te Awa Kairangi/Hutt River.

The Harbour and its three Islands, (Matiu/Somes, Mākaro/Ward and Mokopuna) are also included as part of the study area.

Refer to page 81 for elevation map and page 83 for slope map.

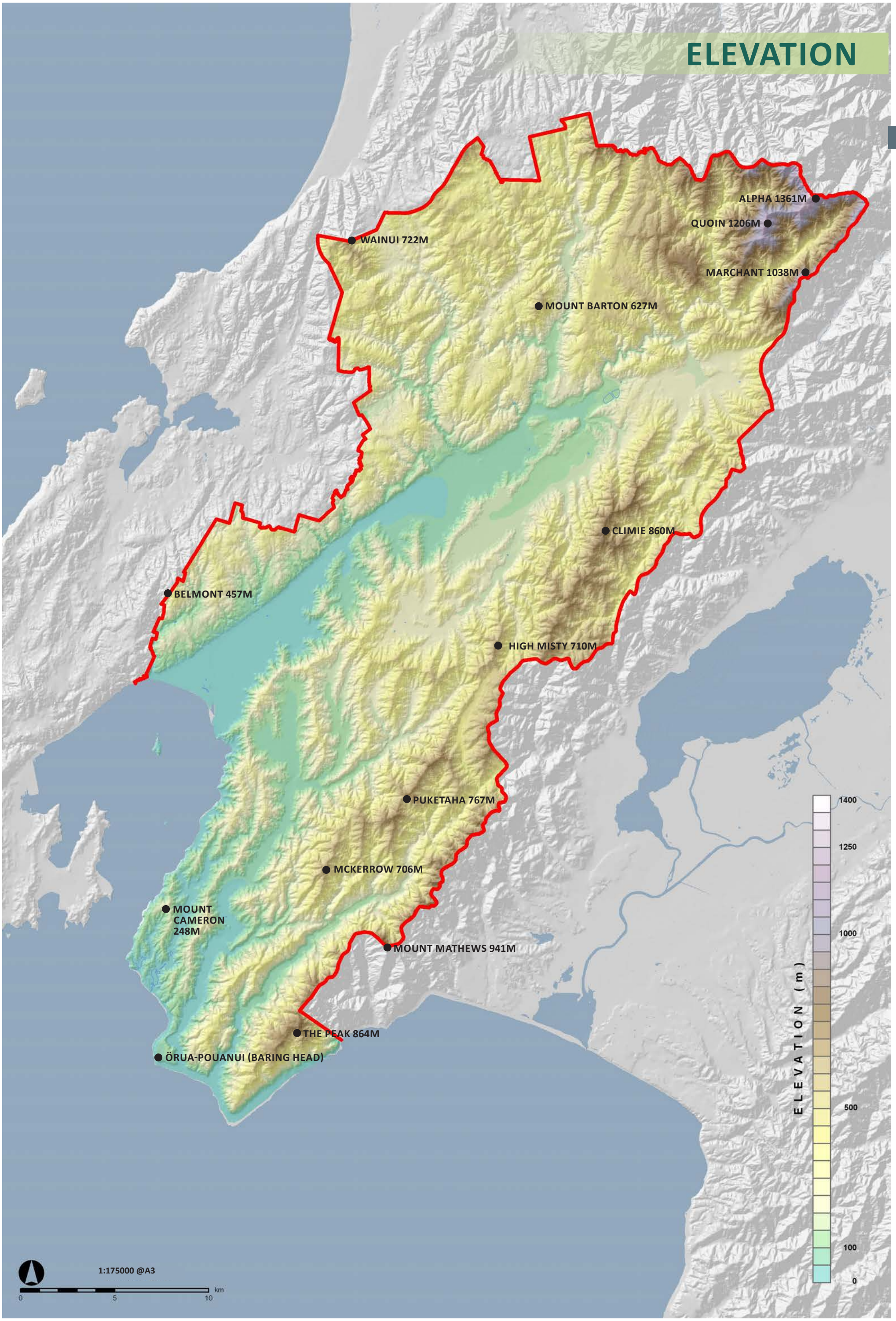
The elevation and slope varies from rugged mountains to almost completely flat on the valley floor.



