



Marlborough

Landscape Study **2009**

Landscape Characterisation and Evaluation
Final Report



Boffa Miskell 


MARLBOROUGH
DISTRICT COUNCIL

MARLBOROUGH LANDSCAPE STUDY

LANDSCAPE CHARACTERISATION AND EVALUATION • CO7229A

Prepared for Marlborough District Council (MDC) by Boffa Miskell Limited
Final Report February 2010

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This Final Report incorporates feedback from the First, Second and Third Draft reports, submitted to Marlborough District Council in May, September and November 2009. This Final Report includes all stages of the project [Characterisation and Evaluation] and includes comments/recommendations provided during the independent landscape consultants' workshop in October 2009 and through an internal review undertaken by MDC during late 2009 and early 2010.

Front Cover: Early morning mist lingers emphatically around Kenepuru Sound, with the forested Putanui Point evident in the foreground. Small photo to left: Wine growing in the Wairau Valley. Small photo to right: The dry hills of the Redwood Pass.
Inside Cover: The vivid-pink colouration of the salt-drying ponds at Lake Grassmere, as seen from the air.



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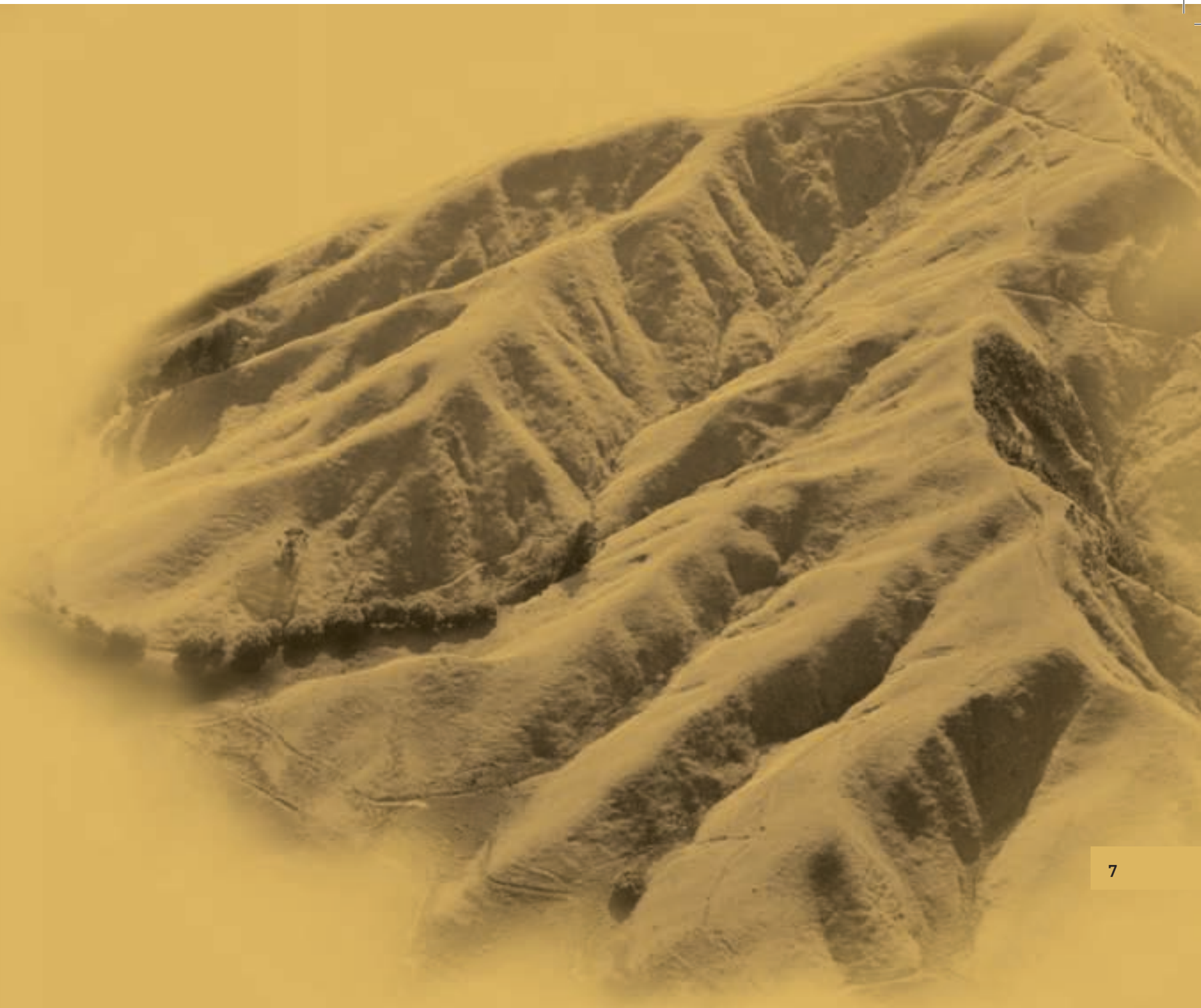
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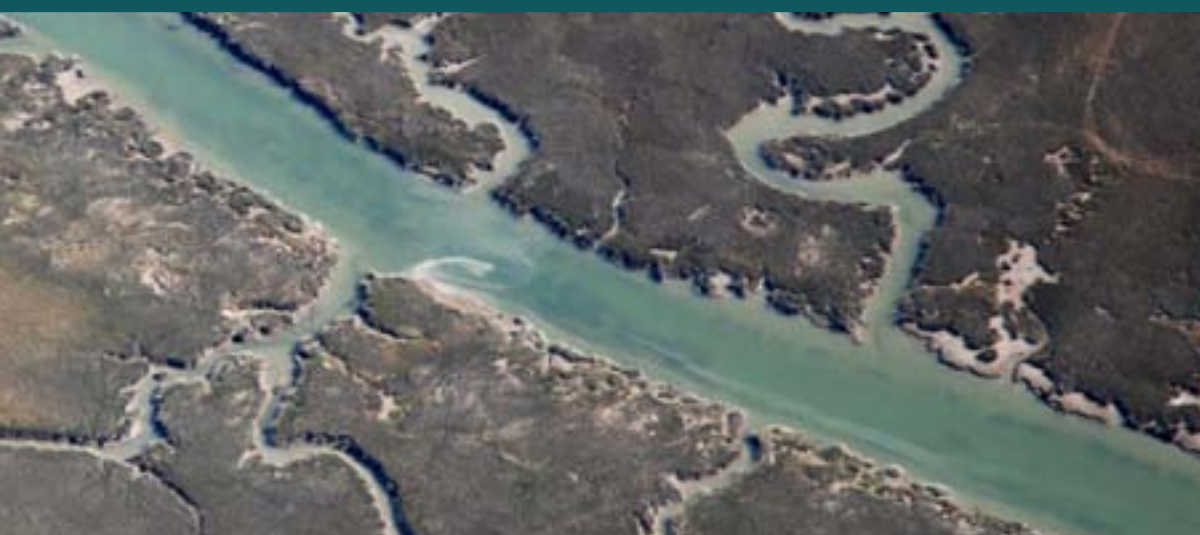
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Section A

Study Background



STUDY BACKGROUND: MARLBOROUGH DISTRICT AND REGIONAL LANDSCAPE REVIEW

This landscape study has been prepared as part of the Marlborough District Council (MDC) review of the Marlborough Regional Policy Statement (RPS), the Wairau Awatere Resource Management Plan (WARMP), and the Marlborough Sounds Resource Management Plan (MSRMP) (*referred to as 'the plans'*). The landscape review has been prepared in order to provide greater consistency in the above mentioned Plans, and to incorporate changes in the understanding of landscape since the original landscape studies of the 1990's.

The study has been carried out in two stages. The first stage consists of a regional landscape characterisation. This provides the foundation for the second stage: an evaluative study of the region's landscapes. The landscape characterisation study classifies the region's landscapes into broad land-types and character areas, drawing from land typing analysis conducted by Landcare Research. The following evaluative study then identifies the districts different landscape values including the identification of landscapes in accordance with Sections 5, 6 and 7 of the Resource Management Act (RMA) 1991. These landscapes include:

- Coastal and riverine 'natural character' landscapes; section 6(a)
- Outstanding natural features and landscapes section 6(b)
- Heritage landscapes section 6(f)
- Visual amenity landscapes; section 7(c)

Both studies (characterisation and evaluation) essentially build on the Region's previous landscape assessments and existing data in the public realm. The studies consider the aspects of landscape identified in recent case law and advances in landscape understanding since the introduction of the RMA 1991. It is understood that outputs from both studies will be used by MDC to inform the RPS review and second generation plans, in accordance with its statutory requirements.

Approach of Study

LANDSCAPE CHARACTERISATION AIMS AND OBJECTIVES

Currently the Marlborough RPS and its *plans* contain generally good landscape descriptions. However, in some instances these are not clearly linked to mapped areas. They are neither comprehensive, nor consistent across the districts. Also there have been substantial recent landscape changes arising from both land and water use in some locations. The characterisation study updates these existing descriptions and provides consistent descriptions across the region. It highlights the landscape attributes that will need subsequent evaluation.

Characterisation objectives are as follows;

- Objective 1:** To review the ecosystem/land-typing in the existing plans and extend the Landcare Research land typing to cover the entire District;
- Objective 2:** To review and refine all relevant data sources that contribute to landscape character including aerial photography, Geographic Information System (GIS) data bases and local sources;
- Objective 3:** To rework the current landscape descriptions, based on objectives 1 and 2, to provide a consistent explanation of the varied Marlborough landscapes;
- Objective 4:** To map and describe the region's landscape character areas.

Landscape characterisation is an increasing focus of study overseas and under the RMA 1991 in New Zealand. It considers all landscapes and provides a sound descriptive and analytical basis for the understanding of landscape diversity, attributes and change. Landscape characterisation provides a context for the evaluation of special landscapes (i.e. Outstanding Natural Landscapes) and provides justification for their management. Therefore, the purpose of the characterisation study is to provide a largely descriptive and objective foundation for the evaluative study (which will involve value judgements) and which will later inform the selection of appropriate management mechanisms.

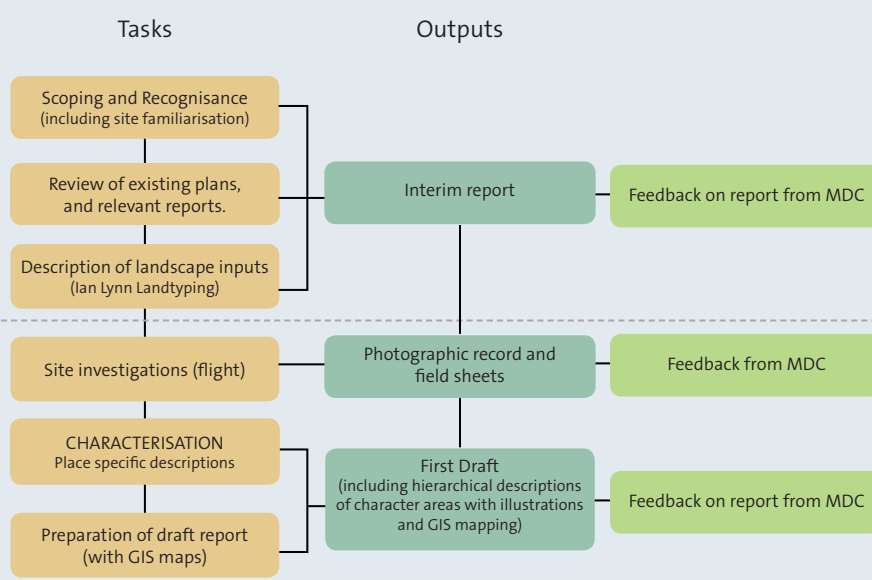
Most regional and district landscape assessments classify the landscape into landscape units of some type. These units are generally based on definable landform and landcover differences between various parts of an investigation area. This 'unit' approach to landscape assessment is a pragmatic response to the scale and complexity of what are often extensive and highly diverse areas of land. However, there are risks inherent in such an approach. Results may vary depending on the scale at which the divisions are made. To address this potential weakness these investigations have considered the landscape at three levels – by broad landscape, by catchment and by feature or site.

Landscapes within Marlborough are highly varied with different characteristics and values. Landscape character areas can be identified and mapped with broadly homogenous characteristics, distinctive from adjacent landscapes. Boundaries between these character areas can be best defined through geomorphological analysis.

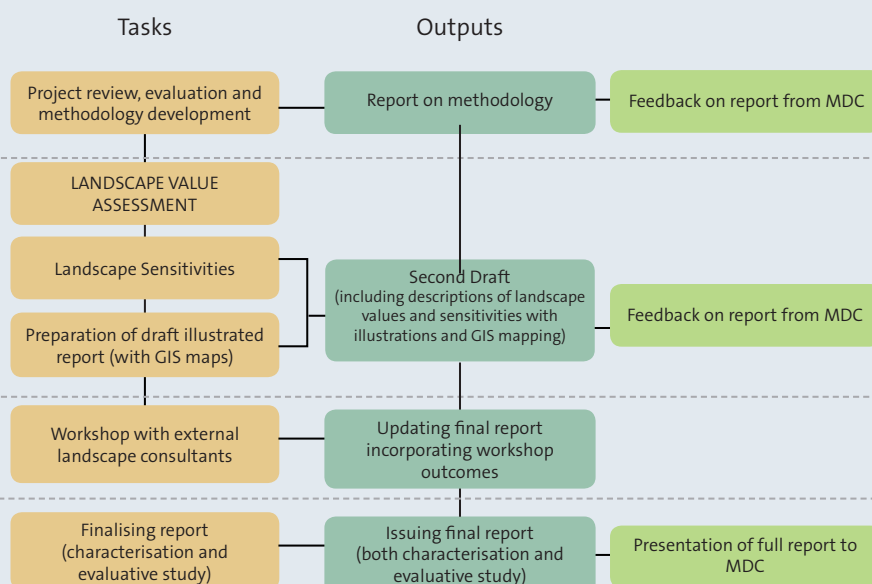
In the Marlborough region, landscapes are likely to be spatially extensive, and could be considered 'regional landscape character areas'. They would contain internal variety that would be referred to in descriptions, and where appropriate, mapped as sub-character areas. They also provide a logical framework for understanding the 'matrix' of landscapes. These 'matrix' landscapes will have a range of amenity values that the study team will need to identify and describe so that appropriate resource management mechanisms can be tailored to them to maintain and enhance their values. They provide a spatial context for 'special' landscapes that require additional protection.

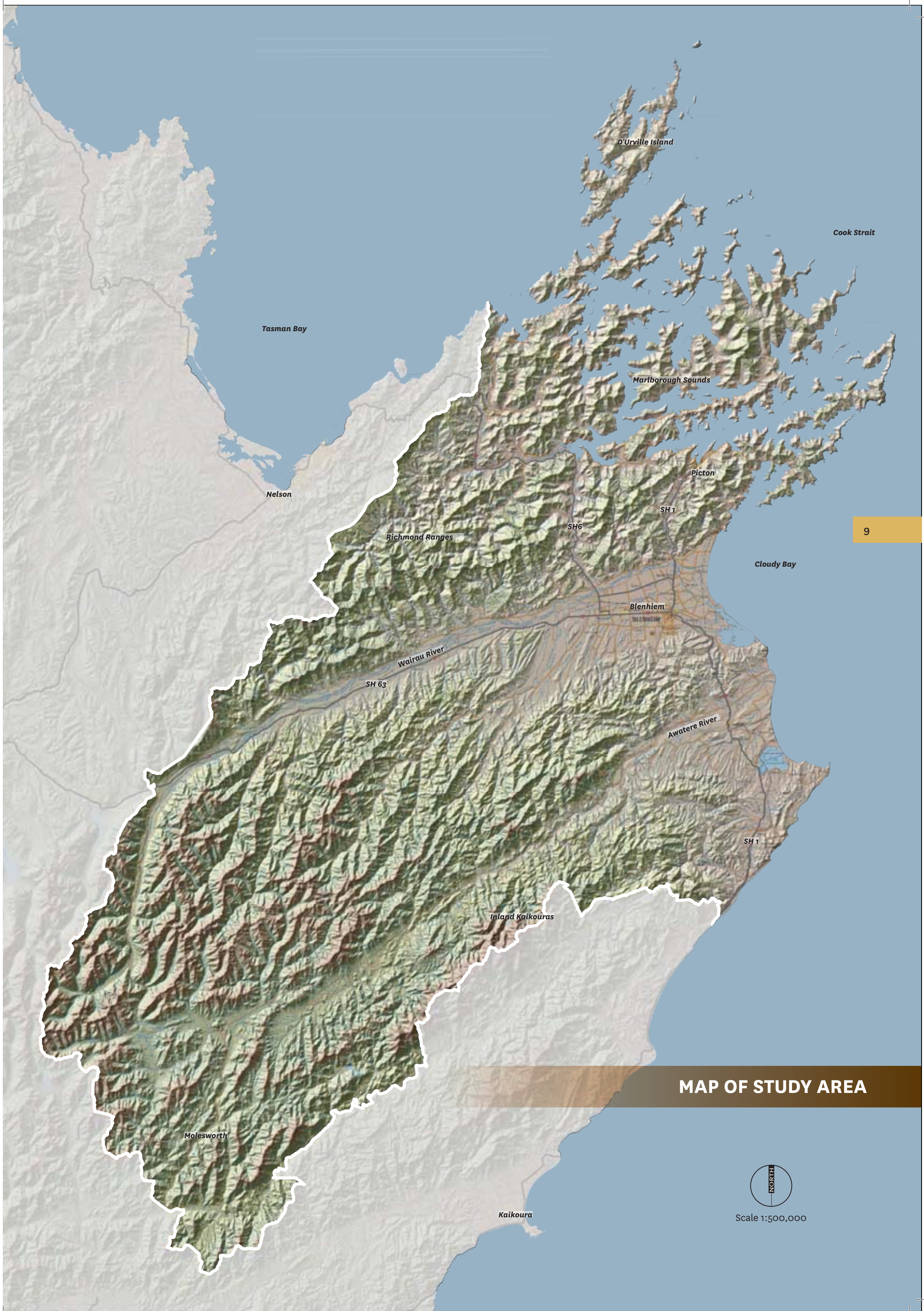
A First Draft report outlining the landscape characterisation stage was provided to Marlborough District Council in May 2009 for review and comment. This provided an opportunity for BML to discuss the findings of the first stage and to outline the thinking for the second evaluative stage.

Stage 1 : Landscape Characterisation

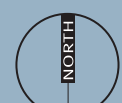


Stage 2 : Landscape Evaluation





MAP OF STUDY AREA



Scale 1:500,000

LANDSCAPE EVALUATION AIMS AND OBJECTIVES

The landscape evaluation study forms the second part of the Marlborough Landscape Study and is concerned with identifying the values and quality of the district's landscapes under the RMA Act 1991.

The descriptive framework established during the characterisation study will form the basis for the landscape evaluation study. Certain and specific areas have been identified as requiring preservation and/ or protection under the RMA 1991. Any one landscape may have a combination of values and/ or differing degrees of any value present. Specifically, this study addresses landscapes in accordance with Section 5, 6 and 7 of the RMA 1991.

These identified landscapes and features include:

- Coastal 'natural character' landscapes; section 6(a)
- Outstanding natural features and landscapes section 6(b)
- Heritage landscapes section 6(f)
- Visual amenity landscapes; section 7(c)

This is a complex phase requiring a significant component of judgment by the investigations team. Landscape is a multi-dimensional concept and includes natural science, heritage, cultural, aesthetic and a number of other values.

Landscapes are valued differently by different people for a range of reasons. Those that make their living from the land are likely to view the landscape differently from those that make fleeting visits. Maori understanding of, and attitudes to, landscape are significantly different from those of non Maori. Our world views, upbringing and education will all influence our response to particular landscapes. For most of us our connection to the landscapes around us is deep-rooted. It is likely to involve culture, heritage, memories and much more. Therefore, it is essential that the process of valuation adopted by this study, and the use of its evaluation outcomes, are as transparent as possible.

In September 2009, a Second Draft of the report was completed which included both the characterisation and evaluation parts of the Study. Immediately following the release of the Second Draft, a workshop was held in early October 2009 and attended by three landscape architects who were unfamiliar with the project but familiar with Marlborough's landscapes: Di Lucas, Frank Boffa and Liz Kidson. The objectives of this workshop were to:

- discuss the philosophy of the study to date, including the direction for the study and outline of the methodology;
- discuss the approach to identifying Outstanding Natural features or Landscapes (ONFLs) and other landscape values in the Marlborough Region, including natural character;
- discuss landscape values of original and potential ONFLs (exchange knowledge, identify omissions/errors etc.) and;
- define a threshold, which should be met by district ONFLs for Marlborough.

Following this exercise the report was updated to a third and final draft which was individually presented to Councillors of Marlborough District Council, Federated Farmers, and a combined presentation to the Sounds Advisory Group and the council's own Landscape Group in November 2009. Some internal comments were received from the council and targeted groups, including The Department of Conservation with these comments included within this final version.

Scoping and Familiarisation

To inform the first stage, the study team undertook a detailed desktop analysis of the existing information relating to Marlborough's landscape, including the RPS and two District Plans. A series of Geographic Information System (GIS) maps were produced of the entire region highlighting different landscape layers, such as vegetation, landuse and geology. The focus of the GIS and desktop studies was to enable a clearer understanding of Marlborough's landscape prior to undertaking an initial field trip ensuring all components were visited and explored.

Following this the study team undertook a three day site visit, which involved traversing the district's roads and taking two internal flights, circumnavigating the district. This, as well as numerous other visits to parts of the district enabled the study team to get an overview of the various landscapes and to better understand the type and extent of current land use trends.



Geographic Information System (GIS)

The use of a Geographic Information System (GIS) has been an integral component throughout all stages of this Landscape Study. GIS is essentially a powerful tool for visualising, analysing, querying and mapping geographic data. GIS systematically organises geographic data to enable a person reading an electronic map to select or deselect specific information about the area under review.

GIS information can come from a variety of sources, so a good GIS programme should be able to process this geographical information and integrate it into a series of layers which can be used over a standard base map. Many government departments, including Regional and District councils and the Department of Conservation for example, hold digital geographic data for their area of concern that is GIS compatible. GIS therefore is interactive and allows the user to select and view specific layers, such as Conservation layers for a district or numbers of consented marine farms for a specific area which is then overlaid on a topographic base map. The user can then zoom in and out of the map and change the nature of the information displayed on the map to suit the particular project at hand. For example, for this study, it became important to overlay data-sets onto one another (such as the land typing, geology and conservation layers) which assisted in better understanding particular landscapes. It must be stressed that the scale of the information provided that forms a GIS layer must be of sufficient detail to enable its practical usage.

The full list of the landscape-related data used in GIS and its sources is listed below. One difficulty the study team faced was comparing existing mapped areas of Marlborough, which were mainly prepared prior to the advent of digitised geographic data. In order to compare maps some parts, such as the Coastal Sounds Plan, completed in 1992 had to be scanned, with the lines traced into a digital format.

The delineation of landscape values (such as Outstanding Natural Features and Landscapes and Visual Amenity Landscapes) were primarily based on the land typing information and broad geomorphological and geological patterns. However, variations in landcover/ use were taken into account as a secondary factor. This information was sourced from aerial photographs, Google Earth and other GIS related information, such as the LCDB (Land Cover Data Base). The following data was used for the preparation of this study:

National GIS data provided by BML:

- Topo Maps (LINZ)
- Digital contour information 20 metre intervals (LINZ)
- Land Cover Database II (Terralink, based on 2002 aerials)
- Geopreservation sites and areas, as indicative points (Kenny & Hayward, 1998)
- Coastline (Line sourced from LINZ)
- Archaeological Sites (New Zealand Archaeological Association NZAA)
- Marlborough Landtyping (Ian Lynn, 2009 and Lucas/ Lynn, 1997)

The following data was provided by MDC:

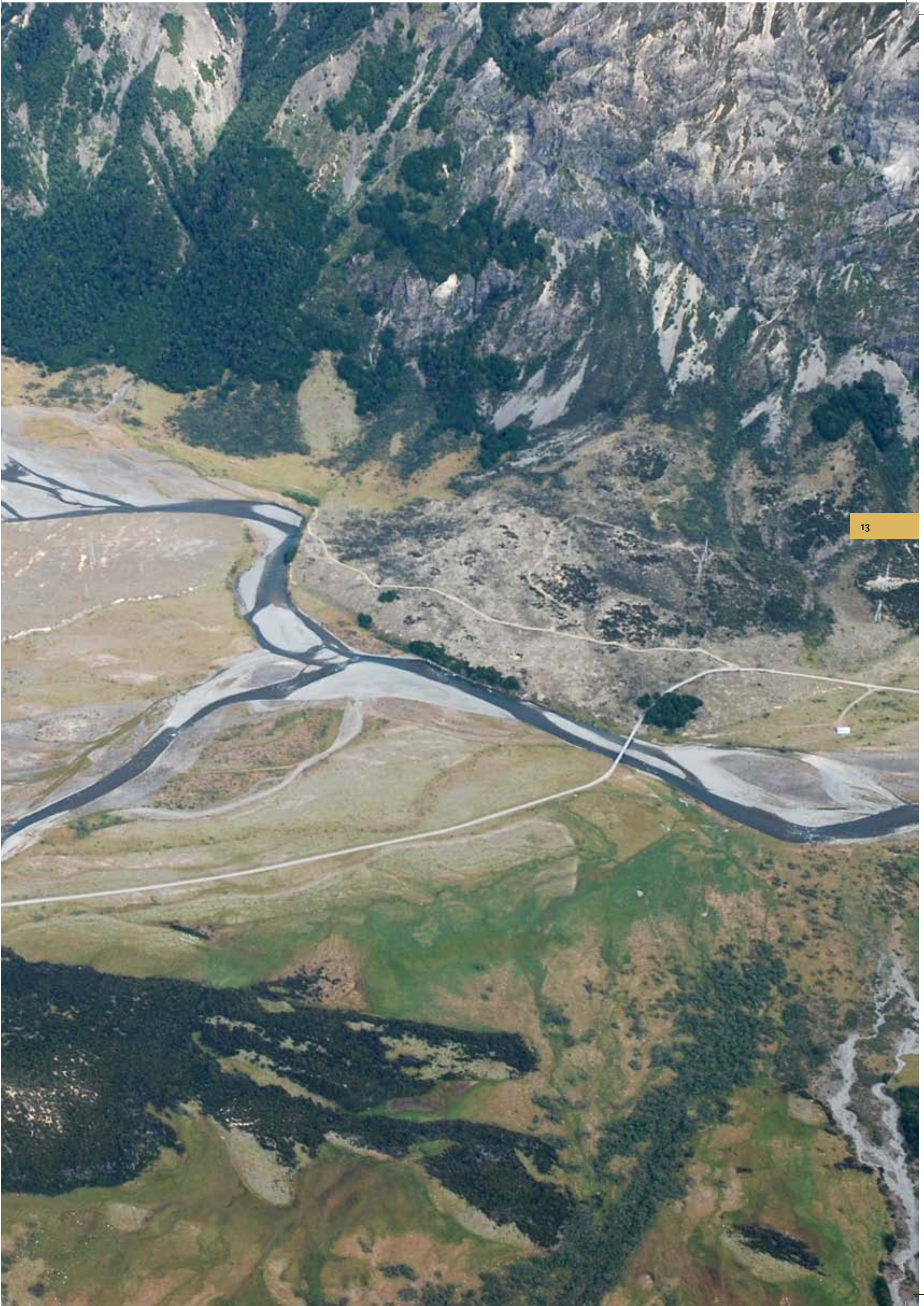
- Current georeferenced orthophotos of the region.
- Authority Boundaries
- Landuse (Groundtruthed)
- DOC conservation Units (2008)
- 20m Contours
- QE II covenants (2007)
- Marlborough Cadastral Information (2008)
- Land Environments (LENZ)
- Land Resource Inventory (NZLRI Landcare Research)
- MDC Reserves and Recreational Facilities
- River Environment Classification (NIWA)
- Awatere Soils
- Wairau Plain Soils
- Locations of building and landuse consents issued as of September 2009
- Locations of foreshore facilities (jettys and wharfs etc) as of September 2009

District Plan information, including:

- Wairau Awatere Resource Management Plan
- Outstanding Natural Landscapes
- Heritage Trees
- Special Places

Marlborough Sounds Plan

- Current Ecological areas
- Heritage Sites
- Prominent Ridgelines
- Zone Boundaries
- Faultlines
- Marine Farms (2008)



LANDSCAPE MEANING AND THE DISTRICT'S STATUTORY CONTEXT

The Environment Court has commented that “A precise definition of ‘landscape’ cannot be given ...” [WESI vs QLDC [2000] NZRMA 59].

From the first use of the word ‘landscape’ in the late 16th century its definition has evolved. It is now accepted that landscape is far more than scenic views. Landscape has been described as the reflection of physical and cultural processes. [Ref. NZILA]. Marlborough landscapes, are expressions of environmental processes, human activity and regional identity.

The landscape’s physical complexity is further complicated by the ways in which people see, experience and use it. Many visitors and residents enjoy the landscape from a general aesthetic and cultural perspective. Those deriving a living from the land may also emphasise its economic importance and in many cases its tidy and productive appearance. Conservationists on the other hand, are likely to place greater emphasis on biodiversity and ecological processes.

Everyone sees, feels and understands the landscape differently. The landscape is required to simultaneously serve social, aesthetic, environmental and economic functions. Everyone has an investment in its future. It triggers strong emotions. However, the cost of managing the landscape often falls back on the private landowners. It is little wonder that attempts to address landscape management are fraught with difficulty.

For the purpose of these investigations, the study team has interpreted ‘landscapes’ as:

the physical and characteristic products of the interaction between human societies and culture with the natural environment. They can be considered to be spatial areas where place specific elements and processes reflect a particular natural and cultural history. This unique combination of attributes may be expressed visually or in terms of meaning and spirituality. Because the underlying human and natural processes are subject to change and evolution, landscapes are dynamic systems.

The RMA 1991’s references to landscape are both explicit and implicit. In “Landscape Planning Guide - For Peri-urban and Rural Areas”, Raewyn Peart suggests that the Act

...“enables the identification of four broad categories of landscapes which merit more dedicated focus in regional and district planning, each with slightly different management objectives: outstanding natural landscapes, landscapes which contribute to visual amenity and/or the quality of the environment, areas of the coastal environment with high natural character and areas with cultural or heritage significance. These categories are overlapping and interconnected and may not always have distinct boundaries.”

She goes on to observe that

“Although landscape management, like any other environmental management exercise, is necessarily going to focus on some priority areas, there is a need to be concerned for the maintenance and enhancement of landscape quality everywhere. All landscapes arguably merit some management consideration under the ‘sustainable management’ purpose of the RMA and the requirement to avoid, remedy or mitigate adverse effects of activities on the environment.”

From a technical landscape perspective, the purpose of management may be characterised as:

- a) avoiding the inappropriate erosion of the intrinsic characteristics and qualities that have built up over time through the interplay of natural and cultural processes; and
- b) enabling development and change to occur that avoids the loss of landscape coherence, diversity and cultural identity and meaning.

This landscape perspective is packaged within the RMA under a number of matters of national importance (RMA Section 6) and other matters to which the Council is required to have particular regard (Section 7). The key sections of the RMA that relate to ‘landscape’ are the ‘natural character of the coastal environment, wetlands, and lakes and rivers and their margins’ (Section 6(a)), ‘outstanding natural features and landscapes’ (Section 6(b)), ‘historic heritage’ (Section 6(f)) and ‘landscapes which contribute to visual amenity and/or environmental quality’ (Sections 7(c) and (f)). ‘Protection of areas of significant

indigenous vegetation and significant habitats of indigenous fauna’ (Section 6(c)) and ‘the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga (Section 6(e)) are also clearly linked to a broad understanding of landscape.

Natural features and landscapes that do not meet the criteria for being ranked as ‘outstanding’ can nonetheless qualify for protection under other clauses in Section 6 or be required to be ‘maintained and enhanced’ either as ‘amenity values’ or part of the wider ‘environment’ Section 7(c) or Section 7(f). Thus, for example, coastal landscapes or rivers or lakes that were not ‘outstanding landscapes’ would still be required to have their ‘natural character’ preserved under Section 6(a), as would areas of indigenous vegetation or habitats of indigenous fauna that were also not considered to be ‘outstanding natural features’ under Section 6(b), will require protection under Section 6(c).

All of these sections of the RMA are relevant to this study. However, it is Section 6(b), outstanding natural features and landscapes that has proved particularly problematic. Close to twenty years after the introduction of the RMA there appears to be a convergence between the way in which Section 6(b) is being interpreted, ‘practitioner’ views on what the concept of ‘landscape’ embraces, and general public interest, awareness and concern for ‘landscape’. Various Environment Court cases have reinforced the view that it is appropriate to consider a range of criteria (or factors) in landscape assessments. These include but are not restricted to:

- the natural science factors - the geological, topographical, ecological and dynamic components of the landscape;
- its aesthetic values including memorability and naturalness;
- its expressiveness (legibility): how obviously the landscape demonstrates the formative processes leading to it;
- transient values: occasional presence of wildlife; or its values at certain times of the day or of the year;
- whether the values are shared and recognised;
- its value to tangata whenua;
- its historical associations.

This landscape assessment reflects this wide-ranging understanding of landscape. However it is envisaged that landowner, stakeholder and general public input will also play a significant role in determining the values placed on Marlborough landscape.

STATUTORY MARLBOROUGH PLANS

The Marlborough District is administered by a unitary authority, the Marlborough District Council (MDC). The relevant statutory documents to consider as part of this Landscape Study apart from the RMA, include the following:

- The Marlborough Regional Policy Statement (RPS);
- The Wairau Awatere Resource Management Plan (WARMP);
- The Marlborough Sounds Resource Management Plan (MSRMP)

This technical Landscape Study can be used by MDC to inform the review of the existing landscape-related issues, policies and objectives within the three plans.

The MRPS in the glossary, page 94 states that landscape

‘means natural and built scenery in a broad view’.

The WARMP Section 5.1 refers to ‘indigenous, working and built landscapes’ and defines landscapes as ‘the visual expression of physical, biological and cultural processes both past and present’.

The MSRMP does not appear to define landscape although in Volume One, Appendix One, page 1 the Plan states that:

‘The dimensions of landscape are landscape character and landscape quality’

In section 5.1 the MSRMP notes that

‘The Marlborough Sounds has landscapes which are unique in New Zealand and are valued for their semi-wilderness aspects, scenic beauty, recreational capability and their social, economic and cultural utility’

This review will attempt to weave these various interpretations into a consistent and cohesive description and evaluation of the Marlborough landscape.

