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e. Prior to informing regulations, a Local Government agency will need to follow the necessary steps in the Resource Management Act after accumulating any other relevant information they deem fit.



SOUTHLAND/ MURIHIKU REGIONAL LANDSCAPE STUDY

PREPARED FOR ENVIRONMENT SOUTHLAND,
GORE DISTRICT COUNCIL,
INVERCARGILL CITY COUNCIL,
SOUTHLAND DISTRICT COUNCIL AND
TE AO MARAMA INC

APRIL 2019

Boffa Miskell



Prepared for Environment Southland, Gore District Council, Invercargill City Council, Southland District Council and Te Ao Marama Inc

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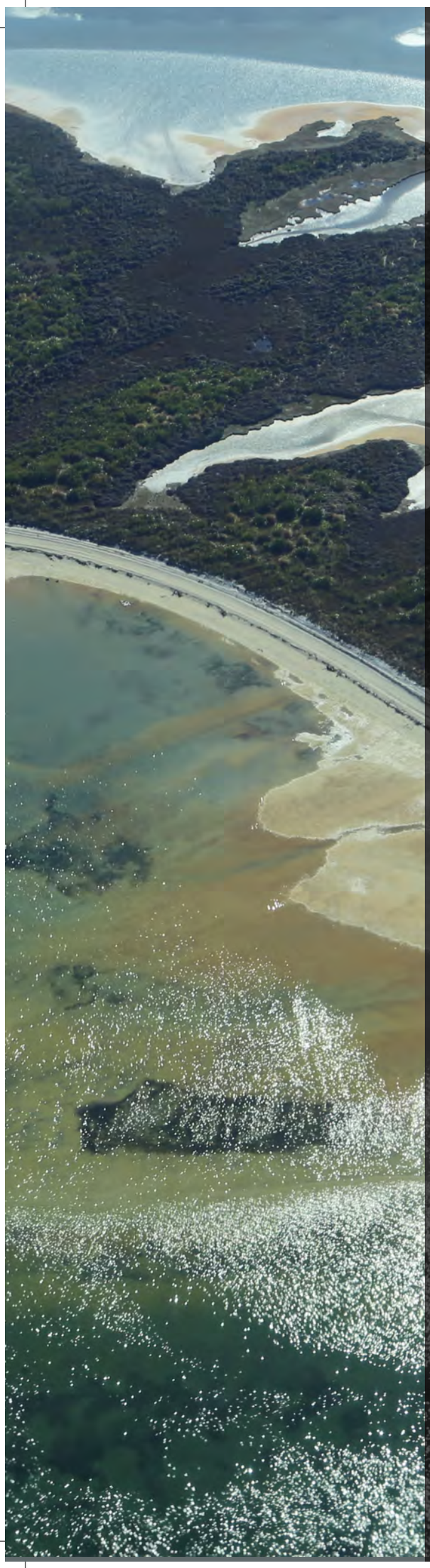
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Cover photograph: [Te Anau Basin, Boffa Miskell, 2018]

Contents photograph: [Aerial overlooking the Awarua Wetland, Boffa Miskell, 2018]

Introduction cover page: [View from McCracken's rest down Te Waewae Bay towards Fiordland, Boffa Miskell, 2018]



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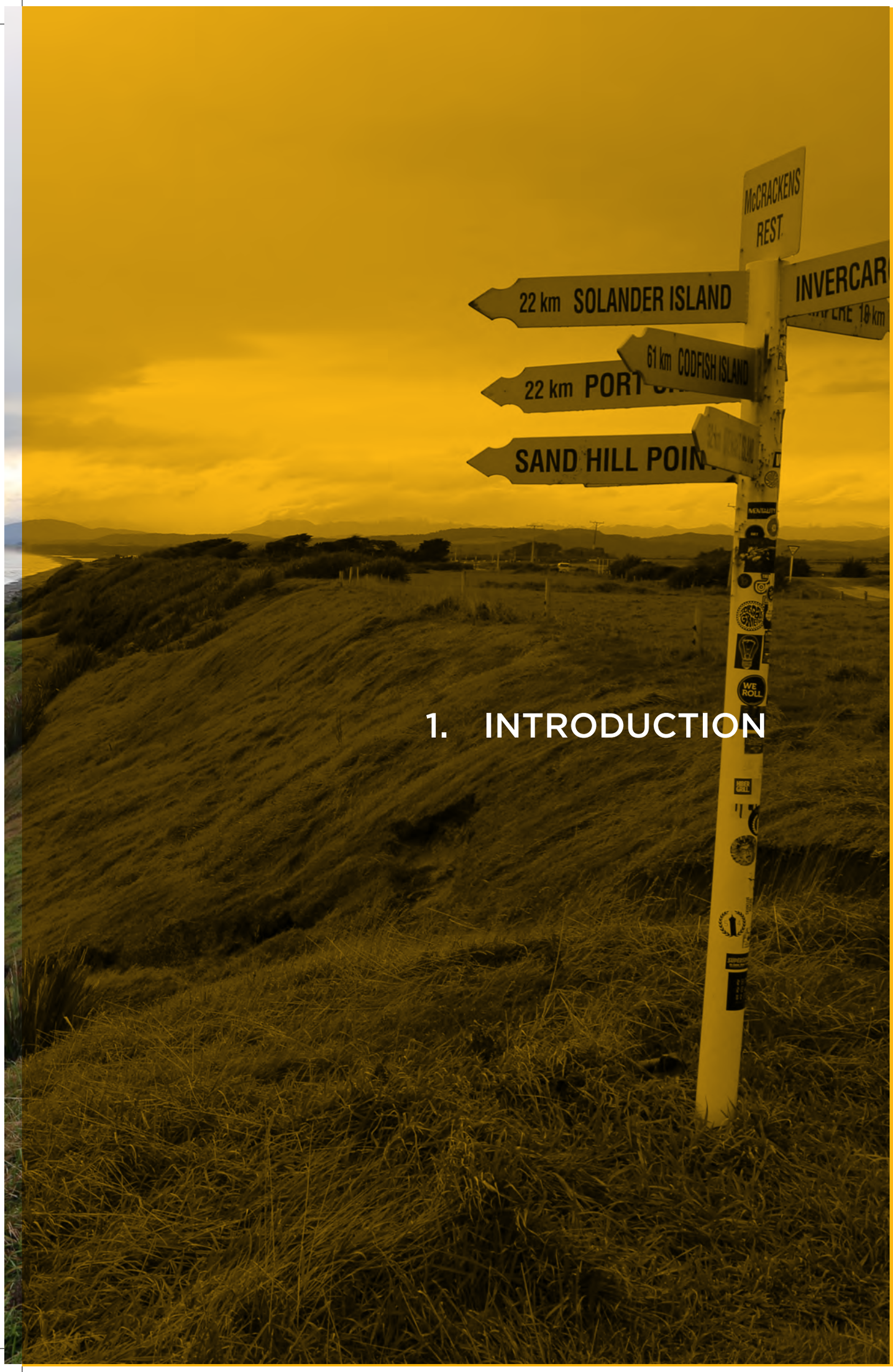
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1. INTRODUCTION



Southland Regional Council/Environment Southland, on behalf of the Southland regional and territorial authorities, has engaged Boffa Miskell Ltd to assist in determining areas of Outstanding Natural Features and Landscapes (ONF/Ls), as well as Visual Amenity Landscapes (VALs) within the region. This is a collobrative project undertaken by the three district councils within the region, Southland and Gore District Councils, Invercargill City Council and the Southland Regional Council.

In addition to the assessment of Southland's landscapes covered in this report, BML were also tasked with the definition and mapping of the Coastal Environment and assessing its natural character values in response to the requirements under the New Zealand Coastal Policy Statement (NZCPS) 2010. This assessment is covered in the Southland Coastal Natural Character Study (BML, 2018).

The Southland Regional Landscape Study has been carried out in the following stages:

1. Desktop Review of Information
2. Aerial and Ground-based Site Visits
3. Landscape Characterisation;
4. Landscape Evaluation to identify ONF/Ls and VALs;
5. Mapping of Outstanding Natural Features and Landscapes and Visual Amenity Landscapes.

A key goal of the Landscape Study is to ensure that Outstanding Natural Features and Landscapes (ONF/Ls) as well as Visual Amenity Landscapes (VAL), are consistent with each other in terms of their value and boundary identification. A detailed methodology for the characterisation and evaluation stages, as well as the mapping, is provided at the start of the respective report sections and in Appendix 1.

The preparation of the Landscape Study is in response to the councils' obligations under the Resource Management Act (RMA) and Southland Regional Policy Statement (SRPS). A high-level landscape and ecology study was undertaken for the entire Southland region in 1993, which did not identify or map ONF/Ls or VALs. In addition, a number of more recent assessments covered parts of the region, in particular the coast (Southland Coastal Study, BML, 2007) and Te Anau Basin (Te Anau Landscape Capacity Study, BML, 2006 and Scenic Zones Assessment, BML, 2011). Therefore, this Landscape Study is a review of this existing information, while assessing all of the region's landscapes within one comprehensive, up-to-date study.

Both the characterisation and evaluation stages of this Landscape Study essentially build on the previous landscape assessments (see references), as well as other existing information in the public realm. Recent relevant case law is considered as well as advances in the understanding of the concept of 'landscape' since the introduction of the RMA 1991 and the New Zealand Coastal Policy Statement (NZCPS) 2010.

It should be noted that BML prepared a separate landscape and coastal natural character study for Rakiura/Stewart Island in 2017. Therefore, Stewart Island and smaller islands associated with it have not been included in this assessment.

Left: View of the Waiau River Mouth from Te Waewae Bay, Boffa Miskell, 2018

Statutory context cover page: Aerial of Te Waewae bay with Longwood Forest Conservation area in the background, Boffa Miskell, 2018.



2. STATUTORY CONTEXT

1.1 RESOURCE MANAGEMENT ACT

The Resource Management Act (RMA) is the principal statute governing the management of New Zealand landscapes. The relevant directives within the Act regarding the protection and management of landscapes are set out in part II, and include:

> Section 6(b): The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.

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 are required to be "maintained and enhanced" either as "amenity values" or part of the wider "quality of the environment" encompassed under RMA section 7(c) or section 7(f) respectively. These other identified landscapes that are of high scenic importance but do not meet the criteria for Outstanding Natural Features and Landscapes ONF/Ls, are also assessed in detail and identified as Visual Amenity Landscapes (VALs) as part of this study (see methodology section).

In addition, landscapes of the coastal environment, wetlands, rivers or lakes that are not "outstanding natural features and landscapes" are still required to have their "natural character" preserved under RMA section 6(a), or significant areas of indigenous vegetation or habitats of indigenous fauna protected under section 6(c). The natural character of the coastal environment is described separately in detail in the Southland Coastal Natural Character Study (BML, 2018).

Other related topics include Section 6(e) concerning the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. While publicly available information was used to inform the assessment in respect of tangata whenua values, it should be noted that this landscape study may not include all tangata whenua values.

As part of the wider environment to be managed under Part 5 of the RMA, adverse landscape effects resulting from inappropriate activities must be avoided, remedied or mitigated.

1.2 NEW ZEALAND COASTAL POLICY STATEMENT

The New Zealand Coastal Policy Statement (NZCPS) is a national policy statement under the RMA. The purpose of the NZCPS is 'to state policies in order to achieve the purpose of the act in relation to the coastal environment'.

The NZCPS has highlighted the need for the identification and mapping of special landscapes occurring within the coastal environment. Policy 1 of the NZCPS gives direction to defining the extent and characteristics of the coastal environment. Policy 15 refers to natural features and landscapes and requires that natural features and landscapes within the coastal environment are identified and assessed. For the purposes of this Landscape Study, Policies 1 and 15 are relevant, which includes the identification of the extent of the coastal environment (Policy 1), and evaluation of its landscape values (Policy 15).

1.3 SOUTHLAND REGIONAL POLICY STATEMENT

In addition to the requirements contained in Section 6 of the RMA described above, the Southland Regional Policy Statement (SRPS) contains objectives and policies that outline how landscapes shall be recognised and provided for. Specifically, Objective LNF.1 provides for the identification and protection of outstanding natural features and landscapes, and Policy LNF.1 contains a list of regional factors to identify and assess Southland's outstanding natural features and landscapes. The SRPS also encourages district councils to identify landscapes and natural features that are locally distinctive and valued.

The purpose of the Southland landscape and coastal natural character studies is to identify the significant sites in the region and understand their values, so that the councils can determine appropriate management of these sites.

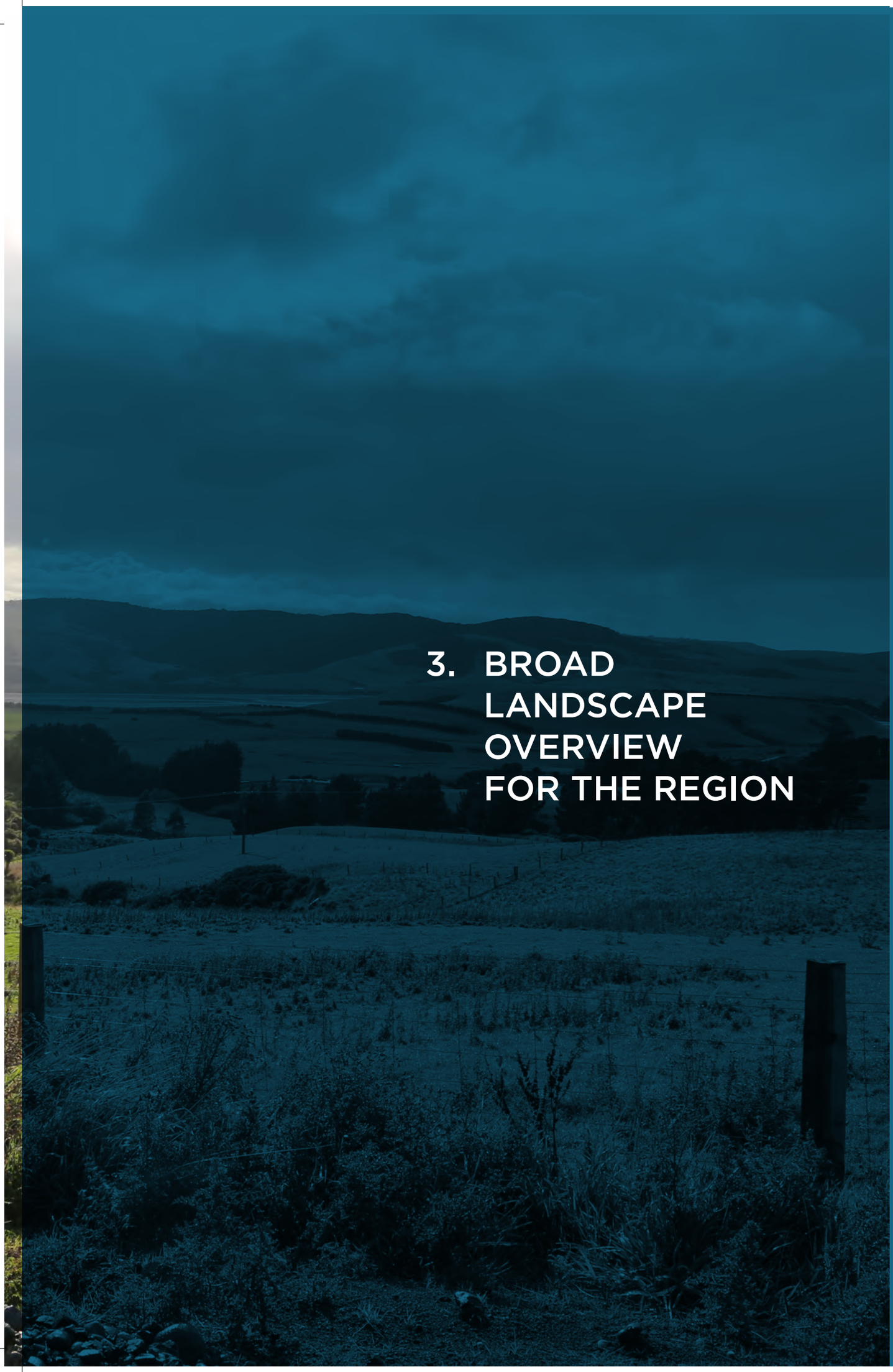
1.4 TE TANGI A TAUIRA 2008

The Te Tangi a Tauira Iwi Management Plan sets out the statement of objectives, issues and policies for natural resource and environmental management in the collective takiwā of the four Ngāi Tahu Papatipu Rūnanga of Murihiku, including Awarua; Waihōpai, Ōraka-Aparima and Hokonui. It includes specific policies aimed at protecting and enhancing cultural landscapes, wāhi tapu, wāhi taonga and other sacred and treasured sites of cultural significance.