GIS DATA SETS USED:

- dem study 25m
- slp study 25m

ELEVATION

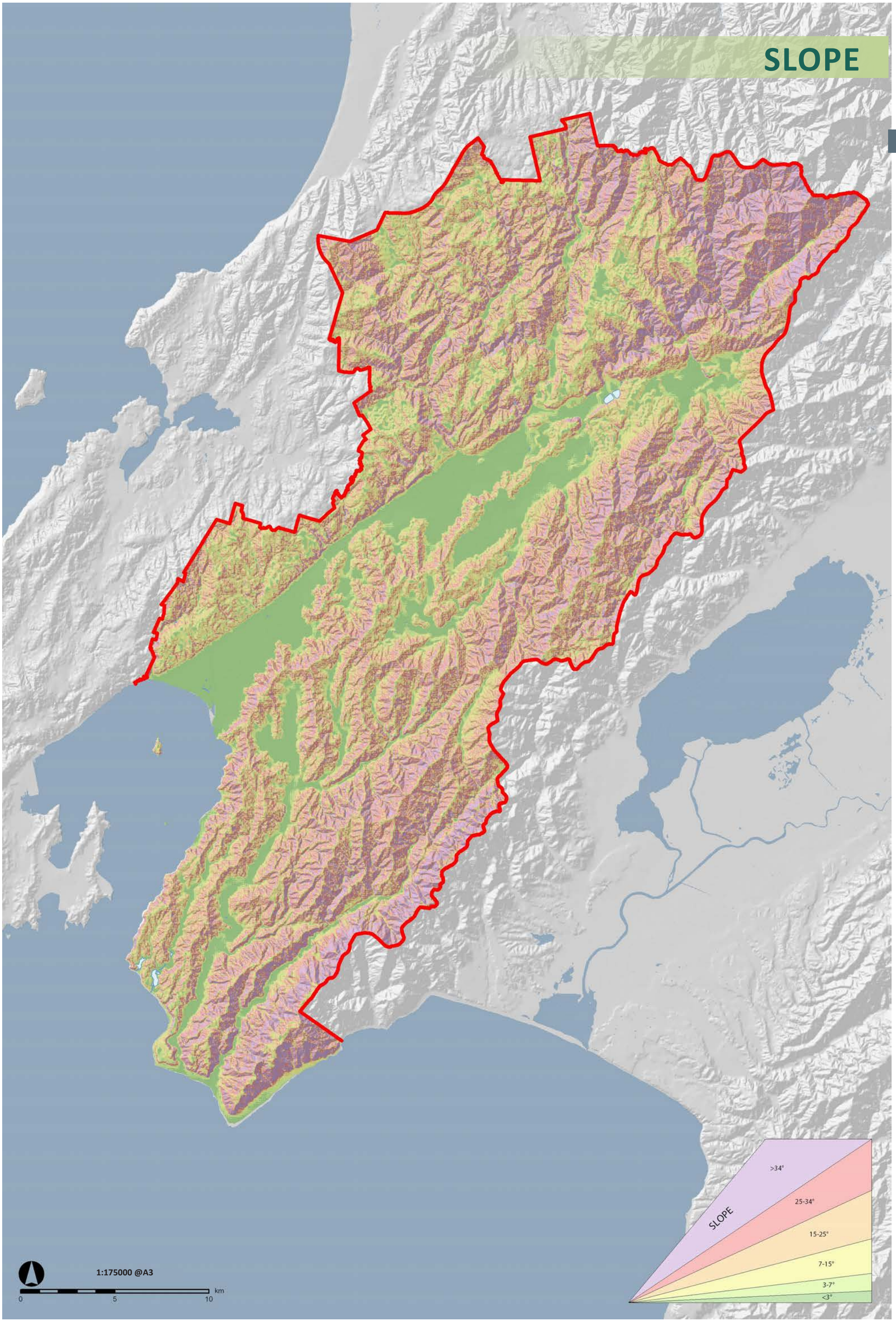

ALPHA 1361M
QUOIN 1206M
WAINUI 722M
MARCHANT 1038M
MOUNT BARTON 627M
CLIMIE 860M
BELMONT 457M
HIGH MISTY 710M
PUKETAHA 767M
MCKERROW 706M
MOUNT CAMERON 248M
MOUNT MATHEWS 941M
THE PEAK 864M
ÖRUA-POUANUI (BARING HEAD)
1400
1250
1000
500
100
0
ELEVATION (m)
1:175000 @A3
km
0
5
10

APPENDIX 7: ELEVATION & SLOPE

Refer to previous page for text.

The central part of the study area is dominated by a series of flat valley floors separated by low hills. The largest of these valleys is the broad, open Hutt Valley.

SLOPE



APPENDIX 8: LAND COVER AND INDIGENOUS VEGETATION

LAND COVER

Many factors influence the landcover patterns including geology, soils, topography, ownership, landuse, climate, existing land cover, and economic factors.

The landcover type 'Indigenous native forest' is by far the most prevalent land cover type throughout the Hutt and comprises a mix of original forest, advanced, secondary and regenerating forest types. As a proportion of the total land area in the Hutt, indigenous native forest covers approximately 59% (56,245 ha.), equally split between both districts. The indigenous forest occurs primarily in large areas on the moderately steep to steep topography in the ranges and hills. Much of this native forest is owned and/or managed by GWRC or by DoC as Regional Forest Park, Regional Parks and Regional Water Supply reserves.

Exotic plantation forestry (production pine forest), accounts for approximately 8% of landcover in Upper Hutt and is distributed in blocks of varying size around the district — typically on the more gently rolling slopes on the periphery of indigenous forest. Exotic plantation forestry accounts for approximately 1% of landcover by area in Lower Hutt, occurring primarily in one large block located east of the Wainuiomata River (Catchpool Stream area).