ASSIGNMENT OF VALUES TO THE LANDSCAPE

The New Zealand landscape has an international reputation as being exceptional. Ranging from the volcanic cones of Rangitoto and Tongariro in the North Island to the Marlborough Sounds, Aoraki/ Mount Cook and the sheer walls and waterfalls of Milford Sound in the South Island, all are landform icons which grace tourist brochures and underpin New Zealand's reputation for an amazing diversity of natural landscapes and seascapes [Landforms of New Zealand, p6]. This quality and diversity is increasingly recognised as one of the country's key attributes and the Marlborough region is as diverse as any New Zealand region. Natural features within the Marlborough region range from the drowned river valleys of the Marlborough Sounds to the open braided rivers of the Wairau and Awatere valleys to the high rugged peaks of the Inland Kaikoura Ranges. The difficulty the study team faced during the landscape evaluation phase lay in determining whether these landscapes meet the threshold of being 'outstanding at a district level'.

The study team used the first stage character descriptions as a basis for value assessment. The descriptions of land types provide valuable data on the attributes that contribute to landscape character. However, it gives little assistance to the identification of values attributed to the landscape. If a rational decision on what constitutes an outstanding natural feature or landscape is to be made, then the criteria, or justification must be explicit. This is a complex phase, which involved the review of a range of existing information, including existing landscape studies for the district, literature reviews and other research documents. All landscapes have values, therefore the level of information on landscape values required a significant component of judgment by the study team. No other specialist assessments such as land use, tangata whenua, economics or historic values have been commissioned as part of this landscape study, but should be considered as part of the review.

As part of this study, the study team reviewed the existing landscapes character and value assessments within the RPS and the two Resource Management Plans. Gaps were identified, which primarily related to the variable depth of information provided on landscape values. Other values such as the extent of the coastal environment and degree of natural character (Section 6a), Heritage Landscapes (Section 6f) and Visual Amenity Landscapes (Section 7c and 7f) were identified only in-part in the previous landscape assessments. It is acknowledged that parts have been completed for smaller areas of the Marlborough region, but it has not been addressed as a collective whole for the entire region and district.

As mentioned previously, there are various different ways in which landscapes may be appreciated and thresholds for quality determined. The range of criteria that the Environment Court has reinforced for landscape practitioners to consider when valuing landscapes is referred to as the Amended Pigeon Bay criteria or factors (C32/1999 – Pigeon Bay Aquiculture Ltd v CRC and C180/1999 – Waikaitipu Env. Society v QLDC). The criteria or factors include: 1) the natural science factors - the geological, topographical, ecological and dynamic components of the landscape; 2) its aesthetic values including memorability and naturalness; 3) its expressiveness (legibility): how obviously the landscape demonstrates the formative processes leading to it; 4) transient values: occasional presence of wildlife; or its values at certain times of the day or of the year; 5) whether the values are shared and recognised; 6) its value to tangata whenua; and 7) its historical associations.

There is now a level of acceptance in the use of these criteria as an assessment framework however it is also increasingly recognised by practitioners that while they are useful, they also have certain limitations. While they were not intended to form a definitive or 'complete' list of landscape values, this is how they have often been used by assessors. Many of the criteria actually overlap and some could be more usefully seen as subsets of one another rather than as separate value categories. This can be confusing and lead to some values being given more weight than others, or 'double-counting'.

A recent review by the New Zealand Institute of Landscape Architects (NZILA) have reordered the Pigeon Bay criteria into three categories, focusing on the landscapes' broad Biophysical, Sensory and Associative values. Biophysical, sensory and associative attributes can all be surveyed in a relatively objective way, using techniques that others can understand, repeat, review and critique. Condensing the Pigeon Bay criteria or factors into these three broad categories reduces the risk of emphasising some criteria at the cost of others and enables assessors to interpret the landscape values with validity and reliability.

International landscape values such those used by UNSECO to value World Heritage Sites consider a variety of factors, but essentially they separate the landscape into two aspects: Natural landscapes and Cultural landscapes. There are a number of criteria a site [or property] needs to meet. For cultural landscapes this includes: creativity, cultural tradition, events/ ideas/ beliefs as well as historic land use patterns. For natural landscapes the criteria extends to natural beauty/ aesthetics, geological processes/ features/ landforms and natural habitats and biodiversity. Each criteria is also considered in terms of authenticity and integrity.

The UNSECO measure of 'Authenticity' states: *'The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful. Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning are requisite bases for assessing all aspects of authenticity.'* The UNSECO measure of

The UNSECO measure of 'Integrity' states: *'Integrity is a measure of the wholeness and intactness of the natural and/ or cultural heritage and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the property: a) includes all elements necessary to express its outstanding universal value; b) is of adequate size to ensure the complete representation of the features and processes which convey the property's significance; and c) suffers from adverse effects of development and/ or neglect.'*

Based on the developing understanding of the methodology of valuing landscapes, and the review undertaken by the NZILA, the framework for the evaluation component of the landscape study will focus on three aspects of landscape, namely:

1. Biophysical Aspects, which incorporate a landscapes natural science elements, including its geological, ecological and biological elements. This part of the analysis will involve more objective and quantifiable data to support a particular decision made;
2. Sensory Aspects, which involve aesthetics and natural beauty, as well as transient matters from a visual perception. This part of the analysis will involve judgmental and subjective interpretations of a landscape or features aesthetics; and
3. Associative aspects, which involves cultural (tangata whenua) and historic values as well as shared and recognised attributes.

Interwoven into the evaluation of each character area, will be the analysis of the terms authenticity and integrity into the judgment made by the study team.

A breakdown of the methodology is described below:



OUTSTANDING NATURAL FEATURES AND LANDSCAPES (SECTION 6b)

BIOPHYSICAL

GEOLOGICAL VALUES

The division of geological and biological values (under the Biophysical and Natural Science heading) allows for a considered analysis of each aspect, where both are analysed separately. The Environment Court described 'Natural Sciences' in the Queenstown decision as *"the geological, topographical, ecological and dynamic components of the landscape"*. Natural science values were considered important if a landform (including geology and soils) and/or landcover (in particular native vegetation communities, wildlife and ecosystems) displayed particular representativeness or rarity within the region or district. Representative natural features and landscapes are clearly and recognisably characteristic of the area, district or region. The key components of the landscape will be present in a way that more generally defines the character of the place. Natural features in a good state of preservation are representative and characteristic of the natural geological processes and diversity of the region or district. Natural features are unique or rare in the region or nationally, if few comparable examples exist. Natural features may be a landscape feature such as Lake Chalice or an element/component of the landscape such as the Inland Kaikoura Range.

In the past century, almost all areas protected in New Zealand have been identified for aesthetic or biotic values. While this has resulted in the protection of a large number of earth science sites of significance, it has also resulted in considerable bias in what has been preserved. New Zealand has a unique and extremely diverse natural landform, geological and soil heritage. This is a result of its long and complex geological history, its climate and location on a volcanically and deformationally - active boundary between two of the world's major crustal plates. The Geopreservation Inventory lists information on all the internationally, nationally and many of the regionally important earth science sites throughout New Zealand.

The overriding objective of geological conservation in New Zealand should be to ensure the protection of the integrity of the best representative examples of the broad diversity of geologic features, landforms, soils sites and active physical processes, so that we can understand the unique geological history of New Zealand, development of its landforms and evolution of its biota.

Another aspect to geological values lies in its 'readability' or 'how legible' the landscape is. It refers to the expressiveness of the landscape, how easy it is to understand all its subtleties in terms of past events - both natural and cultural. Overseas visitors often remark that New Zealand landscapes provide a wonderful lesson on physical geography. Past processes are often clearly understandable, and present geological activity, such as volcanoes, glaciers or rock slides, are clearly evident in many places. Legibility need not necessarily relate to 'attractiveness', but clarity of natural and cultural processes is important.



The expressive form of the chalk cliffs at the White Bluffs.

Under the Amended Pigeon Bay factors, 'Legibility' is a stand alone criteria and is considered to be an essential quality of a landscape. For this landscape study, the study team have incorporated its main essence under geological values, while mindful that other values are also interrelated with legibility. The Environment Court described this criterion as "how obviously the landscape demonstrates the formative processes leading to it" (Barton, 2005), in other words the degree to which the processes (geomorphological, hydrological, climate, vegetation, coastal and cultural) are actively displayed in the landscape. Some landscapes (or natural features) clearly express past natural and cultural processes. However, landscapes or features which are significant in terms of their geomorphological values, may not be expressive of these processes, whilst those which are highly expressive may not have a specific geomorphological value. Natural features and landscapes that exemplify the particular processes that formed them may also have strong historical connotations and a distinctive sense of place.

Authenticity of Information Sources used to inform the evaluation:

The study team found that there was a large amount of material relating to the geology and geomorphology of Marlborough. All of this material appeared to come from credible sources and was generally scientifically comprehensive and sound. Some sources not listed below varied in depth and spatial context. The Landtyping report by Landcare Research was considered the most helpful, as this report was prepared specifically for this Landscape Study. The remainder acted as a reliable resource to refer to.

- Landtyping provided by Ian Lynn (Landcare Research, 2009 and Lucas/Landcare Research 1997)
- Geopreservation Sites (Hayward, Kenny and Johnson, 1999)
- Geology and Soil Maps (MDC)
- Geology of the Wellington & Nelson areas (Begg, Rattenbury, 2000 & 1998)
- River Environment Classification (NIWA)
- Study team knowledge

BIOLOGICAL AND ECOLOGICAL VALUES

The Marlborough region has a vast number of small protected areas, as well as numerous conservation areas of national significance. Information available from various documents published by DOC, including the Conservation Management Strategy as well as the South Marlborough Significant Natural Areas project, published by MDC, was used to inform the study team about biological values in the region. Several other publications (see references) provided valuable information about flora and botanical values, freshwater resources, and wildlife.

There are a little over 20 ecological districts within the Marlborough region, ranging from the Sounds and Cook Strait to the Wither Hills, Flaxbourne and Balaclava areas. Together, the climate and geology of Marlborough have created a wide diversity of habitats and this diversity is reflected in the character of the native vegetation found. The Marlborough district harbours extensive areas of mixed forests (beeches, podocarps and broadleaves trees), shrublands (including 'grey scrub') and grasslands (silver tussock and snow tussock). In terms of the marine environment and specifically the Marlborough Sounds, the waters harbour a myriad of habitats and environments, due to the diverse geomorphic landscape (e.g. reefs and offshore rocks and stacks of the Outer Sounds) to the relatively simple (e.g. benthic communities) of the more sheltered, enclosed Bays (Land and Marine Ecosystems, Lucas, 1997).

Another aspect of Biological values relates to a landscape's transient nature. Transient values describe the contribution which wildlife, climate and hydrological processes make to landscape. A landscape may gain significance due to the way in which wildlife seasonally (or at times in the day) gathers or occupies a specific area. Similarly, locations that benefit from the rising or setting sun, time of day and seasons of the year may be elevated in value due to this 'transient characteristic'. Transient values have associations with sensory and associative values.

Authenticity of Information Sources used to inform the evaluation:

The study team found that the majority of sources relating to the biology and ecology of Marlborough was comprehensive and sound, although varied in spatial context (often being focused towards Ecological Districts rather than Territorial Districts). The two Significant Natural Areas Projects for South and North Marlborough proved to be helpful, as did many Department of Conservation sources, such as the Conservation Management Strategy. The Landtyping report by Landcare Research was also considered helpful for biological research. The remainder acted as a reliable resource to refer to.

- Landtyping provided by Ian Lynn (Landcare Research, 2009 and Lucas/Landcare Research 1997)
- Geology and Soil Maps (MDC)
- South and North Marlborough Significant Natural Areas Projects (2005 & 2009 respectively)
- Department of Conservation; Protected Areas (DoC, 2009)
- Conservation Management Strategy (DoC, 1993)
- A natural character framework for the Marlborough Sounds (Doc, 2004)
- Study team knowledge, including BML ecologists

Outstanding Test: For a feature or landscape to score highly for Biophysical Values, the feature or landscape will need to contain exceptional and/or very high geological or ecological/ biological values, as described above. The intactness and legibility of a landform and its wider setting will be considered when assessing geological values, particularly in terms of its ability to fully represent or convey those geological features or processes that make it significant, such as tectonics or glacial activity. The intactness and wholeness of the ecology of an area, including its level of biodiversity, its spatial scale and sensitivity to landscape change has been considered as part of the decision process.



The biologically rich Pelorus Sound.

SENSORY VALUES

AESTHETIC VALUES

The aesthetic value aspects considered by the Environment Court were described in the Amended Pigeon Bay criteria as "including memorability and naturalness". This decision included some discussion of the adequacy of this description. It was of the view that traditional scenic and visual considerations may be underplayed. It noted that considerations such as pleasantness raised in the RMA amenity definition with reference to Section 7(c) are also relevant. The concept of vividness and visual coherence are also often used in relation to aesthetic values. For example they were considered as contributors to the landscape's visual quality in the Wairau Awatere Landscape Assessment. The definitions of all these terms show that they are interrelated:

Memorability: This term describes the way in which a landscape remains in the memory. Highly memorable landscapes comprise a key component of a person's recall or mental map of a region or district. This is also often related to a landscape's legibility and beauty.

Naturalness: Natural features and landscapes appear largely uncompromised by modification and appear to comprise natural systems that are functional and healthy. Naturalness describes the perception of the predominance of nature in the landscape. A landscape may retain a high degree of aesthetic naturalness even though its natural systems may be modified. Similarly landscapes that have high ecological values may not necessarily display high qualities of visual naturalness.

Vividness: Vivid landscapes are widely recognised across the community and beyond the local area and remain clearly in the memory; striking landscapes are symbolic of an area due to their recognisable and memorable qualities, including their landform.

Coherence: Natural systems are intact and aesthetically coherent and do not display significant visual signs of disharmony. The patterns of land cover and land use are largely in harmony with the underlying natural pattern of the landform of the area and there are no significant discordant elements of land cover or land use; Coherence describes the way in which the visual elements or components of any landscape come together. Landscapes with high levels of coherence will have their visual elements in harmony and reinforcing each other. They will have unity, whilst they may be either visually diverse or relatively simple in terms of their elements. They work together in terms of their composition.

The common occurrence of transient features (for example the seasonal changes in the mountains or particular weather patterns and cloud formations) contribute to the character, qualities and values of the landscape. Some landscapes are widely recognised for their transient features and the contribution these make to the landscape. Natural features and landscapes are generally characterised by their landform and their land cover. However, the experience of some landscapes is significantly influenced by other, sometimes ephemeral characteristics. Where these characteristics occur regularly, they become a recognised and integral part of the landscape such as seasonal wildlife concentrations and breeding areas.

The Oxford English Dictionary (2002) defines 'aesthetic' as 'concerned with beauty or the appreciation of beauty; of pleasing appearance'. This appreciation of beauty encompasses not only the visual aspects of a landscape, but also other sensory experiences, such as sound, smell and touch. Many scientific studies have been undertaken to examine and quantify scenic beauty of landscapes¹. A number of researchers² found that both a landscape's intrinsic physical properties (natural beauty) and/or cultural elements (relating to human creation) can result in aesthetic landscape quality. Areas identified as outstanding landscapes, generally contain these favoured characteristics. However, significant visual signs of human modification, intervention or manipulation often detract from the visual 'wholeness' and the aesthetic qualities of a landscape.

¹ Landscape Quality Assessment of South Australia, Andrew Lothian, Dissertation for Doctorate of Philosophy, Department of Geographical & Environmental Studies, University of Adelaide, 2000
² Eg Zube, Sell and Taylor (1982) analysed 160 published papers and found that the physical elements, compositional construction, locational context, naturalness, man-made elements, and gestalt were the key characteristics that were considered in landscape quality assessments.

OTHER SENSORY VALUES

Sensory elements of a landscape can extend beyond visual or aesthetic values. For instance, a landscape can portray auditory and odour stimuli that are just as important as the landscape's appearance. There is usually a congruence or coherence between sound, smell and visual stimuli that excite the senses, such as the experience of being in a natural setting. Sensory values can be highly transient; from the morning chorus of waking birds in the bush to the fragrance of a meadow on a summer's evening. Weather patterns, seasons, tidal movements and time of day all stimulate our senses and are integral when assessing the sensory aspect of a landscape.

Authenticity of Information Sources used to inform the evaluation:

- The authenticity of the sources relating to aesthetics varied considerably, due to the high level of subjectivity relating to the term. The study team preferred the sources provided by Marlborough District Council and the Department of Conservation for their completeness, as well as their combined knowledge of the area. Other helpful sources included:
- Previous Landscape Assessments including the Coastal Sounds Plan and Wairau Awatere Landscape Assessments
- Site visits, study team knowledge and internet searches
- Variety of relevant literature, pamphlets and booklets from Marlborough District Council and DoC

Outstanding Test: For a feature or landscape to score highly for Sensory Values, the feature or landscape will need to contain exceptional and/or very high aesthetic values (and may include non-visual sensory values), as described above. The integrity of an area will include reference to the level of visual coherence, the condition of its physical 'fabric', and the extent to which all components necessary for maintaining the aesthetic qualities of the area are included, such as the way in which a scenic body of water is linked to the qualities of the wider water catchment.

ASSOCIATIVE VALUES

SHARED AND RECOGNISED VALUES

Certain natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to a sense of place. This leads to a strong community association with or high public esteem for the place. The presence of existing protected sites is a key indicator of shared and recognised values. This specific value is closely associated with Cultural Heritage and Tangata Whenua values described below.

Research has shown that many professional landscape assessments have reflected fairly accurately the views of the general public. Nonetheless, it is fully accepted that in some circumstances the expert's perceptions may be different. Public perception exercises are often extremely costly and not always feasible as part of a landscape study. In many such studies there is no consensus between members of the public or different stakeholder groups.

In simple practical terms paintings are made using colour, shape, form and tonality. This combined with 'observation' and 'perception' of the landscape by artists has the potential to transform the viewer's own perception of 'time' and 'place', exposing a meaningful insight about ourselves relevant to the environment. The importance of sense of place (*genius loci*) is apparent. Artists often articulate the scenic qualities of a place in terms such as patterns, rhythms, space, horizon, sky, weather, diversity, barren, empty, raw, sculptural, vivid, harsh. Marlborough paintings emphasise the specialness of their subject and often result in contemporary images with which the community can identify.

Studies of Marlborough's literature and art stress the significance of both generic and specific landscapes and the extraordinary differences of scale found in the region's landscapes. For example, the poems written by Eileen Duggan are specific to a number of areas, including Tuamarina and the Wairau River, while some artists focus on the more ephemeral attributes in the landscape, such as light, vegetation and water patterns.

Tourism in Marlborough is important for the local economy. An analysis of visual material provided for visitors clearly shows that the Sounds, the mountain and dry hill backdrops, the plains and braided rivers, and vineyards are all frequently appearing images. The most frequently 'referred to' places include Picton and the Queen Charlotte Sound; Havelock, Pelorus, French Pass and Kenepuru Sound and Blenheim and the Wairau Valley, which are often considered to be 'iconic landscapes' of the region. Views from principal corridors, such as State Highways also increase the shared and recognised values of a landscape.

Conservation areas and popular recreation opportunities within them have been considered under this set of values. The Department of Conservation (DoC) is one of the largest landholders in New Zealand, with over 480,000 hectares of conservation land in Marlborough, located predominantly within the mountainous south, west and north of the region, including areas within the Marlborough Sounds. Digital GIS maps of DoC and QE II trust managed protected areas, including Forest Parks, Reserves, Stewardship land, etc, were used by the study team as information sources.

Authenticity of Information Sources used to inform the evaluation:

Due to the nature of the topic, the authenticity of a number of sources was of variable quality. The study team found the following sources relating to Shared and Recognised values the most helpful:

- Previous Landscape Assessments including the Coastal Sounds Plan and Wairau Awatere Landscape Assessments
- Department of Conservation and QEII Trust protected areas
- MDC and DoC information brochures and websites
- Study team knowledge

CULTURAL AND HERITAGE VALUES

Cultural legibility is a vital component of many overseas landscapes where many centuries of human endeavour can be unravelled through study of the present landscape. In New Zealand this aspect of landscape has received only limited and belated attention. The developing awareness of complexity of the 'indigenous cultural landscape' of Tangata Whenua is covered under the Tangata Whenua evaluation criterion below. This increased understanding of the value of landscape as a living record of social change, adds to the increasing significance attached to the legibility of our landscapes.

Some of Marlborough's landscapes are clearly and widely known and influenced by their connection to the historical values inherent in the place. Cultural and historical values are based on traditional land uses such as farming and food gathering practices, traditional settlement patterns or other social patterns of a time, architectural periods, or notable landmarks, events or figures. Some of them are specific sites of significance, others are wider areas that reflect a high degree of unity or integrity as a setting for historic sites or activities. Individuals and communities leave their different marks on the landscape. From our choices of architecture and land use to our memories of events, landscapes can tell stories of from where and from whom we came and why we have responded to the physical environment in the ways we have.

Authenticity of Information Sources used to inform the evaluation:

The authenticity of a number of sources for this topic also proved to be highly variable. A large amount of Marlborough's cultural history has been written about so the task the study team had before them was to condense this information into meaningful 'sound bites'. The study team found the following sources the most helpful, particularly the websites:

- Previous Landscape Assessments including the Coastal Sounds Plan and Wairau Awatere Landscape Assessments
- Cultural Heritage maps, (Central Index of New Zealand Archaeological Sites (CINZAS) and New Zealand Archaeological Association (NZAA))
- Department of Conservation and QEII Trust protected areas
- Study team knowledge
- Reference books, pamphlets and brochures from MDC
- Website searches including www.theprow.org.nz, www.marlboroughonline.co.nz, www.archsite.org.nz and www.nzhistory.govt.nz

TANGATA WHENUA VALUES

There are a variety of natural features and landscapes that are clearly special or widely known and influenced by their connection to the Maori values inherent in the place. These landscapes (or parts of them) have been identified as having particular regional importance to tangata whenua.

Authenticity of Information Sources used to inform the evaluation:

Due to the recorded history of tangata whenua, the authenticity/ credibility of the sources varied considerably. The study team found the following sources most helpful due to their comprehensiveness:

Historical research of Maori and iwi values including the website: www.teara.govt.nz

MDC website, District Plans and Regional Plan

Outstanding Test: For a feature or landscape to score highly for Associative Values, the feature or landscape will need to contain exceptional and/or very high shared and recognised and cultural (including tangata whenua) and heritage values, as described above. There is a difference between an acknowledged area of value such as a reserve, and an association with an area due to it having been written about or painted. Therefore, the measure of integrity is useful to differentiate those landscapes that currently demonstrate shared and recognised values through various forms of functioning protection and management such as legislative or voluntary systems. For heritage values, the measurement and extent to which the landscape has been modified with consideration to whether the key characteristics of the historic period have been retained will be crucial. In terms of tangata whenua values, integrity refers to the manner in which the area fully embodies their culture and beliefs and in particular the spiritual connection between the Maori community and their environment. This will not be interpreted by this study team and would be more appropriately addressed by tangata whenua.

NATURAL CHARACTER (Section 6a)

This is described and outlined within Section D of this Landscape Study.

AMENITY VALUES AND QUALITY OF THE ENVIRONMENT (Section 7c and 7f)

The RMA defines amenity values as:

"those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes."

The quality of the environment is not defined by the Act. The amenity and environmental quality focus of these investigations has been visual amenity. The study team has addressed the important visual amenity features or characteristics that occur outside the areas identified as important in terms of outstanding natural landscapes and coastal natural character. Visual Amenity landscapes tend to be more culturally modified landscapes, where their aesthetic and scenic values are high. They tend to have high associative values. The study team suggested that the following database may assist the identification of visual amenity landscapes:

- Reserves (DoC, Council, etc.)
- Key Viewpoints (study team investigations)
- Outcomes for Places: Stakeholder views on the future development in the Sounds (Corydon, 2009)
- Recreation Opportunities (tourist maps, walkways, topographical maps, study team investigations)

The study team therefore evaluated the aesthetic aspects of the Marlborough landscape and determined those landscapes (such as the Wither Hills) and features (such as Spring Creek) with high Visual Amenity (VA) within Section 7c and 7f of the RMA 1991.

HERITAGE VALUES (Section 6f)

All landscapes express their past to a greater or lesser extent. This past may be predominantly a natural heritage or a cultural heritage. The Marlborough landscapes contain elements of both natural and cultural heritage. In some cases there may be little extant in the landscape, e.g. a battle site. In others, there may be visual and physical cues from a specific period of activity, e.g. pa site or wharf buildings; or a 'layering' of features from a number of periods. In certain instances, the heritage components of a landscape may be sufficiently rich to suggest identification and management as a 'heritage landscape'.

The issue of cultural or heritage landscapes is a relatively new area of research in New Zealand. For the purposes of these investigations, the study team have restricted their focus to historic heritage as outlined in Section 6f. This includes areas and surroundings beyond specific sites, particularly where these express past landscapes.

The historic and cultural values of Marlborough are rich and cover vast areas; however evidence of this today tends to be sporadically located. Where collections of heritage features are found, they are often not related; not by event, custom or by historic era. The task the study team faced therefore was to interpret the definition of heritage landscapes through its meaning within the RMA 1991 context and to try and ascertain the importance, density and distinctiveness of heritage features that may constitute a heritage landscape.

A number of guidelines, essays and thesis have been written regarding the identification and evaluation of heritage landscapes. The overriding essence of these sources relate to the integrity of a landscapes heritage fabric, its intactness and distinctiveness as an historic landscape, and its vulnerability to change/ modification.

In a recent decision by the Environment Court for a proposed Holcim plant, the court noted *"While not committing ourselves to any particular wording for a threshold evaluation, we consider that for the purposes of assessing whether a landscape is significant for its heritage the extent of heritage items and associations must be such as to give the landscape its particular character."* [Holcim NZ, Decision C058/2009, page177]

Some parts of Marlborough display a slightly higher number of historic structures, buildings and events than others, with the concentration of these also varying. Although many of Marlborough's cultural and historical areas are of great importance to the region and, in some regards to the country, the study team found it difficult to locate a clearly legible cultural landscape that displayed obvious, coherent, rich associations. The main historic values of Marlborough have been identified by the study team and incorporated into the evaluation stage of the Landscape Study, but at no time did one area clearly 'stand out' as a heritage landscape. Although the coastline from Rarangi to Port Underwood displays a wealth of history, ranging from old whaling stations to cottages and cemeteries these values appear sporadic along this coastline and do not, in the mind of the study team, collectively, constitute an historic landscape. Rather their values for ONFL status were considered independently as part of the associative attribute of the methodology. Therefore, for the purposes of this study, no heritage landscapes have been identified. The study team propose that a more rigorous appraisal be undertaken at a later stage, when a separate heritage study for the district is undertaken.

MAPPING LANDSCAPE VALUES

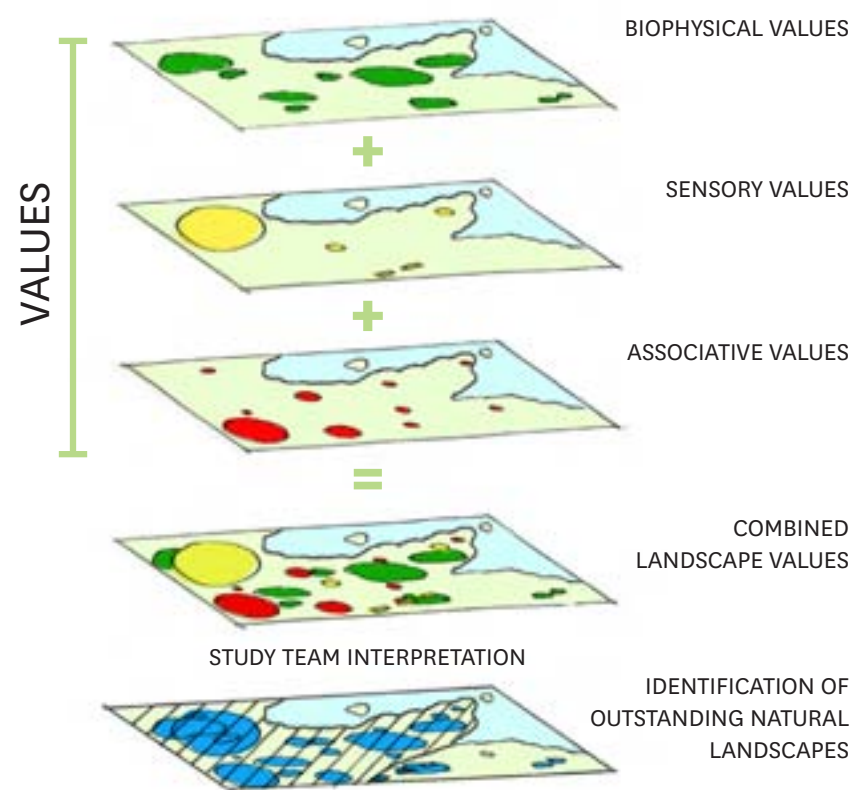
Identification of Outstanding Natural Features and Landscapes

Following the landscape evaluation, the next step the study team undertook was to determine the threshold criteria and spatial extent of the district's Outstanding Natural Features and Landscapes (ONFL). This exercise utilised the mapping of significant values on GIS, which enabled the study team to analyse where particular values overlap. Not all values were mapped (such as aesthetic values), so consideration of the ONFL line took considerable deliberation and refinement. From this, the study team were able to delineate areas that displayed notably high qualities of a range of biophysical, sensory and associative values. For the purposes of this study and due to the territorial authority of Marlborough encompassing both regional and district governance, there was no need for the study team to assess ONFLs at two levels, i.e. regional and district-levels. An ONFL in Marlborough will therefore be an ONFL at both regional and district scale.

OUTSTANDING NATURAL FEATURES AND LANDSCAPE THRESHOLDS

Consideration of that data and findings from on-site investigations assisted the study team to determine a landscape's biophysical, sensory or associative values. This essentially used a nine point scale from Exceptional through to Very Low. Under the methodology, outstanding landscapes or features contained at least an Exceptional, Very High or High attribute scoring. The study team acknowledged that not all landscapes needed to score high in every category to be considered as an ONFL, although this depended on the landscape under consideration. While some landscapes have key scenic values, such as the Wither Hills, ONFL's were only identified in areas that also contained other landscape values, such as those within the Molesworth station, which, in addition to scenic or sensory values contain high biophysical and associational values.

The study team identified that there were a number of discrepancies between 'outstanding' areas in the current district plans and what was being determined through this landscape study process. Where these arose, considerable discussion took place within the team. These discrepancies are a reflection of a number of factors, including limitations to the original methodology used (in some instances prior to the RMA 1991), the mainly 'scenic' aspects being taken into account at the time the previous studies were undertaken and the different land use and water patterns experienced today. Landscapes containing particular scenic values, but a noticeable absence of other landscape values, have been identified as Visual Amenity Landscapes.



Houses align the coastal margins of the Marlborough Sounds



Mapping of Features and Landscapes

Depending on the specific values identified to a landscape or feature, a number of different mapping techniques were used in this study to identify the boundary and this is outlined in the following diagrams and descriptions:

1. Land Typing Approach
2. Contour line Approach
3. Contained Landscape Features (such as Islands);
4. Ridges and Spurs Approach (Visual Catchment)
5. Land Use Approach.

In some areas a variety of the above were used to delineate the ONFL, VAL and Coastal Natural Character areas, such as the Richmond Range.

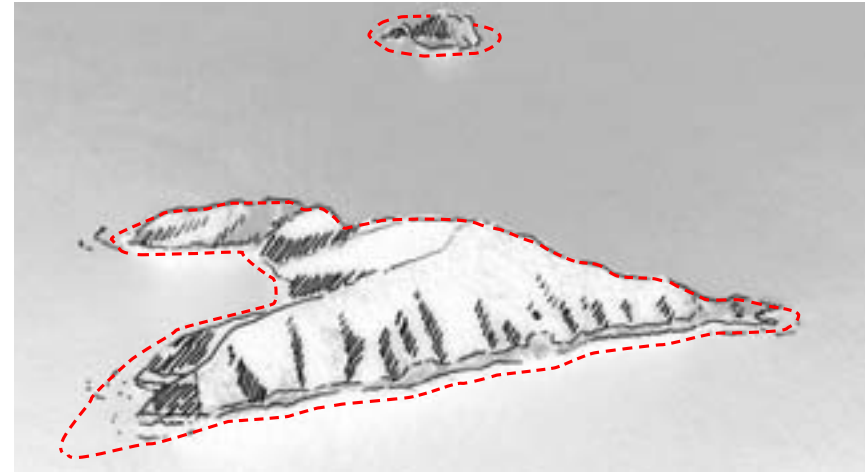


DIAGRAM THREE : CONTAINED LANDSCAPE FEATURES APPROACH

Boundary follows contained landscape features and allows where appropriate, for a curtilage, to include, in this example, the rocky shore line and outlying rocks.



DIAGRAM ONE : LANDTYPING BOUNDARY APPROACH

Boundary follows edge of landform / landtype.

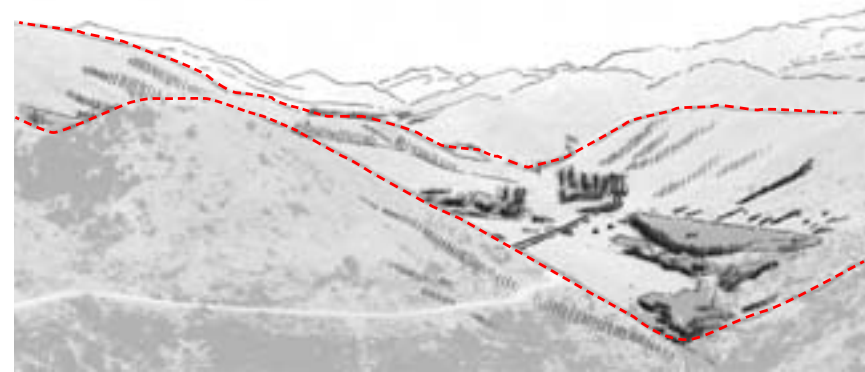


DIAGRAM FOUR : RIDGES AND SPURS APPROACH (VISUAL CATCHMENT)

Boundary follows Ridgelines and spurs and can also be used to define the visual catchment.