As a planning document recognised by an iwi authority, the plan has statutory effect and is required to be taken into account in the preparation of regional and district planning documents under the RMA (Sections 61 (2A) (a); 66 (2A) (a); & 74 (2A)). It can also be a matter to which a Regional or District Council can have regard in determining resource consent applications.

The plan has been used to assist with the identification of tangata whenua associative values as part of this study.

Over the page: Roadside view of the Catlins Conservation Park, Boffa Miskell, 2018.



3. BROAD LANDSCAPE OVERVIEW FOR THE REGION



Figure 1: Map of the Southland Region. Boffa Miskell, 2018.

This section provides a brief overview of the region-wide landform, including geology, land cover, including native and exotic vegetation patterns, and land use within Southland/Murihiku. The more detailed landscape character descriptions for the region are provided in the following **section, including a methodology for the identification of broader landscape types and landscape** character areas.

1.1 GEOLOGY AND LANDFORM OVERVIEW[1]

Southland consists of three distinct landform regions, which have different geologies, as shown on the Geology Map (Figure 2). The underlying geology is expressed in different land forms, including Fiordland with its distinctive hard rocks (see green areas on map), the mountains and hills (purple and blue areas), and the low-lying plains (yellow and orange areas). A number of fault lines have shaped the region and the Southland Syncline is one the most distinctive geological features traversing the region in a north-west to south-easterly direction (light-blue arc from west of Mossburn to east of Mataura). Some mountains and hills have volcanic origins (north-south blue arc from west of Mossburn to Riverton and Bluff), while the plains have been largely formed by the region's large rivers and the gravels they have transported from the mountains during the ice ages and in more recent times (yellow and orange deposits on plains). A map showing today's major rivers and their catchments is included in Appendix four, Figure 61.

3.0.1 FIORDLAND

Fiordland is a distinctive landscape with high, glaciated peaks in close proximity to the sea, which extends inland for many kilometres within the sounds. The geology of Fiordland is mostly comprised of gneiss, a rock that has metamorphosed from other rock types, notably granite and diorite (also found in Fiordland, shown in green and grey on map). These rocks are some of the oldest in New Zealand which later became highly metamorphosed. In a coastal strip in the extreme north-west of Southland near Milford Sound/ Piopiotahi a narrow belt of these rocks has been intensely deformed by movements along the Alpine Fault. In Southland the Alpine Fault runs from Lake McKerrow (in Otago) to the entrance of Milford Sound/ Piopiotahi and then probably continues just off shore, thus accounting for the spectacularly cliffed Fiordland coast and the deep water close inshore. Marble occurs in quantity in Doubtful and Caswell Sounds, mica was once mined at Mount Elwood, and Māori used to obtain greenstone from the ultrabasic rocks of Anita Bay in Milford Sound/Piopiotahi.

The Fiordland landscape was scoured by glaciations during the last ice age which created the coastal fiords and the inland lakes, from the largest lake at Te Anau south to Hakapōua near the coast. Although Fiordland's ancient dome originally had radial drainage, ice age glaciation has created a complicated rectangular network. The most impressive features of the water drainage network are the elongated, high-level lakes gouged out in pre-existing valleys by the ice. Other evidence of glaciation includes the fiords, which comprise a succession of drowned U-shaped valleys in the resistant rocks which have retained their steep, high-sided walls that frequently plunge hundreds of metres into the sea. Mt Tūtoko, north of Milford Sound/Piopiotahi, is the region's highest summit at 2,746 metres. Most of the peaks further south are between 1,400 and 2,200 metres.

3.0.2 THE MOUNTAINS AND HILLS

The mountains in the north of the region, including the Umbrella Mountains, are part of the block of schist which forms Central Otago (shown in purple in north eastern corner of the region). This region is similar in geological composition to north-west Marlborough. The movement along the Alpine Fault has now separated the two areas by 500 kilometres, but the earlier overlap can be seen in the patterns of rock. A number of earthquakes are known from the Fiordland coast and the neighbouring sea, and these are probably related to the Alpine Fault.

The Southland Syncline, a large-scale fold in the earth's surface, is caused by tectonic activity (shown in light blue from Mossburn to Gore). Between Fiordland and the Otago, schists rocks are folded into the Southland Syncline, a major structural feature which curves in an arc through the district from the Hollyford area through the Tākitimu Mountains and Mataura Valley to the Catlins coast. The oldest sediments in the Southland Syncline are greywackes which occur at the northern margin of the syncline alongside the Otago schists. The

1. Geology and Landform information sourced from Te Ara Encyclopaedia (edited by A. H. McLintock, 1966) & (Grant, 2015) and Geology of the Murihiku Area (Turnbull, I.M.; Allibone, A.H. (compilers), 2003).

Hokonui Hills, a part of this syncline where the formation is particularly legible, were thrust up a few million years ago. Rocks of the Southland Syncline are closely similar to those of the Nelson Syncline and it is thought that both structures were once continuous but have been moved horizontally by the Alpine Fault.

Part of the land along the Southland Syncline was quickly eroded to low relief and the bituminous coal measures now mined at Ohai were formed from late Cretaceous swamps. Similar conditions prevailed during the Eocene when the thick lignite deposits of Mataura Valley and eastern Southland were formed. Contemporary freshwater sandstones and conglomerates were laid down around Lake Te Anau.

Rocks along the other margin of the Southland Syncline flanking Fiordland and extending from the Hollyford Valley southwards and southeastwards through the Takitimu Mountains and Longwood Range to Riverton and Bluff are dominantly volcanic – basalts, tuffs, agglomerates – but with thin sediments (darker blue area on map west of Mossburn to Riverton and below sea to Bluff). This is a result of the most intense and prolonged period of volcanicity known in the New Zealand region. Linear intrusions of igneous rocks are associated with these volcanic rocks (for example, Longwood Range, Bluff Peninsula, Ruapuke Island, and the northern part of Stewart Island) and are also known along the northern margin of the syncline (as at Livingstone Mountains and Otama Hills).

3.0.3 THE PLAINS

The Southland plains extend from the mouth of the Waiau River in the west, to the boundary with Otago on the east (all shown in shades of yellow and orange on map depending on age of deposits). The plains are flanked by the Hunter and Takitimu Mountains to the north-west, and the Eyre and Garvie mountains and the Hector Range to the north. The Hokonui Hills divide the main Southland plain from the Waimea Plains.

There are four main areas:

- The Southland plain proper extends from the Mataura River to the Aparima River.
- The smaller, more dissected Waimea Plains lie between the high country and the Hokonui Hills. The Moonlight Fault extends along the northern boundary of the Hokonui Hills, where a distinctive change occurs from the hills of the syncline to the valley landscape to the north.
- The lower Waiau plain lies between the Longwood Range and Takitimu Mountains to the east, and Fiordland to the west.
- In the Te Anau Basin area the older rocks are covered in more recent sediments, remnants of probably more extensive deposits elsewhere removed by erosion.

A preserved, fossil forest is found at Curio Bay near Waikawa with petrified tree trunks of substantial length.

During the Oligocene, the sea was able to extend over much of Southland and extensive limestone was laid down. This is quarried for agricultural use and a particular type occurring in the Waiau Valley is valuable in cement manufacture. Much of the mid-Tertiary marine mudstones and sandstones which underlie the widespread recent alluvium in the lowland areas was also deposited. Towards the end of the period the sea slowly retreated to a small bight in the lower Waiau Valley, where shelly sands and deltaic deposits are now preserved.

Although the ice shields during the ice ages did not extend much from the southern and eastern limits of the present inland lake basins, the remainder of Southland was subjected to a cold climate. Glacial outwash gravels form most of the filling for the Southland Plains. However, a blanketing deposit of fine yellow silt (loess) forms the valuable lowland soils, originating during the last glacial period when clouds of dust were blown from the river beds of the region. The Southland plains comprise mostly yellow-brown earths, the product of river deposits, with the most recent soils in the lower valleys of the Mataura and Oreti rivers.

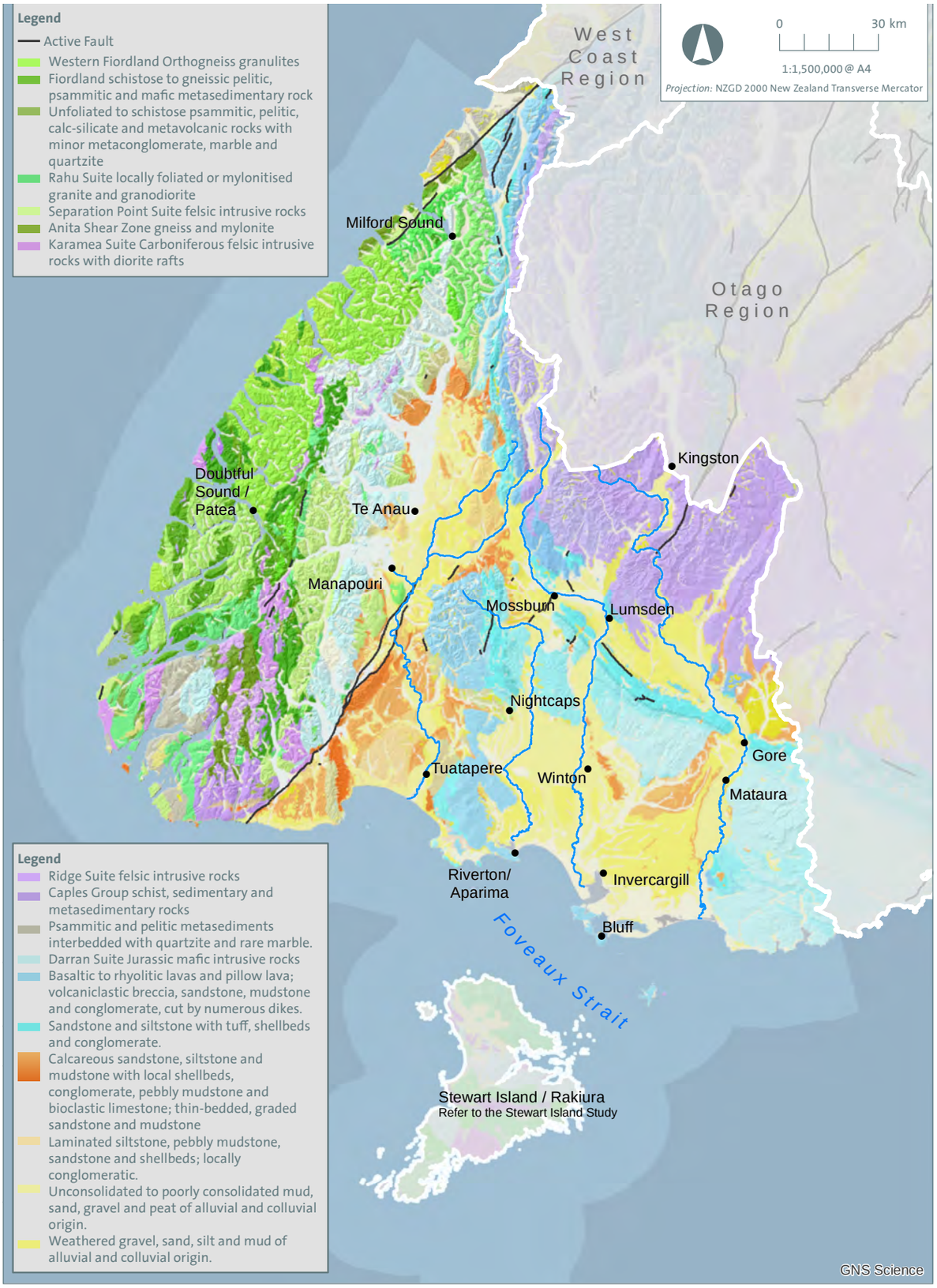


Figure 2: Geology Map. Boffa Miskell, 2018.

1.2 VEGETATION AND LAND COVER OVERVIEW[2]

Before humans arrived, much of the region was forested, with some tussock grass in the lowlands and also in valleys amid forests. Snow tussock predominated above the treeline. Polynesians who arrived around 1250–1300 AD burnt extensive areas of vegetation. As a result, much forest and woodland was replaced by red tussock and scrub. Harakeke (Phormium tenax) sprang up in the wetter peat swamp and bog lands. Some large stands of bush remained, particularly in wetter western areas and along the coast: mostly matai and rimu in the lowlands, and three varieties of beech in the uplands and mountains. Kānuka (Kunzea ericoidies), manuka (Leptospermum scoparium), bracken and fern grew in forest clearings and margins. From the 1850s onwards, European settlers cleared the forests and tussock, often by burning, and then planted introduced grasses for grazing animals.

Today Fiordland has the greatest extent of unmodified vegetation in Southland. The forests are mostly silver and mountain beech, with podocarps such as rimu, miro and Hall's tōtara at lower levels. While the rich understorey of plants has been damaged by introduced game species, a drastic reduction in red deer numbers from the late 1960s has allowed many native plants, particularly alpine species, to become re-established. Fiordland remains a treasure chest of rare and endemic plants – including several species of snow grass, herbs, tree daisies, speargrasses and buttercups.

A vegetation map showing today's land cover on a regional scale is included in Figure 3, showing a clear pattern of mostly pastoral land on the plains and lower hill country, while indigenous vegetation is predominant in the mountains, steeper hills and Fiordland.

2. Vegetation and Land Cover information sourced from Te Ara Encyclopaedia, page 3 (Grant, 2015).

Below: Native podocarp forest, Milford Sound. Boffa Miskell, 2018.