Approximately half of the of hill country (45,686 ha) supports exotic and indigenous scrub (eg manuka, gorse, and tauhinu). Most of this land was cleared of its native forest cover for timber milling and farming but is now regenerating back to indigenous vegetation. Some of these areas are grazed, such as the steep hill country on the south coast in and around the Orongorongo River valley.

Pastoral farming is concentrated primarily on the flat or undulating land in the floor and lower slopes of the basins and valleys. However, much of the broad rolling ridges of the Belmont Hills are grazed.

Approximately 8-10% of the land area in both districts is classified as 'improved pasture and grassland'. In Upper Hutt, this landcover is prevalent in the secondary valleys of Mangaroa/ Whitemans, Akatarawa, Kaitoke and Moonshine where rural and rural lifestyle land uses dominate. In Lower Hutt, the situation is similar, with improved pasture occurring predominately on the western hills (above Belmont/ Maungaraki), and the Wainuiomata and Gollans River valleys.

The urban areas are generally located on the flat and more gently sloping land. The urban footprint shown on the map comprises a mix of district plan zones encompassing residential, commercial and industrial uses. The urban footprint is concentrated along the river flats of Te Awa Kairangi/Hutt River and in the Wainuiomata, Stokes and Silverstream valleys. The wider urban framework also includes urban parks and open space, the most significant of which is Te Awa Kairangi/Hutt River corridor.

INDIGENOUS VEGETATION

Indigenous vegetation dominates many of the steep slopes of the Hutt Valley and its major tributaries. The mountainous landscape of the Tararua and Rimutaka Ranges is covered almost exclusively in indigenous forest, some of which is original vegetation.

The lower slopes to the east of the Wellington fault are dominated by lowland beech and kamahi. The escarpment to the west of the Wellington Fault is covered largely in podocarp/tawa forest, with kohekohe also present further south.