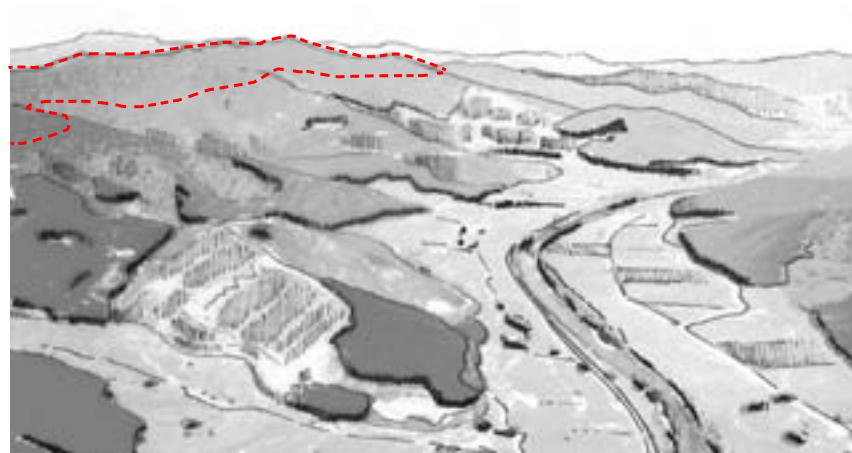


DIAGRAM TWO : CONTOUR LINE APPROACH

Boundary follows a specific or a number of specific contour lines.

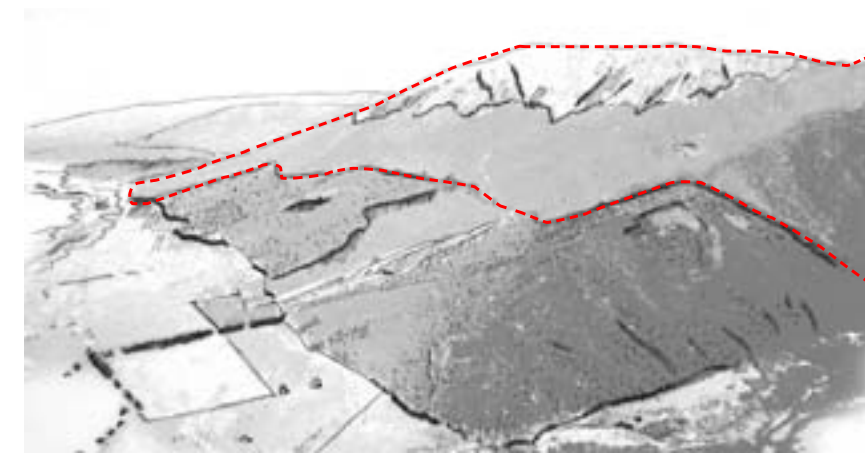


DIAGRAM FIVE : LANDUSE APPROACH

Boundary follows Landuse patterns, such as the division between commercial forestry land and conservation land.



Section B

Introduction to the Marlborough Landscape



THE MARLBOROUGH DISTRICT

The landscape of Marlborough is one of the most diverse of any District within New Zealand, ranging from the wide valley plains and lagoons of the Wairau river to the jagged and rough terrain of the Inland Kaikouras. These different landscapes offer spectacular scenery and exceptional economic and recreational opportunities (with approximately 40,000 New Zealanders call it home). Located within the north-eastern corner of the South Island, the Marlborough district is often the first part of the South Island experienced by many visitors from the north. The landscape has dictated settlement, recreation and economic fortunes. Marlborough is one of New Zealand's sunniest districts. The District Council's 'Destination Marlborough webpage states:

'Marlborough is located close to the heart of New Zealand, on the north east corner of the South Island, due west of Wellington city. For centuries it has offered safe harbour to travellers sailing to the spectacular South Island: first the Maori traders and war parties; then explorers like Captain James Cook and Dumont d'Urville; and now, to visitors seeking a retreat from city pressures, as they discover the unspoilt haven and foodie heaven that is Marlborough today.'

The website continues to describe specific areas of its District, all of which relate strongly to the landscape to which they relate:

The Marlborough Sounds: *'Many visitors to Marlborough arrive by sea through the glorious maze of deep coves and sheltered bays of Queen Charlotte Sound. A place where the historic past overlays present maritime pleasures, its an unspoilt wilderness of native forest and bush that reaches down to secluded beaches and azure blue water – an idyll of fishing, diving, boating, kayaking, nature trails and wildlife';*

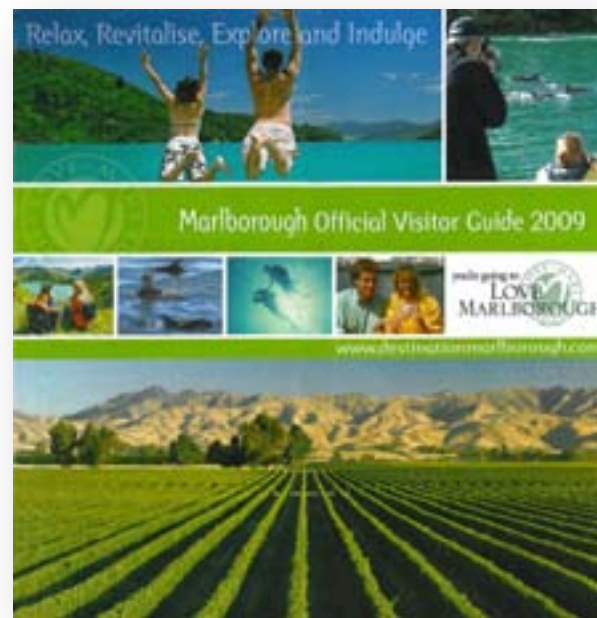
Blenheim and the Wairau Valley: *Row upon row of vines as far as the eye can see – that's the view that awaits you as you approach Blenheim; the region's main commercial centre and hub of the famous Marlborough wine district. It's a great base for exploring and indulging in the leisure and lifestyle attractions of the region.*

Awatere and the Coast: *South of Blenheim along State Highway 1 you will find some of the region's most inspiring scenery; a vast and diverse landscape, steeped in Maori and colonial history, with opportunities to explore and enjoy at every turn.*

Much has been written about Marlborough with its landscapes providing an important context. Cultural encounters, such those experienced at the Wairau Bar between Maori and the first Europeans place special associations in the landscape. Pioneering exploits such Londoner John Guard who set up the first whaling station in the Marlborough Sounds and Thomas Brunner and William Travers who were guided by Maori into the Molesworth area lend historical credence to settlement patterns. The landscapes of Marlborough are the central selling point of the region. It is a principal reason why people come to live and visit. It also provides the conditions essential to a successful wine industry.

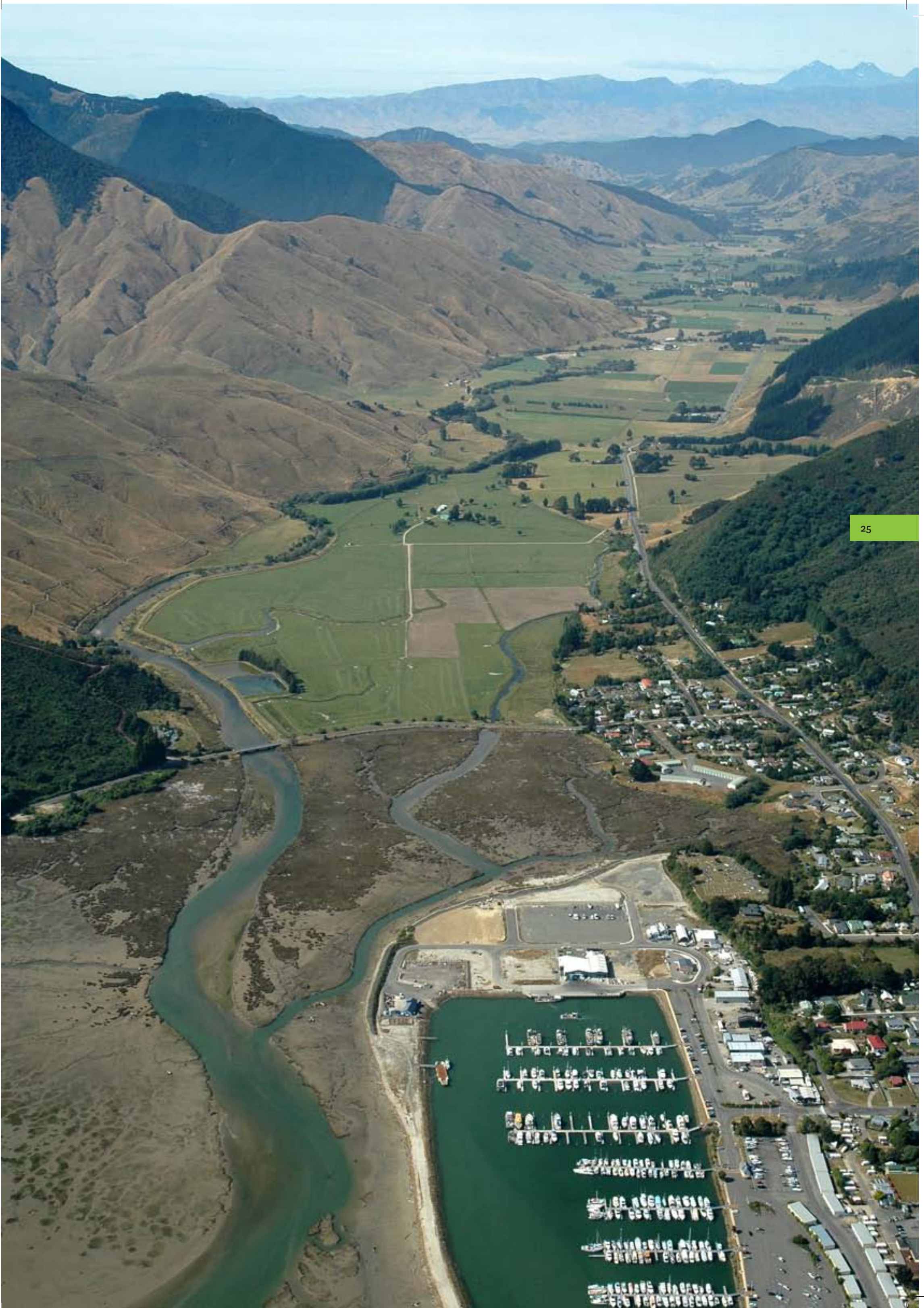


Community perceptions of the Marlborough landscape as seen through various editions of the Telecom White Pages



Various local and tourist related marketing focusing on the Marlborough landscape





GEOLOGICAL HISTORY AND ITS INFLUENCE ON THE MARLBOROUGH LANDSCAPE

The geology of the Marlborough District reflects the dynamic processes of a period of some 200 to 300 million years of constant folding, drowning, tilting and erosion.

The Marlborough District straddles the boundary between the Pacific and Australian plates, where the Pacific Plate is slowly moving under the Australian plate creating continental collision. This transition zone created the uplift associated with the Southern Alps and other ranges within the South Island. On the ground, the Alpine Fault line demarcates this transition zone throughout the spine of the South Island, through the Cook Strait and onto Wellington and the North Island. The northern section of the fault line in the South Island is referred to as the Wairau Fault, which is demarcated by the Wairau River. Either side of the Wairau Fault line are a series of smaller fault lines that follow many Marlborough valley systems in a north-easterly / south-westerly direction. Collectively, these faults are known as the Marlborough Fault System and effectively split the district in two.

The Marlborough geology comprises predominantly well-bedded sandstone and mudstone (collectively known as greywacke) of the Jurassic period. This has been compressed, deformed and metamorphosed into a series of terrane rocks that occupy the majority of the mountainous interior south of the Wairau river. North of the Wairau river, the geological landscape is older than its southern counterpart, where sedimentary rocks of well-bedded sandstone, siltstone and mudstone of the late Permian and Early Triassic age (some 200 to 300 million years ago) occupy the majority of the Sounds and Richmond Ranges. These older rocks of the Nelson and Marlborough Sounds area are part of the Australian plate and were once connected to western Otago and parts of Fiordland, some 10 million years ago. Progressive movement northwards of both the Australian and Pacific plates along the Alpine Fault has resulted in the relatively complex geology and landscapes of today. Over time, alluvial deposits by glacial activity and river erosion has added sandy gravels to many of the bays, coves and river mouths of Marlborough. The adjacent geological map illustrates the base rock scenario of Marlborough.

ULTRAMAFIC MINERAL BELT

Forming the north-western boundary of the district is a distinct band of rock known as the Ultramafic Mineral Belt (which is part of the Dun Mountain Ophiolite Belt), which extends from D'Urville Island southwestwards through Croisilles Harbour, to the Bryant Range and the Red Hills close to Tophouse. These rocks are igneous and lack silica and contain high levels of magnesium and iron. They weather to a reddish-brown colour (similar to iron oxide 'rust') and due to their high mineral content, few plants choose to grow on them. As a result, they form important geological features within the district.



Geomorphology of Marlborough

The Marlborough landscape can be divided into a number of units, based on its physical and geological form, namely the Marlborough Sounds; outer islands, mountains and plateaus; river valleys and lakes and coastal landforms.

THE MARLBOROUGH SOUNDS

The Marlborough Sounds represent a drowned valley (or ria) landform and are resultant from a combination of tectonic movements and sea-level rises during the past 15-20 million years. A fractured landscape of islands, elongated spurs and complex sinuous sounds are as iconic to this district as Mount Cook is to the Southern Alps.

Parts of the Marlborough Sounds are relatively shallow which is reflected by its former valley landscapes. Strong tidal currents are evident around French Pass, due to its narrow constriction between the shallow embayment of Tasman Bay to the west and the outer sounds to the east. The highest point is Mount Stokes, which rises to 1,203 metres a.s.l.

Pelorus and Queen Charlotte Sounds are the two main east and west inlets leading to the settlements of Havelock and Picton. Geological evidence above and below the water suggests that the striking faults evident along the Queen Charlotte Fault zone show the former river systems that moulded the Marlborough Sounds landscape before they were flooded. These river systems flowed southwards and connected with the Pelorus River at Havelock and through the broad Kaituna valley towards the Wairau Valley.

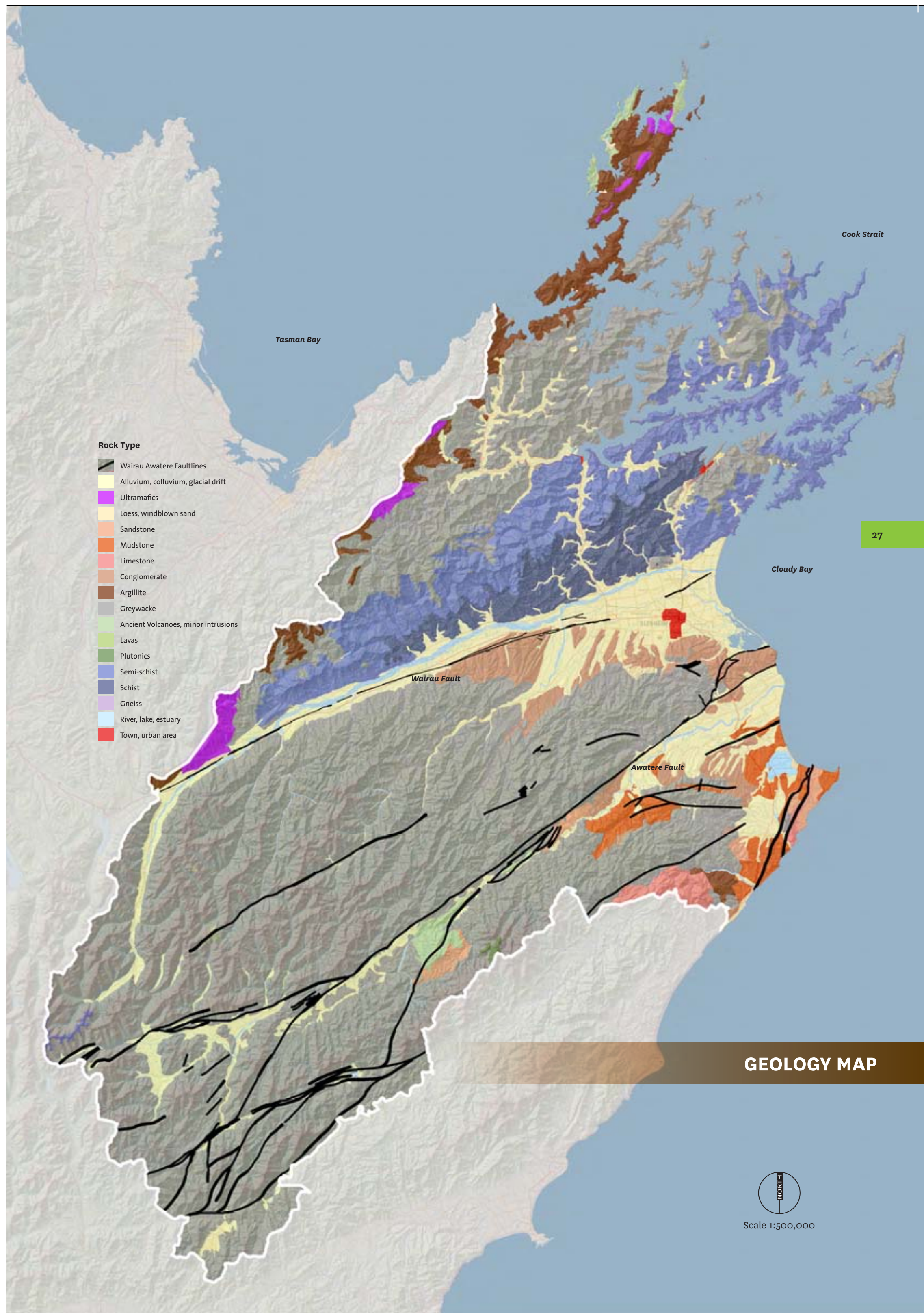
OUTER ISLANDS

The outer islands lie between Croisilles Harbour and Port Underwood, with D'Urville Island being the largest, providing a separation between the waters of Tasman Bay and Cook Strait. These are essentially above water remnant of ancient ridges and spurs and directly associated with the drowned valley system which formed the Marlborough Sounds. D'Urville Island displays steep hills and mountains which are typical of its underlying ultramafic geology. Elevation is generally moderate for D'Urville island and low for the remainder of the outer islands, which are made from a range of predominantly schists and sedimentary strata.

The brutal exposure of the elements has continued to shape these islands, which display steep and exposed rocky sea cliffs, wind-swept coastlines and endemic shrublands, herbfields and tussockland communities.

These highly exposed islands harbour unique native New Zealand and Cook Strait species, with many (including Stephens, Chetwodes, Titi and the Brothers) being island sanctuaries. Rare species include the Stephens Island tuatara and King Shag.

The east coast of D'Urville Island looking towards French Pass.



Rock Type

-  Wairau Awatere Faultlines
-  Alluvium, colluvium, glacial drift
-  Ultramafics
-  Loess, windblown sand
-  Sandstone
-  Mudstone
-  Limestone
-  Conglomerate
-  Argillite
-  Greywacke
-  Ancient Volcanoes, minor intrusions
-  Lavas
-  Plutonics
-  Semi-schist
-  Schist
-  Gneiss
-  River, lake, estuary
-  Town, urban area

GEOLOGY MAP



Scale 1:500,000

MOUNTAINS AND PLATEAUS

The mountainous heart of the Marlborough landscape extends from the Marlborough Sounds in the north to the district's southern boundary with the Clarence River. It is divided along the Alpine Fault and Wairau valley into two sections, the Richmond Ranges to the north of the Wairau and the higher Molesworth/ Kaikoura ranges to the south.

The northern Richmond Ranges comprise the Richmond Range themselves, the Bryant Range, the Red Hills Ridge, and the Onamalutu, Kaituna, Tuamarina, Pelorus and Rai Valleys. The valley systems immediately south of the Marlborough Sounds are generally wetter and lower in elevation than the Richmond Range to the south, and include sinuous, undulating terraces and steep to very steep dissected hills. The Red Hills, within the western part of this group are quite distinctive and separate from the surrounding mountains being part of the ultramafic landmass that extends along the district's north-western boundary to D'Urville Island. The rock within these limits has been smoothed by glacial activity and lacks vegetation due to its limited growing medium. The Richmond Range are the highest mountains north of the Wairau Valley, comprising steep and very steep mountain slopes climbing to Red Hills at 1,790 metres a.s.l in the south and to Mount Richmond at 1,756 metres a.s.l, Mount Rintoul at 1,730 metres a.s.l and Mount Fishtail at 1,641 metres a.s.l further north.

The southern, Molesworth high country and Kaikoura mountains gain the highest elevation within the District, with Tapuae-o-Uenuku at 2,885 metres a.s.l on the Inland Kaikoura Range being the highest mountain in the District. This mountainous range comprises a series of glaciated valleys, rugged mountain ranges, intermontane plateaus and major high country river valleys.

RIVER VALLEYS AND LAKES

The course of the Wairau and Awatere rivers have been strongly influenced by the underlying tectonic movement of the Marlborough Fault System. The broad Wairau valley plain, which extends 15km wide close to the coast, is the result of tectonic uplift and erosion by the Wairau River, which follows the course of the Alpine Fault. The Awatere River Valley system was also influenced by the same tectonic movements, however, this valley contains a series of terraces further inland. Here the river has 'cut' through into the tertiary sediments revealing deep, incised 'gorge-like' features.

COASTAL LANDFORMS

Other than the Marlborough Sounds, the Marlborough District contains a variety of coastal landforms and features, due to the variety of underlying geomorphic patterns and processes that have become exposed to constant coastal processes. Those of note include the broad, low-lying sweep of Cloudy Bay and its associated coastal marshes, lagoons and sand bars south of the Wairau and sequence of coastal ridges and swales at Rarangi. Further south are the eroded cliffs of the White Bluffs that form the division between Cloudy Bay to the north and Clifford Bay to the south, the coastal cliffs around Cape Campbell, and the stranded former bay of shallow Lake Grassmere. South of Cape Campbell are the coastal limestone features around the Flaxbourne River Mouth stretching northwards to Chancet Rocks and south to Weld Cone and Needles Point.

Geopreservation Society Inventory

The New Zealand Geopreservation Inventory 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 extremely diverse natural landform, 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 Marlborough District there are 71 recognised sites of geological importance, ranging from historic areas of mining to submerged ridgelines, dammed lakes and sea cliffs. Whilst the majority of these sites/ landscapes have been mapped by hand by the society in their reference books, they have been indicated by locator spots for this study on the accompanying map. However, their mapped extents have been referenced and in some locations form the boundary of the ONFL.

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;

For Vulnerability, each Site has been classified (1-5) depending on its perceived vulnerability to human activities:

1. Highly vulnerable to complete destruction or major modification by humans;
2. Moderately vulnerable to modifications by humans;
3. Unlikely to be damaged by humans;
4. Could be improved by humans activity;
5. Site already destroyed (not necessarily by human activity).

The full list is contained within Appendix 3.

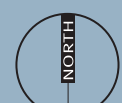


Geopreservation Sites

Importance

- A
- B
- C

GEPRESERVATION INVENTORY MAP



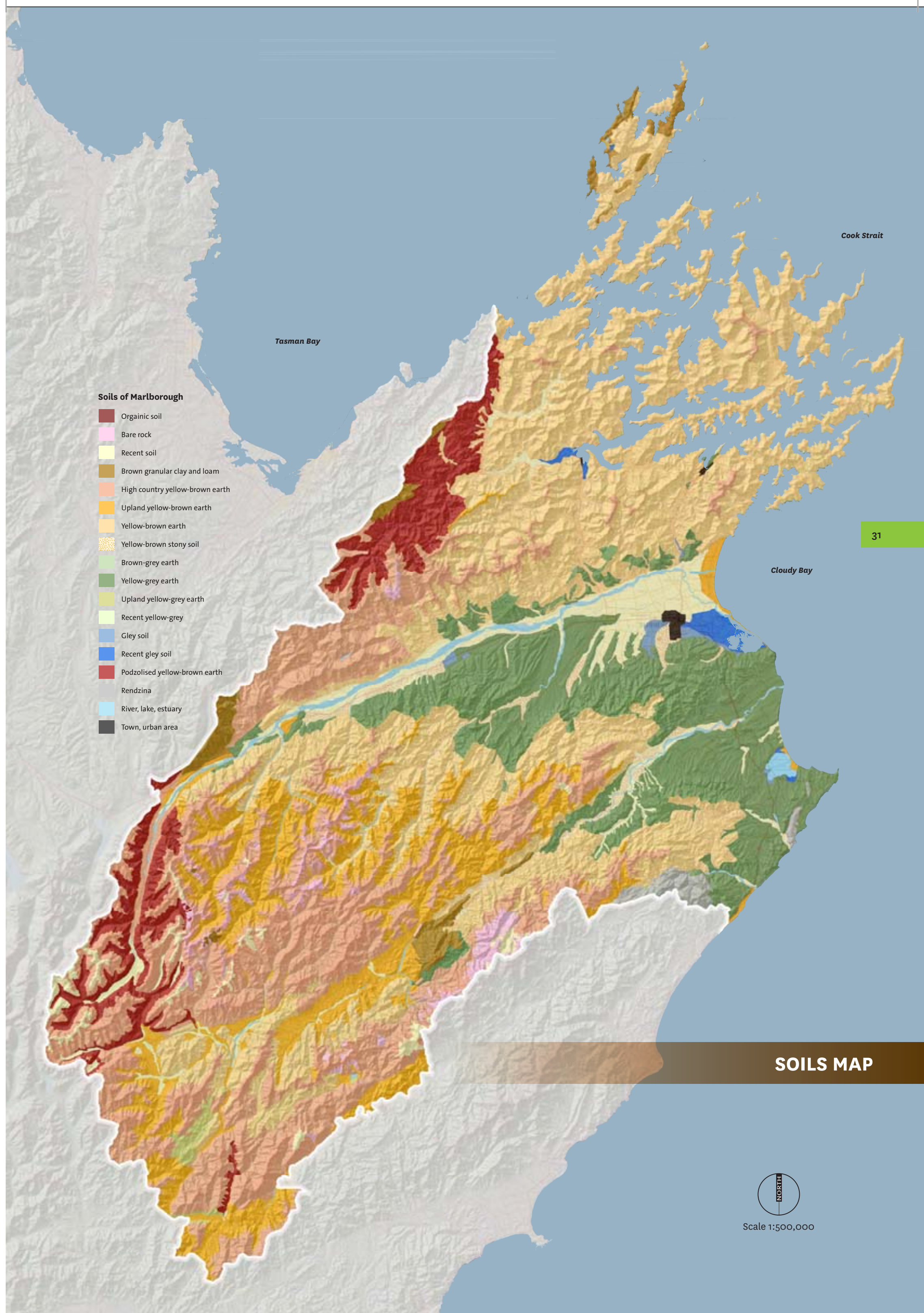
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SOILS OF MARLBOROUGH

As illustrated on the accompanying map, the Marlborough District is made up of a number of different soil types that reflect its current and former geomorphological processes. Continued crustal uplift and erosion of the underlying varied geology has resulted in a complex network of soil-types that support a range of differing vegetation species and land uses.

The soil forming factors vary from location to location and include, but are not restricted to: parent material, climate, organisms, topography and time. Weathering, leaching, erosion and matter accumulation also influence the type and location of soils. Referencing the Geology map, the distribution of soil types in Marlborough closely resembles that of the parent rock. For example, the predominantly greywacke mountainous interior that accounts for nearly 45% of Marlborough's landscape is associated with dry, light to medium brown soils and the ultramafic band of rocks that continue through the main divide towards D'Urville Island display areas of podzolised soils.


The most fertile soils are found within the river valleys where extensive alluvial outwash from the surrounding mountains has deposited a rich quantity of minerals. However, this distribution is not even, where stony soils can accumulate in places to hinder productive land uses.



Soils of Marlborough

- Organic soil
- Bare rock
- Recent soil
- Brown granular clay and loam
- High country yellow-brown earth
- Upland yellow-brown earth
- Yellow-brown earth
- Yellow-brown stony soil
- Brown-grey earth
- Yellow-grey earth
- Upland yellow-grey earth
- Recent yellow-grey
- Gley soil
- Recent gley soil
- Podzolised yellow-brown earth
- Rendzina
- River, lake, estuary
- Town, urban area

SOILS MAP


 Scale 1:500,000

RIVER ENVIRONMENTS IN MARLBOROUGH

The Marlborough District contains many rivers and streams that have assisted to mould and shape the landscape. The two principal rivers of the District are the Wairau and Awatere rivers. Other rivers in the district include the Pelorus, Rai, Wakamarina and Kaituna rivers to the north of the Wairau. The Waihopai, Omaka and Leatham Rivers flow into the Wairau from the south. Within the southern high-country, the Acheron and part of the Clarence rivers wend their way through steep terrain, with their confluence north of Hanmer Springs. The Clarence occasionally follows the District's south-eastern boundary, before it crosses through the Kaikoura District to the sea. The vast majority of the rivers and streams in Marlborough have their headwaters within mountains, namely the Richmond Range and the series of glaciated ranges south of the Wairau. These rivers often have extensive river catchments with their flow regime becoming affected during periods of heavy rain or drought.

The Wairau, Awatere and parts of the Clarence are braided rivers and have shingle beds and flow bank to bank in high flood. These rivers are the result of glacial action, where the rivers carried sediment from the mountains towards the sea. Through tectonic activity, the rivers have continued to cut through the gravels, creating broad flat-topped river terraces flanking the river valleys. Braiding is a typical riverine feature for the eastern South Island and refers to more or less permanent gravel islands (which are usually covered and often modified in size and shape during severe floods).

There are a number of spring-fed streams and creeks located within Marlborough, such as Spring Creek north of Blenheim in the Wairau plain.

Natural Character of rivers, lakes and their margins are covered under Section 6(a) of the RMA. This is covered within the subsequent chapters of this Landscape report.

The Wairau River

The Wairau, being the longest river within the District, and the longest braided river in the north of the South Island, occupies for most of its length a broad valley centred along the Alpine Faultline. Several significant tributaries flow into the Wairau throughout its length towards its river mouth at Cloudy Bay, including the Branch and Waihopai Rivers. The Wairau traverses mainly terrace gravels up to within 2km of its mouth and the coast, where it becomes estuarine, with swamps, marshes and beach deposits evident.

Its source is immediately north of Lake Tennyson within the Spencer Mountains and the Molesworth high country, and wends its way northwards through steep and glaciated mountainous terrain, to connect with the Alpine Faultline, south of Tophouse. The vegetation cover in this area has been highly modified, although there are remnant stands of beech evident. From Tophouse, the river widens and turns in an easterly direction, becoming increasingly braided as it continues towards Cloudy Bay and the sea. From the Waihopai River confluence, the river valley broadens significantly into the Wairau plains, where the landscape and river margins have been highly modified. Close to its mouth, the Wairau becomes estuarine, where lagoons and a few isolated wetlands and unmodified watercourses are all that is left of the original mosaic of forest, wetland, shrub and tussockland. The Wairau enters the sea at the Wairau Bar.

Rai/ Pelorus Rivers

The Pelorus and Rai Rivers both flow towards Havelock and the Marlborough Sounds. Extensive mudflats are evident around the mouth of the Pelorus River,

resulting in an area significant for intertidal and subtidal habitats. The Pelorus River's source is high within the Richmond Ranges where the river flows in a northerly direction towards Pelorus Sound through predominantly indigenous bush. The Rai River flows southwards from the river catchments south of the Bryant Range and converges with the Pelorus River at Pelorus Bridge. At this convergence point, the river flows through predominantly agricultural land eastwards towards Havelock.

The Awatere River

Like its sister the Wairau, the Awatere River rises within the high country. The river flows in a north-easterly direction for most of its length parallel to the Inland Kaikoura mountain Range along a filled fault line, a splinter of the Alpine Fault [Marlborough ONFL line, Awatere River]. From the 'Jordon', the valley gradually broadens into a series of wide flat alluvial terraces bounded by hills. At the confluence of the Medway River/ Black Birch Stream area with the Awatere, the valley again broadens and the river channel gradually becomes braided. The landscape becomes dominated by farmland and the river increasingly appears more modified than further upstream due to adjacent landuse practices. Within the Seddon area, the Awatere Valley is broad, with the river continuing in its braided form towards Cloudy Bay. The lower river terrace is colonised by exotic vegetation and is highly modified by adjacent vineyard and agricultural landuse activities. The river mouth is affected by coastal processes and alluvial deposits, with the river following a route northwards, behind the beach, before flowing into the sea.

Clarence River

The Clarence River occupies a relatively large catchment, although only a small portion of its 125km length is contained within the District. The Clarence River, located within the mountainous south of the District, rises on the eastern slopes of the Spencer Mountains in the neighbouring Canterbury region and as it flows seawards it acts, for a short distance, as the District's south-eastern boundary, most notably along Molesworth. Although the Clarence River only occupies approximately 29 linear kilometres within the Marlborough District, its catchment extends a significant distance northwards into the District, where it joins with the Wairau and Awatere river catchments.

Other rivers within Marlborough

Due to their physical form, the Marlborough Sounds have limited drainage basins, with the majority being streams. The longest can be found radiating out from Mount Stokes with many containing very high levels of natural character due to the surrounding indigenous biodiversity values.

Of those rivers that flow into the Wairau, the Branch River has a peak flow of 1800 cumecs. Its lower reaches power Marlborough's largest power generation plant, the Branch Hydro Scheme. The Goulter River, another river that flows into the Wairau is distinctly different to the Branch River, where its flows are moderated by the landslide filled Lake Challice within the Richmond Ranges.