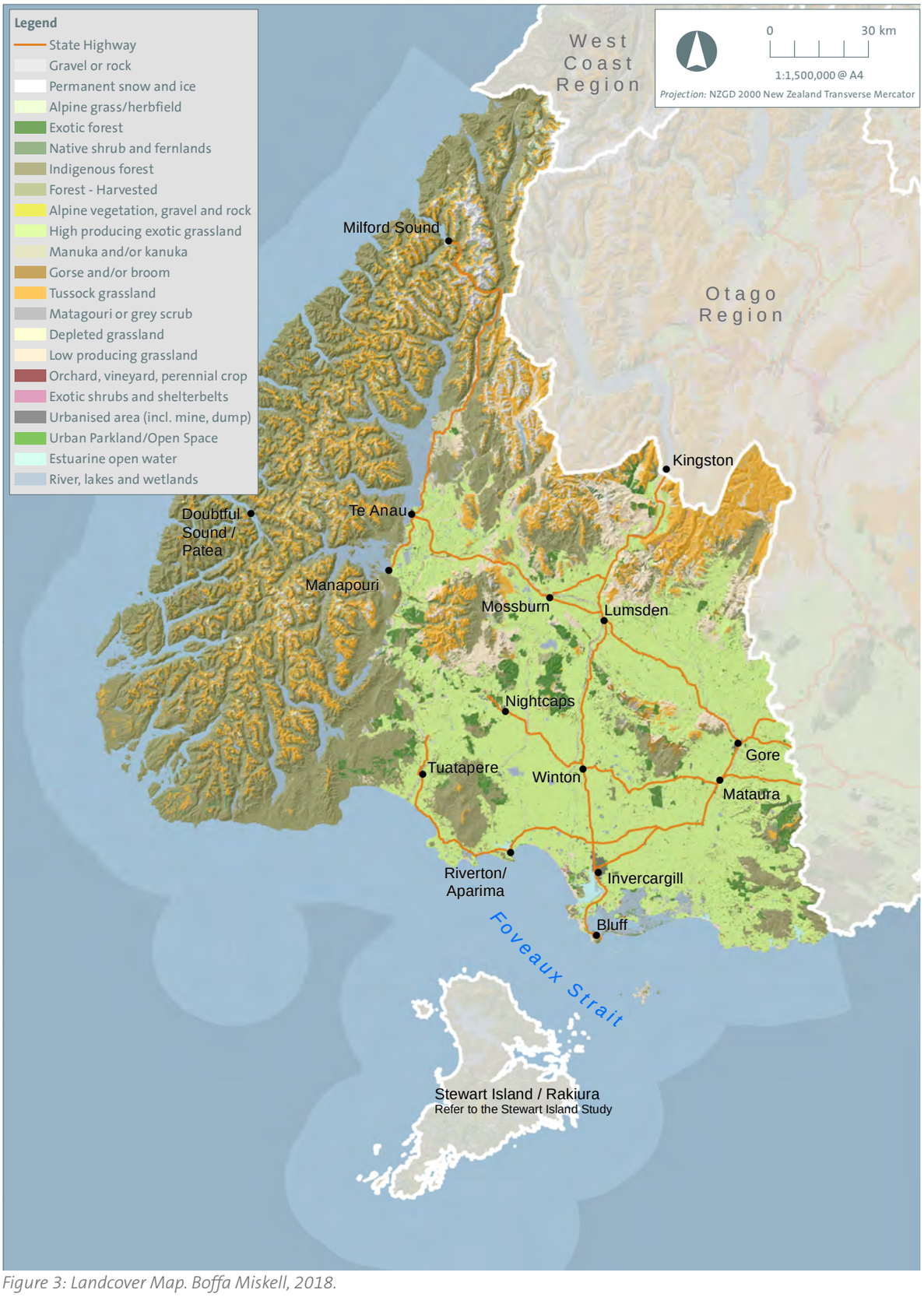


Figure 3: Landcover Map. Boffa Miskell, 2018.



Figure 4: Cultural Heritage Map. Boffa Miskell, 2018.

1.3 SETTLEMENT AND LAND USE OVERVIEW[3]

3.0.4 EARLY SETTLEMENT HISTORY

Ngāi Tahu Whānui is the iwi collective that holds mana whenua and manamoana within the Murihiku/Southland region. Ngāi Tahu Whānui refers to the collective of individuals who descend from the primary hapū of Waitaha, Ngāti Mamoe and Ngāi Tahu, and are today represented in statutory matters by the four Papatipu Rūnanga of Murihiku including: Awarua; Hokonui, Oraka-Aparima and Waihōpai. These four rūnanga are members of the tribal authority, Te Rūnanga o Ngāi Tahu, and also jointly operate an entity called Te Ao Marama Incorporated to manage resource management matters on their behalf. Collectively they are also referred to as Ngāi Tahu ki Murihiku.

Ngāi Tahu ki Murihiku trace their arrival in the region back to the chiefs Rākaihautū and Tamatea. Rākaihautū, an ancestor of the Waitaha people, was the commander of the waka (canoe), Uruao and is recognised as lighting the flames of human occupation within Te Waipounamu (the South Island). Tamatea is the commander of the waka Takitimu, which was wrecked near Te Waewae Bay, and according to tradition its upturned hull remains today as the Takitimu Mountains, a significant cultural landscape. The lower South Island is known as Murihiku, a name that loosely means 'the tail end' of the land. Rākaihautū and Tamatea and their associated traditions and history therefore not only link Ngāi Tahu ki Murihiku as manawhenua to the original discovery and occupation of the region, but are intricately linked to the formation and creation of the landscape itself.

Mahinga kai or food and resource gathering is key to the ongoing culture and identity of Ngāi Tahu ki Murihiku, particularly in relation to the annual tītī/muttonbird harvest that continues to this day. Following their arrival however, and due to it being too cold to grow kūmara and other tropical crops, moa and kekenō/seals were the main source of food. This resulted in key permanent settlements being developed on the coast at Waikawa, Awarua/Bluff and Aparima/Riverton, as well as on Ruapuke Island (Figure 4). From late winter into summer, seasonal food gathering moved inland to fish the rivers as well as targeting forest birds such as kākā, kākāpō, kererū, takahē and weka into the autumn. Tuna/eels provide a year-round food supply in waterways across the region, as does the coastline and resources of Te Ara a Kiwa/Foveaux Strait, while tītī are gathered from the islands close to Rakiura (Stewart Island) in autumn

Hundreds of kāinga (villages) and pā (fortified villages), and their associated nohoanga (campsites/food gathering settlements) and urupā (burial grounds) are spread across the region – often along key mahinga kai and travelling routes. Some remain as archaeological sites, or only in memory, while others, including key Māori Reserves, marae and kāinga remain in the ownership of Ngāi Tahu ki Murihiku, and are continually utilised. All sites, however, hold value for manawhenua and are important considerations in understanding and assessing landscape significance.

Captain James Cook is recognised as the first European to explore the Southland coast in 1770, and returned in 1773 where he made contact with Ngāi Tahu in Dusky Sound. Following his voyages, Murihiku became popular for both sealing and whaling and led to the development of large settlements and both interaction and intermarriage of European whalers and sealers with local Ngāi Tahu. It took less than 30 years, from the arrival of the first sealers in the 1790s, for seals to be wiped out, causing the industry to collapse. As whaling took its place, European settlers continued to pay relatively little attention to the interior, because of the rich pickings along the coast. Whalers based themselves around the shores of Foveaux Strait/Te Ara a Kiwa from the late 1820s, including many alongside, or as part of, established Ngāi Tahu kāinga. The exchanges between both sealers and whalers and Ngāi Tahu initially focussed on the supply of potatoes and pigs, for flax and fish, but in time intermarriage and interaction increased.

Whaling, as well as other industries, including traditional pounamu trade, drew the interest of tribes from further north and in the 1820s and 1830s Ngāi Tahu ki Murihiku were involved in resisting invasions by both Ngāti Toa and Ngāti Tama. In particular, Ngāi Tahu famously intercepted Te Pūoho at Tuturau (near Mataura), killing him and putting an end to the invasion of Ngāti Tama that had taken the entire Tai Poutini (West Coast) of Te Waipounamu. Tūhawaiki, Te Whakataupuka and other key Murihiku rangatira were also key in repelling Ngāti Toa's attacks in Canterbury, driving Te Rauparaha and his people out of Ngāi Tahu territory just prior to the signing of the Treaty of Waitangi, and the subsequent land sales between Ngāi Tahu and the Crown.

3. Settlement and Land Use information sourced from Te Ara Encyclopaedia, page 5 (Grant, 2015) and Te Tangi a Tauira – the iwi Management Plan for Murihiku (Ngāi Tahu ki Murihiku, 2008).

In 1853, Walter Mantell acquired the 'Murihiku block' on behalf of the Crown from local Ngāi Tahu and Ngāti Māmoe, which was to include the setting aside of key reserves as well as excluding Fiordland. Reserves were never properly allocated, however and without security of land tenure, Ngāi Tahu endured significant challenges in the face of an influx of European settlers from the 1860s onwards. The sale of Rakiura/ Stewart Island took place in 1864 with similar issues, although 21 smaller islands and 9 reserves were set aside and provided for the continuation of muttonbirding. In 1998, the Ngāi Tahu Claims Settlement Act was passed and provided acknowledgement and settlement of the Ngāi Tahu Treaty of Waitangi Claim – Te Kerēme, including an apology, the return of land and other assests, as well as numerous statutory provisions, such as Statutory Acknowledgements which have effect under the RMA.

3.0.5 FARMING HISTORY

Settlement of the Southland plains began in the mid-1850s, following the closure of shore whaling stations, when runholders, including some former whalers, took up pastoral leases. Both Campbelltown (now Bluff) and Invercargill were surveyed in 1856. Bluff became the port, and Invercargill the service town for the new farming districts, in due course displacing Riverton as Southland's main town. Bluff and Invercargill benefited from the flow of miners to the goldfields in Otago and the few in Southland. Gold was found at Orepuki and Waikaia in Southland, but these fields were never as productive as Central Otago.

From the 1880s the advent of refrigerated shipments of meat and dairy produce to the United Kingdom energised the Southland economy and four freezing works opened – two at Bluff and the others at Makarewa and Mataura. Grain, mostly for the local and Australian market, was grown on the Waimea Plains north of the Hokonui Hills, but declined in importance as pastoral farming became more profitable and diary factories were established. Much Southland lowland was swampy and many drains were needed to make it suitable for farming.

Figure 57 in Appendix four shows the soils within the Southland region, and Figure 58 and 59 in Appendix four illustrating the elevation and slope of the land, which are all factors that influence the landscape's suitability for farming.



3.0.6 TRANSPORT, ELECTRICITY AND MINING

The strong westerly winds made the Melbourne–Bluff route a favoured approach to New Zealand in sailing days and goods were transported overland from there to Invercargill. The first railway in the south was built in 1864 between Invercargill and Makarewa, part of a scheme to improve access to the Wakatipu goldfield. While the line was abandoned in 1866 when gold seekers moved on, the railway expanded through the 1870s, as lines were built from Invercargill to Lumsden, Kingston, Ōtautau and Riverton, and between Lumsden and Gore. After Dunedin and Invercargill were linked several branch lines were opened. Some of these lines serviced the coal mines, such as those in Nightcaps and neighbouring Ōhai. An opencast mine remains at Nightcaps, while the Mataura mine in the eastern Southland lignite field was closed.

As more and more branch lines closed, improved roads and more modern trucks and buses tipped the balance from rail to road freight. The roading network also has a long history in Southland. The connection to Milford Sound following the discovery of Homer Saddle in 1888 was enabled through the construction of Homer Tunnel after the second world war. The 'Southern Scenic Highway' runs from Balclutha in Otago to Te Anau, taking in the Catlins, following the Southland coast, then taking the Waiau Valley north to Te Anau.

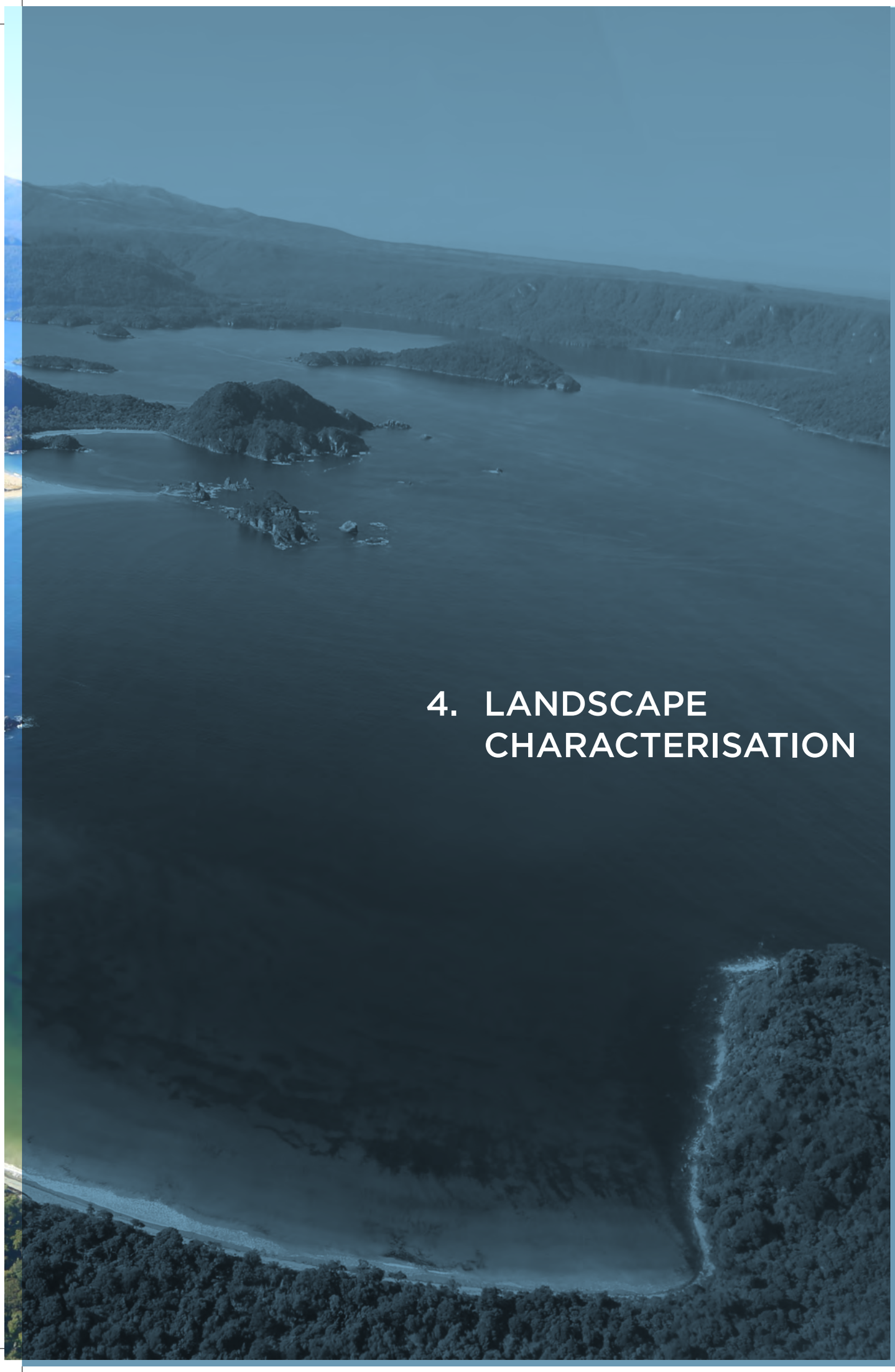
Southland built its own power station at Lake Monowai in 1925 with a comparatively comprehensive network of power lines that exceeded that in any other part of the country. Today the Manapōuri power station supplies electricity for the aluminium smelter at Tīwai Point, which was a controversial project at the time.

Figure 4 shows a map with sites of importance in terms of their cultural heritage, including existing marae, archaeological sites and Historic Places (NZ Heritage Category 1 and 2 listings). It should be noted that Statutory Acknowledgment Areas are not included, as they were not available as a GIS file, but they can be viewed in the iwi management plan (Ngāi Tahu ki Murihiku, 2008).

Below: Aerial of the Mid Dome ranges. Boffa Miskell, 2018.

Over the page: View of Seek Cove and the Preservation Inlet, Fiordland. Boffa Miskell, 2018.





4. LANDSCAPE CHARACTERISATION

Landscape character can be defined as 'a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse'. Put simply, landscape character is what makes an area unique.

'Landscape characterisation' is the term used for the process of identifying, mapping and describing landscape character. Each area of landscape can be understood as having an identifiable character based on its individual or cumulative natural and cultural expression. Characterisation provides a sound descriptive and analytical basis defining what makes an area of landscape distinct.