Further east in the Rimutaka Ranges, the vegetation is largely beech forest. This is a mix of hard beech, which tends to occur on the drier spurs, and black beech in the damper areas. At higher elevations, over about 500m asl, red and silver beech and kamahi become more common with occasional pockets of totara-miro forest.

In the Tararua Ranges at the head of the Hutt Valley and around Whakatikei to the west of the Hutt Valley, podocarp forest dominates with rata and rimu emerging over a canopy of tawa and kamahi below 400m. Between 400m and 550m rata and tawa drop out. Above approximately 500m beech forest takes over, reflecting the increasing rainfall, and colder temperatures. This consists primarily of red beech and kamahi associations, with silver beech higher up and forming the bush-line. The bush-line is usually around 1000m asl, but can be as high as 1300m asl further east. Above the bush-line is a band of dense subalpine scrub comprising primarily leatherwood, which usually extends for no more than 150m of altitude. Beyond this, the vegetation is low and dominated by herbfields, including Celmisia and Ranunculus, and alpine tussock grasslands, including Chionochloa species.

Around the southern coast the vegetation is strongly influenced by exposure to salt-laden winds. Here the vegetation is generally low-growing coastal shrubland and herbfields, and around the coastal lakes, brackish wetland associations. These lakes are some of the best examples of lowland lagoons in New Zealand and have been found to contain several rare plant species. In more sheltered coastal areas, such as around Eastbourne and Petone, coastal grassland and shrubland is present. Further inland, lowland beech forest occurs on the hill slopes.

At the time of European arrival much of the flat land in the floor of the Hutt Valley, and indeed many of its tributaries, would have been covered by flax wetland, however this was cleared and the swamp-land drained for development – initially farming and market gardens and subsequently residential subdivision.

DoC has identified "Indigenous threatened environments" which comprise those environments which contain threatened native vegetation or ecosystems, based on the amount of that type of vegetation that remain and how much has been lost. However these environments do not necessarily have any type of formal protection.

GIS DATA SETS USED:

- lcdb2 study
- Indigenous threatened environments (DoC)

URBAN FOOTPRINT

Zones from the Hutt City District Plan used in the Urban Areas Footprint:

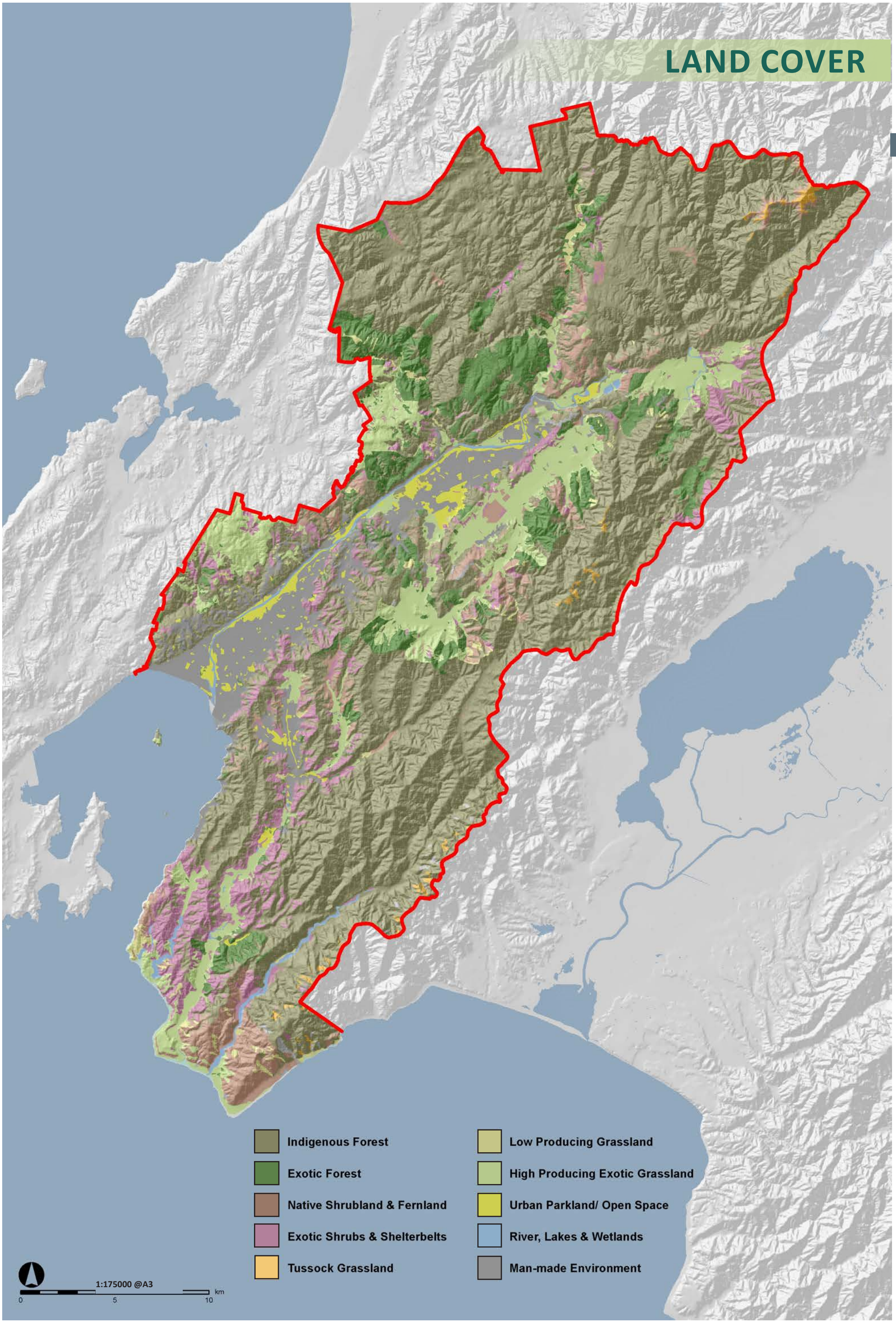
- Avalon Business
- Central commercial
- Community health
- Community iwi
- General business
- General residential
- Hill residential
- Historic residential
- Petone commercial
- Petone commercial - Area 1
- Petone commercial - Area 2
- Road
- Special business
- Special commercial
- Special residential
- Suburban commercial

Zones from the Upper Hutt District Plan used in the Urban Areas Footprint:

- Business commercial
- Business industrial
- Residential
- Residential conservation
- Residential hill

Land cover in the study area is a mix of farmland, exotic forestry and native vegetation.

LAND COVER


Indigenous Forest
Exotic Forest
Native Shrubland & Fernland
Exotic Shrubs & Shelterbelts
Tussock Grassland
Low Producing Grassland
High Producing Exotic Grassland
Urban Parkland/ Open Space
River, Lakes & Wetlands
Man-made Environment
1:175000 @A3
0
5
10
km

APPENDIX 9: SIGNIFICANT NATURAL RESOURCES

Hutt City Council has recognised a number of areas within the city as containing significant natural resources. These areas include significant natural and geological features, flora, fauna, wetlands, lakes, habitats and the coastal environment.

In general areas recognised as significant natural resources contain nationally or regionally representative ecological values, threatened ecosystems or species, species that are endemic to the district, areas that have a diverse range of species, ecosystems that are distinctive, potential for ecological restoration or provide a buffer to another existing area.

The largest area that has been identified as a natural resource is the Rimutaka Ranges and Orongorongo and Wainuiomata catchments. These have been recognised for their regionally representative lowland and montane forests, which are large and relatively unmodified. They contain an uninterrupted sequence of subalpine to montane silver beech forest and alpine herbfields. The rimu in these forests is some of the best in the North Island and the peat in montane swamps is rare in the Wellington Region.