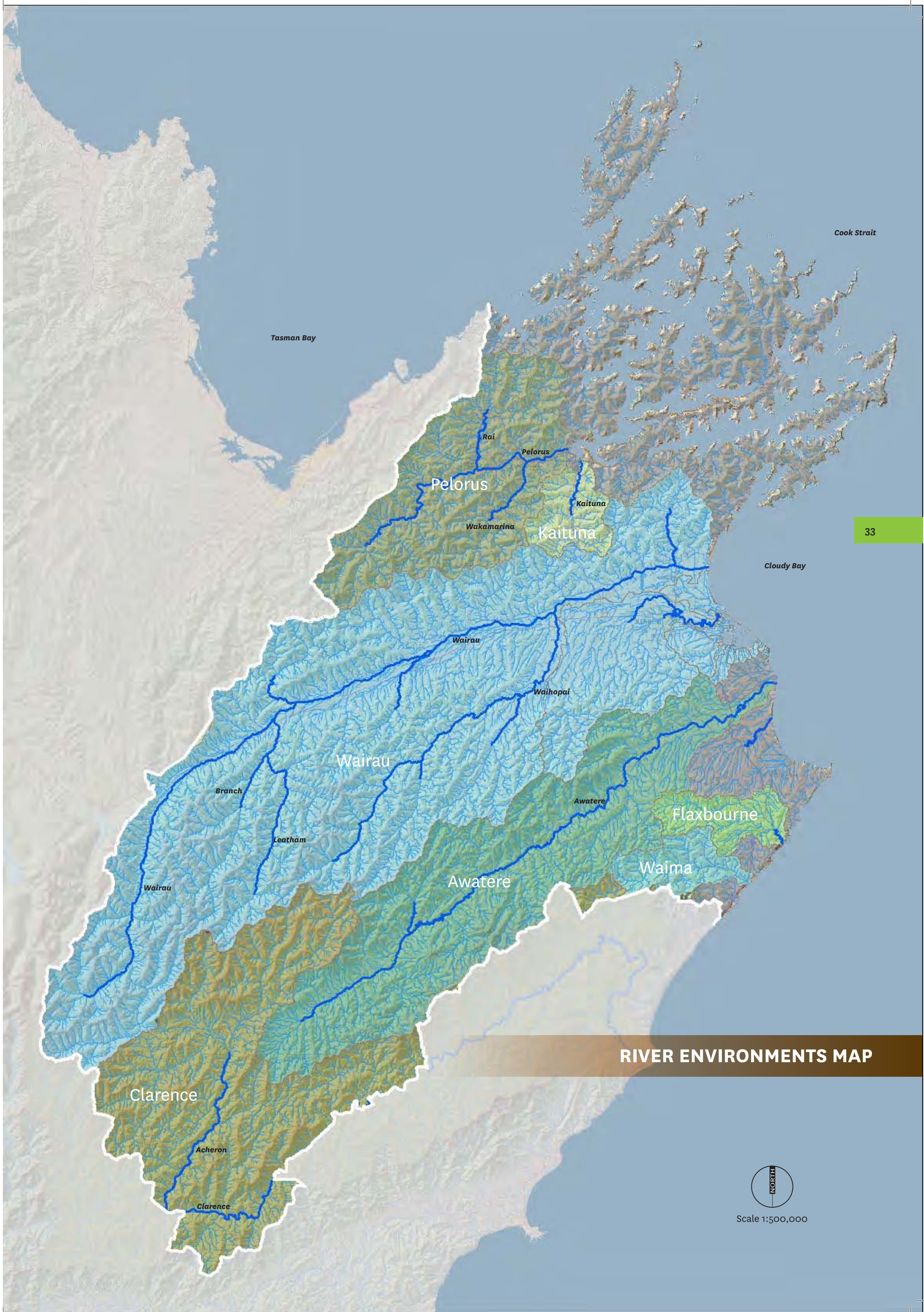
Further south and located a few kilometres south of Ward, the Waima or Ure River traverses predominantly through limestone country, where the river has carved out dramatic and interesting cliffs, gorges and features. A small tributary to the Waima, Isolation Creek has formed Sawcut Gorge, a dramatic limestone narrow cleft in the mountainside, only a few metres wide [Marlborough ONFL line, Waima/Ure River].

Wetlands

During 2001 a desk-top overview of Marlborough's wetlands, their type, location and extent was collated, using topographical maps and aerial photographs. The 2001 study revealed that there were two types of wetlands, palustrine wetlands and lacustrine wetlands. Palustrine wetlands are essentially inland areas of marshes, bogs and swamps which lack flowing water and which have vegetation permanently or seasonally above the water. Lacustrine wetlands have permanent or intermittent standing open water without large areas of emergent vegetation. Chapter 11 (Land) of the 2008 State of the Environment Marlborough comments that: 'A total of 1,149 recorded sites were recorded in the survey, representing 1,242 individual wetlands. Of these, 597 were natural wetlands and 645 were manmade, with a high density of these (417) being recorded on the Wairau Plain. 441 of the wetlands were of the palustrine type and these have decreased in area by 89% across Marlborough between 1840 and 2000. Of those that remain only 24 sites have some degree of protection. Only 3.3% of the original palustrine wetland area remains in the lowland ecological districts with less than 1% of the original area being under some form of protection'.

A review of the 2001 wetland inventory commenced in 2008, using the latest aerial photography, satellite imagery, mapping techniques and fieldwork surveys. Based on this updated material, the 2008 wetland study will assess the significance of Marlborough's wetlands based on their current condition and the likely pressures and threats facing them.

Wetlands have been an important aspect to the research undertaken for the Marlborough Landscape study, particularly where wetlands are associated with important landscape features, such as the Rarangi Beach Ridges and wetland complex at Rarangi. Although the Rarangi area has been heavily modified by man, the sequence of dry gravel and sand ridges and associated wetland hollows are unique in New Zealand and rare internationally, despite their diminished legibility and coherence. Para wetland (swamp) is by far the biggest lowland alluvial freshwater wetland system in Marlborough, and the Onamalutu Scenic Reserve with its reminders of the former great podocarp beech forests of the area is one of the most intact.



RIVER ENVIRONMENTS MAP



Scale 1:500,000

TOPOGRAPHY AND ELEVATION OF THE MARLBOROUGH LANDSCAPE

The topography of the Marlborough District varies between the flat plains of the Wairau Valley that are virtually at sea level, the drowned valleys and undulating vegetative-clad peaks of the peninsulas and islands of the Marlborough Sounds and the inland rugged mountainous landscape where peaks exceed 2,800metres a.s.l.

Due to the District's long geological creation and relatively active setting, a number of distinctive topographic features have become icons of the area and coupled with a relatively temperate climate, has dictated settlement and land use patterns.

The Wairau Valley, being relatively sheltered by the mountains to the north and south have naturally been the focus of settlement and the greatest intensity of land management, due to its relatively level nature, fertile soils and amenable climate. The Wairau Valley accentuates the Alpine Fault throughout its length by its flat, broad valley bottom and mountainous setting. The Awatere valley follows the Wairau Valley in similar vein, although is not as clearly pronounced throughout its entire length, due to the nature of its underlying form. Both the Wairau and Awatere rivers contain broad flat plains close to the sea, where the majority of the land has been intensively transformed into vines.

The crumpled nature of the interior landforms are due to their seismic setting and geological form. Constant weathering has resulted in a number of mountainous topographic features, namely the red hills south-west of the Richmond Range, the Molewsorth plateau, Tapuae-o-Uenuku and the mountains associated with the Main Divide.

Coastal processes working against the landform have also moulded an interesting transition zone. This zone includes the coastal cliffs of Cape Campbell and the White Bluffs; the salt marshes, lakes and sandbars; and the drowned valleys of the Marlborough Sounds. The latter form convoluted inlets and channels, secluded bays and coves and broad estuarine valleys such as Havelock.

Regarding slope analysis, the upper sections of the mountains are the steepest parts of the district, being over 34° and are often characterised as bare rock. Conversely, the valley floors, specifically the Wairau and Awatere Valley's are the flattest, i.e. below 3° within the district and reflect the greatest amount of landuse/development activity. This is illustrated on the Slope Map, overleaf.

In terms of aspect, there is a noticeable trend of development on the northern slopes of the Marlborough Sounds to capture the majority of the sun. Similar trends are evident within the Wairau valley, where vineyards and new housing schemes are encroaching into the Wairau Dry Hills south of Blenheim to capitalise on the hill's northern aspect. This is illustrated on the Aspect Map overleaf.



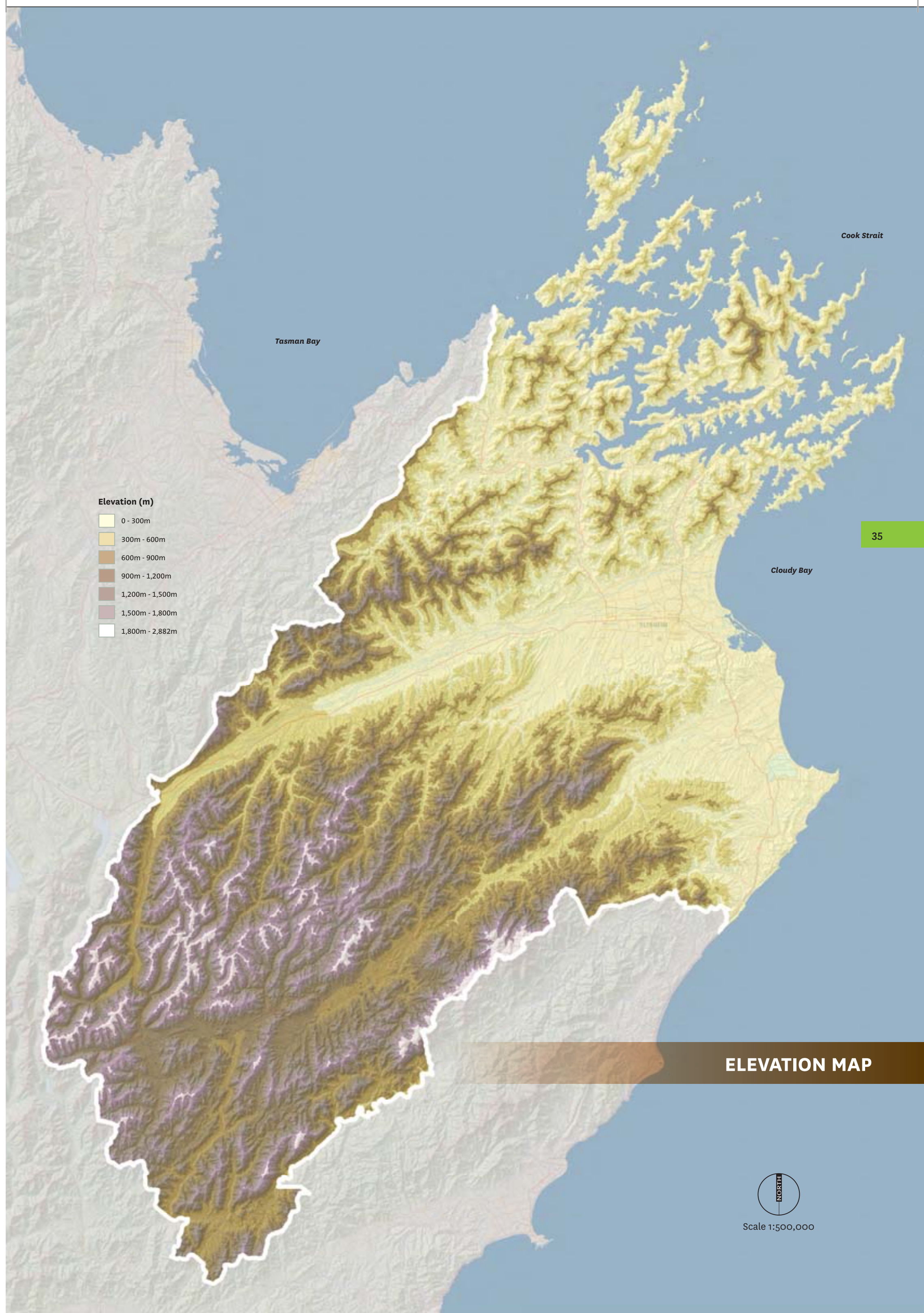
The rugged profile of the Inland Kaikoura Ranges



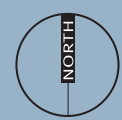
The flat river plains and the coastal environment of the Wairau River



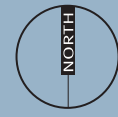
The undulating grass hills south of the Wairau Valley



ELEVATION MAP



Scale 1:500,000



Scale 1:500,000

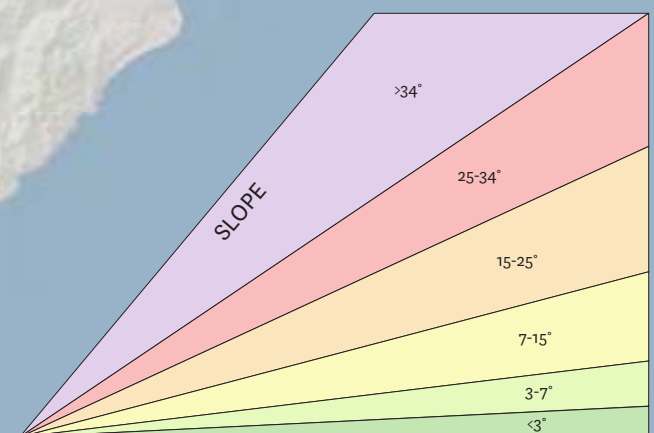
SLOPE MAP

Tasman Bay

Cook Strait

Cloudy Bay

36





Scale 1:500,000

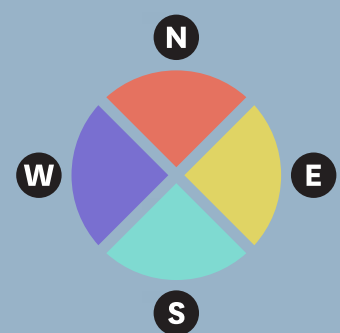
ASPECT MAP

Tasman Bay

Cook Strait

37

Cloudy Bay



LAND COVER AND LAND USE PATTERNS IN MARLBOROUGH

A number of factors influence land use patterns including soils, geology, climate, elevation, topography, aspect, existing vegetation cover and accessibility. Many interconnecting factors dictate how we use and manage the land.

The whole of the District's landscapes are managed in some way or another. There are significant areas that are managed as Conservation land (the majority by the Department of Conservation), where management is focused towards preservation, restoration and predator/ weed control measures for recreational and ecological benefits. Conservation land cover differs depending where the land is located.

Other main land uses in Marlborough include exotic forestry, (predominantly pine plantations) pastoral farmland for grazing (including dairy, sheep, cattle and deer), crop growing, soft fruit, viticulture and nut growing. Land uses associated with rural and rural residential lifestyle plots are also widely distributed around the area. The most intensively managed rural-land use relates to the viticulture industry.

There are also a number of specialised land uses in operation throughout the Marlborough district, such as boutique farming and horticultural practices (alpaca farming, bee keeping, cheese making and truffle and lavender harvesting) as well as infrastructure (oxidation treatment ponds, salt works, hydro infrastructure, small quarries, and transmission lines). Land use is also influenced by towns (such as Blenheim), villages (such as Ward), marinas, ports, roads, railway lines and high country tracks.

Land use patterns also change. This occurs for a variety of reasons, although is often attributed to land ownership, market dynamics and current economic conditions. Land use change occurs on different scales, from seasonal crop rotations, to fundamental shifts from agriculture to forestry. Historically Marlborough's land use patterns would have been quite different. At one time sheep, gold mining and whaling were principal activities.

Marine Farms, including mussel farming, salmon farming and scallop harvesting are a type of land use that are influencing shores within the bays, coves and sheltered inlets of the inland Marlborough Sounds area and the more exposed outer Sounds.

Each one of these land uses influences both the visual, ecological and biological character of the landscape.

Wine Growing in the Wairau and Awatere Valleys

One of the principal land use activities with which the Marlborough region is currently associated is the industry of wine and wine-making. Wine Marlborough New Zealand describes:

'When the first growers planted grapes in Marlborough in the 1970s (there is evidence of plantings as early as 1870s), it is unlikely they would have foreseen the extent of the growth and fame that the region's wine industry would achieve, based upon a single varietal called Sauvignon Blanc. The distinctive pungency and zest fruit flavours of the first Marlborough wines, in particular Sauvignon Blanc, captured the imagination of the country's winemakers as well as international wine commentators and consumers and sparked an unparalleled boom in vineyard development. Worldwide interest in Marlborough wines, particularly Sauvignon Blanc, has continued to fuel that regional wine boom.

The continued worldwide interest and demand for Marlborough wines fuels an ongoing growth of plantings. The region was estimated to reach 11,153 producing hectares by 2008*. These plantings are primarily located within the Wairau Valley. Over the last decade, viticulture has also spread southeast into the smaller slightly cooler Awatere Valley. More recently the southern side valleys of the Wairau – Fairhall, Hawkesbury and Waihopai – have gathered a collection of vines'. [Source: <http://www.wine-marlborough.co.nz/home>]

*Marlborough District Council records to November 2008, that the current planted area of vineyards is approximately 23,600 hectares. Not all vineyards are currently producing wine.

The growth of viticulture has transformed the land use of the two valleys from one of pasture, cropping and stone fruit growing to a semi-industrialised landscape of regimented rows of vines and large wine-related processing buildings. The vineyard growth within these two valleys is illustrated on the map below and demonstrates the trend of vineyards extending further up the valleys, most noticeably the Wairau valley. It is important to realise that these viticultural plantings and the associated industry has grown from nothing in 1973 to represent the single most important lowland crop-type today. [<http://www.marlborough.govt.nz/content/docs/environmental/ViticultureCoverageInfo-nomap-Nov2008.pdf>].

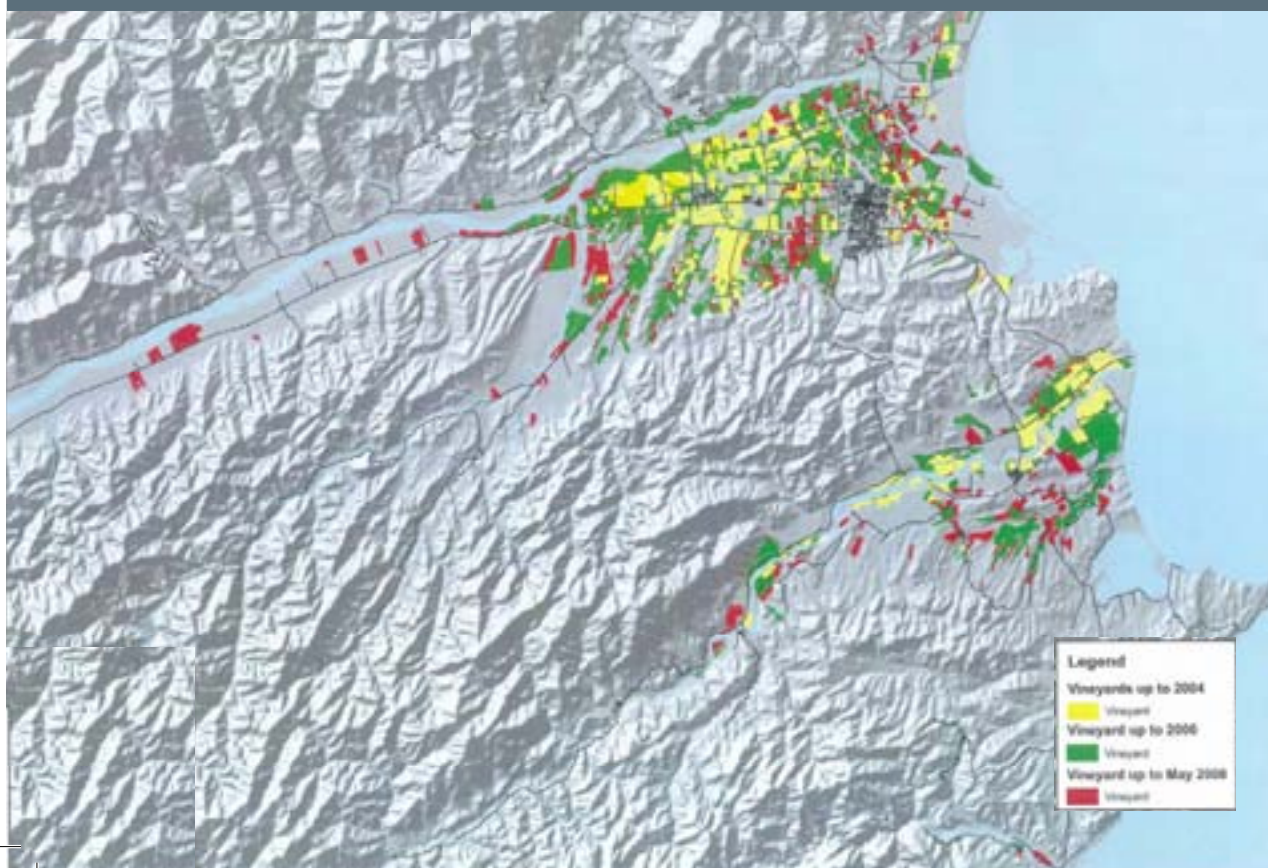
Marlborough District Council's groundtruthing of land use has continued at half yearly intervals giving the current picture of the viticulture coverage in Marlborough as at November 2008 of > 23,600 ha. This is an increase over the previous year November 2006 to October 2007 of 3,200 ha:

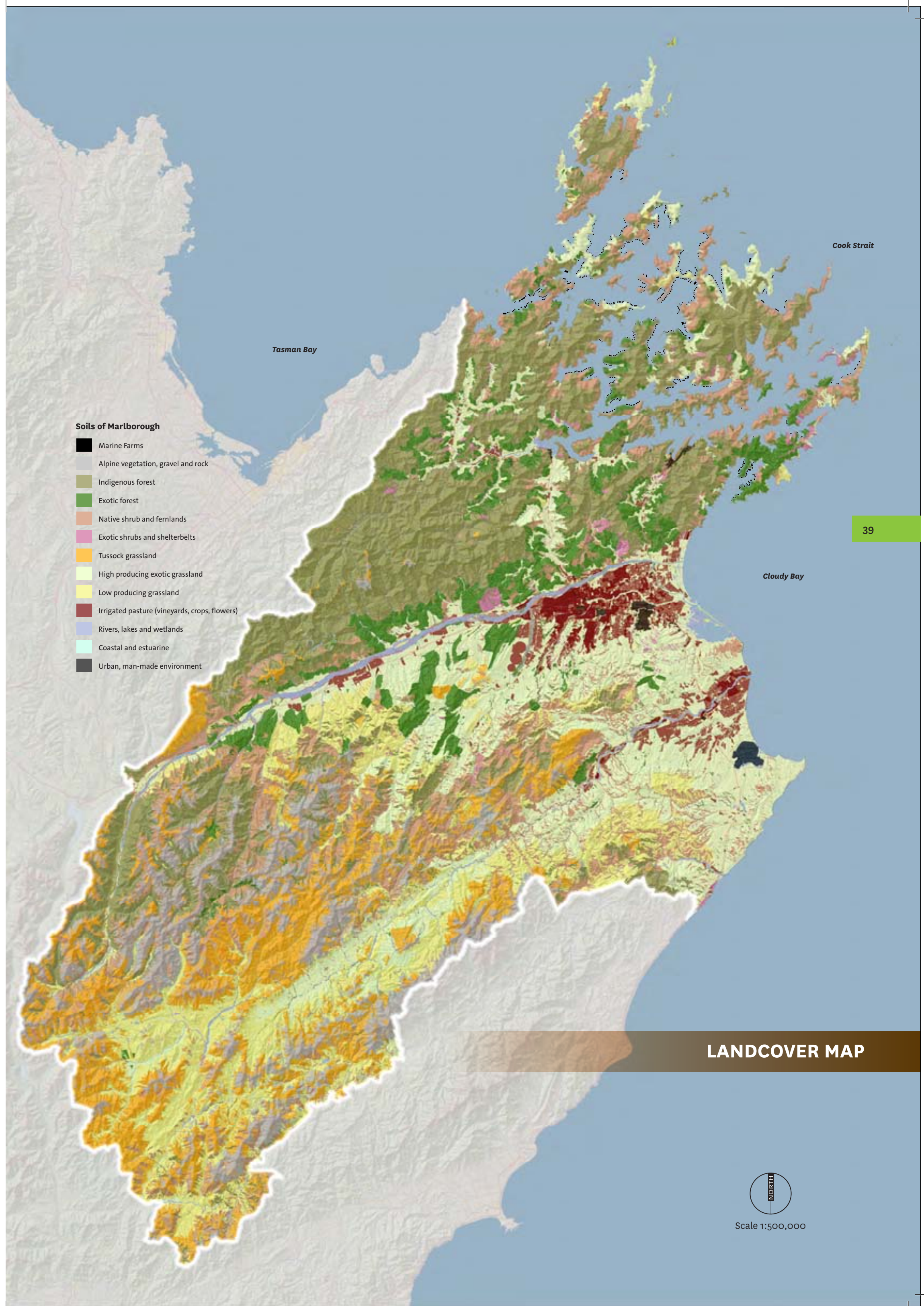
Wairau Plain and Valley > 16,945 ha

Awatere Valley, Blind River and South > 6,673 ha

Areas in survey or clearance and expected to become vineyards 690 ha

Vineyard Growth 2004 – May 2008 Source MDC





Soils of Marlborough

- Marine Farms
- Alpine vegetation, gravel and rock
- Indigenous forest
- Exotic forest
- Native shrub and fernlands
- Exotic shrubs and shelterbelts
- Tussock grassland
- High producing exotic grassland
- Low producing grassland
- Irrigated pasture (vineyards, crops, flowers)
- Rivers, lakes and wetlands
- Coastal and estuarine
- Urban, man-made environment

LANDCOVER MAP

Recorded Natural Areas

Of all the land uses in the Marlborough District, by far the greatest lies in conservation status. This dynamic land is a mosaic of open space, reserves, parks, forests and QEII land. Within the Marlborough Sounds Resource Management Plan approximately 60% of the land area covered by the Plan is in public ownership. Generally, this land is protected under the Reserves Act 1977 and a large proportion of it is administered by the Department of Conservation. The District Council also has responsibilities for reserve management.

The ecology of the Marlborough district is diverse with the majority of this bioclimatic variety contained within conservation land, with most of it being accessible. This variety of ecology is influenced by Marlborough's topography, geology, soils and climate. For example, the convoluted labyrinth of waterways in the Sounds provides a more moderated, moist climate, as opposed to the hot dry summers and sharp winters experienced in the mountains. This influences the diversity of ecological habitats, from forest covered lowlands (including beeches and podocarps such as rimu, matai, miro and totara) to the subalpine shrublands and tussocklands on the ultramafic landscapes of the Red Hills, Bryant Range and parts of D'Urville Island.

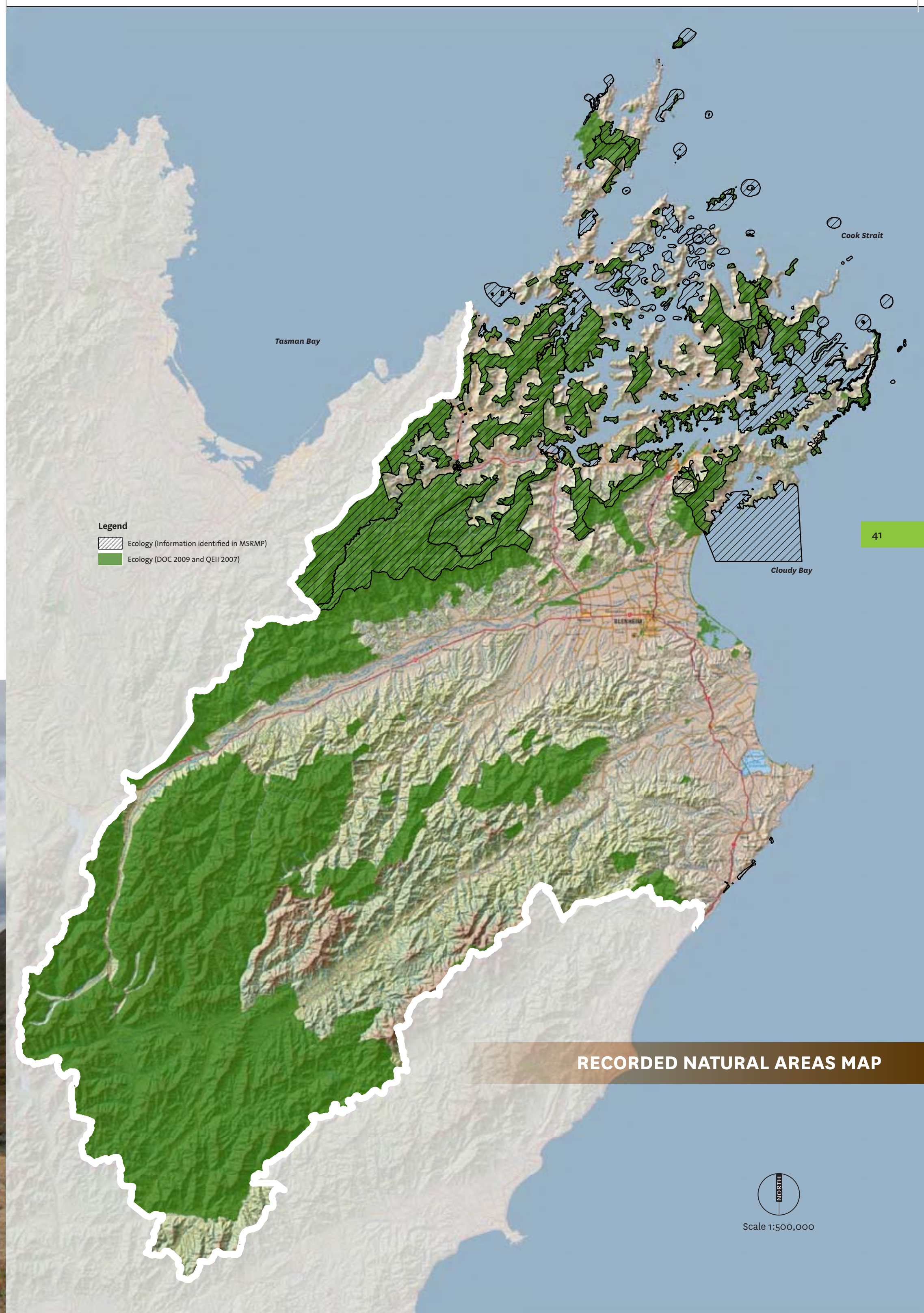
The majority of this public open space is therefore important for many other reasons other than conservation values, such as recreation activities, landscape and visual amenity. In addition, open space areas often exhibit high levels of natural character, this being identified as a matter of national importance under section 6 of the Act. The substantial open space resource which exists in the Marlborough Sounds for example, is a significant contributor to the wellbeing of both Marlburians and visitors to the area. It also provides protection for important habitats and ecosystems. [Ref: Chapter 12, Marlborough Sounds Resource Management Plan].

The Conservation Reserve areas are of particular importance. These include the Conservation Estate, administered by the Department of Conservation. The Estate covers a very large land area and is intimately connected with some very important water resources in the area (e.g. Queen Charlotte Sound and the Pelorus River). Marlborough as a whole contains extremely important pieces of New Zealand's conservation heritage, including the greatest diversity of natural values among any of New Zealand's 13 DoC conservancies. As an example, South Marlborough alone is one of the five centres of endemism for native plants in New Zealand. A number of the areas are of national importance both in terms of their particular ecological value and for the tourism and recreation opportunities they provide. Some areas are of international importance. The nature and significance of the conservation values present within the Conservation Estate is described in detail in the Conservation Management Strategy for the Nelson/Marlborough Conservancy. [Ref: Chapter 12, Issue 12.2 Marlborough Sounds Resource Management Plan].



Overseas tourism accounts for a significant proportion of the New Zealand economy with the vast majority of visitors coming to see the New Zealand landscape. Significant economic benefits from the tourism and recreation sectors enable better protection and management of public conservation lands and provide enhanced ecological benefits, water quality and flood and erosion control. The map on the facing page illustrates the recorded natural areas in Marlborough. The map does not illustrate the areas currently regenerating with native vegetation that are not in DOC ownership.

The Molesworth Station managed by the Department of Conservation






Legend

-  Ecology (Information identified in MSRMP)
-  Ecology (DOC 2009 and QEII 2007)

RECORDED NATURAL AREAS MAP


Scale 1:500,000

RECORDED CULTURAL HISTORY AND FEATURES OF THE MARLBOROUGH DISTRICT

The Marlborough region contains a high number of cultural and historic places of significance to both Maori and Europeans. These include archaeological sites, historic buildings, historic places, traditional sites such as wahi tapu as well as numerous other artefacts and areas associated with and interwoven with the cultural history of the area. People today value a range of landscape attributes associated with the area's cultural heritage.

Maori myths, spirits and legends are imbued with the environment and tell of the earliest inhabitants of the area through landscapes and features which often bare spiritual associations and eulogies. Specifically, the Marlborough landscape is richly endowed with Maori values, attributed mainly to the sheltered and convoluted waters of the Sounds and coastline.

Text by Lianne Rich and Derek Shaw entitled *'Natural and Historic Values and Areas of Marlborough Sounds Planning District: A discussion Paper on Issues and Options for their protection'* recalls those early times:

'The early inhabitants of New Zealand were a sea-faring people. When canoe provided the major means of transportation practically all habitation was centered around the coast. Throughout New Zealand the majority of archaeological sites are concentrated in coastal areas reflecting the fishing, hunting, gathering and horticultural opportunities that these areas offered.'

Long before the signing of the Treaty of Waitangi iwi such as Rangitane and Ngati Kuia resided in the Sounds harvesting crops from the land and the sea. Coastal Marlborough was renowned for the abundance of mahinga kai and people travelled from afar to access the rich food resource (Hippolite, personal communication).

The remnants of this habitation are widespread throughout the Sounds. Although many sites are hidden to all except the trained eye, it is not too difficult to pick out the remains of pa, midden and kumara gardens in several areas of the Sounds. They clearly demonstrate the considerable Maori enterprise in the area.'

Due to the convoluted coastline of northern Marlborough, its waters were extensively visited and mapped by Europeans. These predominantly sheltered waters lead to the establishment of many of New Zealand's first industries, such as whaling. The following text of Lianne Rich and Derek Shaw describes initial exploration, colonisation and sea-faring disasters:

'Abel Tasman was the first European visitor to the Marlborough Sounds, albeit one who never set foot on New Zealand soil, (Potton, 1987). All the principal explorations of Captain Cook in the 1770's centered around Ship Cove in Queen Charlotte Sound. It was on Motuara Island that Cook raised the British flag to proclaim this part of New Zealand as British Territory.'

Bellingshausen, a Russian explorer of the 1820's and the French voyager D'Urville, both followed in the wake of Cook bartering with local Maori and charting the Sounds waters.

More extensive charting of the Sounds coastline took place at various times in the 1830's to 60's initially by Lieutenant Chetwode at the helm of the HMS Pelorus and later in separate expeditions by Captains Lambert and Stokes.

At the turn of the 19th century, with vessel passage through and around the Sounds increasing, the intricate and hazardous nature of the coastline to mariners was recognized with the establishment of lighthouses on Stephens and Brothers Islands. Severe gales or treacherous reefs were the ruin of several ships in the late 1800's. In 1889 and 1894 respectively the Southern D'Urville area claimed the coastal traders the Koranui and the Gazelle. The reefs off Cape Jackson saw the sinkings of the Rangitoto (1873) and the Lastingham (1884). Wrecks that are greater than 100 years old come under the protection of the Historic Places Act. All of these are now popular dive spots.