Communities identify with 'their' landscapes and recognise them as having a particular combination of attributes and features that give them their distinctive 'character'. Landscape characterisation aims to develop an understanding of 'sense of place'. Essentially landscape character is the interrelationship of three broad factors:

- landform,
- land cover and
- land use.

Within these broad factors there are many variables and it is the way in which these combine that gives broad areas of the landscape a cohesive and distinctive character. Landscape characterisation, is a means to describe places in a way that is meaningful to the greater community and related to how people perceive and experience the landscape.

This element of the study is largely descriptive and objective. It draws on an understanding of the natural and cultural features, patterns and processes. Its focus is to identify distinguishing characteristics, which make one part of a district different from another. An understanding of the landscape characterisation of all landscapes at a regional level provides a meaningful basis for the identification of significant and important landscapes within a subsequent landscape evaluation exercise.

1.1 LANDSCAPE CHARACTERISATION METHODOLOGY

In summary, the objectives of the Landscape Characterisation Stage are to:

- Analyse the landscape through review of GIS data, land typing, maps, aerial and land-based photographs and field survey;
- Identify and map landscape character areas;
- Describe each type and area of landscape objectively; and
- Identify and define key characteristics and forces for change within each landscape character area (see later section of this report).

Landscape description involves a process of data compilation during which the layers or components that make up the landscape are identified. The data gathered also included available GIS datasets which include: landform, soil, geology, drainage patterns, vegetation cover, land uses, built development, infrastructure and heritage sites.

To identify landscape character and values, the Southland Landscape Study has relied upon professional judgement and drawn upon available information including GIS databases as well as site visits. Field work was limited to two flights across the entire region, as well as three days of field visits by the study team in April 2018. This was spent accessing as many areas as possible by car to assess the outlines of character areas and subsequently Outstanding Natural Features and Landscapes (ONF/Ls) and Visual Amenity Landscapes (VALs) on the ground. This provided the opportunity for ground-truthing preliminary landscape character areas identified as part of the desktop review (see Appendix 1 for details).

At the largest scale 'Landscape types' are used to distinguish major physiographic land units on the basis of topography and lithology. Five major landscape types were identified in the Southland region, namely:

1. Fiordland Landscape Type
   (Coastal and Inland Fiordland Character Areas)
2. Mountains Landscape Type
   (Livingstone-Eyre, Umbrella-Garvie and Takitimu Mountains Character Areas)
3. The Hills Landscape Type
   (Hokonui, Taringatura and Rowallan Hills, Longwood Range and Inland Catlins Character Areas)
4. The Plains Landscape Type
   (Te Anau Basin, Lower Waiau Plains, Waimea Plains and Southland Plains Character Areas)
5. The Coast Landscape Type
   (Catlins Coast, Estuaries, Riverton/Aparima and Te Waewae Coast Character Areas)

A description of each Character Area is provided in the following section and an overview map of the character areas are shown on Figure 5. For each of the character areas a map is provided outlining its boundaries (see Figures 6-24).

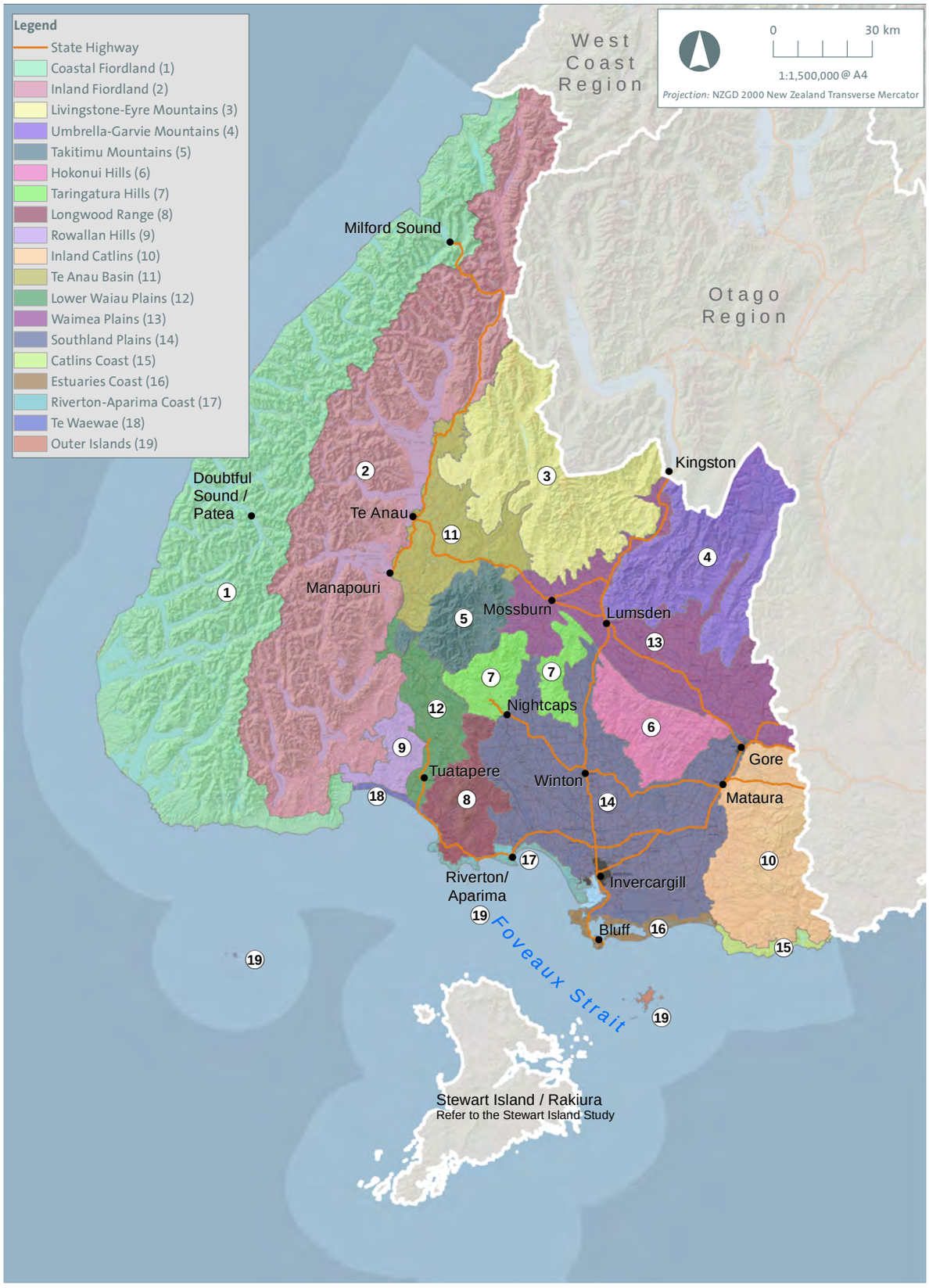


Figure 5: Overview Map of Character Areas. Boffa Miskell, 2018.

Right: Aerial of Lake Te Anau looking towards Southern Fiordland. Boffa Miskell, 2018.



1.2 FIORDLAND LANDSCAPE TYPE / TE ATAWHENUA

Fiordland National Park is part of the Te Wāhipounamu – South West New Zealand World Heritage Area which is one of the world's special natural and cultural sites recognised by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) due to its 'superlative natural phenomena' and 'outstanding examples of the earth's evolutionary history' (Department of Conservation, 2007). Fiordland's wild, untamed, rugged, and largely pristine landscape is the largest National Park in New Zealand covering 1.2 million hectares.

The Fiordland landscape character area is located in the south-west corner of the Southland region and includes all of Fiordland National Park in addition to Pyke, Dean and Rowallan Forests. Small south-west portions of Mount Aspiring National Park and Arawhata Conservation Area are also included within this landscape character area as they are within the Southland region.

The Fiordland Landscape Type is split into two landscape characters in this report, namely Coastal and Inland Fiordland. The division of these two character areas is in general terms based on the extent of the coastal environment (see Coastal Natural Character Assessment). The landscape character area delineation follows in many instances the immediate catchment boundary of the fiords, which extends along the peaks of the Skippers Range, Darran Mountains, Matterhorn Range, Merrie Range and Cameron Mountains. The South Coast south of Lake Poteriteri and the Humpridge also fall into the Coastal Fiordland Character Area, while Lake Te Anau and Manapōuri are part of the Inland Fiordland Character Area.

The entire Landscape Type is known for its spectacular scenery ranging from ice-carved fiords with steep snow-capped mountains, pristine alpine lakes found in ice-carved valleys and rivers winding through the extensive native forest. The dramatic and unpredictable weather with up to 8,000mm of rainfall annually create remarkable waterfalls cascading from sheer cliffs. Diversity of landforms, vegetation and endangered wildlife adds to the richness of this special place. Aside from small, restricted nodes of development, this landscape is relatively free of buildings and structures.

The relationship of tangata whenua with Fiordland reaches back to their creation traditions, explaining the physical formation and shaping of the whole of Te Waipounamu/the South Island. For centuries Fiordland was a regular seasonal home for Ngāi Tahu, and before them Kāti Mamoe and Waitaha. Pounamu and mahinga kai, such as numerous and abundant kaimoana/seafood species, seals, birds and other natural resources were gathered in Fiordland. Ngāi Tahu tūpuna (ancestors) travelled the coast, but also reached the fiords and hinterland of Fiordland by travelling across the lakes and following traditional routes over mountain passes. The relationship of Ngāi Tahu Whānui to Te Atawhenua remains strong to the present day, particularly in relation to resource and environmental management, with mahinga kai and pounamu being significant interests. More recent history covers a spectrum of activities including early European exploration, sealing, whaling, prospecting, mining, timber milling, shipping, failed settlement, hunting, fishing, tourism,



Above: View of coastal Fiordland. Boffa Miskell, 2018.

4.0.1 COASTAL FIORDLAND CHARACTER AREA / TE ATAWHENUA KI TAI

GENERAL DESCRIPTION

The Fiordland coast is long, wild and rugged with a range of impressive natural characteristics. Fiordland's steep and crenulated coastline, with fiords running from U-shaped drowned valleys, is unique in New Zealand and rare globally. The formative processes relating to past glaciation are very legible and impressive due to the proximity to high alpine peaks. Fiordland's many fiords, islands, bays and long inlets are rarely visited and provide some of the most remote, diverse and unmodified stretches of coast in the country.

Coastal Fiordland includes a small portion of the Arawhata Conservation Area along the northern boundary in addition to the Pyke Forest Conservation Area. The south-western part includes all of Fiordland National Park and the eastern boundary adjoins the Inland Fiordland character area (see separate description below).

The main features of Coastal Fiordland are the deeply indented, fourteen fiords and their associated islands including the world-renowned Milford Sound/Piopiotahi, Doubtful Sound/Pātea and Dusky Sound. Milford Sound/Piopiotahi is highly valued locally, nationally and internationally for its impressive peaks, waterfalls and marine wildlife. Other notable features include cirque lakes, such as Lake Quill draining into the spectacular Sutherland Falls, along the Milford Great Walk Track. Refer to Figure 6 for the extent of the Coastal Fiordland Character Area.

LANDFORM

The Fiordland geology is comprised of some of the oldest rocks in New Zealand, including gneiss, a rock that has metamorphosed from other rock types, notably granite and diorite. The U-shaped valleys were carved by deep glaciers during the Ice Ages, the last of which ended some 14,000 years ago. The glaciers and sheet ice have left behind hanging side valleys, steep peaks and high alpine basins now filled by lakes. Mt Tūtoko, north of Milford Sound, is the region's highest summit at 2,746 metres. Most of the peaks further south are between 1,400 and 2,200 metres.



In the fiords, the impact of valley glaciation on the landscape has also had a dramatic effect on the steep fiord walls, where numerous waterfalls can be found. Precipitous rocky slopes plunge to depths below water as great as their height above. Slips on the mountain slopes deposit rock and tree detritus directly onto the foreshore and into the fiords. Due to of the steep landform of the fiords, river mouths are mainly located in fiord heads. Many have developed deltas, which are built up by river gravel and re-modelled by persistent wave action. Flooding can bring sudden changes to the delta pattern. The shore of the outer Fiordland coast reflects the influence of ocean waves on hard-rock geology with predominantly rugged cliffs, but also boulder beaches and some sandy coves/ bays.

There are a number of landforms that are unusual from a geomorphology perspective, including a number of geopreservation sites. Big Bay in the north of the character area contains rocky reefs, long sand and gravel beaches with intact dune systems and lagoons backed by low-land forest habitats. Lake McKerrow/ Whakatipu Waitai is a dune-dammed fiord and an unusual landform in Fiordland. It is a former fiord, no longer open directly to the sea and partly blocked by a sand dune barrier but still connected by a tidal river.

Mitre Peak is a spectacular glacially-carved mountain peak identified as a Geopreservation Site of national significance which rises to 1683m above sea level from Milford Sound. Islands range in size from small rock stacks to over 1 hectare, the largest being Resolution Island north of Dusky Sound.

The Waitutu marine terraces are a special feature within Fiordland National Park. They comprise 13 terraces, with the oldest being over 900,000 years old. This sequence of terraces is arguably the best example of its kind in New Zealand and listed as a Geopreservation Site.

LAND COVER

The southern beeches and podocarps, which dominate the forests of Fiordland, are very old elements of New Zealand flora. Silver beech and mountain beech are the most widespread species with red occurring in the lowland parts. Some important tracts of podocarp forest are located at Martins Bay (Department of Conservation, 2007). Three other tree species - southern rata, kamahi and broadleaf - are significant in Fiordland forests because of their adaptability to extreme climate and soil conditions. Ferns are common on the forest floor (Department of Conservation, 2007).

The lowland forests of Waitutu contain one of the largest tracts of unmilled lowland forest in New Zealand with unmilled tracts of rimu-dominated forests which are of national importance (Department of Conservation, 2007). The Waitutu Forest is a national stronghold for the kākā.

LAND USE

The majority of Coastal Fiordland is within public conservation land (with blocks of maori owned land in Waitutu Forest) and used primarily for conservation purposes, in combination with recreational use and provision of services by tourism operators. The renowned Milford Great Walk, managed by the Department of Conservation, finishes at Milford Sound. Other popular walks in the Coastal Fiordland character area include the Hollyford Track, Pyke-Big Bay Route, the Dusky Sound Track and Humpridge Track. Fishing, hunting and mountaineering/ climbing in a remote or wilderness setting are also highly valued recreation opportunities.

The small settlement of Milford Sound contains visitor accommodation, a number of tour operators and a busy airstrip. Milford Sound/Piopiotahi is one of the major tourism drawcards for Southland in addition to being the most accessible fiord via the popular Milford Road. Visitors to this area can partake in a number of different activities, including boat cruises through the fiord, diving and kayaking.

Doubtful Sound/Pātea is less accessible but a very popular day trip from Manapōuri. Overnight boat cruises, kayaking and fishing are activities that are available at Doubtful Sound/Pātea. The modifications at Deep Cove include the outlets of the tailrace tunnels from the Manapōuri underground power station.

Big Bay has a small settlement of private huts which are used predominantly during whitebait season. The Big Bay is also named after Hokiauau, an early Waitaha-Kāti Hāwea chief who was buried in the bay.

The South Coast west of Te Waewae Bay has a rich timber-milling related history. Four large wooden viaducts were built during the 1920s to enable locomotives to haul logs over ravines to the Port Craig mill (Department of Conservation, 2011), where the historic school house remains. The South Coast Track now follows these viaducts and forms a popular walk delving back into Fiordland's history.