Much of the hill country and ranges to the south-east of the Hutt Valley have also been recognised as a significant natural resource, as has much of the area around the south coast and the harbour islands. Further information about these areas can be found in the Hutt City District Plan.

The Upper Hutt District Plan does not yet have a schedule of significant natural areas, however the current plan includes a list of criteria that would be used to assess natural areas to determine their significance. This is the same as the criteria that Hutt City has used to identify significant natural resources.

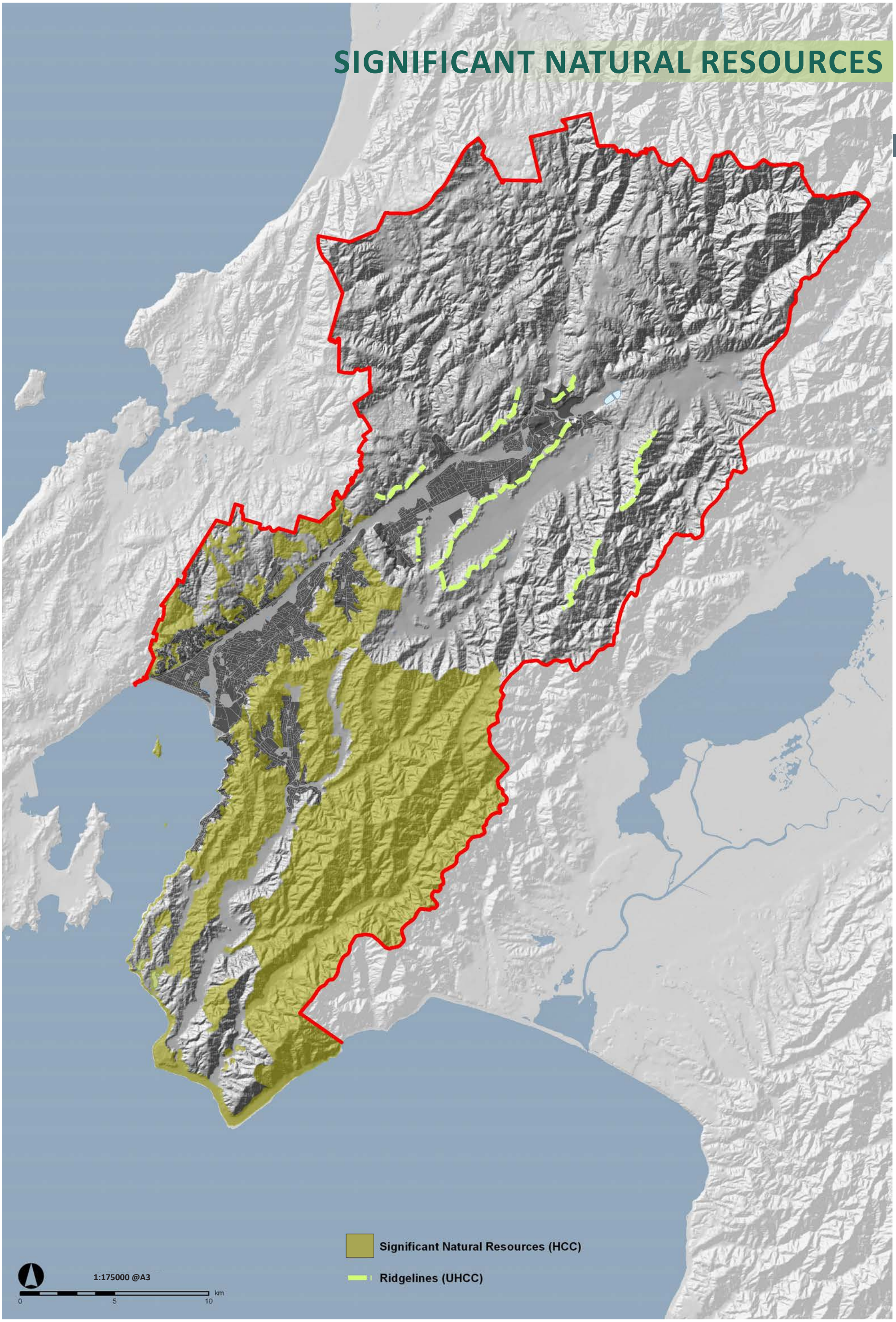
The Upper Hutt District Plan has identified several important ridgelines and has listed them as ‘protected ridgelines’ to ensure that the natural appearance of the skyline is preserved.