In addition to the submerged wrecks, the Edwin Fox, built in 1853 currently rests in Picton Harbour. The Edwin Fox had a long and colourful history as a convict ship, immigrant ship, refrigerated meat store and coal carrier. Adjacent to the hulk are the Edwin Fox Museum and workshop dedicated to its restoration.'

Whaling in the Marlborough Sounds

Due to the sheltered waters of the Marlborough Sounds and the relative close proximity to the preferred route the whales chose to migrate north, whaling was one of the first commercial activities to establish in Marlborough. Indeed, for the first 40 years of the 19th century, whaling was the most significant economic activity for Europeans in New Zealand [Stephens, www.theprow.co.nz]. In the 1820s, a shore whaling station was established on Arapawa Island, and by 1911, the Perano family founded a whaling industry on the island that lasted until the end of whaling in 1964 [McSaveney, *Nearshore Islands*, 2008]. During the New Zealand whaling years, many whaling stations were established within the sheltered bays and coves of the Marlborough Sounds, with small communities developing. Today, much of the evidence has been removed, but small remnants exist, particularly on the coastal road to Port Underwood.

Growth in the District

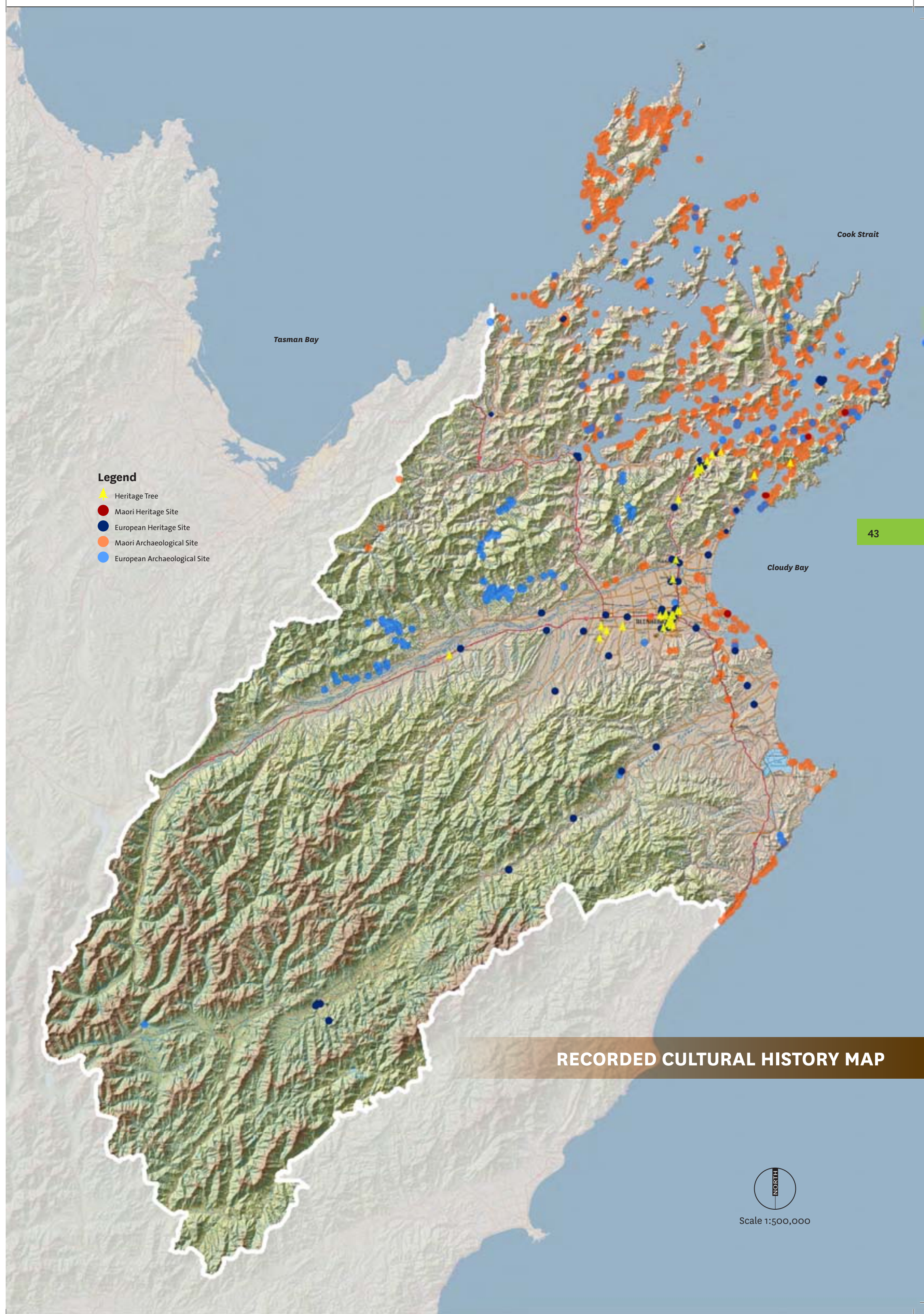
Due to Marlborough's favourable climate and sheltered valleys, European settlement of the land flourished, and the rate of change evident in the landscape accelerated. With the arrival of stock, tussock and native swamp, scrubland and forest became pasture and a network of small towns began to grow. Large braided rivers such as the Wairau, often a source of danger during floods, were spanned by bridges and flood control measures became a focus (which essentially lead to the creation of the Wairau diversion). While Maori valued the inland Marlborough for food-gathering places, Europeans saw only their economic potential realised. In the 1860's and 1870's, Marlborough rivaled Canterbury in wool production, Auckland in timber production and in the development of the flax industry it was second to none [www.stopbanks.co.nz]. During this time, extensive areas of indigenous habitat were lost as exploration of the inland interior for safe passing between Canterbury to the south and Tasman/ the West Coast to the west progressed.

Gold Mining in Marlborough

Although gold mining did not produce as big a reward as in other parts of the country, gold was mined in Marlborough, primarily in the Wakamarina area and north bank of the Wairau River for a number of years in the mid 19th Century. Relics from the era are still evident today. The following article contained on the www.teara.govt.nz/en/gold-and-gold-mining website recalls the mining in the Wakamarina valley:

'In 1864, gold was discovered in the Wakamarina River, a tributary of the Pelorus River. Up to 6,000 Otago miners rushed to the workings, as initially these were very rich. A tent town sprang up, with 3,000 men giving the name Canvastown to the area. But the river gravels were worked out quickly and the rush soon passed. Later, reef gold was also discovered, but it was low grade and the reefs were mainly worked for the tungsten mineral scheelite.'

Today, the landscape reflects both natural processes and several centuries of human occupation. Continual land use change and evolving agricultural practices reflect economic efficiency and human requirements at the time. Landscapes are dynamic and will evolve, while both natural and cultural features remain as evidence of past processes. The cultural history of events that occurred in the Marlborough Region have added a cultural and heritage dimension to the understanding of landscape and landscape values.



Legend

- Heritage Tree
- Maori Heritage Site
- European Heritage Site
- Maori Archaeological Site
- European Archaeological Site

RECORDED CULTURAL HISTORY MAP



Scale 1:500,000



Section C

Landscape Character Descriptions and Evaluation



BROAD LANDSCAPE DESCRIPTIONS

The landscape of the Marlborough District can be mapped in terms of its geological, ecological, heritage and land use which broadly relate to the districts' geomorphology. These areas are described as:

1. The Marlborough Sounds
2. River Plains and Salt Marshes
3. Mountainous Marlborough Interior South of Wairau River
4. Northern Wairau River Mountains

The Marlborough Sounds display a unique combination of landforms formed by drowned river valleys and resulting in a highly fractured coastline with numerous offshore islands. Shaped largely by physical and climatic influences the Marlborough Sounds include very steep to moderately steep dissected coastal hills and a mix of vegetated and cleared mountain slopes.

The River Plains and Salt Marshes are characterised by their broad, low lying outwash plains confined to the Wairau River plain, the Awatere River mouth and Lake Grassmere. This vastly modified working landscape contains urban developments, pasture, forestry, horticulture, orchards and vineyards. The Salt Marshes and Lagoons around the mouth of the Wairau River are largely unmodified. Salt is harvested from Lake Grassmere.

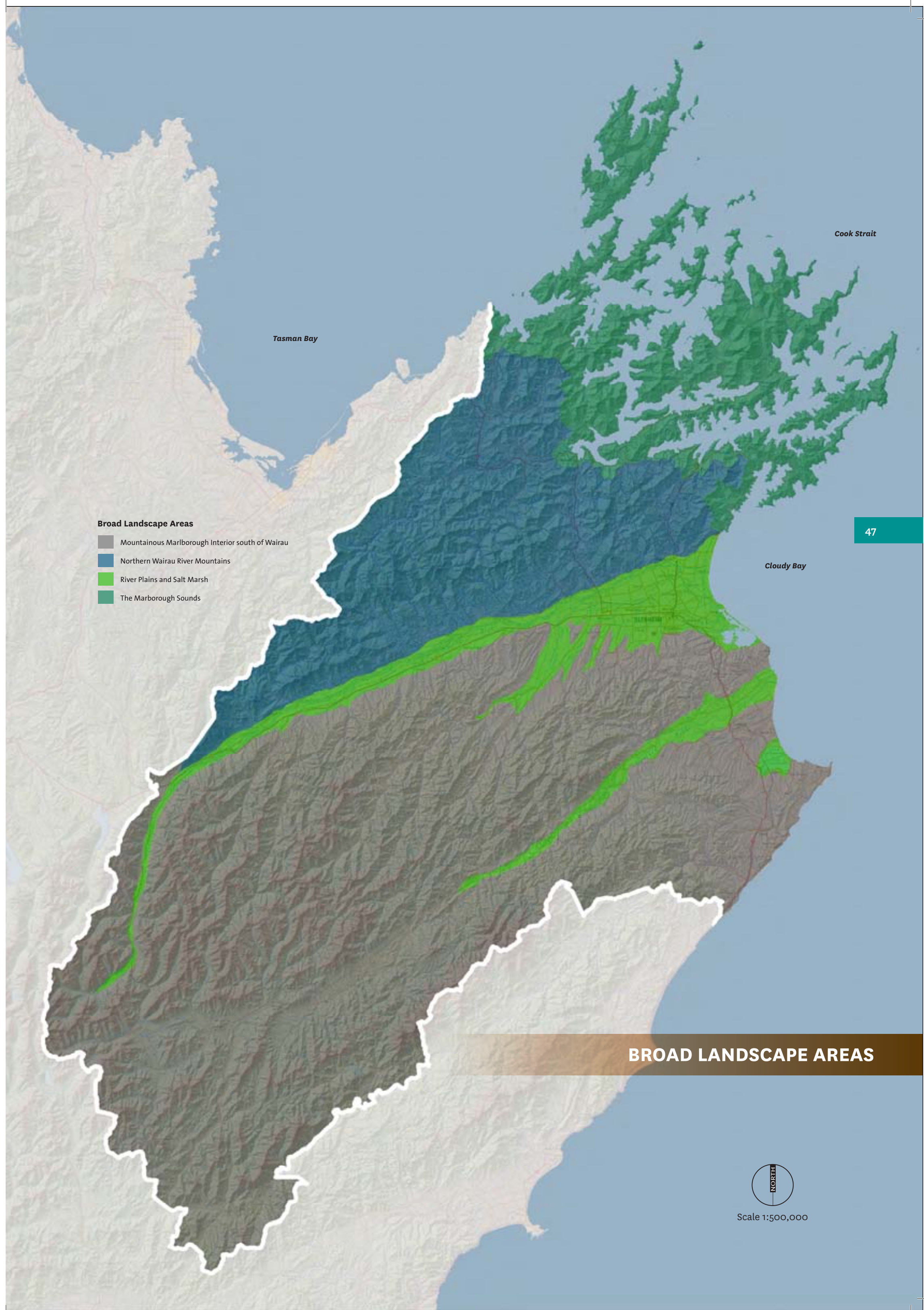
The Mountainous Marlborough Interior south of Wairau River is an extensive, largely inaccessible tract of land comprising rugged hills and mountains reaching 2,800m asl in some places. This landscape is largely cleared, pastoral land, although pockets of remnant indigenous vegetation exist in many of the river gorges. Due to the vegetation clearance, its biophysical aspects are somewhat diminished, however it is still a predominantly indigenous landscape with bold landforms typical of high country landscapes.

The Northern Wairau River Mountains enjoy a wetter climate than its counterparts to the south. As a consequence, and due to the steep landform the slopes and valleys are predominantly covered in indigenous forest. Afforestation and intensive pastoral farming are evident within the valleys, especially along the Kaituna and Tuamarina rivers, however, the majority of the landscape is managed by the Department of Conservation. There are also a number of European and Maori historic and cultural elements associated within this landscape, particularly within the eastern coastal margin, from Rarangi in the south to Oyster Bay in the North.

The landcover and land uses within each of these broad landscape types reflect their natural characteristics. To further assist in understanding the landscape, an analysis of previous landscape assessments of the Marlborough District has been completed.

The forested slopes of the Southern Hills west of Blenheim.





ANALYSIS OF PREVIOUS LANDSCAPE STUDIES

A number of Landscape Studies and Assessments have been completed over the years for different areas of the Marlborough District and for different reasons. Not all are landscape assessments and they all vary regarding characterisation and evaluation appraisal. A précis of the relevant ones are outlined below. These landscape studies have assisted frame the landscape-related sections of Marlborough District's two Resource Management Plans and its Regional Plan and identify values and decisions relating to Outstanding Natural Features and Landscapes. The character areas of the Wairau Awatere Landscape Assessment and the Coastal Sounds Plan have been mapped on the facing page.

WAIRAU AWATERE LANDSCAPE ASSESSMENT BOFFA MISKELL, 1996

Marlborough District Council engaged Boffa Miskell Limited in late 1995 to undertake a Landscape Assessment of the Wairau Awatere area as part of the District Plan process. The principal objectives of the study were to identify and map the Natural Character (under Section 6(a) of the Resource Management Act (RMA)) and any Outstanding Natural Features and Landscapes (under Section 6(b) of the RMA) of the area and to evaluate their sensitivity to the effects of subdivision, use and development. The Landscape Assessment also acknowledged Amenity issues under Section 7(c) of the RMA. This Landscape Assessment fed into the landscape-related descriptions and values contained within the Wairau Awatere Resource Management Plan.

The Landscape Assessment categorised the landscape into a series of landscape character areas, which included:

The bush clad mountains and forested hills north of the Wairau Valley; The glaciated mountain ranges and valleys in the west; The rugged Inland Kaikouras, Molesworth; The high inland hills; The lower dry coastal hills, The Wairau and Awatere valleys; and The coastline.

The Landscape Assessment identified the following Outstanding Natural Features and Landscapes within the Wairau Awatere area:

Lake Chalice; Molesworth; Tapuae-o-Uenuku; Wairau Lagoon; Red Hills Ridge; Onamalutu Scenic Reserve; Para Swamp; Spring Creek; Lake Elterwater; Whites Bay and the coast from Cape Campbell south to Waima.

The Landscape Assessment highlighted that each of these places were considered outstanding (and therefore subject to RMA Section 6(b) protection and preservation from inappropriate use and development), for either its' natural character, aesthetic quality, or amenity values. In addition to the outstanding landscapes, several Special Places were identified. These areas do not hold the same values as the outstanding landscapes, but were nonetheless considered sensitive should development occur on them. The Landscape Assessment comments that these areas could absorb limited development, however, each would need to be carefully considered. The Special Places identified included the Richmond Hills, Tuamarina River, Rainbow Valley and the Upper Wairau, Tophouse, Wither Hills, Dashwood, Redwood and Taylors Passes, Wairau Mouth, White Bluffs, Muritai Reserve, lake Grassmere and Marfells Beach.

DEPARTMENT OF CONSERVATION:

MARLBOROUGH SOUNDS, DRAFT LANDSCAPE ASSESSMENT: SELECTED SITES, EARL H BENNETT 1989 & MARLBOROUGH SOUNDS VISUAL IMPACTS OF COASTAL DEVELOPMENT – SELECTED SITES, EARL H BENNETT (AND ASSOCIATED APPENDICES, JUNE 1990)

The landscape related information within the Marlborough Sounds Resource Management Plan draws heavily on the visual assessment of particular localities in the Sounds carried out by Earl H Bennett for the Department of Conservation in 1989 and 1990. Reference was also made to the Draft Regional Landscape Assessment, prepared by Sissons and Conway for the Department of Conservation in June 1993, although this remains an unpublished report. A précis of the landscape related chapter within the MSRMP is outlined overleaf.

The purpose of the Earl Bennett-prepared study was to determine and document the visual impact of marine farming on nominated locations within the Sounds and to develop methods and criteria that may be applied to future landscape assessments on the Sounds.

Broadly, the report identifies a number of specific sites within the Marlborough Sounds and outlines a methodology to assess and appraise each landscape unit, based on its landform, landcover, dominant characteristics, and potential for change, landscape quality and recommendations for management. This report was undertaken prior to the establishment of the Resource Management Act, and therefore is not focussed towards current best practice. Nevertheless, this report is useful as historical data relating to landuse and potential pressures that were evident in the early 1990s.

COASTAL SOUNDS PLAN: RECREATION & TOURISM

ISSUES PAPER BOFFA MISKELL 1992

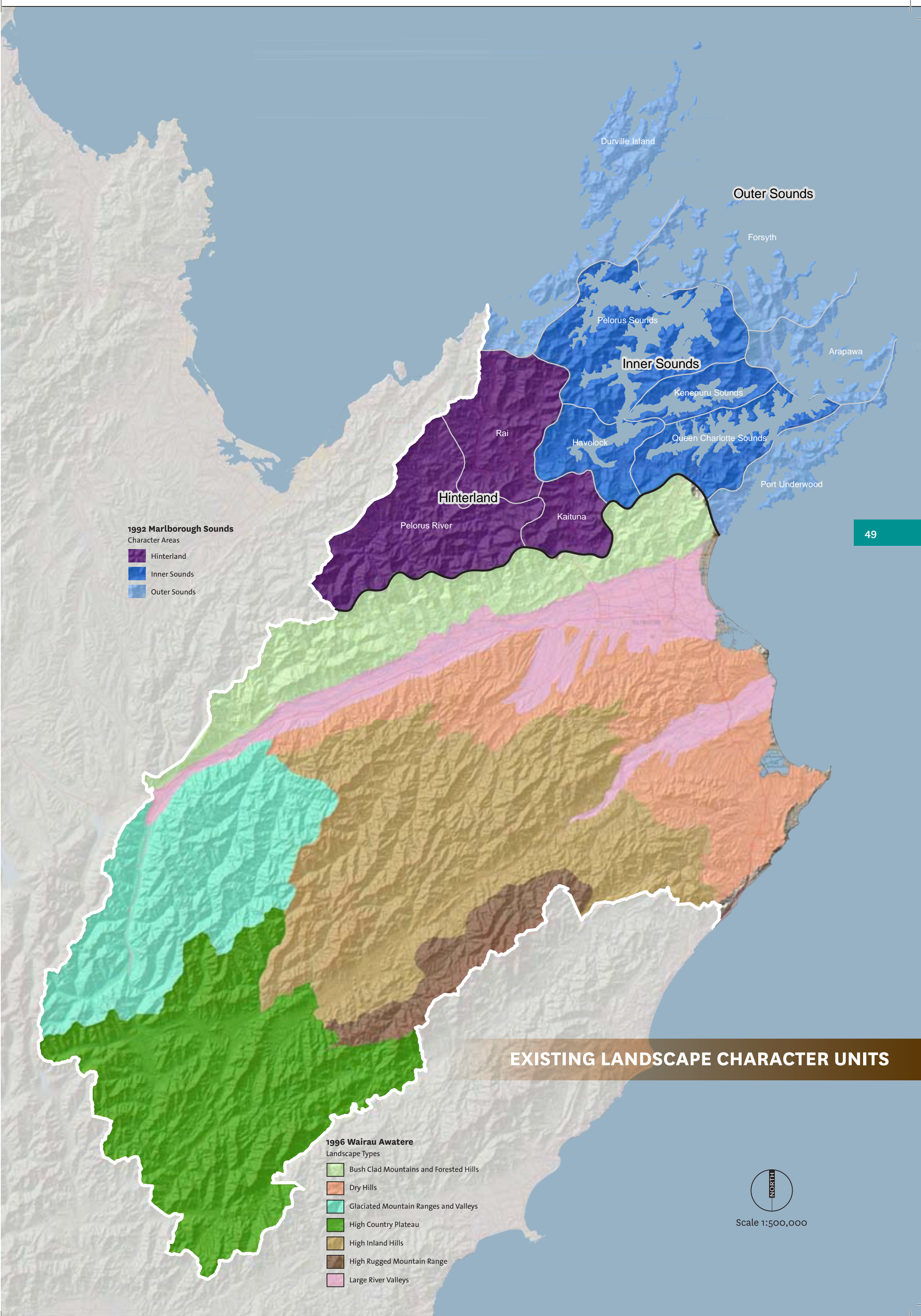
Although this report is not principally a landscape assessment, a study of the Sounds Landscape was undertaken at a cursory level to aid in the preparation of a management document incorporating regional policy issues relating to tourism and recreation development of the Coastal/ Sounds area. The report was undertaken at a time when the Resource Management Act had just been adopted.

Broadly, the report outlines a preliminary landscape assessment of the Marlborough Sounds, and includes the top third of the District, extending northwards from the ridge of the Richmond Ranges to include the Pelorus, Rai and Kaituna valleys, the top part of the Robertson Range and Port Underwood inlet and the spurs, peninsulas and islands of the Marlborough Sounds.

The report found that the Marlborough Sounds had been highly modified from its original state, however it still displays areas of significant natural character. Within the Marlborough Sounds there are three distinctive landscape character types: The Outer Sounds, The Inner Sounds and Hinterland. Based on these broad character types, a number of landscape character units within each character type can be identified, based on their landscape characteristics. Each of these units was classified as outstanding, distinctive or typical. From this a series of policies based on the required level of protection to maintain the intrinsic ecosystem values, features and character of the landscape from inappropriate development, use and management were outlined.

The report concluded the following table:

Landscape Type	Landscape Unit	Landscape Character	Landscape Protection Policy		
			Level 1	Level 2	Level 3
Hinterland	Pelorus River Rai Kaituna	Outstanding Typical Typical	●		● ●
Inner Sounds	Havelock Pelorus Sound Kenepuru Queen Charlotte	Distinctive Outstanding Distinctive Outstanding	● ●	● ●	
Outer Sounds	D'Urville Forsyth Arapawa Port Underwood	Outstanding Distinctive Outstanding Distinctive	● ●	● ●	



1992 Marlborough Sounds

- Character Areas
- Hinterland
 - Inner Sounds
 - Outer Sounds

1996 Wairau Awatere

- Landscape Types
- Bush Clad Mountains and Forested Hills
 - Dry Hills
 - Glaciated Mountain Ranges and Valleys
 - High Country Plateau
 - High Inland Hills
 - High Rugged Mountain Range
 - Large River Valleys

EXISTING LANDSCAPE CHARACTER UNITS



Scale 1:500,000

The report concluded the following:

- That tourism and recreation in the Sounds are dependent on the natural environment and on the maintenance of the quality of that environment;
- The characteristics of the landscape should be a determining factor in the activities which are accommodated in that area;
- Increasing visitor numbers will result in increasing pressure being placed on the environment, public facilities and users of the resource. However, there is no strong public perception of stress on the resource, other than in a few locations and for limited periods of the tourist season;
- Increasing pressure could see a gradual moving out of development to more remote areas of the Sounds;
- Pressure on the fishery, and to a lesser and isolated extent, on water quality or the environment generally through lack of infrastructure such as toilets and refuse receptacles;
- Conflicts between users of the Marlborough Sounds for tourism and recreational activities and those using the resource for commercial purposes. These conflicts are likely to increase with increasing visitor numbers;
- Tourism and recreation can provide additional employment and put extra money into the economy.

Tourism and recreation can provide additional employment and put extra money into the economy.

MARLBOROUGH SOUNDS RESOURCE MANAGEMENT PLAN (MSRMP) 2003

Within Chapter 5 [Landscape] of the MSRMP, the text describes Outstanding Natural Features and Landscapes. The information supplied within the Landscape Chapter stemmed from the Department of Conservation work outlined above. The Plan states:

'In its entirety, the landscape of the Marlborough Sounds Plan area has outstanding visual values. It displays a broad range of types of visual landscapes and features which are often of greater value for their collective contribution than for their individual value. The location of the Sounds at the top of the South Island with the role as a sea corridor and gateway to the South Island ensures a high public profile as a travel route. Some of the visual features of the Sounds which contribute significantly to its outstanding character are:

- *The curving coastline with a range of tidal estuaries and sandy and rocky beaches;*
- *Island landforms set with a skyline backdrop;*
- *Highly weathered coastal cliffs;*
- *Rolling ridgelines along the skyline;*
- *A complex mosaic of vegetation patterns which gives rise to a range of textures and colours in the landscape; and*
- *Uninterrupted sequence from hilltop to seafloor.*

Within the overall landscape of the Marlborough Sounds there are some parts which can be described as individually outstanding such as coastal cliffs including those facing Cook Strait and on D'Urville Island, the Rangitoto Islands, French Pass Channel and the coastal forests and waters of Tennyson Inlet. Other outstanding features and landscape components can be identified and, where they occur, are generally:

- *Headlands;*
- *Spurs and steep hillsides;*
- *Skylines;*
- *Significant hills and landform peaks;*
- *Water;*
- *Shorelines and small coves;*
- *Indigenous forests;*
- *Mudflats and tidal estuaries;*
- *Flat valley floors; and*
- *Cliff faces.'*

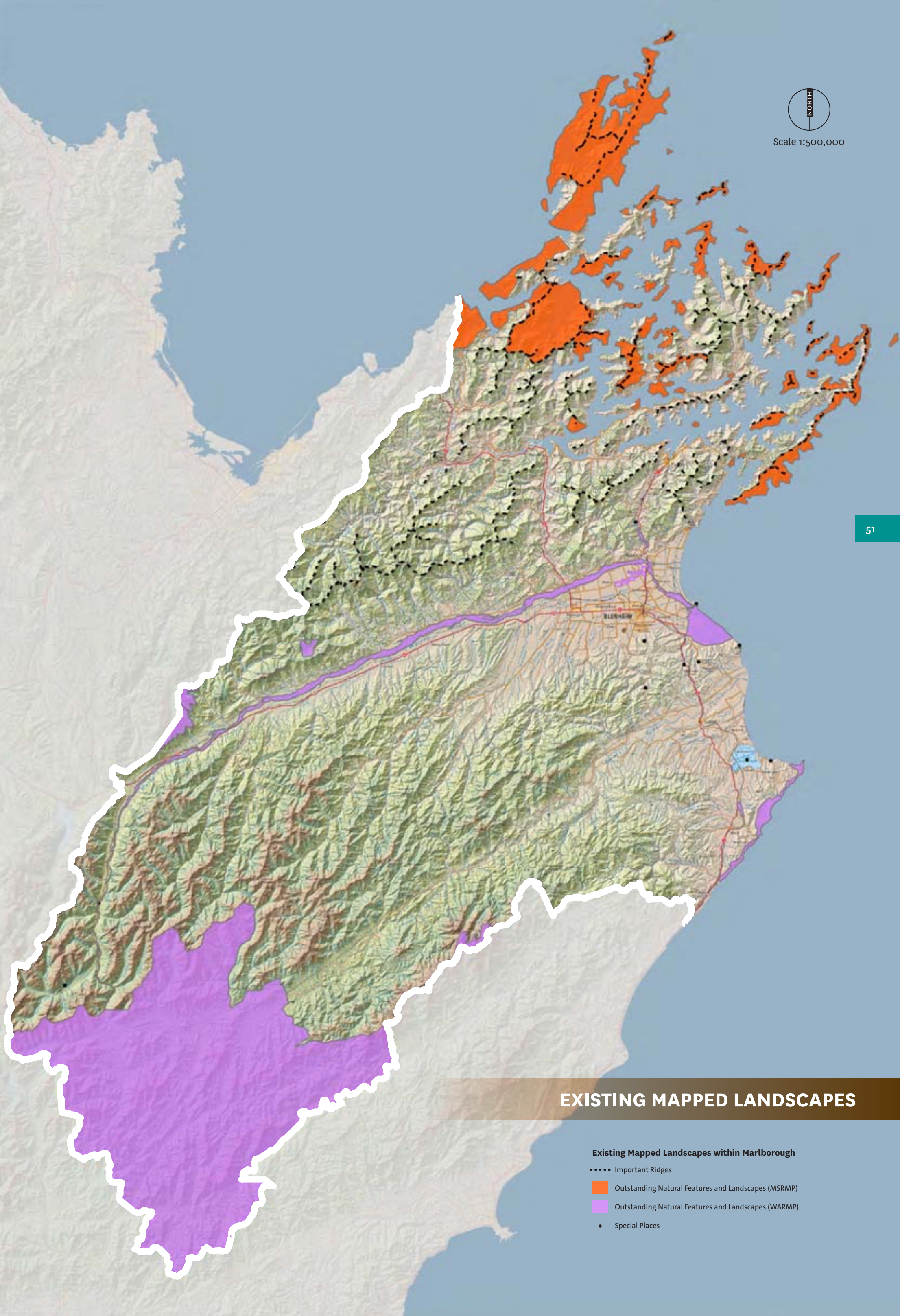
The map on the facing page (Existing Landscape Classifications) illustrates Outstanding Natural features and Landscapes from both the MSRMP and the WARMF.



Scale 1:500,000

EXISTING MAPPED LANDSCAPES

- Existing Mapped Landscapes within Marlborough**
- Important Ridges
 - Outstanding Natural Features and Landscapes (MSRMP)
 - Outstanding Natural Features and Landscapes (WARMF)
 - Special Places



Landcare Research ‘Land Typing’

This Landscape study took an approach based on geomorphological land characteristics to describe and delineate the districts landscapes. This was based on the work undertaken by Landcare Research, who was commissioned to delineate, describe and document the different land types of Marlborough. A previous land typing exercise had been carried out by Landcare Research and Lucas Associates in 1997 for the Marlborough Sounds (Lucas, Head, Lynn: Marlborough Sounds: Land and Marine Ecosystems, 1997). Commissioned by the Department of Conservation, this 1997 study incorporated both land and marine ‘types’. This information fed into the Natural Character chapter of MDC’s 2003 Marlborough Sounds Resource Management Plan. The separate study undertaken by Landcare Research for this report (which focused on land south of the Richmond Ranges) was amalgamated with the previous 1997 Marlborough Sounds information (excluding the marine areas). Whilst these have been mapped at 1:250,000, the Landcare Research report notes that more accurate mapping at 1:50,000 would be required for more detailed analysis. This information provided by Landcare Research assisted the study team to characterise and evaluate the Marlborough landscape. Reference to the marine areas is made separately below and remains consistent with those identified in 1997.