KEY CHARACTERISTICS

- Fiordland's steep and crenulated coastline, with fiords extending from U-shaped glaciated valleys carved out from the southern part of the Southern Alps, is unique in New Zealand and rare globally.
- The U-shaped valleys were carved by deep glaciers during the Ice Ages, the last of which ended some 14,000 years ago with the hard rocks forming steep-sided walls.
- Mitre Peak is a spectacular glacially-carved mountain peak with iconic status within Milford Sound the wider Coastal Fiordland character area.
- Milford Sound/Piopiotahi is one of the major drawcards for Southland in addition to being the most accessible fiord.
- The Waitutu marine terraces are a special feature within Fiordland National Park with the oldest being over 900,000 years old.
- The lowland forests of Waitutu contain one of the largest tracts of unmilled lowland forest in New Zealand with unmilled rimu-dominated forests of national importance. Although these blocks are managed as National Park land under the Waitutu Block Settlement Act, they are part of Māori land.



Figure 6: Coastal Fiordland Character Area. Boffa Miskell, 2018.



Above: View overlooking the Eglinton River valley towards Dore Pass. Boffa Miskell, 2018.

4.0.2 INLAND FIORDLAND CHARACTER AREA / TE ATAWHENUA KI UTA

GENERAL DESCRIPTION

Inland Fiordland is a unique part of New Zealand having a vast range of rock types, landforms, habitats and landscapes found nowhere else in such a combination. The drama of this landscape is unmatched elsewhere in the country.

This landscape character area encompasses the eastern portion of the Fiordland landscape area. The western boundary to the coastal Fiordland character area follows the Pyke River near Haast, Darran, Matterhorn, Merrie, Heath and Cameron Mountains down to the Waitutu Forest on the south coast. The north-east portion of this area includes a small section of Mount Aspiring National Park which contains the Little Red Hill Range. The eastern boundary follows the extent of Fiordland National Park through the Te Anau Basin, and along Dean and Rowallan Forests west of the Waiau Valley. The southern boundary follows the Coastal Fiordland landscape on the Te Waewae Bay south coast.

The main features of this landscape are the extensive array of alpine lakes and rivers set within native bush clad mountains. Examples include Lake Alabaster/Wāwāhi Waka, Hollyford River/Whakatipu Kā Tupa, Eglinton River, Lake Te Anau, Lake Manapōuri, Lake Monowai, Lake Hauroko and Lake Poteriteri.

The Milford Road, one of the most spectacular alpine highways in the world, provides access to Milford Sound, as well as several camp sites, day walks and backcountry adventures. It follows the Eglinton and Hollyford Rivers before reaching the Homer Tunnel. The 1.2km-long tunnel passes through the solid rock of the Darran mountain range and is an extraordinary historic man-made element in this alpine environment which gives road access to Milford Sound. Aside from the Milford Road, the Hollyford Road is the only other vehicle access route within this landscape character area.

Transmission lines from the Manapōuri power station are a notable feature along the Borland Road in the central part of the landscape character area, as they are extending from West Arm at Lake Manapōuri, following the western base of the Hunter Mountains until eventually reaching Tiwai Point east of Invercargill. Refer to Figure 7 for the extent of the Inland Fiordland Character Area.



LANDFORM

The Fiordland landform has been created by the uplift of hard plutonic rocks such as granite and diorite, which have been subsequently carved into their present shape by successive periods of heavy glaciation. Most erosion since the last glaciation period has been by way of rock falls and slips. The glacial valley landforms are usually well preserved, other than where rivers have cut deep narrow gorges into the valley floors (Department of Conservation, 2007).

The Fiordland glaciers have rounded off many of the mountains summits within the Fiordland National Park, creating an extensive ice cap. The glaciers upon retreating created the deep valleys which are seen in Fiordland National Park today and extended well below current sea level. The ice from Fiordland also filled both Te Anau and Manapōuri basins which have now become lakes and have depths that extend below sea level (McSaveney, 2007).

The larger lakes in Fiordland are also situated in old glacial valleys or troughs. Lake Te Anau is the largest lake in the South Island and similar to Lake Manapōuri it has native bush clad edges, sandy beaches, coves and islands.

Fiordland National Park contains only relatively small areas of karst. Notable are those on the Hunter Mountains, Murchison Mountains and on Mt Luxmore. A prominent line of bluffs lies on the eastern flank of the Murchison Mountains above Lake Te Anau.

LAND COVER

The lowland areas are quite flat and swampy with forest and shrub cover, rising through beech and podocarp forest to the bare Red Hills Mountain Range inland silver beech (Nothofagus menziesii) and mountain beech (Fuscospora cliffortioides) are the most widespread species with red beech (Fuscospora fusca) seldom found above 400 metres within Fiordland National Park (Department of Conservation, 2007).

Near lakes and fiords, rimu (Dacrydium cupressinum) stands out from the darker canopy of, and on alluvial flats rimu, miro (Prumnopitys ferruginea), and totara (Podocarpus totara) are often prominent. These tall trees are often hosts for a variety of perching plants (epiphytes). Important podocarp forest is located in Back Valley near Lake Manapōuri (Department of Conservation, 2007).

Three other tree species - southern rata (Metrosideros umbellate), kamahi (Weinmannia racemose) and broadleaf (Griselinia littoralis)- are significant in Fiordland forests because of their adaptability to extreme climate and soil conditions. Ferns are common on the forest floor. A rich variety of ferns including Blechnum ferns, shield ferns, spleenworts and filmy-ferns, along with the larger tree-ferns are all found (Department of Conservation, 2007). The lakeshores of some Fiordland's lakes form a special community containing up to 16 rare species of plants (Department of Conservation, 2007). Kepler swamp/ wetland contains Manuka/ Kanuka and other indigenous vegetation, including herbaceous freshwater vegetation.

At higher elevations alpine lakes and tarns/ upland cushion bogs are important features amongst surrounding upland/alpine landcover and a mix of open shale/scree and permanent snow on the alpine tops.

LAND USE

The majority of the Inland Fiordland landscape character area is within public conservation land and used primarily for recreation or by tourism operators, such as West Arm and Te Anau Downs. The most distinctive nodes of development fall within the Fiordland Coastal Character Area, including Milford Sound where hotels and an airstrip are located. The popular Great Walks including the Kepler, Milford and Routeburn Tracks are promoted and managed by the Department of Conservation within Inland Fiordland. Other popular walks include the Hollyford Track, Gertrude Saddle, Key Summit and Borland Track. Visitors also come to Fiordland to take part in exploring the alpine rivers and lakes for fishing, hunting and climbing/ mountaineering. Helmet Hill or Haukore was known as the "Māori Barometer" as the presence of fog on the hill signalled weather changes.

The Manapōuri underground power station and associated transmission lines are the largest modification within this landscape. The water levels of Lakes Manapōuri, Monowai and Te Anau are controlled to a limited extent for the purposes of hydro-electric power generation.

KEY CHARACTERISTICS

- Internationally significant conservation area forming part of the World Heritage Area.
- Unique part of New Zealand having a vast range of rock types, landforms, habitats and landscapes found nowhere else in such a combination.
- Milford Road is one of the most renowned alpine highways in the world.
- Main features of this landscape are the extensive array of alpine lakes and rivers set within native bush clad mountains and valleys.
- World class Great Walks including the Kepler, Milford and Routeburn Tracks.



Figure 7: Inland Fiordland Character Area. Boffa Miskell, 2018.

1.3 MOUNTAINS LANDSCAPE TYPE / NGĀ MAUNGA O MURIHIKU

The Mountains Landscape Type includes three separate Landscape Character Areas, namely the Livingstone-Eyre Ranges/Mata-puke-koikoi, Umbrella-Garvie Ranges/Mata-puke-taratara and the Takitimu Mountains/Te Mauka Takitimu.

The northern boundary of the Southland region crosses a series of high mountain ranges along the boundary with Otago in the Livingstone-Eyre Range and Umbrella-Garvie Range. The two mountain ranges are separated by the upper Mataura Valley south of Kingston with the falling within the Plains Landscape Type. The mountain ranges are also bordered by the Plains to the south and by the Fiordland Landscape Type to the west of the Livingstone-Eyre Range.

A portion of the Livingstone Range, specifically the Mavora Lakes area, which borders Fiordland National Park forms part of a World Heritage Area (see below). Also included in the Mountain Landscape Type are the spatially confined Takitimu Mountains located south of, but separated from, the Livingstone-Eyre Range. The Takitimu Mountains are surrounded by the Plains landscape with the Taringatura Hills, which form the extension of the Southland Syncline located to the south-west. The Takitimu Mountains are a prominent landscape feature viewed from the Plains Landscape Type.

The mountains reflect a precipitation gradient from the wetter Livingstone Mountains closer to the Main Divide/ Fiordland to the drier Umbrella Mountains in the east. Areas in the west are generally less modified in terms of land cover with more extensive native vegetation. Each range retains its own distinctive patterns of landcover. In the east a higher level of fragmentation is visible due to land use where high country grazing has occurred, and in places still occurs, on a number of runs.

Despite these land cover differences, the ranges have a number of similar qualities in relation to the way they are experienced and viewed. They form a strong contrast with the nearby plains that are more intensively farmed. They provide an impressive backdrop to the flat plains and valley floors and their varied skyline is a key view that provides a landmark and orientation. The mountain ranges are a gateway for travellers to the Otago landscape beyond.

The major Southland Rivers (ie. Aparima, Oreti and Mataura) rise in these mountains and their upper reaches meander through the valley floors with areas of extensive river terraces confined by steep mountain slopes. The rivers provide a focus for angling and other recreational experiences, such as multi-day tramps, which Southland is renowned for.



Left: View of the Mavora lake from the lake's edge. Boffa Miskell, 2018.



Above: View overlooking the Snowdon Forest in the foreground and the Eyre Mountains in the background. Boffa Miskell, 2018.

4.0.3 LIVINGSTONE-EYRE MOUNTAINS CHARACTER AREA / MATA-PUKE-KOIKOI

GENERAL DESCRIPTION

The large and remote Livingstone – Eyre character area extends centrally along the northern boundary of the region and is bound by Fiordland to the west, the Te Anau Basin and Oreti Valley to the south east and the upper Mataura Valley to the east. These mountain ranges are generally wetter than others to the east within the region receiving 1600-5600mm of rainfall annually within the Livingstone/Thompson ranges and 800-2400mm within the Eyre Range (Department of Conservation, 2000).

Extensive tracts of indigenous vegetation, including tussock grasslands and large areas of beech forest at low altitudes exist within this character area which contains the headwaters of a number of the region's significant rivers.

Within the western part of this character area, there are several major ranges including the Countess Range, Dunton Range, Thomson Mountains and the Livingstone Mountains ranges which contains several peaks over 2000m with Moffat Peak being the highest at 2102m. Snow is often retained above 1000m during winter. These ranges encompass the Mavora Lakes, drained by the Mararoa River, and the upper reaches of the Oreti and Upukerora Rivers.

The upper reaches of the Oreti River, known as a popular fishery, separates the Livingstone Mountains to the west and the Eyre Mountains to the east. The Eyre range includes the upper reaches of the Mataura River and several creeks flowing into it with Jane Peak rising to 2022m.

West Dome is a highly visible mountain landmark above Mossburn while the Snowdon Forest area forms the backdrop to views across Te Anau Basin.

There are few roads in the area, although farm tracks are common for the high-country stations. The Mavora Lake Road provides access into the interior of the expansive landscape and serves as a popular route for recreational users. The Mavora Lakes area is part of the Te Wāhipounamu – South West New Zealand World Heritage Area. Mavora Park Conservation Area is in the heart of this landscape, with clear lakes surrounded by tussocklands, forested mountains and naturally eroding peaks (Department of Conservation, 2016). Refer to Figure 8 for the extent of the Livingstone-Eyre Mountains Character Area.



LANDFORM

The formative processes are very legible in the landscape and include former glacial processes and more recent fluvial and erosional processes. Much of the area has been affected by historic glacial processes forming features such as U-shaped valleys with isolated tarns. The alpine rivers are often accompanied by river terraces in the valleys. The rock types present in this area include sedimentary and metasedimentary rocks such as sandstone, mudstone, and limestone (GNS Science, 2014).

The Eyre Mountains are steep and dissected with both natural screes and man-made erodible areas with ultramafic soils found in West Dome (Department of Conservation, 2000). The highest point, Jane Peak, rises to 2000 metres above sea level, and the range is divided by a series of faults such as the Forks Fault, South Von Fault, and the Lochy Fault, all of which are inactive. Landslides are prominent features in the Eyre Mountain range, including at Robert Creek, Long Burn and Short Burn. The landslides are prompted by large earthquakes, and high groundwater pressure (Turnbull, 2000).

The valley floor of the Eyre Mountains contains deposits of post-glacial stream alluvium. The fans generally grade out into river terraces with flatter profiles down-valley. Both fans and terraces are more fertile, easier to fence and graze than steeper slopes, and consequently they are the most developed areas within the Eyre Mountains.

Along the eastern extent of the character area, to the south of Lake Wakatipu, the Kingston terminal moraine shows the glacial origins of the lake and the valley was originally formed by the drainage channel of the glacial lake.

LAND COVER

Large parts of the character area have retained remnants of woody indigenous vegetation that were not burnt and many other areas are regenerating. The character area also contains extensive gravel and scree slopes and snowfields at higher elevations. Within the Livingstone and Thompson Mountains, the valley floors contain a range of wetland communities with extensive tussock grasslands with the general distribution being red and fescue and occasional silver tussock (Poa cita) present. Red tussock (Rubra subsp.) extends up the slopes to meet snow tussock grasslands. The tussock grasslands include altitudinal sequences from valley floor to alpine habitats, with a range of short and tall tussock species (Department of Conservation, 2000).

Shrublands occur at varying altitudes and site conditions. A variety of shrubland species are present, including stunted tūmatakuru/matagouri on valley floors and extensive mature tūmatakuru/matagouri on some of the steep sunnier slopes, especially along creeks and turpentine scrub areas. The slopes contain areas of natural screes. Fellfields and rocky areas exist in alpine areas. There are some ultramafic soils with specialised vegetation (Department of Conservation, 2000).

The vegetation of the Eyre Mountains is dominated by tussock grasslands, with large areas of beech forest and alpine communities. There is a high degree of endemism, meaning the existence of species in this area which are found nowhere else in New Zealand. There are extensive forest areas, containing mainly mountain beech, in the south and forest remnants further to the north. There are shrublands scattered throughout the area with some representing a successional stage to beech forest (Department of Conservation, 2000). Some locations in the southern Eyre Mountains are threatened by wildling conifers Department of Conservation, 2018b).

Some extensive areas of red tussock remain around West Dome and the Oreti Valley (Department of Conservation, 2000).

LAND USE

Generally, the wider valley floors, lowlands and gentle tussock slopes have been modified by long pastoral use, particularly within the Mararoa Valley (including Mt Nicholas Station pastoral lease in upper parts). Accelerated erosion of some slopes has occurred as a result of stocking and management practices.

Much of the land in this area is protected conservation land which is reflected through the absence of modification. This includes Snowdon Forest, Eyre Mountains/Taka Ra Haka and Mavora Park Conservations Areas. The open Mararoa Valley and the Mavora Park areas are particularly accessible and popular for recreation. This area is used by the public for camping, hunting and tramping, utilising the extensive but basic backcountry hut facilities. However, this area is remote and sees much fewer numbers than the Milford Road to the west. Fishing the Oreti River has become so popular a beat system has been created to avoid overcrowding of fisherman. The upper reaches of the Mataura River also present good fishing opportunities and high game bird numbers.