GIS DATA SETS USED:

- UHCC DP Ridgelines
- HCC Significant Natural Resources

The ridges surrounding the Mangaroa Valley have been recognised as important in the Upper Hutt District Plan

SIGNIFICANT NATURAL RESOURCES



APPENDIX 10: PUBLICALLY OWNED AND MANAGED LAND

The Hutt has a large proportion of publicly owned land, much of it in indigenous vegetation. Approximately 57% of the total land area in the Hutt is publicly owned and administered as part of the network of regional parks, forests and water collection areas. In addition to these regional open spaces, are a variety of smaller land parcels in the public ownership of DoC (which includes DoC scenic, scientific and wildlife reserves) and the two district councils. QE II covenants on private land also offer some landscape protection.

Greater Wellington owns and manages four regional parks in the Hutt: East Harbour Regional Park, Belmont Regional Park, Kaitoke Regional Park and the proposed Baring Head Regional Park (recently purchased by GWRC). In addition to the regional parks, Greater Wellington also owns and manages Akatarawa and Pukuratahi Forests as 'future water collection areas' in addition to the two current water collection areas — Hutt water collection area (adjoins the southern end of the Tararua Forest Park) and the Wainuiomata/ Orongorongo water collection area (which adjoins the Rimutaka Forest Park).

The Akatarawa and Pakuratahi Forests are potential water sources for the region's future generations. The term "future water collection areas" refers to land held under the Wellington Regional Water Board Act 1972 for water supply purposes that are not yet used for water supply. Some land is also held and/or used, for exotic plantation forestry.

The 8900ha Hutt Water Collection Area takes in the headwaters of Te Awa Kairangi/Hutt River at the southern end of the Tararua Range. Half the water supply for the Wellington urban area comes from this catchment, drawn at the Kaitoke weir.

In 1993 a new state-of-the-art treatment plant was built to service the Wainuiomata/ Orongorongo water collection area. Water is now taken directly from weirs in both the Wainuiomata and Orongorongo catchments. The new plant produces up to 60 million litres of high quality water per day and supplies about 15 percent of the water used by Greater Wellington.

A sizable portion of the Rimutaka Forest Park falls within the southern boundary of the Hutt study area, and a small portion of the Tararua Forest Park with the northern boundary of the Hutt study area. These forest parks are managed and owned by the Department of Conservation.

GIS DATA SETS USED:

- sourced from GWRC
- QEII National Trust Open Space Covenants
- DoC Reserves

The Orongorongo and Wainuiomata catchments supply about 15% of the water for Greater Wellington.

APPENDIX 10: PUBLICALLY OWNED AND MANAGED LAND

QUEEN ELIZABETH PARK

TARARUA FOREST PARK

HUTT WATER COLLECTION AREA

AKATARARAWA FOREST

BATTLE HILL FARM PARK

KAITOKE REGIONAL PARK

PUKURATAHI FOREST

BELMONT REGIONAL PARK

TARARUA FOREST PARK

WAINUIOMATA/ ORONGORONGO WATER COLLECTION AREA

EAST HARBOUR REGIONAL PARK

RIMUTAKA FOREST PARK

EAST HARBOUR REGIONAL PARK

EAST HARBOUR REGIONAL PARK

Regional Park

Regional Forest

Water Collection Area

Forest Park

QEII covenants and DoC Reserves

1:175000 @A3

0 5 10 km