The land typing exercise is based on a range of data sources including published scientific papers, geological and topographical maps, Protected Natural Areas surveys, the Register of Protected Natural Areas and the inventory and maps of important geological sites and landforms. Thirty-two land types have been established for the Marlborough District. Eleven land types are recognised for the Marlborough Sounds area, an additional 11 in the residual lowlands and 10 land types in the high country environment. [Landcare Research 2009]. All land types have been delineated at 1:250,000 scale on NZMS 262 topographic base maps. The 32 Land types are:

Lowland environment:

1. D’Urville, coastal ultramafic dominated land type
2. Bryant, inland ultramafic land type
3. Cook Strait land type
4. Bulwer, Sounds, dry, non foliated to weakly foliated land type
5. Arapawa, Sounds, dry, weakly foliated land type
6. Portage, Sounds, dry, strongly foliated land type
7. Stokes, Sounds, wet, weakly to strongly foliated land type
8. Nydia, Sounds, wet, non foliated to weakly foliated land type
9. Pelorus, inland western, wet, non foliated to weakly foliated land type
10. Kaituna, inland eastern wet, strongly foliated land type
11. Robertson, moist, non foliated to weakly foliated land type
12. Plains–coastal fringe land type
13. Lower plains land type
14. Plains–Recent floodplains and low terraces land type
15. Northern Coastal strip land type
16. Northern loess-mantled soft rock hills and downs land type
17. Northern soft rock hills and downs land type
18. Loess-mantled, dry, weakly consolidated conglomerate land type
19. Moist weakly consolidated conglomerate hills land type
20. Moist Coastal Limestone Hills land type
21. Dry Coastal Hard Rock Hills Land Type
22. Northern hard rock hills and mountains land type

High Country environment:

23. Major high country river, valley fill land type
24. Glacial and fluvial valley floor land type
25. Soft Rock Infaulted Hills Land Type
26. Intermontane hard rock hills land type
27. Igneous Mountain Range, Mt Lookout, Middlehurst
28. Inland Kaikoura Range land type
29. Northern subhumid to humid mountain range land type
30. Northern Semi-arid to humid mountain range land type
31. North Bank mountain – wet, strongly foliated
32. Northern Main Divide and associated ranges land type

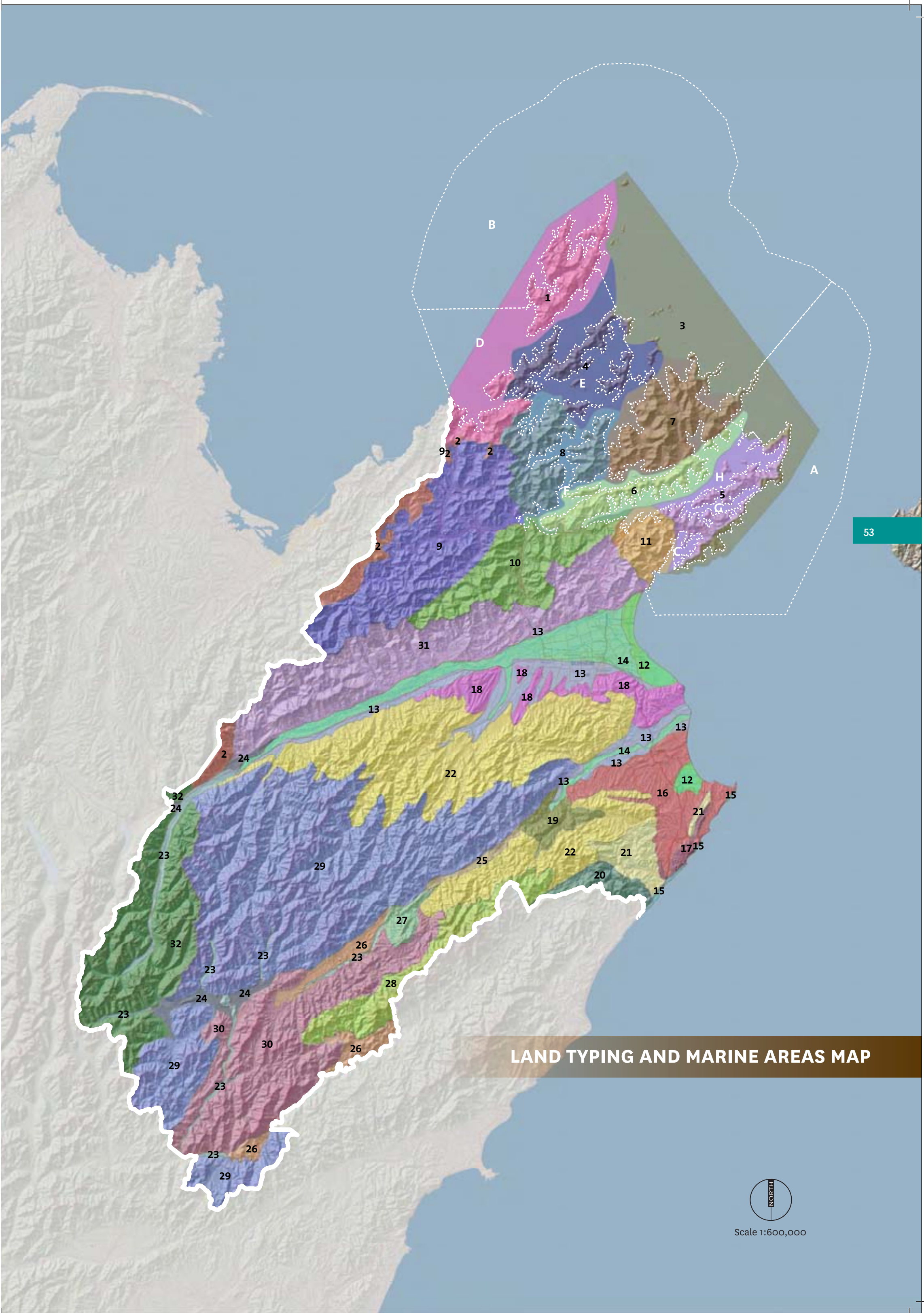
There are a further eight Marine Ecosystems (identified by Ian Lynn and Lucas Associates and contained within ‘Land and Marine Ecosystems’, 1997, and translated through into ‘A Natural Character Framework for the Marlborough Sounds’, June 2004, SM McRae, DJ Lucas, SP Courtney, AS Baxter, RF Barrier and IH Lynn for DoC) These are:

Mainly Exposed

- A. Eastern Cook Strait and Outer Queen Charlotte Sound
- B. D’Urville Island – Northern Cook Strait

Mainly Sheltered

- C. Port Underwood
- D. Tasman Bay/ Admiralty Bay
- E. Middle Pelorus Sound
- F. Inner Pelorus Sound
- G. Tory Channel
- H. Queen Charlotte Sound



LAND TYPING AND MARINE AREAS MAP



Scale 1:600,000

2009 LANDSCAPE CHARACTERISATION AND EVALUATION

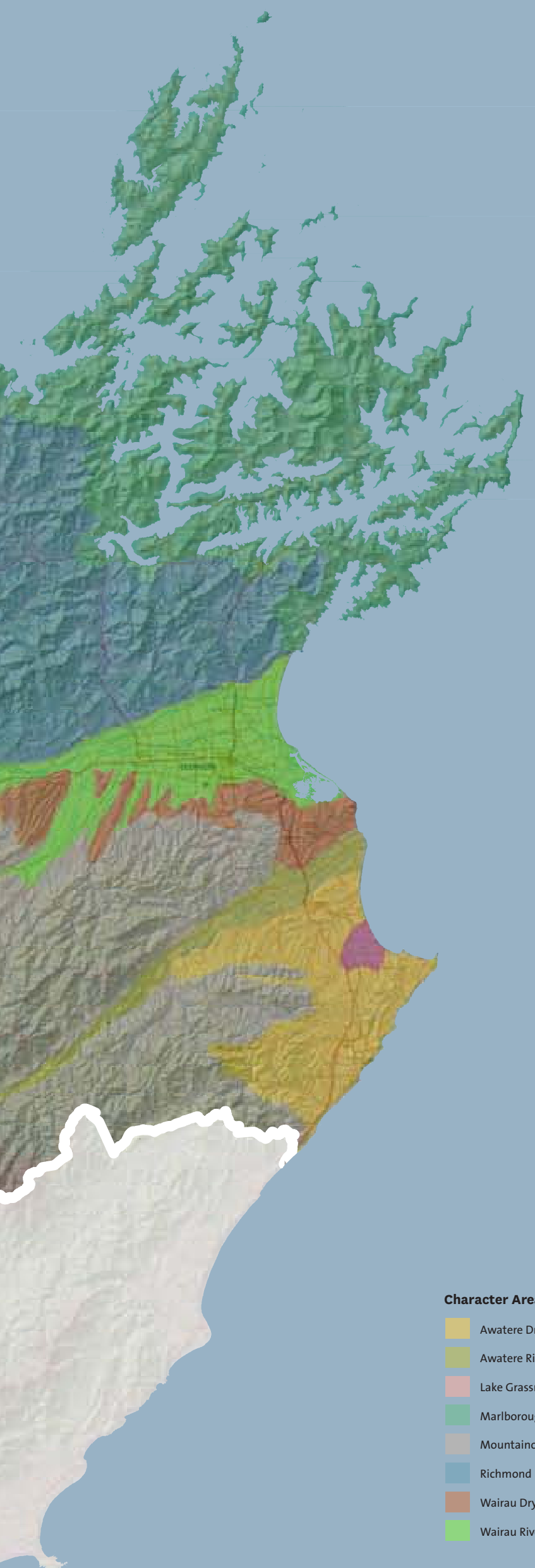
Characterisation

Based on understanding the broad characteristics of the district's landscapes and how the district was previously mapped as part of earlier landscape assessments and studies, the focus is to find a meaningful division that picks up on the subtle distinctions of 'place'. Characterisation describes places in a way that is meaningful to non-scientific people. After much analysis and consideration of various geomorphological and land typing approaches, the study team concluded the land-typing approach, mapped by Landcare Research was the most appropriate basis for the character areas. This approach suits the district's varied landform and has greater meaning in terms of settlement pattern and how people orientate themselves within the district.

The following pages outline the eight Landscape Character Areas identified. Contained within most of the main Landscape Character Areas, smaller landscapes can be identified and these are referred to as sub character areas. For example, while the Wairau River Flats has been described as one Landscape Character Area, the study team identified six smaller landscape areas within its boundaries. This identified that the river mouth and saline lagoons are clearly different in character and values and land use pressures than parts of the middle stretch of the Wairau. Accordingly, while the Character Area retains the same overriding characteristics of the river corridor flats, the sub-classification has assisted in describing the Landscape Character in more detail and provides an essential platform regarding placing values on the landscape.

The eight Landscape Character Areas of the Marlborough District and their accompanying descriptions are:

- The Marlborough Sounds; which includes Picton, Havelock and islands, spurs and peninsulas that form the north-easternmost part of the South Island.
- The Richmond Ranges; which includes the rugged inland hills south of the Sounds and north of the Wairau valley, including the Pelorus, Rai and Kaituna river valleys.
- The Wairau River Flats; which includes the Wairau River Valley from the river source to mouth.
- The Wairau Dry Hills; includes the low grassy hills south of Blenheim.
- Mountainous Interior; which includes the majority of the mountainous landmass of the district, including the Inland Kaikouras, Molesworth and mountainous Alpine Fault.
- The Awatere River Valley.
- The Awatere Dry Hills; which includes the undulating hills south of the Awatere River Valley.
- Lake Grassmere.



Character Area

- Awatere Dry Hills
- Awatere River Valley
- Lake Grassmere
- Marlborough Sounds
- Mountainous Interior
- Richmond Ranges
- Wairau Dry Hills
- Wairau River Flats



Scale 1:600,000

Evaluation

As outlined within Section A, all landscapes have values and there are many features and landscapes that are of significance, but do not meet the threshold required for being either an Outstanding Natural Feature or Landscape (ONFL), a Visual Amenity Landscape or a landscape that contains high degrees of natural character. The previous landscape studies (which formed the basis for landscape-related policies in the district and regional plans) identified Outstanding Natural Features and Landscapes, with the Wairau Awatere Landscape Assessment identifying several special places and the coastal environment in addition to ONFLs. As outlined previously, this Landscape Study will focus on reviewing the existing landscape through a two part assessment, characterisation and evaluation. The statutory matters that provide the context for consideration of landscape values include:

- The protection of **outstanding natural features and landscapes** from inappropriate subdivision, use, and development (Section 6b of the RMA 1991)
- The preservation of the **natural character of the coastal environment** (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development (Section 6a of the RMA 1991);
- The maintenance and enhancement of **amenity values** and the maintenance and enhancement of the quality of the environment (Section 7c and 7f of the RMA 1991). Collectively referred to as Visual Amenity Landscapes.

Each of the above three matters were assessed and identified separately by the study team. Boundaries of existing landscape protection areas (especially ONFLs) were evaluated, resulting in boundary lines being adjusted, areas being removed and new landscapes being included. Many areas remain the same. The methodology for the identification of ONFLs is outlined in Section A.

Areas of the Marlborough landscape that have been included as an ONFL (and that were not included in the previous landscape assessments) are large areas of mountain ranges and river valleys, notably the Richmond Ranges and part of the mountainous interior around the Main Divide and the Inland Kaikouras. All these areas display high levels of naturalness and high levels of landscape quality. As outlined in Section A of this report, the methodology compiled for this study determined a threshold, confirmed through case law and advances in landscape assessment techniques since the previous landscape assessments were written in the early and mid 1990's. Therefore the application of the methodology throughout this evaluation process led to the inclusion of areas that display similar landscape qualities, relationships and values.

Although Marlborough District Council is a unitary authority, in that the territorial boundary of the district is the same as the Regional Council, this Landscape Study has undertaken the assessment at the District scale in terms of accuracy and depth. By default, any identified ONFLs at a district scale will be an ONFL at a regional scale as well. As case-law has established a two-tiered approach regarding identifying ONFLs (with a distinction between district and regional ONFL), for the Marlborough area, the distinction would be at the district/ regional scale and the national scale. The Marlborough Sounds should be acknowledged as a whole as an outstanding natural landscape at a national scale.

The revised ONFLs as well as Natural Character and Visual Amenity landscapes and their values are discussed within each of the character areas on the subsequent pages. Some ONFLs spread over several character areas, and where this occurs, specific mention has been made to the part or component of the ONFL in that area. For the purposes of this assessment, no differentiation has been made regarding outstanding natural features and outstanding natural landscapes, with them collectively being referred to as ONFLs (Outstanding Natural Feature or Landscape).

1.0

MARLBOROUGH SOUNDS

General Landscape Character Area Description

The submerged river valleys of the Marlborough Sounds landscape form a distinctive network of headlands, bays, inlets and islands in the north of the District. This complex ria coastline extends into Cook Strait between Tasman Bay in the West and Cloudy Bay in the East. The outer part of the sounds is strongly influenced by this exposure to the sea whereas the inner sounds enjoy a comparatively sheltered environment.

The range of rock types in the Sounds is reflected in the different patterns and characteristics of the landforms that are seen there.

The islands and peninsulas have largely developed on a north easterly/ south westerly orientation and steep slopes generally rise quickly from the shore up to a single ridgeline. The coastline of the outer sounds is characterised more by high sea-cliffs compared with the small beaches that occur among much of the inner area. The elevation of the land varies from sea level to 1,203m a.s.l at the highest point at Mt Stokes.

The vegetation and habitats of the Sounds are changing rapidly in response to changing land uses. Most of the land is currently in a mixture of indigenous forest remnants, regenerating shrublands and forests and exotic grassland. Much of the original vegetation, particularly in the outer sounds has been cleared over the years for pastoral farming but a large proportion of this is now regenerating following the removal of stock. There are also some areas of extensive commercial exotic forestry, largely in the inner and eastern sounds.

Many parts of the Marlborough Sounds are managed by the Department of Conservation. Important habitats include indigenous forests, shrublands, grasslands, cliffs, estuaries and saltmarshes. Several predator-free islands in the Sounds are used for recovery programs for endangered species (DoC 1993).

There are a numerous historic Maori and European sites within the Sounds. Some of the earliest sustained contact between Maori and European took place here. Archaeological sites identified throughout the Sounds generally reflect the range of settlement, fishing, hunting, gathering and horticultural activities that would have occurred in the past. Many of the European sites of interest are related to early buildings, particularly in the settlements of Picton and Havelock.



The eastern coastal margin, from Rarangi in the south to Oyster Bay in the North contain a large number of heritage sites relating to differing times of occupation. This area, due to its relatively mild climate and sheltered bays saw a number of operations that capitalised on the areas location. Remnants of the former whaling stations in Ocean Bay and Robin Hood Bay are still apparent, as is Whites Bay Cable Station, which demonstrated the first Telegraphic link between both the North and South Islands in 1866.

The mosaic of waterways, bays and islands in the Marlborough Sounds provides many opportunities for water-based recreational activities. There are also popular picnic and camping areas and numerous walks in this area.

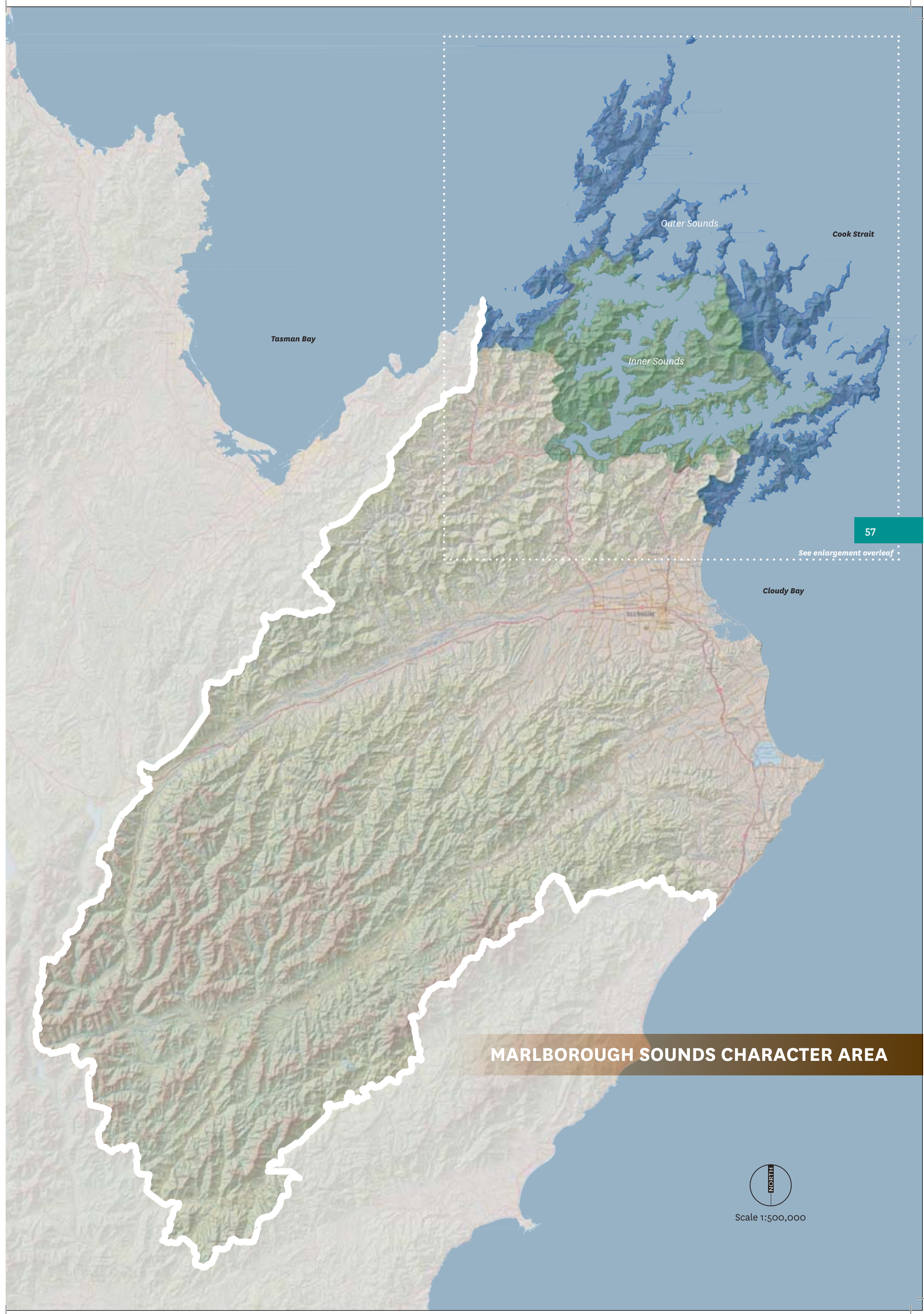
The system of waterways also provides opportunities for the aquaculture industry which is active throughout the sounds, predominantly in the form of mussel farms. While the size of the farms differs, and some bays contain more than others, they are mostly located within 200m of the shoreline.

Settlement within the Sounds is dominated by holiday homes although there are also many permanent residents. The two main settlements are the townships of Picton, near the head of Queen Charlotte Sound, and Havelock, which provides access for boaties to Pelorus Sound and Kenepuru Sound. The eastern and inner areas of the Sounds around Havelock, Kenepuru and Queen Charlotte are typically more developed than the western and outer sounds.

Picton is the end of the line in the South Island for State Highway 1. Here, the Cook Strait Ferries leave for Wellington through the eastern arm of Queen Charlotte Sound. State Highway 6 provides the main access to Havelock. Other key roads through the Sounds are Queen Charlotte Drive between Picton and Havelock, the roads to French Pass and to Tennyson Inlet in the western Sounds, and the roads to Kenepuru Head and to Waikawa in the east. A 350kV HVDC follows the eastern coastline towards Fighting Bay, where it then connects to the North Island via submerged cables within the Cook Strait.



Looking towards French Pass and D'Urville Island. The cleared slopes of the peninsula towards French pass emphasise the crumpled nature of the spur, in contrast to the forest and bush-clad slopes of D'Urville Island. Also evident in this view are the ripples and strong currents between French Pass and D'Urville Island in the aptly named 'Current Basin'.



See enlargement overleaf

MARLBOROUGH SOUNDS CHARACTER AREA



Scale 1:500,000



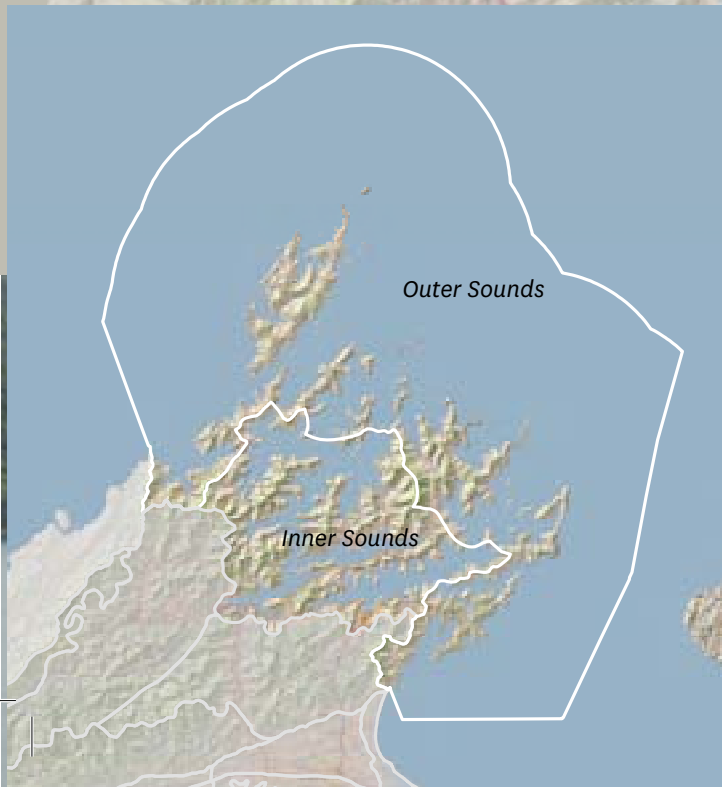
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CHARACTER UNITS OF THE MARLBOROUGH SOUNDS

1.1 Outer Sounds

1.2 Inner Sounds

58



1.1 OUTER SOUNDS

The Outer Sounds incorporate those outermost parts of the Sounds with characteristics clearly influenced by the area's exposure to the sea. The area extends from the slopes around Croisilles Harbour, north to Admiralty Bay and D'Urville Island (Rangitoto Ke Te Tonga), east to Forsyth Island, the land around Port Gore and Arapawa Island and south to Port Underwood. The range of peaks either side of Mt Stokes (the highest point in the Sounds) separates the Outer Sounds area from the Inner Sounds.

The Outer Sounds are remote and rugged in appearance. There are many dramatic and distinctive features characteristic of this area, including the swirling currents between the narrow passage at French Pass (Te Aumiti), boulder spits and sand dune systems, highly weathered coastal cliffs, rocky islands and jagged rock stacks and reefs, narrow elongated ridges and steep coastal hill country.

There are a number of important Geopreservation Inventory Sites contained within the Sounds, most notably on D'Urville Island and include the northernmost copper mine in the south island and geological features within Greville Harbour. The Inventory also notes that Cape Jackson displays a superb example of a drowned narrow ridge crest.

The maritime influence on the outer sounds creates a temperate climate and distinctive marine vegetation communities such as the salt-tolerant, low-growing herb and shrub species that can survive the constant winds off Cook Strait. The extensive areas of modified grassland are a characteristic of the outer sounds. The outer, eastern sounds contain some large areas of exotic forestry.

D'Urville Island is the largest island in the Sounds and despite the efforts of early pastoral runholders, retains much of its indigenous cover containing some important species.

A number of predator-free island sanctuaries are located in the Outer Sounds such as Motuara Island, Blumine Island and Stephens Island/Takapourewa Island. Long Island-Kokomohua Marine Reserve is located at the entrance to Queen Charlotte Sound. These reserves contain a range of rare or threatened species such as kiwi, tuatara, Hector's dolphins and king shags.

The Outer Sounds are richly associated with early Maori and European history in New Zealand. D'Urville Island is the site of numerous prehistoric quarries as well as early European copper mines. Other areas in the outer sounds such as Queen Charlotte Sound and Tory Channel contain extensive archaeological remains regarding the original Maori occupiers, early contact with Captain Cook, and later Maori and European whaling and farming families.

The landscape from cable station (Whites Bay) is accessed by an unsealed road that connects south to Rarangi and north Port Underwood and Waikawa/ Picton. A cluster of small coves and bays pepper this coastline, where numerous small fishing and former whaling communities established, including Ocean Bay. The 350kV transmission line extends northwards along these eastern bays towards Fighting Bay in the Outer Sounds area. These bays contain rich historical and cultural associations for both Maori and Europeans. At Oyster Bay, a marker commemorates the signing of the Treaty of Waitangi on nearby Horahora Kakahu Island and the first Telegraphic link to the North Island in 1866 was established from Whites Bay.

The Outer Sounds are relatively remote with less land-based development than in the more sheltered inner bays. Nonetheless there are scattered baches and jetties and occasional homesteads and associated farm buildings usually near to the shore. Marine farms are present along many of the more sheltered stretches of coastline.

1.2 INNER SOUNDS

It is often the Inner Sounds with their bush-clad hills enclosing tranquil bays that are represented in popular images of the Marlborough Sounds. These inner reaches tend to have a more intricate coastline with small beaches, tidal estuaries and a sheltered, enclosed environment.

While much of the Inner Sounds is characterised by steep hill slopes, it also contains some of the flattest land, particularly in the river valleys at the heads of the largest Sounds. The river deltas form tidal wetlands in these areas. In contrast, the upper southwest facing slopes of the Mt Stokes massif are sufficiently high that alpine plants can be found there.

The inner sounds is partially covered in indigenous forest remnants. However this generally occupies the upper slopes, with the lower slopes and shoreline containing a more diverse range of vegetation types including regenerating forests and shrublands, exotic grassland, and commercial afforested areas.

A large proportion of the land in the Inner Sounds is managed by the Department of Conservation. Particularly extensive areas of DoC land include much of Tennyson Inlet, Mt Stokes and the north arm of Queen Charlotte Sound. Maud Island is an important island sanctuary that straddles the Inner and Outer Sounds.

The Inner Sounds are generally the focus for most intensive tourism and recreational activities and the location of the most extensive development. While Havelock and Picton are the main settlements, smaller bach settlements occur in many of the bays and inlets in these waters.



Forestry plantations cling precariously to the slopes above the cliffs close to Bushy Point on Cook Strait, where precipitous rocky slopes extend seawards to form an exposed, rugged shoreline.

Far left map: Extent of Marlborough character area and district/regional boundary (12 nautical miles). Below: The bush-clad and forested slopes and spurs of the Queen Charlotte track isthmus as seen from near Kaireperepe Point. From this viewpoint on Queen Charlotte Drive over the Grove Arm waters, the horizon appear continuous, blurred together by the interlocking hills and peninsulas of the north-western sounds. Much of the landscape has been cleared in the past, and now displays areas of regenerating scrub cover. Wilding pines are also evident in this landscape.





The Port of Picton located at the southern end of Queen Charlotte Sound. This is the first entry point to the South Island for many New Zealanders and tourists arriving from Wellington on the Cook Strait ferry.



A typical bay found within the Inner Sounds, sheltered, often secluded and difficult to access by road. Native bush predominates, however, exotic introductions such as eucalyptus and pines provide a distinctive 'colour' change to the landscape.



The bush clad slopes of many of the Inner Sound hills provide a contrast between the often deep blue watery inlets and sounds. Areas of commercial forestry, particularly pine plantations are evident in clumps, as are cleared patches of ground, previously used for forestry management. Roads tend to wind themselves around the base of the landform, connecting pockets of housing and small villages, such as Te Mahia and Portage.



The estuarine landscape of the mouth of the Kaituna River and Pelorus Sound at Havelock. The mud-flats and relatively steep terrain prevent the settlement from spreading.

KEY LANDSCAPE CHARACTERISTICS: MARLBOROUGH SOUNDS

- Distinctive ria coastline of drowned river valleys;
- The outer sounds are characterised by their exposure to maritime influences;
- Distinctive drowned ridges such as Cape Jackson;
- The inner sounds generally have a more sheltered, enclosed environment;
- Vegetation is a mosaic largely made up of indigenous forest, regenerating forest and shrublands, coastal native vegetation communities, exotic grassland and forestry;
- The small settlements of Picton and Havelock are the main townships. Elsewhere, baches and some permanent homes are scattered throughout the Sounds though more intensively in the inner bays.
- In a few locations natural conditions extend from the ridge tops to the sea.
- The Marlborough Sounds is imbued with cultural and spiritual associations.

Landscape Evaluation

It was considered necessary by the study team, due to the complexity of the Marlborough Sounds area, to further subdivide the two sub Character Areas into broad catchments for the evaluative phase. Consequently, the Outer Sounds Landscape Character Area has been subdivided into six further units and the Inner Sounds Landscape Character Area into four units. Subdividing the Marlborough Sounds into a series of smaller landscapes is one way of capturing an areas specific value, and the study team considered that the scale determined was appropriate for a regional/district wide approach.

The methodology for this further division of the subunits has been based on a predominantly visual catchment approach, rather than a landtyping one. This visual catchment approach is one way of subdividing the area, and the study team considered that this approach was appropriate as most references to specific areas of the Sounds acknowledge specific/ individual waters, defined spatially by catchment. This approach has resulted in specific catchment areas, such as the Queen Charlotte Sound being evaluated from the ridges and peaks of the dividing peninsulas and islands that define the limits of that catchment.

The study team also acknowledged that landscape values, particularly for the sounds, cannot in many instances be confined to a specific catchment area or character area. Therefore as landscape values overlap, so does the identification of ONFLs and VALs. The following pages will therefore focus on one of the areas outlined below, however the ONFL may extend beyond that area and into the adjacent character area.

The following areas for the Marlborough Sounds can be broadly characterised into the following sub character areas:

1.1 Outer Sounds:

Croisilles Harbour/West Arm Admiralty Bay | D'Urville Island | Outer Islands | Forsyth | Arapawa | Port Underwood

1.2 Inner Sounds:

Pelorus Sound | Havelock | Kenepuru | Queen Charlotte Sound

The study team concluded that due to the complexity and diversity of the Marlborough Sounds, and its value nationwide, the entire Marlborough Sounds is considered an Outstanding Natural Landscape at a national scale. At a regional/ district scale, the study team concluded that areas not identified as an ONFL within the Marlborough Sounds should be identified as a Visual Amenity Landscape (VAL), due to its high collective sensory values.

BIOPHYSICAL / NATURAL SCIENCE VALUES

Geological Values

The Marlborough Sounds are unique and considered nationally significant in that they represent a drowned landscape, comprising a combination of landforms, complex waterways and islands. The underlying geology is relatively complex and this has resulted in determining the patterns and characteristics of the landforms, differences in rates and types of erosion, drainage patterns and process [DoC, A Natural Character Framework for the Marlborough Sounds]. Due to this regional submergence, the landform of the Sounds as a whole is considered significant, as it is the largest and most well-developed example of a ria coastline in New Zealand, formed as a result of both subsidence and sea level rise, to produce a profoundly incised and intricately indented coastline with attenuated, fragmented blocks of land largely surrounded by sea. [DoC, A Natural Character Framework for the Marlborough Sounds].

There are a significant number of geopreservation sites within the Sounds landscape [17 in total], with the majority located within the Outer Sounds landscape. Whilst some recognise important human-intervened areas such as historic mining areas, most are naturally occurring, such as the Matarau Point beach ridge, the Greville Harbour boulder spit and the submerged ridge at French pass.

With this, it can be said that the Marlborough Sounds are also highly legible in terms of how its formative processes lead to its creation. The sequence of drowned valleys and often incised cliffs, ridges, peninsulas and islands indicate the cues to a previous dry valley system. Impressive slender rocky peninsulas, river valleys and odd-shaped island reflect the shaping forces of the landscape.

Ecological and Biological Values

The ecological and biotic value of the Sounds are strongly influenced by the area's maritime climate, geology and landform displaying a complex interplay of land and water, extending from the sheltered inner Sounds to the outer Sounds that are exposed to the turbulence of Cook Strait [North Marlborough Significant Natural Areas Project, 2009]. Large and distinctive areas of significant indigenous vegetation thrive on the maritime conditions and include the Cook Strait shrublands; coastal, lowland and upland mineral belt communities and the alpine vegetation associated with Mt. Stokes. [DoC, A Natural Character Framework for the Marlborough Sounds].

A number of predator free islands act as sanctuaries to native flora and fauna, noticeably Long Island and Maud Island. These are important for coastal black beech and hard beech forests which are rare throughout New Zealand. [DoC, A Natural Character Framework for the Marlborough Sounds].

The sounds imbue transient qualities with every differing weather pattern, which is highly influenced by its maritime setting.

SENSORY VALUES

Aesthetic Values

The distinctive, fractured pattern of the Marlborough Sounds coastline, its slender peninsulas and range of islands as well as its varied weather patterns culminate in a distinctive landscape containing very high aesthetic values. The combination of the areas rocky coastline, vegetated and grassy ridges and small coves, bays and inlets portrays an overwhelming sense of naturalness. The area is imbued with cultural and historic values. It is extremely memorable.

The Outer Sounds are more rugged and exposed than the more sheltered Inner Sounds and are more open to the varying climatic conditions in the Cook Strait. The Inner Sounds can be visually defined by 'sound catchment', where the forest-clad ridges and mountain tops form the horizon, and merge with other ridges and peaks to further promote the intimacy experienced from within the waters.

It is within these Inner Sounds, particularly within many of the smaller bays where little evidence of human intervention is seen, and where the level of visual intactness remains high. Even small settlements, nestled closely at the head of a bay retain a high level of aesthetic coherence, contained by the steep, often vegetated sides of the enclosing ridge.

Other Sensory Values

Including aesthetics, the Marlborough Sounds as a whole stimulate all senses. Although this can be said for many landscapes, the Marlborough Sounds are unique within New Zealand due to the close relationship between the convoluted network of waterways and interlocking peninsulas and islands. The seasons and differing weather patterns assist in creating a dynamic mix of auditory, visual and other sensory elements.

ASSOCIATIVE VALUES

Shared and Recognised Values

For most New Zealanders, the series of meandering peninsulas and sounds, small islands and isolated coves encapsulate the very essence of Marlborough. The contrast between the exposed and more rugged and barren outer sounds that protrude into the Cook Strait to the more vegetated and sheltered inner sounds provides a recognised national and international value for a wide variety of water-based activities, including for recreation, tourism and marine farming.

The landscape of the sounds has long inspired painters, poets and writers to capture the unique and varied sense of place. Renowned New Zealand artists such as Wayne Seby and Don Binney have painted numerous scenes of the Sounds landscape which are hung in many galleries around the country.

The Marlborough Sounds Wilderness Festival, held in Spring, celebrates everything Sounds-based from walks to creative writing-courses, whilst utilising the landscape as the source of inspiration.

But for most people, the Marlborough Sounds principal reputation is related to recreational-based activities, with many New Zealanders and overseas visitors choosing to holiday in the area due to its scenic setting and mild temperatures. The Queen Charlotte Track, a 71kilometre easy-grade walk between Queen Charlotte Sound and Kenepuru Sound, passes numerous sheltered historic bays, areas of native vegetation, and ridgetop views of the broader area. It is one of New Zealand's main walks. Other activities in the area include sea kayaking, pleasure boating.

Heritage Values

The Marlborough Sounds contain rich cultural and historic values due to its location at the top of the South Island and due to its intricate network of sheltered waters and bays. The majority of historic and cultural values lie adjacent to the coast, often the sites of old whaling stations and homesteads, where close proximity to the sea within the sheltered bays was favoured. Apart from Abel Tasman sailing through the sounds 'and who never set foot on New Zealand Soil' [Potton, 1987], all the principal explorers to the area disembarked, with James Cook raising the British flag on Motuara Island at the mouth of Queen Charlotte Sound, claiming British governance of this part of the territory of New Zealand.

The first whaling station in New Zealand was established in Tory Channel, at Te Awaiti in 1827 by Londoner John Guard and is reputed to be the first European settlement in the South Island. [<http://www.teara.govt.nz/1966/G/GuardJohn/GuardJohn>].