KEY CHARACTERISTICS

- Extensive tracts of indigenous vegetation, including tussock grasslands and large areas of beech forest at low altitudes exist within this character area in addition to large lakes in the headwaters of many of the region's significant rivers.
- The Mavora Lakes area is part of the Te Wāhipounamu – South West New Zealand World Heritage Area.
- Much of the area has been affected by fluvial and glacial processes, reflected in river terraces and features such as U-shaped valleys.
- The area is popular for camping, hunting and tramping utilising the extensive but basic backcountry hut facilities.



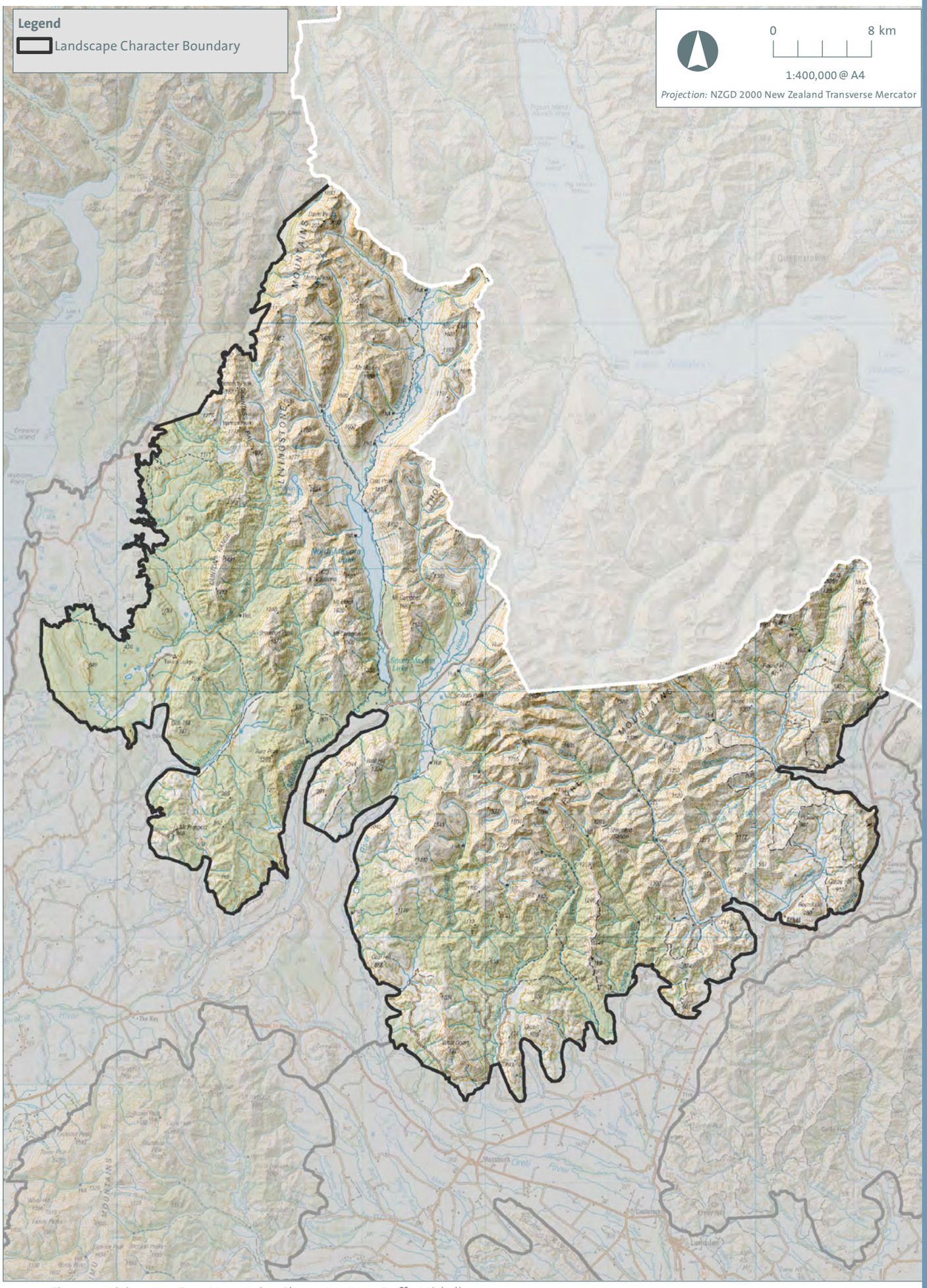


Figure 8: Livingston-Eyre Mountains Character Area. Boffa Miskell, 2018.



Above: View overlooking the Mataura Range. Boffa Miskell, 2018.

Right: View of the Mid Dome Mountains looking towards Parawa. Boffa Miskell, 2018.

4.0.4 UMBRELLA-GARVIE MOUNTAINS CHARACTER AREA / MATA-PUKE-TARATARA

GENERAL DESCRIPTION

The Umbrella – Garvie landscape character area is located along the north-eastern regional boundary which borders Otago region. These mountains include the Umbrella and Garvie Ranges surrounding the Waikaia, Mataura and Nokomai River Valleys.

The Garvie Mountains extend up to 1892m with glacial features above 1300m and the Umbrella Mountains extend to 1445m (Whitecoomb) at the regional boundary (Department of Conservation, 2000). The vegetation is predominantly tussock at higher elevations or pasture. The lower altitude hill country and uplands in the south and east were formerly largely red tussock, with beech forest and shrublands in the valleys and larger gullies. Much of this area has been modified for pasture and plantation forestry (Department of Conservation, 2000). A mosaic of wetlands in this character area is also notable.

The fawny colours of expansive tussocklands dominate the views, with snow-capped mountains during winter. The many rivers and streams that dissect the rolling lands are visually appealing, especially when flanked by remnant indigenous forest, shrub and tussock (Department of Conservation, 2016).

At Mid Dome, along the western edge of the area, there are soil erosion problems which are related to the early burning and grazing of native vegetation by sheep and rabbits. Pines spreading from erosion control plantings now pose a threat to native vegetation in the area. The area has a long history of modification by fire, farming, forestry and browsing. (Boffa Miskell Ltd, 1993)

The upper reach of the Waikaia Valley near Piano Flat provides an attractive forest contrast with the surrounding tussocklands. There are no established settlements within this landscape character area, only scattered dwellings and homesteads along the rural roads. The SH6 to Queenstown or Te Anau is an important tourist route along the western edge of the area. Refer to Figure 9 for the extent of the Umbrella-Garvie Mountains Character Area.

LANDFORM

Both are major ranges dominated by a block faulted landscape with upland plateaux, mountains and hills (Department of Conservation, 2000). The Garvie Mountains merge to the north with the Old Woman Range and Carrick Range. The Garvie, Old Woman and Carrick Ranges are remnants of the uplifted schist block faulted mountains that continue into Central Otago with characteristic "flat topped" ranges and more subdued landform (Dickinson, 1989). An active fault line, the West Nokomai Fault, runs between the Otago and Southland Boundaries parallel to Lake Wakatipu and finishing just South-East of Kingston.

Located on the high plateau is the Nokomai patterned mire which is a spectacular example of string bogs, mires and wetlands (the southern part of which drains into the Southland region). This natural feature is of international significance being one of the few southern hemisphere examples of sub-Arctic landform/ hydrological features (Dickinson, 1989).

It is notable that the course of the Mataura River flows through the convoluted 30km long gorge through schist bedrock in the southern end of the Garvie Mountains, instead of following the wider valley in the Five Rivers Plain west of Mid Dome.

The Garvie Mountains contain alpine lakes, herbfields, wetlands, snowbanks and fellfield. East Dome contains large natural scree slopes (Department of Conservation, 2000). The slopes are moderately steep, with rocky schist outcrops and screes in places, some of which have a high potential for erosion.

LAND COVER

These more easterly, mountain ranges are covered by large areas of intact tussock grasslands at higher altitudes, with beech forests lower down. Farming has influenced the landscape through clearance of some valleys for grazing. The character area contains a mosaic of wetlands, as well as narrow leaved and snow tussock land.

Within both ranges, altitudinal sequences from valley floors to alpine tops exist. Waikaia Forest is the largest forest remnant in the area. The alpine areas also contain extensive snow tussocklands and large alpine wetlands. Rock outcrops, talus slopes with rock rubble fields and river gorges provide habitat for specialised species. The alpine areas are also home to a number of threatened plant species such as Hebe dilatate, Parahebe trifida, and bird species such as the kea (Nestor notabilis) and the NZ falcon (Falco novaeseelandiae) (Department of Conservation, 2000). Vegetation includes fellfield, cushionfield, herbfield, descending into sub-alpine vegetation, and extensive snow tussock slopes and shrubland on slopes below.

A major weed threat in the Garvie Range is Pinus contorta. An extensive area of wilding pines is located at Mid Dome and has spread to protected areas in the vicinity, particularly those downwind. The Department and other groups are undertaking control operations in the Mid Dome/Dome Creek area (Department of Conservation, 2000).

LAND USE

Most land within this character area is used for pastoral grazing with farm tracks criss-crossing the mountains. Recreational activities such as hunting, tramping and fishing are also a common within the area. Mataura Scenic Reserve, Bain Block (Old Man Range) Conservation Area and Waikaia Forest provide easy access into the backcountry for recreational activities. Forestry and pasture are intertwined with pockets of conservation land.

The gold mining history at Nokomai Station started with early prospecting in this area and continues with an open cast mine in the Nokomai Valley which is still in use today.

KEY CHARACTERISTICS

- Large, expansive tussocklands dominate the vegetation, with snow-capped mountains in winter. Extensively grazed pasture is found in the farmed areas. Alpine vegetation and wetlands exist in higher-lying areas.
- Waikaia Forest is the largest forest remnant in the area.
- A major weed threat in the Garvie Range is the wilding species Pinus contorta.
- Most land within this character area is used for pastoral grazing with farm tracks criss-crossing the mountains.
- Recreational activities such as hunting, tramping and fishing are common within a number of public conservation areas.

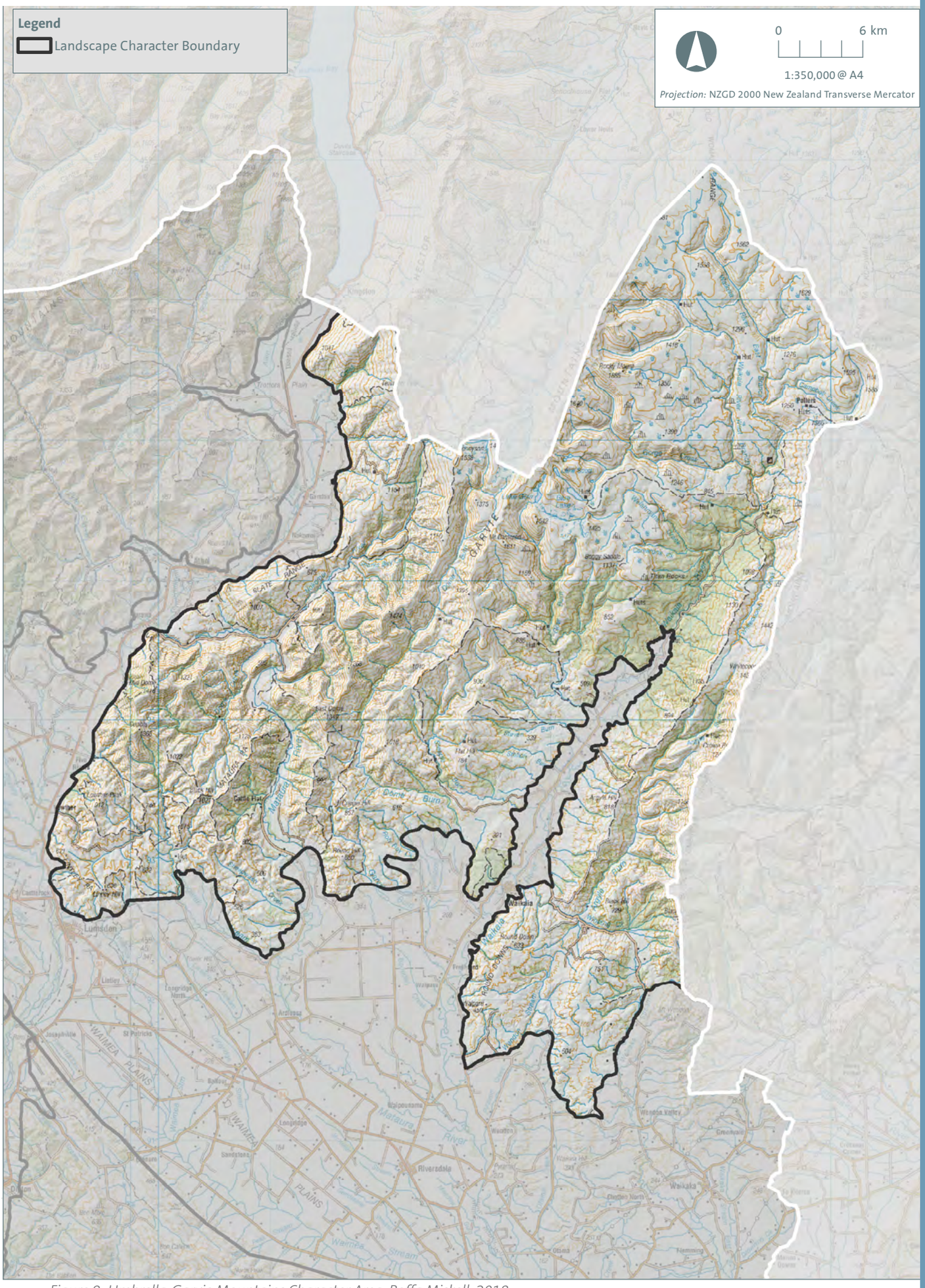


Figure 9: Umbrella-Garvie Mountains Character Area. Boffa Miskell, 2018.



Above:View overlooking the snow-capped Takitimu Mountains across the Te Anau Basin with Mt Hamilton to the left. Boffa Miskell, 2018.

Right: Roadside view of the Takitimu Mountains taken from Blackmount-Redcliff Road. Boffa Miskell, 2018.

4.0.5 TAKITIMU MOUNTAINS CHARACTER AREA / TE MAUKA TAKITIMU

GENERAL DESCRIPTION

The remote Takitimu Mountains are located centrally within the region and surrounded by the Te Anau Basin to the north, the Oreti Valley to the east and the Lower Waiau Plains / Taringatura Hills to the south.

This area is made up of steep, eroded and rugged volcanic mountains which dominant the skyline from State Highway 94 between Te Anau and Mossburn with highly visible scree features. The Takitimu Mountains are an important landmark in Southland for travellers along the Waiau Valley Scenic Route through Blackmount.

Alpine rocks and screes dominate the tops. At mid altitudes, the land is covered by forests and shrublands, while human influences are visible in farming and forestry developments along the lower fringes of the foothills and mountains. The whole area was extensively burned long before European settlement. There are no settlements within this area and only a few roads lead directly to these mountains.

The headwaters of the Aparima River rise within the Takitimu Mountains, where a number of notable wetlands can also be found. The Aparima is also a popular fishery as the water quality benefits from the good condition of the forest and wetland vegetation found alongside the streams. Refer to Figure 10 for the extent of the Takitimu Mountains Character Area.

LANDFORM

These mountains are an impressive geological landform and are made from uplifted rocks of volcanic origin, which gives them a different appearance from the lower Taringatura Hills to the south-east. The volcanic rocks extend to the south along the eastern side of the Longwood Range. These rocks were uplifted between the Moonlight fault system, which follows the Waiau Valley and the Tin Hut System in the Wairaki and upper Aparima Valleys. Both faults are still active. Mt Hamilton, at the northern end of the Takitimu Mountains, is underlain by a thick sequence of sedimentary rocks and bedding can be seen cutting across the west face of the peak. Faults in the Tin Hut Fault System separate Mt Hamilton from the main Takitimu Mountains. The strike morphology of the Southland Syncline is less well-developed in this western part of the Takitimu Mountains, which makes them somewhat less legible as part of the syncline.

The range was extensively glaciated during the ice ages and cirques, U-shaped valleys and down-valley outwash plains are well developed. The volcanic rocks are prone to frost shattering and steep active screes have developed. The mountains are free of ice and snow in the summer, but there is evidence of past glaciation. Wide alluvial fans extend into the Te Anau Basin to the west (Turnbull, I.M.; Allibone, A.H. (compilers), 2003).

LAND COVER

The Takitimu Mountains contain extensive indigenous forest areas, with intact altitudinal sequences evident, and alpine tussocklands, shrublands, wetlands, screes, rocky areas and fellfields. The forest is dominated by tawai/silver beech (Lophozonia menziesii), though there are also localised stands of mixed hardwood forest containing abundant kōwhai (Sophora spp), and a range of threatened and at risk plants, such as the declining fragrant tree daisy (Olearia fragrantissima), Coprosma obconica, bloodwood (Baloghia inophylla) and Melicytus flexuosus, and the naturally uncommon fierce lancewood (Pseudopanax ferox) (Department of Conservation, 2016).

The valley floors of the Waterloo, Aparima and Wairaki Rivers contain wetlands and peatlands and the upper slopes are bare and scree-covered. Good beech forests and mixed shrubland cover tend to be confined to valleys, gullies and lower slopes except in the east. An extensive wetland can be found near Aparima Huts, where Waterloo Burn and Pleasant Creek meander through the broad valley floor.

The lower west-facing slopes of the Takitimu Mountains contain large-scale forestry blocks such as those near Blackmount. Many of the lower slopes and outer valley floor areas are grazed or converted to pasture. Erosion is a problem caused by a mixture of factors - early burning of vegetation, grazing and browsing by sheep, deer, rabbits and goats, and the natural processes of river movement. Some of the exotic conifers were planted for erosion control and are now spreading.

LAND USE

The Takitimu and Jericho Forest Conservation Areas are located within this area and are easily assessible from Invercargill and Te Anau. These large tracts of backcountry provide remote recreation opportunities and relatively easy winter climbing (Department of Conservation, 2000).

The public conservation lands and waters within this area are primarily accessible from the Princhester Creek and Aparima River Valleys. The Te Araroa Trail provides access across private land, public conservation land and waters on the eastern edge of the Takitimu Conservation Area. Public access is one of the main issues in this area, with large areas of public conservation lands and waters being virtually ‘landlocked’ by adjoining freehold pastoral land and accessible only by crossing the rugged interior or following scrubby river banks (Department of Conservation, 2016).

The Takitimu Mountains are named after the famed Takitimu waka that capsized at Te Waewae Bay. Tamatea-Ure-Haea had constructed the waka and named it after his grandfather’s waka. Under his command it set sail from The North Island/Te Ika-a-Māui and down the east coast of Te Waipounamu, travelling as far south as Southland/Murihiku. Tamatea steered the waka through Foveaux Strait/Te Ara-a-Kiwa and into the Southern Ocean/Te Moana-tāpokopoko-o-Tāwhaki before reaching Te Waewae Bay. Three large waves caused the waka to capsize near the mouth of the Waiau River.

KEY CHARACTERISTICS

- This area is made up of steep, eroded and rugged volcanic mountains which dominate the skyline from State Highway 94 between Te Anau and Mossburn with highly visible scree features.
- The Takitimu Mountains contain extensive indigenous forest areas, with intact altitudinal sequences evident, and alpine tussocklands, shrublands, wetlands, screes, rocky areas and fellfields.
- The valley and headwaters of the Aparima River begin within the Takitimu Mountains and contain notable wetlands.
- The Aparima is also a popular fishery, as the river rises in an area with very little pollution.
- The Takitimu Mountains are named after the famed Takitimu waka that capsized at Te Waewae Bay. Three large waves caused the waka to capsize near the mouth of the Waiau River.

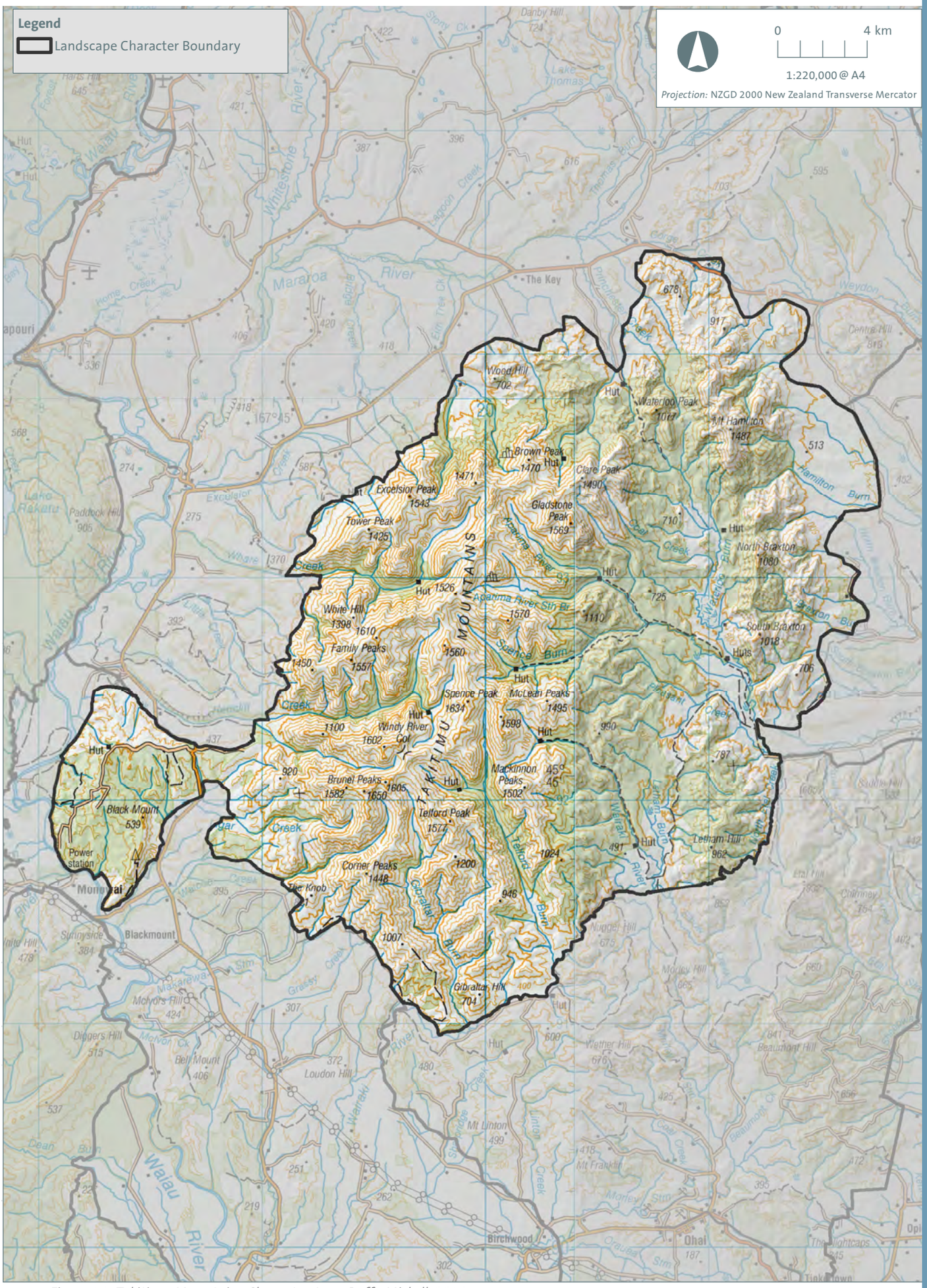


Figure 10: Takitimu Mountains Character Area. Boffa Miskell, 2018.

1.4 THE HILLS LANDSCAPE TYPE / NGĀ PUKE O MURIHIKU

The plains, valleys, basins and rolling hills of central and eastern Southland are the working landscapes familiar to all who live in or visit the region. Although these lowland and hill landscapes generally lack the qualities of the snow-capped mountains, they contain many important landmarks for the region, special features, views, and remnant natural areas of importance.

This type includes the grouping of hills which surround the Plains - the Hokonui Hills, Taringatura Hills, the Longwood Range, Rowallan Hills and the Inland Catlins. Because they are formed from softer, sedimentary rocks types, the hills are generally characterised by gently rolling slopes. Places with localised steeper ridges, such as in the Bastion area of the Hokonuis, represent outcrops or bands of harder rock types. The Taringatura and the Hokonui Hills form part of the Southland Syncline that extends across the centre of the region in an NW- SE direction.

Compared with the Mountains character area, the Hills are generally lower in altitude, up to about 700m. Fires, farming and forestry have had a variety of effects in the more accessible parts of the Hills, as land cover is predominantly exotic, apart from areas that are protected within public conservation land.

Left: Woodlaw Forest in the background. Boffa Miskell, 2018.



Above: View overlooking the Hokonui Hills. Boffa Miskell, 2018.

Right: Aerial of the Waterfall ranges looking at Croyden Bush. Boffa Miskell, 2018.

4.0.6 HOKONUI HILLS CHARACTER AREA / ŌROKO - HOKONUI - ŌTAUPIRI

GENERAL DESCRIPTION

The rolling Hokonui Hills are a striking feature in the Southland landscape, being highly visible from several State Highways. The range separates the Waimea Plains (north) from the Southland Plains (south) character area. The hills form part of the Southland Syncline which is one of most important geological features in New Zealand - a strong line of ridges and valleys which cut across the landscape from Fiordland, along the south side of the Waimea Plains, south of Gore and into Otago. The Waterfall Range is particularly expressive of the Southland Syncline.

The Bastion, Ben Bold and Ship Cone/Whakaoma are prominent visual features of the Hokonui Hills. Several rivers originate from the Hokonui Hills, including the Makarewa River which is the largest tributary of the Oreti River, and the Ōtamatea River which flows in an easterly direction into the Mataura River. There is a mixture of pastoral land and remnants of native forest and shrubs. The hills have a long history of use and change, pre-human forest cover having been removed in many areas by natural and deliberate burning (Boffa Miskell Ltd, 1997).

There are some extensive indigenous forest areas still remaining in this area, both on public and private land. Public conservation land includes Dunsdale Ecological Area, Hokonui Forest and Scenic Reserve, Croydon Bush Scenic Reserve, The Cone Forest, Glenure Scenic Reserve, Otapiri Scenic Reserve, Caroline Bush Scenic Reserve and Wadsworth Scenic Reserve. Within the Hokonui Forest is the Dunsdale Ecological Area which protects the type of forest and hill country which was once more widespread in the region (Boffa Miskell Ltd, 1993). Refer to Figure 11 for the extent of the Hokonui Hills Character Area.

LANDFORM

Geologically, the Hokonui Hills are very important. They are formed on rocks of Triassic and Jurassic ages. The hills form part of the Southland Syncline. A dominant feature of the Syncline is the highly legible pattern of the ridge and valley landscape. The sedimentary rocks that the syncline is made up of were compressed

by tectonic forces, uplifted along the line of the Livingstone Fault, and broken up into a landscape of so called strike ridges. The ridges, such as the Hokonui Hills, tend to be tilted up on edge, and softer mudstones eroded more extensively. These edges can be followed from the Takitimu Mountains through to the coast at the Catlins. They are a dominant feature of the Southland landscape and most obvious along the Murihiku escarpment, where the Hokonui Hills meet the Waimea Plains to the north (Department of Conservation, 2000).

The Hokonui landform varies from softly, rolling hills to steep, strongly ridged hill country reflecting variety in underlying rocktypes (Boffa Miskell Ltd, 1997). The height of the range varies from 50masl to 757masl.

Bare Hill in the Hokonui Hills is listed in the Geopreservation Index as a site of international importance. It is a world class example of zeolite facial burial metamorphism. Other features listed as nationally important include the Jurassic fauna (particularly marine fossils) and the Hokonui strike ridges.

The more rounded southern parts are formed from sandstones and siltstones, whereas the strong ridges of the norther parts towards Dipton and Josephville are of older rock types. These rocks, formed deep under water and were later lifted up and folded (Boffa Miskell Ltd, 1993).

LAND COVER

The land cover of the hills reflects historical uses and change. Paddocks on the lower slopes provide good grazing, with native forest, extensive in places, and shrublands on steeper land and gully or stream sides. There are some large areas of native podocarp forest, in particular on the eastern and southern aspects, much of it providing valuable protection for soil cover and water management.

The higher areas are predominantly tussock grasslands much of which has been oversown with introduced grasses. There are commercial pine forests of small to moderate size near Dunsdale. Dunsdale is also a stronghold for some threatened plants. Characteristic of the Hokonui landscape, especially in the northern part are the rocky outcrops and the shrub vegetation growing on them (Boffa Miskell Ltd, 1993).

Croydon Bush/Haumuri Scenic Reserve is a substantial native forest area remaining near Gore. It is an important remnant of the once extensive forests on the Hokonui Hills. The reserve also contains grassland and shrubland communities. It supports a range of successional communities that show recovery from fire and logging with kahikatea (Dacrycarpus dacrydioidies) and matai (Prumnopitys taxifolia) being the dominant species (Department of Conservation, 2000).

LAND USE

Pastoral and arable farming is the dominant land use in the Hokonui Hills area, especially on the lower slopes. A variety of other land uses including forestry and mining contribute to the remaining mosaic of activity in the Hokonui Hills. Soil and water conservation are improved through the remnant native vegetation within public conservation land.

Both Croydon Bush/Haumuri and Dunsdale provide for easily accessible backcountry recreation for day-use and passive enjoyment of the forest remnants. A variety of recreation opportunities, such as rock climbing and hunting, are possible in smaller reserves around the area (Department of Conservation, 2000). The Otapiri Gorge is a popular “day-drive”. It brings the visitor into the heart of the southern Hokonuis, with the road following the Otapiri Stream.

The Hokonuis have a long history of use and change - from early fires which allowed tussock grassland to replace forest, through Māori settlement and early European mining, flax collection and timber clearance to more recent forestry, farming and recreation (Boffa Miskell Ltd, 1993).

KEY CHARACTERISTICS

- The rolling Hokonui Hills are a striking feature in the Southland landscape.
- The hills form part of the Southland Syncline which is one of most important geological features in New Zealand.
- The Waterfall Range in particular is recognised as being particularly expressive of the Southland Syncline.
- The Bastion, Ben Bold and Ship Cone/Whakaoma are prominent visual features of the Hokonui Hills.
- Croydon Bush/Haumuri Scenic Reserve provide a substantial native forest area near Gore, together with a number of other conservation areas, in particular the large Hokonui Forest and Scenic Reserve on the southern slopes.