Historic and archaeological relics of the Second World War are evident and are highly valued, such as gun emplacements and a radar station. These, along with a rich list of historical buildings, particularly within Queen Charlotte Sound, signify historical importance and significance to the Sounds.

Tangata Whenua Values

Tangata Whenua have a strong spiritual affinity with the Marlborough Sounds, particularly its waters, forests and peaks with a number of archaeological finds suggest that Maori have lived here for over 800 years. Due to tangata whenua's strong association with the sea for sustenance, the coastline retains particularly high spiritual associations. These associations are preserved in place names, with many links in their names extending to Kupe's visit. [Conservation Management Strategy, DoC, 1993].

D'Urville Island Sub Character Area page 64

Outer Islands Sub Character Area page 66

Croisilles Harbour/West Arm Admiralty Bay Sub Character Area page 63

Forsyth Sub Character Area page 68

Pelorus Sound Sub Character Area page 73

Arapawa Sub Character Area page 70

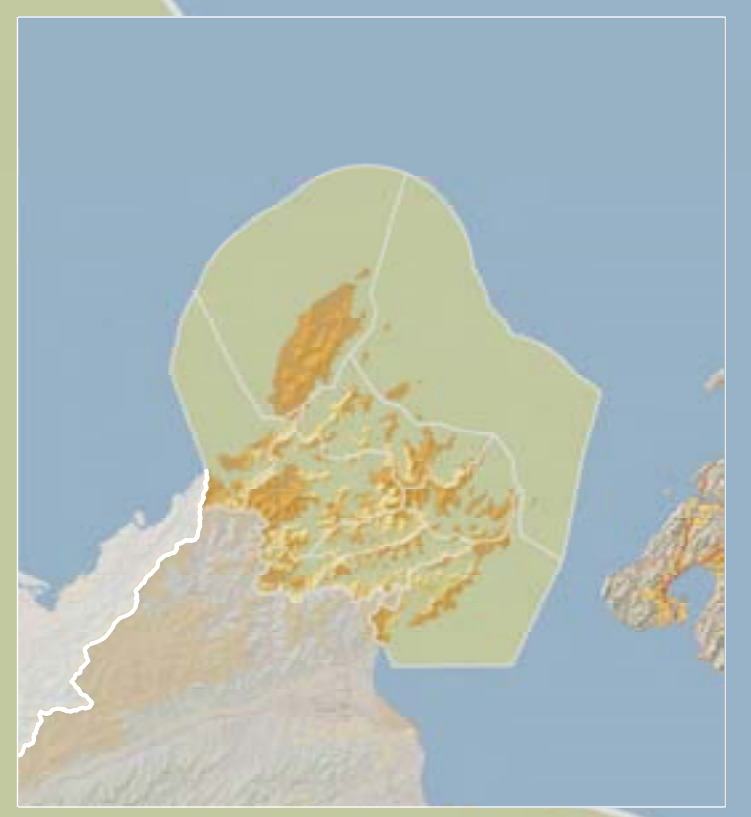
Kenepuru Sub Character Area page 76

Havelock Sub Character Area page 75

Queen Charlotte Sounds Sub Character Area page 77

Port Underwood Sub Character Area page 72

- Outstanding Natural Features and Landscapes 2009 (ONFL)
- Visual Amenity Landscapes 2009 (VAL)
- Sub Character Area delineation for evaluation purposes



Above: VAL includes all of Marlborough character area and extends to the district/regional boundary (12 nautical miles).

MARLBOROUGH SOUNDS ONFLS AND VALS



Scale 1:350,000

OUTER SOUNDS

1. CROISILLES HARBOUR/WEST ARM ADMIRALTY BAY

BIOPHYSICAL / NATURAL SCIENCE VALUES

Geopreservation sites include:

- Matarau Point beach ridges;
- Pakiakia Point boulder bank and lagoon;
- Whangarae Bay estuary and sand pits;

Other Biophysical / Natural Science Values Include:

- Whangarae Bay is identified as having relatively unmodified estuarine habitat values of national significance;
- Croisilles Islands are identified as having a range of ecological values - nationally significant;
- The cusped forelands at Matarau Point have been identified as having ecological values of national significance.

SENSORY VALUES

- Scenic bush pockets and key viewpoints to D'Urville Island and French Pass;
- Prominent/distinctive coastal ridgelines to Askews Hill;
- Impressive sequence of rugged, exposed bays;
- Vegetated southern backdrop ridge from South Castor Peak to Mt. McLaren;
- Impressive enclosing headlands of Symonds Hill and Goat Hill to Okivi Bay

ASSOCIATIVE VALUES

- Oparapara (Samson Bay) prehistoric argillite quarries - registered NZHTP Category II Historic Place;
- Importance of argillite (pakohe) to local tribal identity (e.g. Ngati Kuia).

Evaluation

Croisilles Harbour opens into Tasman Bay and is the westernmost part of the mainland Sounds. A large harbour made up of several smaller bays, its key values are related to the number of geopreservation sites and ecologically significant areas identified here, expressive of their legible coastal location and also valued for the important habitat they provide.

The Croisilles-French Pass Road provides access to the small bach settlement at Okivi Bay and beyond to the Outer Sounds. The road passes through some attractive pockets of indigenous bush and opens into farmland above Admiralty Bay where there are spectacular panoramic views out to the open sea and towards D'Urville Island and French Pass.

The Oparapara argillite quarries are important examples of the extraction of this highly valuable resource for cutting tools and its trade and distribution during the early history of New Zealand. The sites are of traditional significance to Ngati Kuia and have high archaeological values.

Values Conclusion

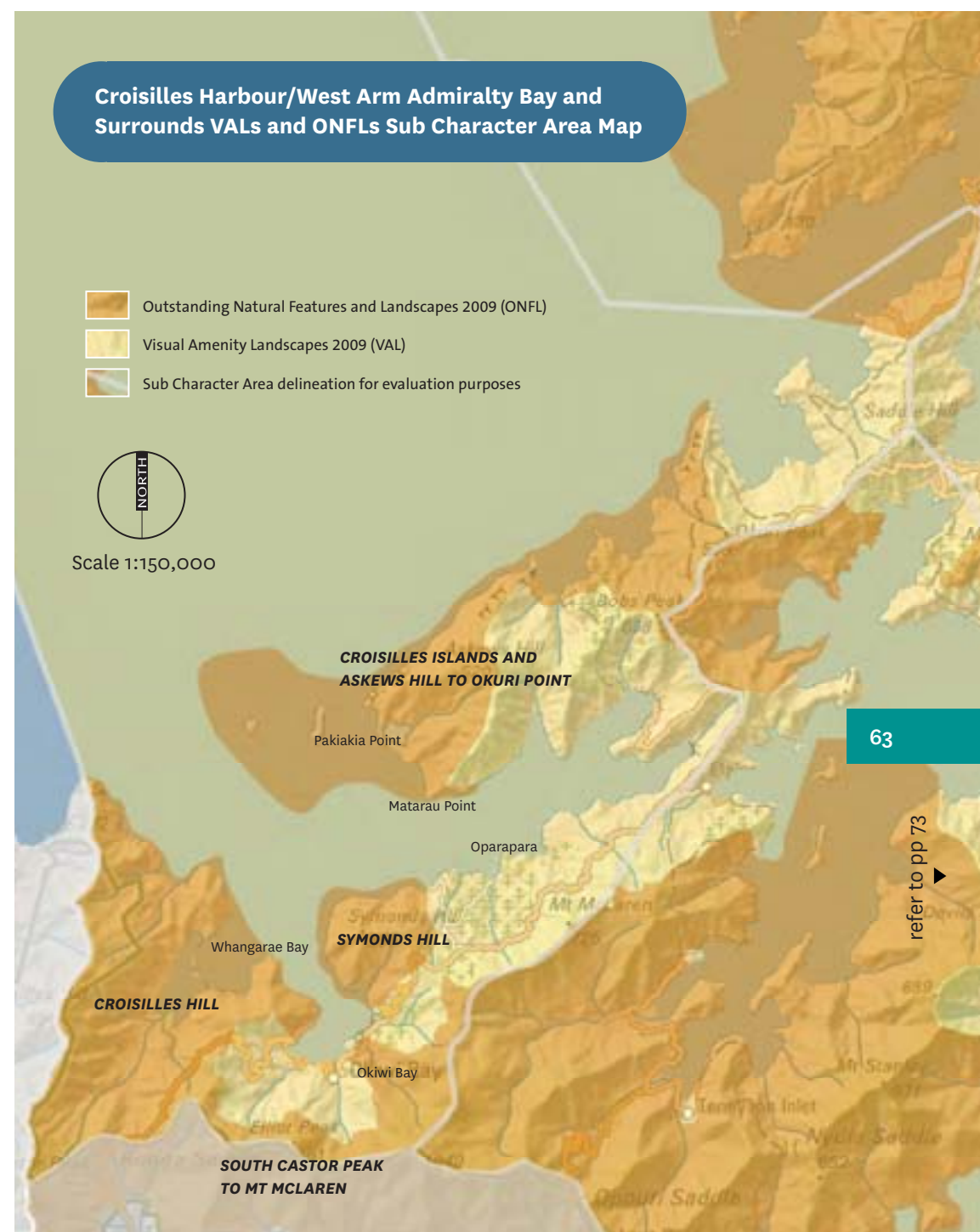
Based on the above values, **Croisilles Hill** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values.

Symonds Hill has been identified as an Outstanding Natural Feature or Landscape due to its very high sensory landscape values.

The **ridgeline from South Castor Peak to Mt. McLaren** has been identified as an Outstanding Natural Feature or Landscape due to its high biophysical and high sensory landscape values.

The coastline including **Croisilles Islands and Askews Hill to Okuri Point** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values and high associative landscape values.

All remaining land is identified as a Visual Amenity Landscape (VAL).



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refer to pp 73



The forest covered slopes of Clock Point Hill in the foreground and Croisilles Hill further beyond. The sequence of coves and bays, including Whangarae Bay to the left of the photograph and vegetated backdrop act as an impressive backdrop to Croisilles Harbour.

2. D'URVILLE ISLAND

BIOPHYSICAL / NATURAL SCIENCE VALUES

- Largest island in the Sounds;
- Unique ultramafic 'mineral belt' traverses the island;

Geopreservation sites include:

- Copper mines;
- Prehistoric argillite quarries;
- Greville Harbour sand dunes;
- Greville Harbour boulder spit;
- French Pass submerged ridgeline and equalising waters;
- Cape Stevens wind-funnelled sand dune.

Other Biophysical / Natural Science Values Include:

- Predator free islands (e.g. Stephens Island);
- Large proportion of indigenous cover from coast to mountain tops, including lowland forest;
- Unique vegetation associated with ultramafic mineral belt;
- French Pass identified in MSRMP as having nationally significant fast flow habitat;
- Northwest coast of D'Urville Island identified in MSRMP as having ecological values of national significance and high natural character.

SENSORY VALUES

- Minimal land and marine development with highly natural coastline;
- High proportion of indigenous bush-cover, much of it down to the waters edge;
- Attractive harbours with sheltered intimate bays;
- Many visually interesting landforms such as D'Urville Peninsula and the waters at French Pass;
- Key views to narrow passage and currents at French Pass from Channel Pt and Collinet Point.

ASSOCIATIVE VALUES

- French connection - named after French Admiral Dumont D'Urville who sailed the Astrolabe through French Pass and just barely managed to get through;
- Large proportion of DOC land;
- Eco-tourism destination.
- Development of argillite quarries to extract argillite for cutting tools and the importance of that resource to local tribal identity;
- Early copper mines;
- Early Maori settlement and activities;

- Early European whaling and farming activities;
- A radar station was established on Stephens Island during WWII;
- Historic Places Trust plaque commemorates Captain Cook's last anchorage point in NZ in Wharetea Bay.

Evaluation

D'Urville Island (Rangitoto Ki Te Tonga) is the largest island in the Sounds and the eighth largest island in New Zealand. Situated at the northern extremity of the Sounds, it is separated from the mainland by French Pass. The submerged ridgeline, a geopreservation site, causes unusually swift tidal currents that are fascinating to watch.

Other geopreservation sites identified on the island include a cluster of argillite source sites. These have important archaeological values due to their potential to provide information about the extractive techniques used to obtain the stone material and in better understanding New Zealand prehistory and cultural change. The location of argillite quarries appears in at least one legend that tells the story of the flight of Poutini (the taniwha of the god Ngahue) from Whatini. Each place of refuge identified in the story relates to a stone resource location including Tahanga, Mayor Island and D'Urville Island thereby serving as a form of oral map of source sites (NZHPT report on Oparapara (Samson Bay) Argillite Quarries, 2008).

Considerable archaeological evidence and documentation remains to tell of the Island's rich Maori and European history, including connections with two early European explorers, D'Urville and Cook.

Although much of the Island was cleared by early European settlers, approximately a third of it remains in native bush today. Much of it is managed as conservation land and has significant ecological values, enjoyed by the Island's few residents and its visitors, drawn to its remote and highly natural setting.

Values Conclusion

Based on the above values, all of D'Urville Island/ Rangitoto Ke Te Tonga, including French Pass has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical and associative landscape values and very high sensory landscape values.

Stephens Island/ Takapourewa has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values, very high sensory and high associative landscape values.

All remaining land is identified as a Visual Amenity Landscape (VAL).



Northern entrance to Greville Harbour






The ultramafic 'mineral belt' on D'Urville Island. Remnant forest is evident in the gullies and low-stature regenerating vegetation is found on the higher slopes. This pattern is the result of clearance of the forest in the past with fire. [Photograph Courtesy of MDC].



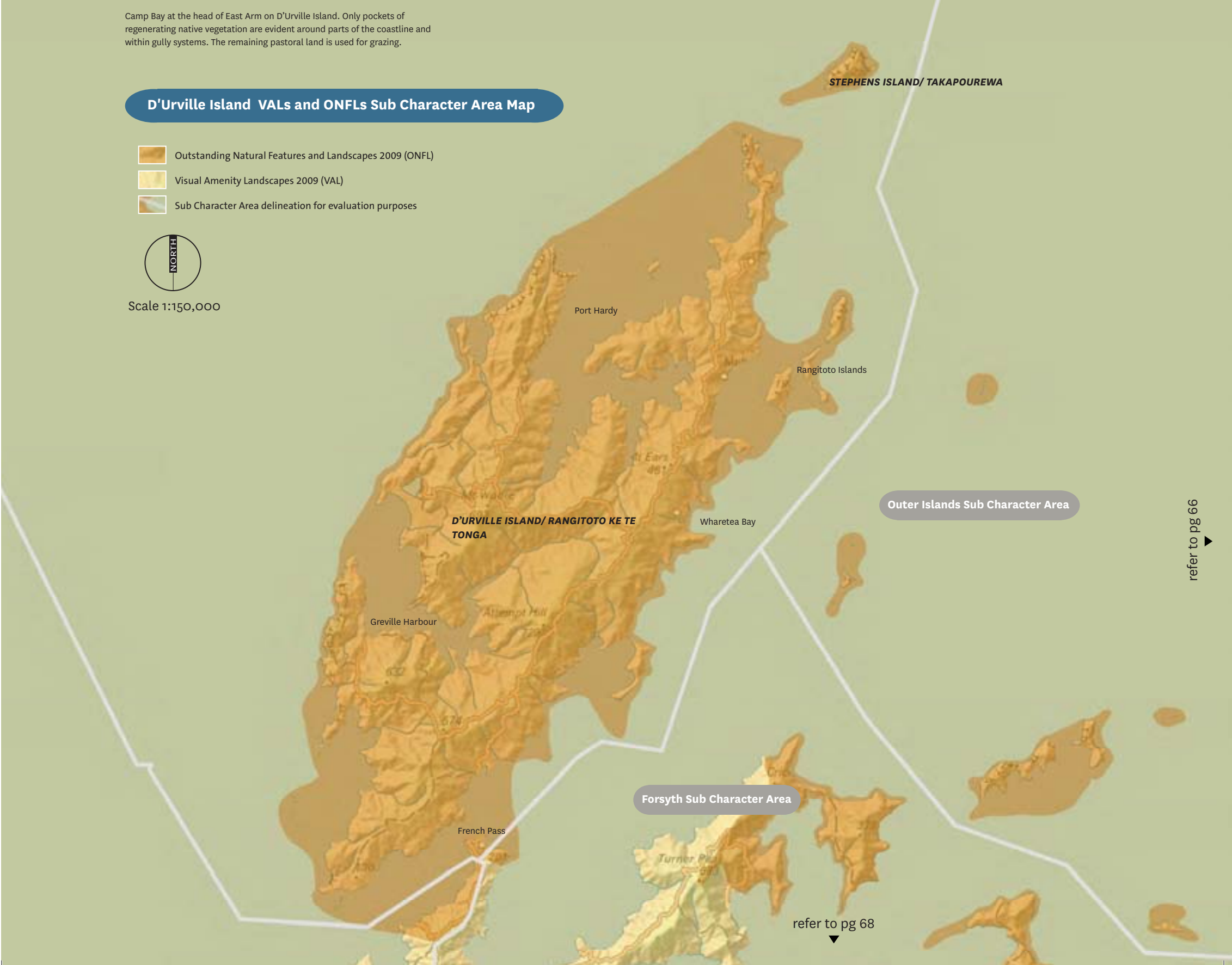
Camp Bay at the head of East Arm on D'Urville Island. Only pockets of regenerating native vegetation are evident around parts of the coastline and within gully systems. The remaining pastoral land is used for grazing.

D'Urville Island VALs and ONFLs Sub Character Area Map

-  Outstanding Natural Features and Landscapes 2009 (ONFL)
-  Visual Amenity Landscapes 2009 (VAL)
-  Sub Character Area delineation for evaluation purposes



Scale 1:150,000



refer to pg 66

refer to pg 68

3. OUTER ISLANDS

BIOPHYSICAL / NATURAL SCIENCE VALUES

All Outer Islands have been identified as having significant ecological values. Key examples include:

- Chetwodes – most ecologically significant islands in the Sounds harbouring the yellow crowned parakeet, robin, kaka, rare vegetation species and coral reef habitat for a high diversity of fish species;
- The Brothers – International and national significance: Brothers Islands Tuatara;
- Trio Islands – Tuatara, King Shag, predator free;
- Titi Island – national significance, predator free;
- Jag Rocks/ Nga Kiore – Largest NZ brachiopod of national significance;
- Sentinel Rock – National Significance as a reserve.

SENSORY VALUES

- Very low level of modification;
- Rugged, exposed outer islands.

ASSOCIATIVE VALUES

- DOC use of islands as predator free sanctuaries.
- A number of Maori pits, middens and terraces are located on the Chetwode Islands;
- A 12 metre high wooden lighthouse built in 1877 stands on The Brothers.

Evaluation

The primary values of this group of small outer islands relate to their considerable ecological significance, particularly as predator free, island sanctuaries. Since the 1970's, the various incarnations of the Department of Conservation have been operating a proactive programme for the conservation of threatened species in which these outer islands of the Sounds have been an integral part. Interestingly, they also give us a glimpse of what much of mainland New Zealand might once have looked like. These islands have very high natural character values. Their weathered sea-cliffs and hardy vegetation tilted from the wind are highly expressive of their exposed maritime position.

Values Conclusion

Based on the above values, the following Outer Islands have been identified as Outstanding Natural Features or Landscapes due to their exceptional biophysical landscape values [principally ecological] and very high sensory landscape values:

- Jag Rocks/ Nga Kiore;
- Trio Islands/ Kuru Pongi;
- Chetwode Islands;
- Sentinel Rock;
- Titi Island;
- The Brothers



Steep coastal scarps characterise the Outer Islands. While in some places still grazed by farm stock, in general they are too steep and have never been cleared or are regenerating in tough shrubs (including endemic species such as the Cook Strait kowhai) and flaxes. Even on such precarious and exposed sites as this northwest-facing coastal scarp, native forest exists. [Photograph courtesy of MDC]

Ninepin rock (far right) and the remaining rock stacks at the southern end of the Chetwode Islands.





4. FORSYTH

BIOPHYSICAL / NATURAL SCIENCE VALUES

- Land rises quickly from sea level to Mt Stokes, the highest peak in the Sounds;

Geopreservation sites include:

- Cape Jackson drowned ridge crest;
- Titirangi Bay prehistoric stonework.

Other Biophysical / Natural Science Values Include:

- Areas within Forsyth Bay and Waitata Reach, including Port Ligar have been identified as being of national significance for King Shag feeding and breeding habitat, including Duffers Reef;
- Bird Island is nationally significant for Reef Heron breeding;
- Mount Shewell is nationally significant for Powelliphanta hochstetteri obscura (New Zealand giant snail);
- Waterfall Bay and Mahakipawa – localised value, fragmented bird habitat and some uncommon plant species;
- Cape Lambert headland vegetation;
- Numerous areas of regeneration to native bush, including parts within Port Gore;
- Mt Stokes (Outer) – Internationally significant values, alpine to coast vegetation.

SENSORY VALUES

- Rugged, exposed outer coastal slopes and narrow isthmus landform at Port Ligar;
- Interesting narrow peninsula landforms of Cape Lambert and Cape Jackson;
- Interesting landform of Duffers Reef and the neck at the head of Forsyth Bay;
- The continuous undeveloped coastline along Waiona Bay to the Yellow Cliffs and very high degree of natural character;
- Impressive ridgeline of the forested high peaks above Guards Bay and Port Gore, leading to Mount Stokes.

ASSOCIATIVE VALUES

- Two small DOC reserves at Waterfall Bay and Mahakipawa;
- Private Forsyth Island is a destination for bespoke travellers;
- Diving the sunken Mikhail Lermontov in Port Gore;
- Evidence of early Maori settlement clustered around Port Ligar, Orchard Bay and Titirangi Bay, including a Pa;
- Evidence of early European settlement at Port Ligar.

Evaluation

A number of the values that can be attributed to the Forsyth sub-unit are drawn from the legibility and interest provided by various landforms such as the drowned ridges of Cape Lambert and Cape Jackson and the high peaks beyond that provide an impressive backdrop to some of the bays.

The green corridor of bush that connects Mt Stokes to the sea at Titirangi Bay, is part of the larger Mt Stokes area managed by the Department of Conservation and is identified as having internationally significant ecological values. Sanctuaries such as Maud Island and Bird Island harbour many nationally-threatened species. Maori settlement and use of the resources in this part of the Outer Sounds is evident in the intense clusters of archaeological remains.

Right facing page: Orchard Bay and Forsyth Bay as seen along the western coast of Forsyth Island. The narrow isthmus in the centre of the photograph divides this character area from Pelorus.

Inset below: The dramatic and precariously cleared peninsula leading to Clay Point [Photograph courtesy of MDC].



Values Conclusion

Based on the above values, **Port Ligar** has been identified as an Outstanding Natural Feature or Landscape due to its high biophysical and very high sensory and associative landscape values.

Mt. Shewell and the Yellow Cliffs peninsula have been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values. This ONFL extends southwards into the Pelorus sub-character area.

Maud Island has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and very high sensory landscape values. This ONFL extends southwards into the Pelorus sub-character area.

Bird Island has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values.

Forsyth Island/ Te Paruparu has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and high sensory landscape values.

Guards Bay and Waitui Bay has been identified as Outstanding Natural Features or Landscapes due to its very high biophysical and sensory landscape values and high associative landscape values.

The northern parts of **Mount Stokes and its associated Ridges** have been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and very high sensory and associative landscape values. This ONFL extends south and westwards into the Arapawa, Kenepuru and Pelorus landscape sub-character areas.

The western ridge and north-eastern coastline from **Black Head to Cape Jackson** have been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values. This ONFL is referenced as **Endeavour Inlet to Cape Jackson** and extends eastwards into the Arapawa landscape sub-character area.

All remaining land is identified as a Visual Amenity Landscape (VAL).

5. ARAPAWA

BIOPHYSICAL / NATURAL SCIENCE VALUES

- Land rises quickly from sea level to Mt Stokes, the highest peak in the Sounds;

Geopreservation sites include:

- Cape Jackson drowned ridge crest;
- Long Island cusplate foreland;
- Endeavour inlet, antimony workings.

Ecological Island sanctuaries:

- Blumine Island – national significance, predator free;
- Motuara Island – national significance, predator free;
- Long Island – international significance, marine reserve;
- Pickersgill Island – regionally significant for its flora.

Other Biophysical / Natural Science Values Include:

- The waters around these islands and up the Endeavour Inlet and East Bay have been identified as having nationally significant ecological values, particularly for Hector's Dolphin;
- White Rocks – international significance with a very high degree of natural character;
- Mt Furneaux – nationally significant podocarp/broad leaved forest;
- Mt Stokes – Internationally significant values, alpine to coast vegetation.

SENSORY VALUES

- Attractive clustering of islands at the mouth of Queen Charlotte Sound;
- Interesting landform of Cape Jackson forming the entrance to the Sound;
- Sheltered and enclosed regenerating character of Onauku Bay/ East Bay;
- Impressive forested peak and ridges of Mt Stokes rising above Endeavour Inlet.

ASSOCIATIVE VALUES

- A large proportion of this area is DOC land;
- The Queen Charlotte Track ends in this area – it is a popular, well-known walking/mountain biking track;
- Ship Cove is described by DOC as an 'icon' site.
- Blumine Island Battery Historic Area: Army camp site, public works camp, magazines and gun emplacements can be seen;
- Blumine Island Battery Historic Area – WWII;
- Early sustained European/Maori contact along entire north-western coastline, including Ship Cove and Motuara Island;
- Considerable evidence of early Maori settlement/activity throughout the area, with sites particularly intense around East Bay, Arapawa Island.





The narrow peninsula dividing Cook Strait from Onauku Bay. Ruapara Bay is evident to the centre right of the photograph.

Evaluation

Arapawa Island and the cluster of smaller islands at the mouth of Queen Charlotte Sound form an attractive land/water interface. The smaller islands are island sanctuaries and are valued internationally and nationally for their significant ecological values. The area is also highly valued for its European and Maori heritage including the WWII infrastructure that remains evident, the early whaling history and the extensive early Maori archaeological sites and stories relating to the area, and for the islands' recreational use and nature tourism potential.

The tranquil Endeavour Inlet and bush-covered slopes of the mainland also have ecological values that are considered both nationally and internationally significant. Towards the end of the 19th Century, the Inlet was also the site of a small town, built up around the antimony mines and the early miners who worked them.

As Captain Cook's first landing point in the Sounds and point of sustained early European and Maori contact, Ship Cove with its mature native bush setting is a key heritage site in the Sounds. Ship Cove is also the favoured starting point of the Queen Charlotte Track, one of the iconic walks of the Nelson/Marlborough region.

Values Conclusion

Based on the above values, the landscape from **Endeavour Inlet to Cape Jackson** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values.

The eastern flanks of **Mount Stokes and its Ridges** has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and very high sensory and associative landscape values. This ONFL extends northwards and westwards and is included within Forsyth, Pelorus and Kenepuru sub-character areas.

Motuara Island has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values.

Long Island has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values.

The **White Rocks** has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values.

Pickersgill Island has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical landscape values.

Blumine Island/ Oruawairua has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values. This ONFL extends southwards into the Queen Charlotte Sound landscape sub-character area.

The western flanks of **Northern Arapawa Island** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and associative landscape values and high sensory landscape values. This ONFL extends eastwards and is included within the Port Underwood sub-character area.

All remaining land is identified as a Visual Amenity Landscape (VAL).



The 'eastern' peninsula enclosing Port Underwood. Karaka Bay is evident in the foreground with the more sheltered waters in Port Underwood Sound evident beyond. The planted forestry on this part of the peninsula devalues its natural character.

6. PORT UNDERWOOD

BIOPHYSICAL / NATURAL SCIENCE VALUES

Nationally significant seascape – steep coastal cliffs, rocky reefs, boulder beds, coves and bays

Geopreservation sites:

Tory Channel East Head; Fighting Bay Torlesse Schist.

Other Biophysical / Natural Science Values Include:

Arapawa Island Reserves – nationally significant original cliff vegetation and rare species, possum free;

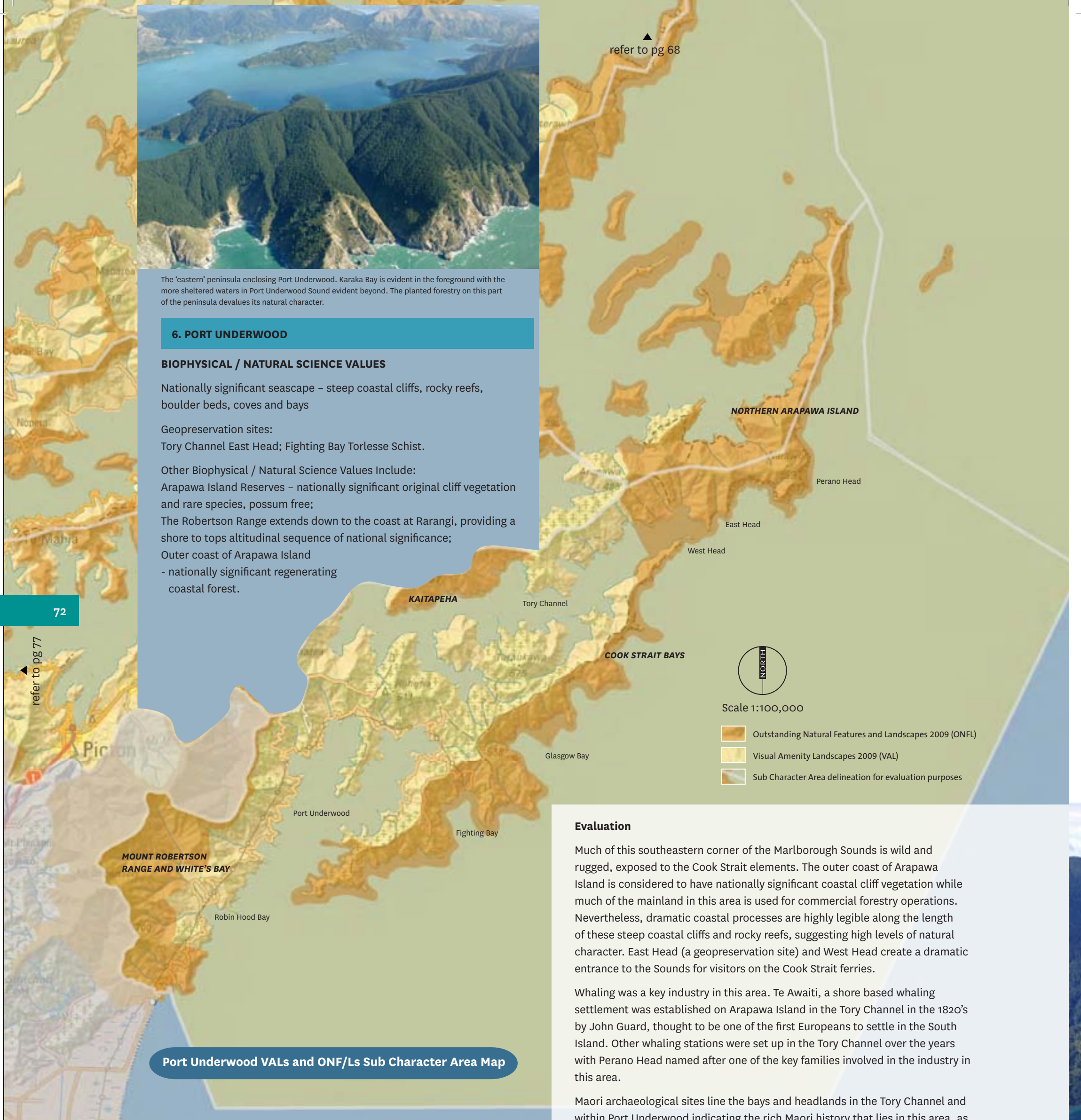
The Robertson Range extends down to the coast at Rarangi, providing a shore to tops altitudinal sequence of national significance;

Outer coast of Arapawa Island

- nationally significant regenerating coastal forest.

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refer to pg 77



Port Underwood VALs and ONF/Ls Sub Character Area Map

Evaluation

Much of this southeastern corner of the Marlborough Sounds is wild and rugged, exposed to the Cook Strait elements. The outer coast of Arapawa Island is considered to have nationally significant coastal cliff vegetation while much of the mainland in this area is used for commercial forestry operations. Nevertheless, dramatic coastal processes are highly legible along the length of these steep coastal cliffs and rocky reefs, suggesting high levels of natural character. East Head (a geopreservation site) and West Head create a dramatic entrance to the Sounds for visitors on the Cook Strait ferries.

Whaling was a key industry in this area. Te Awaiti, a shore based whaling settlement was established on Arapawa Island in the Tory Channel in the 1820's by John Guard, thought to be one of the first Europeans to settle in the South Island. Other whaling stations were set up in the Tory Channel over the years with Perano Head named after one of the key families involved in the industry in this area.

Maori archaeological sites line the bays and headlands in the Tory Channel and within Port Underwood indicating the rich Maori history that lies in this area, as it does throughout the Sounds.

SENSORY VALUES

Exposed, steep, rugged sea-cliffs, rocky reefs, boulder beds and coves/ bays; Highly natural coastline with large southerly swells creates a high energy coastline - minimal modification; Gateway to South Island and Marlborough Sounds from Cook Strait Ferry Route; Dramatic, narrow entrance to the Tory Channel between East Head and West Head; The visual forested slopes of Kaitapeha at the southern end of Tory Channel.

ASSOCIATIVE VALUES

Early whaling stations including first shore whaling station at Te Awaiti and others at Fishing/Fishermans Bay and Robertson Point; Pa sites and other archaeological evidence of early Maori settlement line the coast of both the Tory Channel and Port Underwood; Signing of the Treaty of Waitangi on Horahora Kakahu Island; Former whaling stations in Ocean Bay and Robin Hood Bay; Whites Bay Cable Station.

Values Conclusion

Based on the above values, the entire eastern coastline, referenced as **Cook Strait Bays** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical, sensory and associative landscape values.

The eastern flanks of **Northern Arapawa Island** have been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and associative landscape values and high sensory landscape values. This ONFL extends westwards and is included within the Arapawa sub-character area.

The southern flanks of the **Kaitapeha** peninsula has been identified as an Outstanding Natural Feature or Landscape due to its high biophysical and very high sensory landscape values.

The **Mount Robertson Range and White's Bay** has been identified as an Outstanding Natural Feature or Landscape due to their very high biophysical, high sensory and high associative landscape values. This ONFL extends westwards into the Richmond Range character area.

All remaining land is identified as a Visual Amenity Landscape (VAL).

INNER SOUNDS

7. PELORUS SOUND

BIOPHYSICAL / NATURAL SCIENCE VALUES

Mt Stokes – highest peak in the Sounds.

- Nationally significant intertidal and subtidal areas - wetlands habitat;
- Nationally significant broad leaf/beech forest – bird habitat;
- Maud Island internationally significant, predator free island sanctuary;
- Fitzroy Bay - nationally significant beech forest/lowland/coastal broad leaf and internationally significant waters;
- Nationally significant vegetation flanking northern side of Nydia Bay;
- Nationally threatened *Powellipanta hochstetteri* obscura (NZ native giant snail) on western ridge of Pelorus Sound;
- Mt Shewell Scenic Reserve – nationally significant, diverse plant species;
- Mt Stokes – Internationally significant values, alpine to coast vegetation;
- Bobs Knob Scenic Reserve – nationally significant, plant and animal diversity;
- Very high degree of Coastal Natural Character along the majority of Tennyson Inlet.

SENSORY VALUES

- Tennyson Inlet is an attractive deep, enclosed bay with bush to shoreline;
- Integrity of bush throughout Tennyson catchment – lack of development and coherency of landscape/seascape catchment;
- Scenic road journey over Opouri Saddle into Tennyson Inlet;
- Road to Admiralty Bay/French Pass passes through the bush above Fitzroy Bay – contributing to scenic journey;
- Impressive peak of Mt Shewell at head of Admiralty Bay and ridges of Kaiuma and those associated with the western Pelorus Sound;
- Maud Island - interesting island landform;
- Frequent, intimate bays with sheltered waters.

ASSOCIATIVE VALUES

- Almost entire Tennyson catchment is DOC land;
- The Nydia Track connects Tennyson Inlet with Kaiuma Bay, north of Havelock through mainly forested slopes;
- Value to boaties as a transport corridor;
- The well-known legend of Pelorus Jack.
- Gun emplacement on Maud Island;
- Archaeological evidence of early Maori activity dotted through Pelorus Sound, particularly around Maori Bay and Four Fathom Bay, in Crail Bay, and along the coast at the foot of Mt Stokes;
- The dolphin Pelorus Jack accompanied ships between French Pass and the entrance to Pelorus Sound and was the first dolphin in the world to be protected by law.

The striking blue waters of Tennyson Inlet. Virtually all enclosed by native forest-clad mountain slopes.



Evaluation

Pelorus Sound is the largest of the Marlborough Sounds. Its main channel connects Havelock with Cook Strait and the outer sounds, and is well-used by recreational and commercial boats as a transport corridor. Pelorus Sound is made up of several main arms, notably Tennyson Inlet, Tawhitinui Reach and Waitata Reach, and the complex of bays at the base of Mt Stokes.

With its mosaic of bush clad hills, forestry, pasture, tranquil empty bays, marine farms and holiday homes, Pelorus Sound accommodates a fine balance of working character in a setting that remains predominantly natural despite the modifications that have occurred there.

Tennyson Inlet is the focus of many of the ecological values in this area. The entire inlet provides a coherent natural landscape/seascape interface with its intertidal/subtidal areas and its broadleaf/beech forest considered nationally significant. Maud Island is an important island sanctuary that also holds a number of heritage values and provides a distinctive pyramidal skyline linking to the slender neck of Harter Point. A number of other interesting landforms in the Sound include the curiously formed crooked arms of Te Puraka Point and Ho



River water flows into Wet Bay, close to Crail Bay to produce interesting sediment build-up patterns when seen from the air.

Values Conclusion

Based on the above values, the entire **Tennyson Inlet** has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical and sensory landscape values and high associative landscape values. The integrity, wholeness and rarity of such a landscape in the Marlborough Sounds is rare.

Fitzroy Bay has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values.

The western flank of **Mt. Shewell** has been as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values. This ONFL extends eastwards into the Forsyth sub-character area.

Maud Island has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and very high sensory landscape values. This ONFL extends northwards into the Forsyth sub-character area.

Mount Stokes and Ridges has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and its very high sensory and associative landscape values.

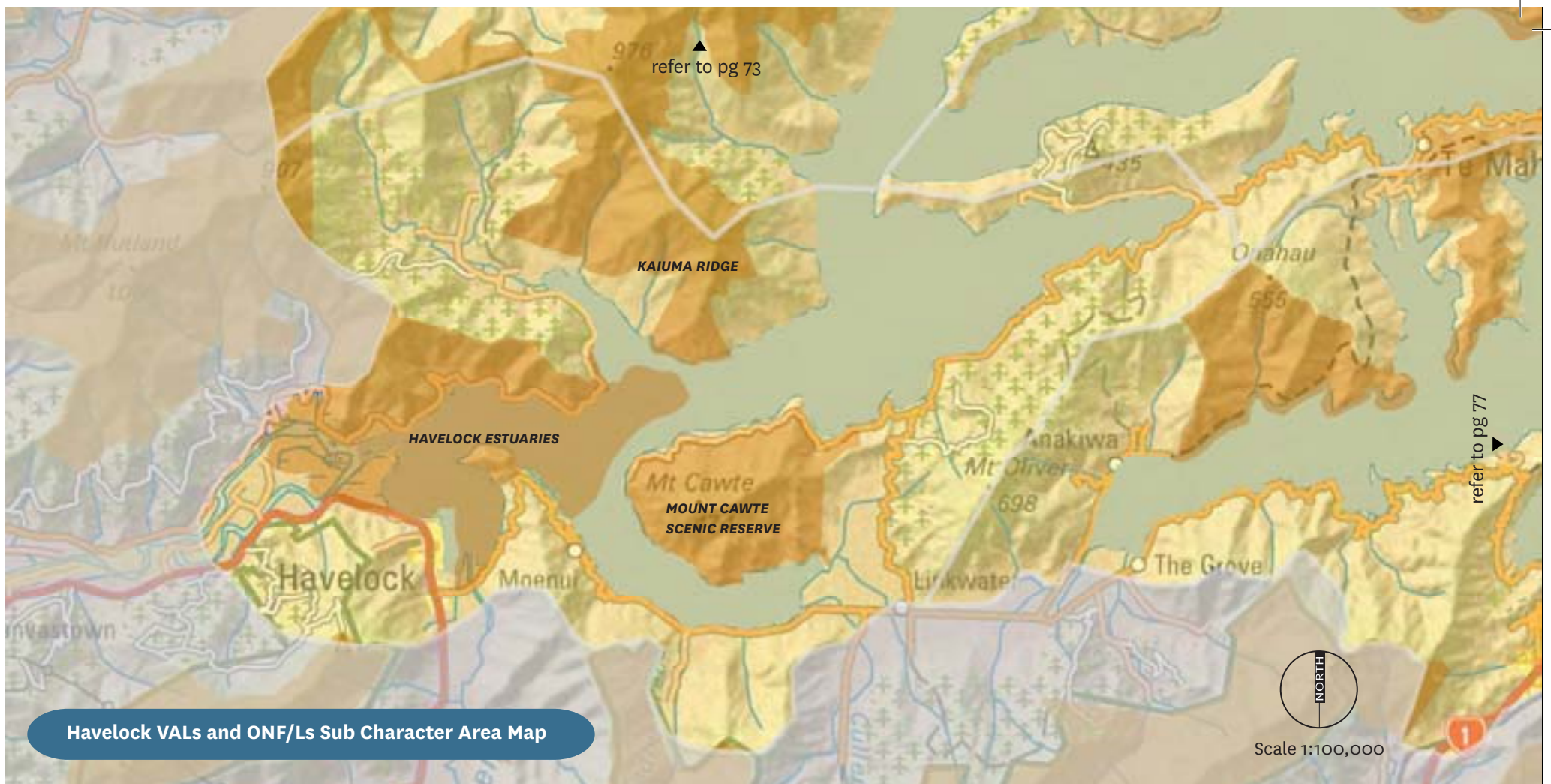
The **Western Pelorus Sound Ridge** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values.

The **Kaiuma Ridge** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and high sensory landscape values. This ONFL extends southwards into the Havelock sub-character area.

Nydia Bay has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values and high associative landscape values. This ONFL joins with the Tennyson Inlet ONFL along the Mt. Stanley ridge.

All remaining land is identified as a Visual Amenity Landscape (VAL).





8. HAVELOCK

BIOPHYSICAL / NATURAL SCIENCE VALUES

Geopreservation sites:

- Pelorus and Kaituna river deltas;
- High estuarine values;

Other Biophysical / Natural Science Values Include:

- Pockets of nationally significant broad leaf/beech forest.

SENSORY VALUES

- Interesting coastal interface of tidal flats formed by river deltas at Havelock;
- Scenic setting of township amongst native bush at waters edge with boat activity;
- Attractive areas where native bush remains dominant, particularly where it extends from hilltops to waters edge and where forestry and other signs of development are less evident, such as Kaiuma Ridge and Mount Cawte;

ASSOCIATIVE VALUES

- Gateway to the Pelorus and Kenepuru Sounds - Havelock marina provides easy boat access for commercial and recreational boats;
- First timber mill in the Sounds established at Mahakipawa;
- A number of historic buildings identified in the township of Havelock such as the former Post Office and St Peter's Church which are registered with the NZHPT;
- Cluster of early Maori and European archaeological sites in Kaiuma Bay and along the shoreline of Mahau Sound.

Evaluation

The sheltered waters, their tidal influence, and the bustling boating activity around Havelock contribute to the key aesthetic, shared and recognised, heritage and ecological values of the area. The two river deltas that drain into the Sounds are particularly highly valued as geological features, however they also have high legibility, aesthetic and transient values as the rise and fall of the tide dramatically changes their appearance and that of the wider valley.

Values Conclusion

Based on the above values, the **Havelock Estuaries landscape** has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values and its very high sensory and associative landscape values.

The **Kaiuma Ridge** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and high sensory landscape values. This ONFL extends northwards into the Pelorus sub-character area.

Mount Cawte Scenic Reserve has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and high sensory landscape values.

All remaining land is identified as a Visual Amenity Landscape (VAL).

A detail of the coastal interface of the tidal flats formed by river deltas close to Havelock.



9. KENEPURU

BIOPHYSICAL / NATURAL SCIENCE VALUES

- Kenepuru Scenic Reserve extends into the mouth of Kenepuru Sound - nationally significant ecological values;
- The southern slopes of the Mt Stokes ecological area extend into the head of the Sound - internationally significant ecological values;
- Other locally significant scenic reserves - Weka Point and Ferndale.

SENSORY VALUES

- Frequent intimate bays and beaches;
- Several interesting peninsula landforms, including Kaiaho Point;
- Forested ridges of Kenepuru Scenic Reserve and the skyline ridge north of Waitaria Bay;
- Views into Kenepuru Sound from Queen Charlotte Track.

ASSOCIATIVE VALUES

- Popular for fishing, boating and other recreational water-based activities;
- Many Maori archaeological sites occur along the coastline.

Evaluation

Kenepuru Sound is the smallest of the three main Sounds and the only one that has public road access around most of its shoreline. This area incorporates a smaller proportion of DOC land and fewer areas of significant ecological values than others, with most of its values attributed to sensory or associative factors. Nonetheless, much of the upper slopes and ridges remain in native bush with regenerating scrub on the lower slopes, providing an attractive setting for the many baches dotted around the shoreline. The interesting formations of Kaiaho Point, Weka Point, Ferndale and others and the numerous bays and beaches between add to the area's scenic and recreation qualities and are also rich in cultural heritage value.

Values Conclusion

Based on the above values, the northern skyline of Kenepuru Sound including **Mount Stokes and Ridges** down to the coast at Weka Point have been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical and very high sensory and associative landscape values. This ONFL extends north and westwards and is included within Arapawa, Forsyth and Pelorus sub-character areas.

The ridge above Double Bay, referenced as the **Western Pelorus Sound Ridge** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and sensory landscape values.

Kaiaho Point has been identified as an Outstanding Natural Feature or Landscape due to its very high sensory landscape values.

All remaining land is identified as a Visual Amenity Landscape (VAL).



Looking east up Kenepuru Sound just above Kaiaho Point



10. QUEEN CHARLOTTE SOUND

BIOPHYSICAL / NATURAL SCIENCE VALUES

- Large areas of the waters in Queen Charlotte Sound are of international or national scientific ecological significance;
- Blumine Island and Arapawa Island Reserves are considered nationally significant for ecological values;
- Predator free island of Allports Island;
- Other islands, and the bays and headlands of the mainland between Onahau Bay and the Bay of Many Coves are of localised ecological value.

SENSORY VALUES

- Travellers on the Cook Strait ferries enjoy views of Queen Charlotte Sound as the route passes through, to and from Picton;
- Intriguing regular indentation of bays between Houhou Point and Snake Point;
- Impressive forested peak of Mt. Bolton;
- Land cover remains predominantly native bush and regenerating scrub, providing an attractive contrast to and setting for the towns and baches.

ASSOCIATIVE VALUES

- The most commonly visited part of the Sounds (Croydon Survey);
- Queen Charlotte Drive is a well-known slow and winding route through to Picton with scenic views down to the bays;
- Large proportion of DOC land evident;
- Queen Charlotte Track – popular multi-day walking/biking track;
- A number of historic buildings identified in Picton;
- Evidence of early Maori settlement and activities around the coastline.

Evaluation

Queen Charlotte Sound is the easternmost of the main sounds and the part that New Zealanders are generally most familiar with (Corydon Consultants, Perception Survey, 2001). The departure and arrival point for any Inter-Island Ferry travellers, Queen Charlotte Sound may be the only experience that some visitors have of the Marlborough Sounds.

Despite this Sound containing the greatest level of development, primarily in terms of residential settlement, beyond Picton the slopes are largely clothed in native bush and regenerating scrub, providing an attractive setting and an experience that continues overall to be overwhelmingly 'natural'.

Queen Charlotte Sound is highly valued for the accessible recreation and tourism opportunities the area provides. Outside of the main settlements of Picton and Waikawa, a large proportion of the land in this area is managed by DOC and the Queen Charlotte Track has become one of the iconic walks in the Nelson/Marlborough Region. The track follows the ridge that divides Kenepuru Sound from Queen Charlotte Sound, providing panoramic viewing opportunities into both areas.

The Maori name for Queen Charlotte Sound is Totaranui, for the totara trees that grew there. Totaranui was an important trade route for early Maori with evidence of their settlements and activities throughout the area.

Values Conclusion

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Based on the above values, the **Queen Charlotte Sounds Northern Bays and Ridges** has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical, sensory and associative landscape values.

Blumine Island/ Oruawairua has been identified as an Outstanding Natural Feature or Landscape due to its exceptional biophysical landscape values. This ONFL extends northwards into the Arapawa landscape sub-character area.

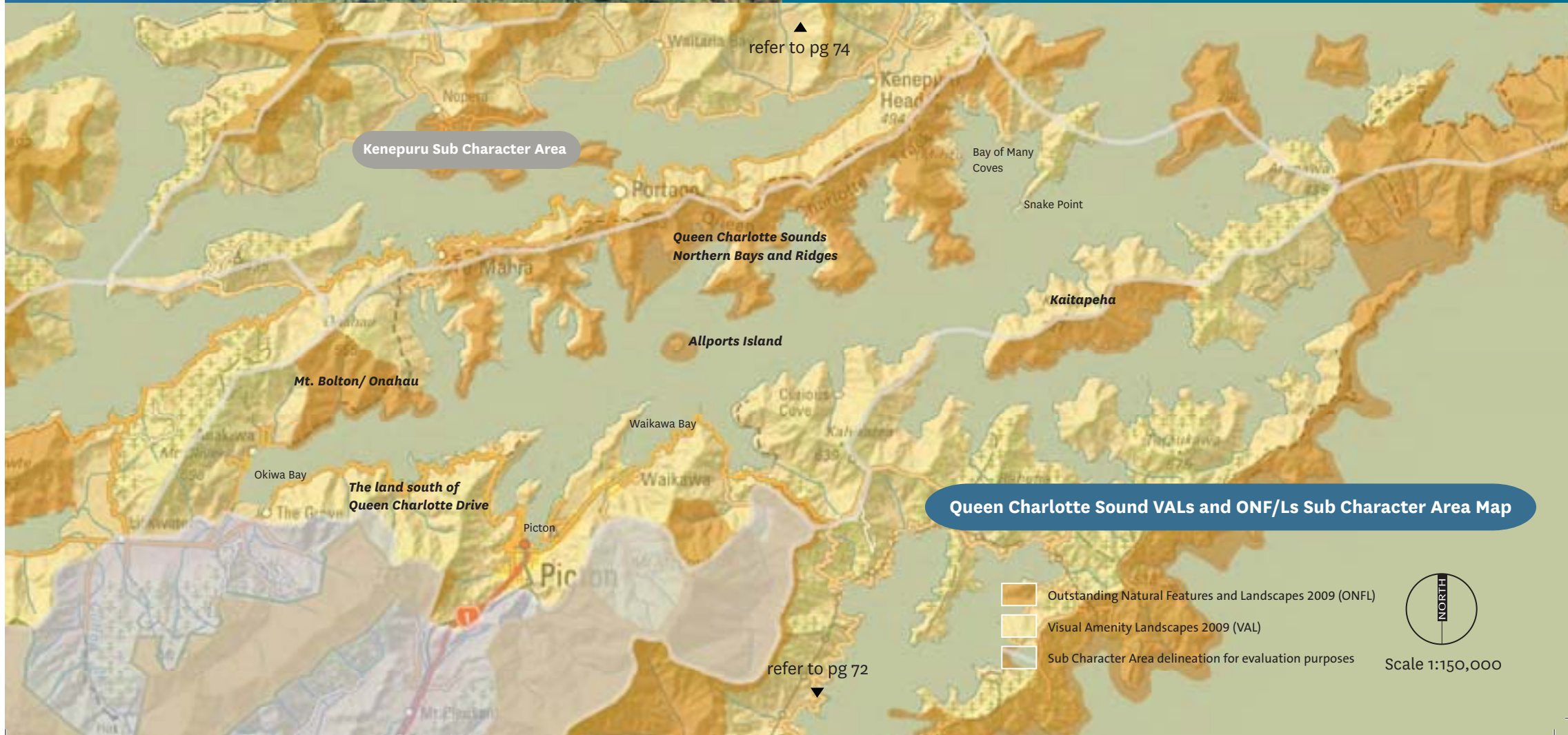
Mt. Bolton/ Onahau has been identified as Outstanding Natural Feature or Landscape due to its high biophysical and very high sensory Landscape values.

Allports Island has been identified as an Outstanding Natural Feature or Landscape due to its very high biophysical and high sensory landscape values.

The land south of Queen Charlotte Drive has been identified as an Outstanding Natural Feature or Landscape due to its high biophysical and high sensory landscape values

All remaining land is identified as a Visual Amenity Landscape (VAL).

The vegetated peninsula enclosing Lochmara Bay.



Section E

Appendices



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Planning:

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Other:

www.destinationmarlborough.com

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Intensive crop irrigation next to the Waihopai River.



APPENDIX 2: GLOSSARY

Alluvial deposits	Combination of soils and sediments deposited by a river or stream, generally comprising silt, sand or clay matter.
Alpine Zone	All areas above the shrubline, including red tussock tussockland, mossfield and herbfield. (Bayfeild and Benson, 1985)
Boulder bank, gravel beach and/or bar	Elongate or linear deposits of coarse debris formed by wave action and long-shore currents.
Braided	Where the river flows in multiple interconnected and often shallow channels divided by deposited material.
Cirque Coast & Coastal CMA	An amphitheatre-like valley, or valley head formed at the head of a glacier by erosion. Many glacial cirques contain ponds or 'tarns' dammed by bedrock or moraine. The area where the land meets the sea which includes the CMA. The Coastal Environment (which is referenced to within Section 6a of the RMA) is not defined in the RMA. The Report and Recommendations of the Board of Inquiry into the New Zealand Coastal Policy Statement defines it as 'an environment in which the coast is a significant part or element'. This includes the CMA, the active coastal zone and the land backdrop. A rule of thumb is that it extends to the first ridgeline inland of the coast, although for flat areas, the characteristics are determined more by landscape character. Coastal Marine Area.
Colluvial hillslope	Slopes, mostly between 8 and 25 degrees, where mass-movement, creep and sheet erosion have deposited at least 0.3m of debris and soil on the landform surface. Includes many lower slopes and footslopes.
Commercial exotic forestry	Areas of managed pine tree plantations.
Estuarine	Relating to the tidal mouths of rivers.

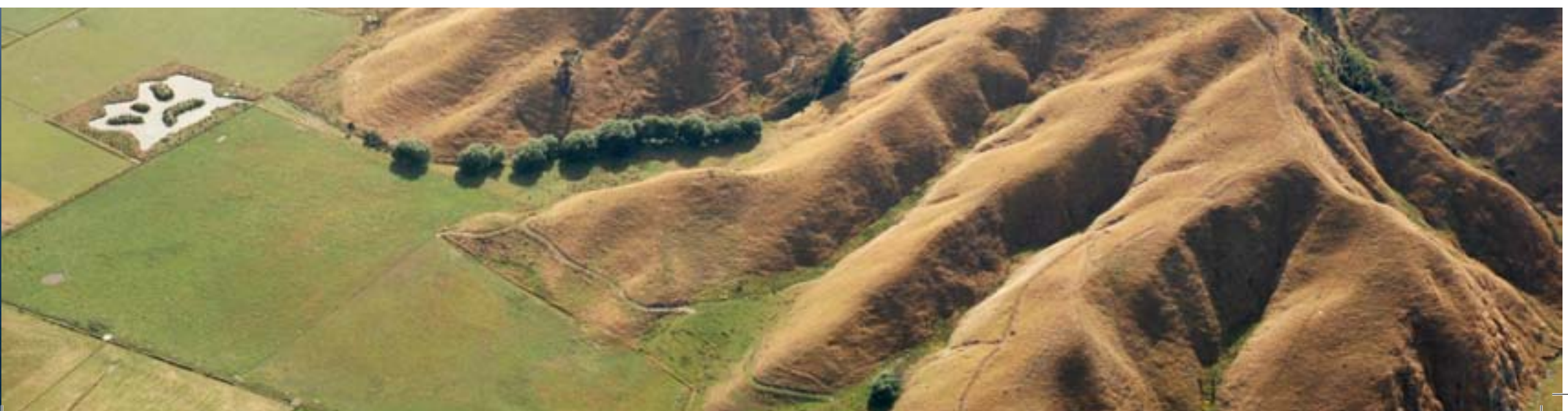
Forest	Woody vegetation dominated by trees, shrubs and treeferns in which tree cover exceeds shrub and treefern cover and trees are of major importance in the canopy;
Grassland	Vegetation in which grasses are the predominant growth form; e.g. paspalum grassland.
Intermontane	A landscape feature such as plateaus or basin that lie within a mountainous setting.
Lagoon	A body of shallow salt water separated from the sea by a sandbank, shingle bar or coral reef.
Lakes, ponds or tarns	Areas of permanent, fresh, standing water.
Landscape	This is referenced more explicitly within Section A of this report.
Moraine	An accumulation of glacially formed debris, found in current and formerly glaciated environments.
Natural Character	This is referenced more explicitly within Section D of this report.
Outstanding Natural Feature and Landscape (ONFL)	This is referenced more explicitly within Section A of this report.
Permian age	A geologic period and system. It is the last period of the Paleozoic era, some 299 to 251 million years ago.
Plateau	Extensive flat or gently sloping (<16 degrees) areas, more than 100m above sea level, with large parts of their total surface at a similar level, commonly on at least one side by an abrupt descent.
Ria	Another name for a drowned river valley.
Riparian margins or edges	The banks of a river channel.
Ridge (or ridgetop)	Gently sloping or flat (<16degrees) areas along ridges or small areas at the tops of hills and mountains. Soils may be shallow or deep depending on their origin and erosion history.
Riverbed	Area of a river channel not covered by water.

The Brothers Islands. The most easterly extent of the Marlborough District.



Sand or mud beach, bar and/ or flats	Areas of fine deposits formed by wave action and long-shore currents.
Scree	Deposits of angular rock fragments that exhibit intermittent movement on slopes at the base of cliffs or steep rocky slopes. (Stabilised scree slopes are classified as colluvial hillslopes or colluvial steeplands.)
Scrubland	Woody vegetation in which shrubs are the predominant growth form but which do not form a semi-continuous canopy as in scrub; e.g. manuka shrubland
Sounds	A network of sea drowned valleys caused by a combination of tectonic subsidence and rising sea levels.
Swamp	A shallow, permanently flooded inland area of land, supporting a rich biodiversity of aquatic flora and fauna.
Tarn	A mountain lake or pool formed by a cirque excavated by a glacier.
Terminal Moraine	Moraine that forms at the end of the glacier, or the present boundary of the glacier.
Terrane	A fragment of crustal material formed on or from a tectonic plate
Triassic age	A geologic period and system. It is the first period of the Mesozoic era, some 251 to 199 million years ago.
Tussockland	Vegetation in which tussocks are the predominant growth form. These may be tussock grasses, tussock sedges or other herbaceous plants with densely clumped linear leaves such as <i>Chionochloa</i> spp.; e.g. red tussock tussockland.
Watercourse	The actual water covered part of a river channel.
Wetland	Land with permanently high water table although not submerged all the time.

The dry foothills meet the plains.



APPENDIX 3: GEOPRESERVATION INVENTORY

New Zealand has a unique and extremely diverse natural landform, geology and soil heritage, due to its location and formative processes. The Geological Society of New Zealand (Hayward, B.W; Kenny, J.A and Johnston, M.R (1999) Inventory and Maps of Important Geological Sites and Landforms in the Nelson and Marlborough Regions, including Kaikoura District. Geological Society of New Zealand Miscellaneous Publication 104.) has identified and listed information regarding the internationally, nationally and many of the regionally important earth science sites throughout the country, irrespective of their current protected status.

Within the Marlborough District there are 71 recognised sites of geological importance, ranging from historic areas of mining to submerged ridgelines, dammed lakes and sea cliffs. Whilst the majority of these sites/ landscapes have been mapped by hand by the society in their reference books, they have been indicated by locator spots for this study on the accompanying map. However, their mapped extents have been referenced and in some locations form the boundary of the ONFL.

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;

For Vulnerability, each Site has been classified (1-5) depending on its perceived vulnerability to human activities:

1. Highly vulnerable to complete destruction or major modification by humans;
2. Moderately vulnerable to modifications by humans;
3. Unlikely to be damaged by humans;
4. Could be improved by humans activity;
5. Site already destroyed (not necessarily by human activity).

ID	Name	General location	Importance	Vulnerability
1	Wairau boulder barrier, lagoon and delta	South side of the mouth of Wairau River	B	1
2	Woodside Creek Cretaceous-Tertiary boundary	100 m up gorge of Woodside Creek	A	2
3	Wharanui earth flow	2 km southwest of Wharanui.	C	3
4	East Riverlands gullying	North of Seventeen Valley Stream bridge	C	2
5	Blind River Miocene-Pliocene fossil sequence	In stream section of Blind River for 5km downstream from Waterfall Road	B	3
6	Rarangi beach ridges and swamp	Rarangi	C	2
7	Upper Wairau landslide	North bank, upper Wairau River, 2.5 km west of Island Gully junction.	C	3
8	Riverlands sand dunes	North side of highway 1 at Riverlands.	C	2
9	Isolated Creek sawcut gorge	In upper reaches of Waima (Ure) River	C	3
10	Seymour Square War Memorial clock tower	Middle of Blenheim city's Seymour Square.	C	2

ID	Name	General location	Importance	Vulnerability
11	Taylor Pass lime kiln	Close to Taylor Pass Road	C	1
12	Blue Mountain gabbro complex	Surrounding Blue Mountain summit, within a radius of 1 km in all directions	B	3
13	Mt Ears prehistoric argillite quarry, D'Urville Island	D'Urville Island. Main north-south ridge leading up to Mt. Ears from Black Beach, Port Hardy	B	3
14	Okiwa Bay Pelorus Schist	Logging road south of The Grove, Okiwa Bay.	C	3
15	Awatere River complex landslide	South bank of Awatere River, 400 m east of Upton Brook	C	3
16	Upton Brook rejuvenation gorge and fossils	Upton Brook, true right bank of Awatere River, where road crosses Upton Downs Road, 20 km SW of Seddon.	B	3
17	French Pass submerged ridgeline	Running from D'Urville Island to mainland, between Reef Point and Channel Point.	C	3
18	Greville Harbour coastal features	East side of entrance to Greville Harbour, D'Urville island.	C	2
19	Greville Harbour boulder spit	Almost cutting Greville Harbour, D'Urville Island into two halves.	B	3
20	D'Urville Island copper mines	On the ridge on the SE side of D'Urville Island.	C	2
21	Ohana Bay prehistoric quarry	Occurs at or very near sea level, just NE of Ohana Bay, D'Urville Island.	C	2
22	Blairich solifluction stripes	Blairich Peak, headwaters of Black Birch Stream, tributary of Awatere River.	B	3
23	Pelorus and Kaituna River deltas	Covering a large area at the mouths of the Pelorus and Kaituna Valleys and extending into the upper parts of Pelorus Sound.	C	2
24	Paddock Rocks	2 km belt extending NNW from point north of Te Puna Bay across entrance to Manuhakapakapa Bay, southern D'Urville Island.	C	3
25	Waihopai River faulted terraces (Alpine Fault)	On the eastern banks of the Waihopai River for 1.5 km extending east from the Hwy 63 bridge.	C	3
26	Penk River Cretaceous olistostromes	River banks of Penk River, up to 1 km upstream of confluence with Awatere River.	C	3
27	Onamalutu Valley metachert	South side of the Onamalutu River.	C	2
28	Matarau Point foreland beach ridges	North side of Croisilles Harbour.	B	2
29	Pakiaka Point boulder bank and lagoon	NE entrance to Croisilles Harbour.	C	2
30	Lake Alexander debris dam	Towards the head of the Tummil River.	C	3
31	Wakamarina alluvial gold mining	Pinedale (Wakamarina) Motor camp area	C	3

ID	Name	General location	Importance	Vulnerability
32	Hodder River weathering features	Hodder River and Gut Stream junction.	B	3
33	Hodder River weathering features	Beside Hodding River, 400m downstream of junction with Staircase Stream.	B	3
34	Whangarae Bay estuary and sand spits, Croiselles Harbour	South side of Croiselles Harbour, west coast of Marlborough Sounds.	C	2
35	Grey River faulted terraces (Awatere Fault)	Grey River, near junction with Awatere River.	C	3
36	Pelorus Bridge river gorge	Adjacent to Hwy 6 at Pelorus Bridge. 500 m stretch of Pelorus River passing through rock gorge from 100 m above bridge to 300 m below junction with Rai River. Also includes 500 m section of Rai River gorge from junction with Pelorus upstream.	C	3
37	Alfred Stream earthflow	Earthflow crosses the saddle between the true right and true left branches of Alfred Stream	C	3
38	Wairau River braids	Lower Wairau River bed between junctions with Goulter River and Bartletts Creek.	C	3
39	Elliot Valley fault trace junction	4 km East of Lake McRae, on true left slopes of Elliot Valley	C	3
40	Wellington Gold Mine, Top Valley	Top Valley, north bank of the Wairau.	C	3
41	Lake McRae fault trace and landslides (Clarence Fault)	Lake McRae, between Elliot and Tweed Rivers.	B	3
42	Lake McRae debris dam	Inland Kaikoura Range, 4 km west of Elliot Hut.	C	3
43	Turkeys Nest Basin solifluction slope	Bounds Range (north face) at head of Wai River.	B	3
44	Lake Chalice debris dam	Richmond Range.	C	3
45	Waterfall Stream and Cow Stream moraines	South face of Bounds Range in Upper Waihopae Valley.	C	3
46	Barber Stream rock glacier/ landslide	North end of Barber Stream, tributary of Leatham River.	C	3
47	Needles Point Cretaceous/ Tertiary boundary	Needles Point.	B	3
48	Branch River faulted terraces (Alpine Fault)	0-1 km east of Branch R. and 100 m south of main road.	A	2
49	Saxton River faulted terraces (Awatere Fault)	Where Molesworth Road crosses Saxton River.	C	3
50	Tory Channel East Head	Two km section of coast from east end Okakuri Bay to East Head and northwards up the Cook Strait coast for 800 m.	C	3

ID	Name	General location	Importance	Vulnerability
51	Cape Jackson drowned ridge crest	8 km long narrow peninsula that leads to Cape Jackson, north from Jackson Head.	B	3
52	Isolated Flat	Central Molesworth, northwest side of Acheron River valley between junctions with Saxton and Severn Rivers.	C	3
53	Wairau Valley offset terminal moraine	North bank of Wairau River between Wash Bridge and Shingle Stream.	B	3
54	Long Island cusped foreland	South and west side of Long Island, Queen Charlotte Sound.	C	3
55	Fighting Bay Torlesse schist	Fighting Bay, Marlborough Sounds.	C	3
56	Chancet Rocks Cretaceous/ Tertiary boundary	Chancet Rocks, 1.5 km north of Flaxbourne River.	A	1
57	Endeavour Inlet antimony workings	2km inland from head of Endeavour Inlet, Queen Charlotte Sound.	B	3
58	Flaxbourne River folds and thrusts	Three closely associated areas clustered around Flaxbourne River mouth	C	3
59	Titirangi prehistoric stonework	East side of Titirangi Bay.	C	2
60	Blind River mouth Pliocene fossils	In cliffs on west side of mouth Blind River.	C	3
61	White Bluff sea cliff	At the southern end of the Wairau River boulder bank.	C	3
62	Tarndale flats	Watershed between Acheron and Wairau catchments.	B	2
63	Tarndale-Sedgemere fault trace (Awatere Fault)	Lake Sedgemere area, upper Wairau River catchment.	C	2
64	Waima dune field	South of Waima (Ure) River mouth.	C	2
65	Wairau abandoned sea cliffs	South side of the Wairau Lagoon, to State Highway 1 turnoff along Redwood Pass, to White Bluffs.	B	3
66	Starborough Creek Pliocene fossils	Extends from Seddon township to Awatere River downstream from main highway bridge.	B	3
67	Waterfall Stream and Cow Stream moraines	South face of Bounds Range in Upper Waihopae Valley.	C	3
68	Cape Stephens wind-funneled sand dune	On west side of Cape Stephens, 3km south of northern tip of D'Urville Island.	C	3
69	Tapuaenuku zirconium aegirine	Cliff exposure just below summit of Tapuaenuku on its northern side.	B	3
70	Horse Flat coal measure fossils	North bank of the mid Clarence River, opposite Horse Flat.	B	3
71	Wairau Valley lateral moraine	On south bank of Wairau River, between Dover and Bush Camp Streams.	C	3