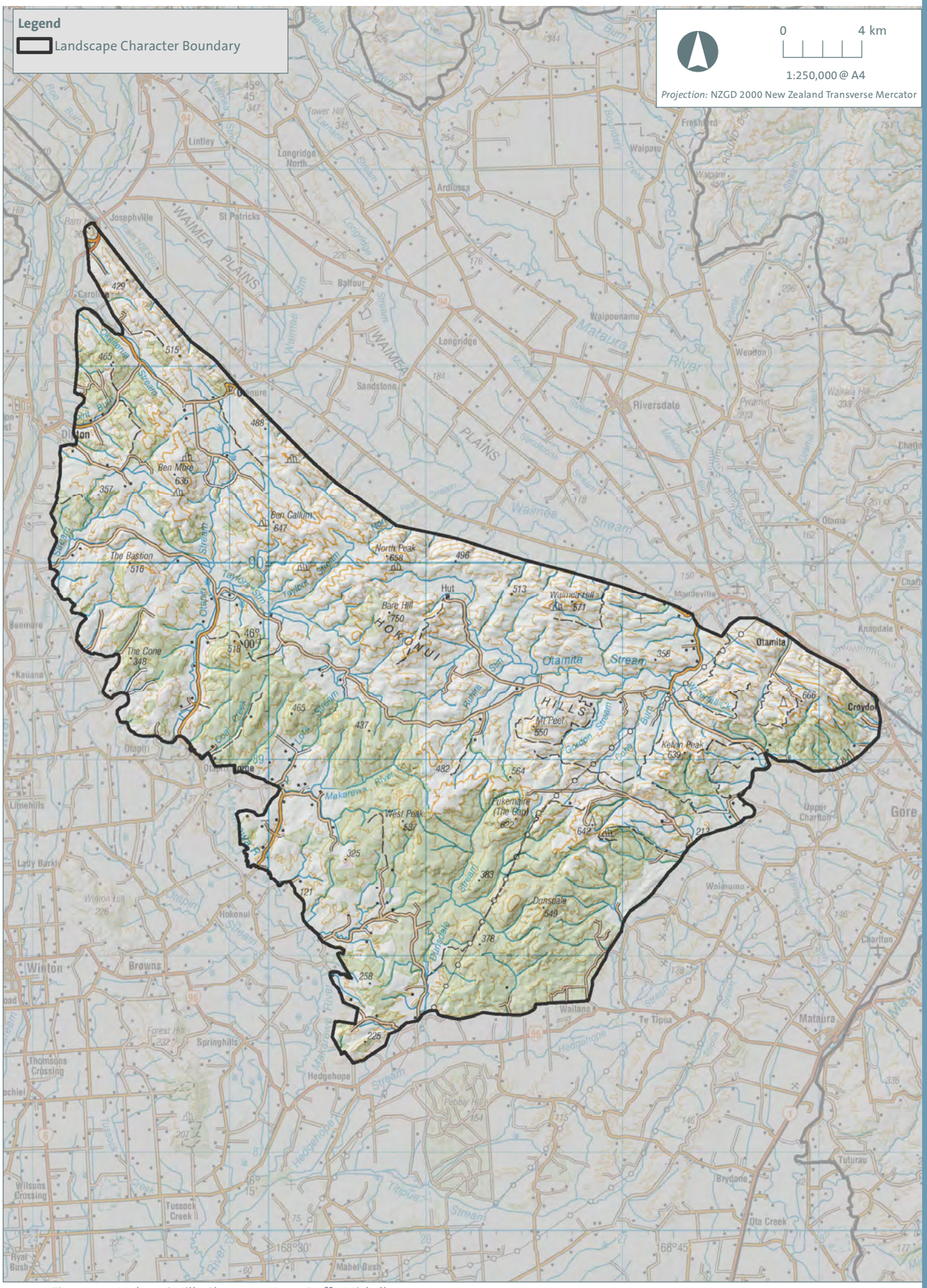


Figure 11: Hokonui Hills Character Area. Boffa Miskell, 2018.



Above and Right: View overlooking White Hill Wind Farm near Mossburn. Boffa Miskell, 2018.

4.0.7 TARINGATURA HILLS CHARACTER AREA / WHAKAPAPAKURA

GENERAL DESCRIPTION

The Taringatura Hills character area comprises two parts consisting of the Taringatura Hills and their extension north towards White Hill and North Range. This area is divided by the Aparima River within the Southland Plains and is characterised by low, rolling hills which support a mixture of land uses. Adding to the landscape diversity in the area are the geological features associated with the Southland Syncline and limestone outcrops at Castle Rock which are clearly visible from the State Highway.

The gently undulating landscape is generally under 800 meters which differentiates it from the higher Takitimu Mountains. Tussock grasslands and pine forests dominate much of the area with pasture on the lower slopes.

Towards the south, the townships of Ohai and Tinkertown have developed through mining activities. Although the old mining townships are not thriving as they were in the past, they continue to be of historical importance and contain existing settlements. Further north, there are limestone outcrops which serve as a source of the mineral while maintaining notable landscape features.

Many people visit the area for fishing in the Aparima River or for the walks and picnic area in the pine and beech forest at Big Hill. Protected natural areas containing remnant forest within this area are the small Taringatura Scenic Reserve and Etal Hill Conservation Area. Several Geopreservation Sites also fall within this area, namely Wairaki River fault scarp, metamorphic sites, fossils, caves and karst features. Refer to Figure 12 for the extent of the Taringatura Hills Character Area.

LANDFORM

The landforms of the Taringatura Hill character area comprise of sedimentary rock related to the Southland Syncline (see Hokonui Hills character area description), with areas of coal bearing strata in the south, an area of limestone in the northeast and recent alluvium in gentle valleys throughout the area. The limestone outcrops at Castle Rock are notable geological features, as are the ridges and valleys of North Range. The range is defined by rivers on both sides, the Aparima River to the west and the Oreti River to the west, both flowing in a southerly direction towards the coast.

LAND COVER

Much of the lower slopes of the hills were once covered in native forest, with wetlands in some valleys and exotic forest, manuka (Leptospermum scoparium) and kanuka (Kunzea ericoides), or tussock vegetation on the tops (Department of Conservation, 2018a). Following fires during the period of Māori movement into the south, the main forest vegetation cover changed to tussock grassland which has been further modified by farming and forestry. Most grasslands have been oversown and grazed, so that their composition is changing. Manuka occurs in areas of regenerating native shrublands. Other areas have been planted with pine trees and afforestation is continuing. The very large Castle Downs Swamp is located adajacent to this character area (refer to Waimea Plains for more information).

LAND USE

Extensive sheep grazing and forestry plantations dominate on the higher land, while more intensive farming development is reflected in the paddock patterns in the valleys. While North Range is quite open in terms of land cover, the southern parts of the Taringatura Hills, such as Rugged Hill and Cairn Peak Forest, contain large-scale plantation forests.

Coal mines at Ohai and Nightcaps triggered settlement and establishment of a railway in this area about a century ago, and parts of the open- cast mines are still in operation. Limestone quarries and in particular White Hill windfarm are other man-made elements that have been introduced into the area. The turbines of the windfarm are visible from viewpoints on the Waimea Plains, such as Mossburn.

KEY CHARACTERISTICS

- Geological features associated with the Southland Syncline and limestone outcrops at Castle Rock which are clearly visible from the State Highway.
- Ridges and valleys of North Range are notable geological features.
- Extensive sheep grazing and pine plantations dominate this landscape with small areas in conservation land.
- Historic mining towns



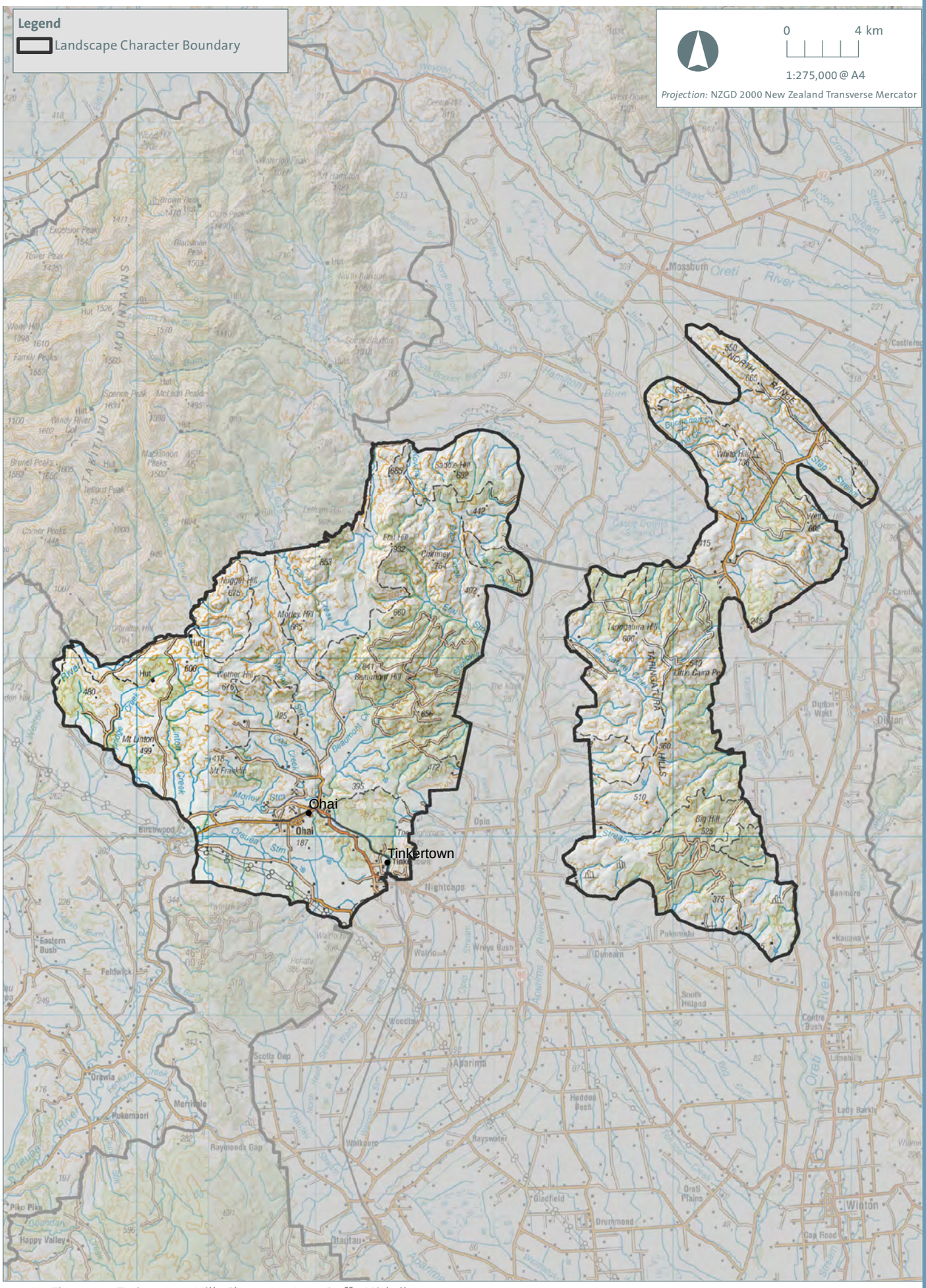


Figure 12: Taringatura Hills Character Area. Boffa Miskell, 2018.



Above: View overlooking the extensive indigenous forests of the Longwood Range. Boffa Miskell, 2018.

Right: View of the Longwood Range looking towards Te Waewae Bay and Fiordland. Boffa Miskell, 2018.

4.0.8 LONGWOOD RANGE CHARACTER AREA / ŌHEKEIA

GENERAL DESCRIPTION

The long, hump shaped ridge of the Longwood Range dominates the skyline of this southern hills character area, visible from as far away as Invercargill. The Longwood Range character area also includes the forested slopes of the range and the paddocks around the lower fringes, as well as the Woodlaw Range to the north. To the south the character area borders the Coast landscape type and otherwise it is surrounded by the Plains landscapes.

The character area contains a mosaic of land uses, in particular along the fringes, where a typical pattern of native vegetation in gullies, and land clearance and pine plantation on spurs and slopes can be found. Scattered buildings and small settlements are located on the lower, undulating slopes. This area contains an attractive, small-scale landscape created by incised rivers and streams. The Longwoods separate Tuatapere and the Waiau Valley from the rest of Southland, forming a distinctive landscape character area to its west.

Within the Longwood Range a number of important landscape features can be found, including its extensive forested skyline, formed by the native forest within the Longwood and Woodlaw Forest conservation areas. The area also has a rich history with its Chinese gold mining past, a number of historic sites including the Turnball Race, Printz Battery and Pourakino Valley.

Settlement is scattered around the fringes of the hills, with small townships on the nearby plains. Recreational use in the area focusses on the Pourakino Valley. There, the high quality of the scenery, with a mixture of bush and pasture, attracts a number of trampers, walkers and picnickers as well as anglers. Most streams from the eastern slopes of the Longwoods flow into the Pourakino River; the intact forest cover contributes to high water quality and fish habitat in its upper reaches. Refer to Figure 14 for the extent of the Longwood Range Character Area.

LANDFORM

The underlying rock types are complex, but are mainly very old volcanic types, which have been weathered to rounded hill slopes. In the Longwood Range intrusive rocks form two large plutons, where lava slowly cooled an crystallised below the surface. The intrusive rocks are part of the volcanic arc that extends from the Takitimu Range, via the Longwood Range, Riverton Hills and Pahia Point to Bluff (Turnbull, I.M.; Allibone, A.H. (compilers), 2003).

LAND COVER

The slopes of the hills are covered by native forest and regenerating shrublands, with open tops. The vegetation is a mixture of silver beech (Nothofagus menziesii) and podocarps (rimu, Dacrydium cupressinum, totara, Podocarpus totara, miro, Prumnopitys ferruginea, etc) with rata (Metrosideros umbellate) at higher altitudes. The hills have large open tops of tussock grasslands and wetlands. Much of the area has been logged in the past and in some places stark trunks stand in paddocks as a reminder of the former extent of the forest. Pine and other exotic species have been planted, forming extensive cover in some parts of the character area, such as much of the Woodlaw Range.

LAND USE

The Longwood Forest Conservation Area provides a broad range of recreational opportunities including hunting, tramping, picnicking, mountain biking and 4WD/motorbiking. The Te Araroa Trail also extends through the Longwood Range.

The lower altitude areas have been largely converted to pasture, though some native forest remnants remain, in particular in gullies extending out from the conservation area. Extensive areas of hill slopes on the Longwood Range have been logged. Some of this land has regenerated, while large areas have been planted in exotic forest species. Some goldmining has occurred throughout the Longwoods and continues today south of Round Hill.

KEY CHARACTERISTICS

- The long, hump shaped ridge of the Longwood Range dominates the skyline of this area, visible from as far away as Invercargill.
- Interesting volcanic geology as part of an arc of plutonic rocks from the Takitimu Mountains to Bluff.
- Chinese gold mining and logging in the past form part of the rich history.
- An intricate pattern of native vegetation, land clearance and pine plantation cover the undulating foothills and lower toe slopes, with scattered buildings and small settlements.
- The higher-lying parts contain native forest and regenerating shrublands with open tops within the conservation area.
- The Longwood Range separates Tuatapere and the Waiau Valley from the Southland Plains.





Figure 13: Longwood Range Character Area. Boffa Miskell, 2018.



Above: View overlooking the Rowallan Hills near Masons Hil with a mix of indigenous and plantation forest. Boffa Miskell, 2018.

Right: Aerial overlooking the Forest and the Waiau River. Boffa Miskell, 2018.

4.0.9 ROWALLAN HILLS CHARACTER AREA / HAUKORE KI MAKAREWA

GENERAL DESCRIPTION

The Rowallan Hills character area borders Inland Fiordland on the west and is contained on the east by the Lower Waiau Valley. Coastal Fiordland and Te Waewae Bay are located to the south of this character area.

The extensive and intact native forest cover and the sequences of unmodified vegetation from the coast to mountain tops make this one of the important landscapes in the region. However, there are patches of forestry spread throughout the area and modified pasture in the Lillburn and Alton Valleys. The smooth terrain of the Rowallan Hills complements the rugged mountains of Fiordland which form a spectacular backdrop to views and any recreational activity. Refer to Figure 14 for the extent of the Rowallan Hills Character Area.

LANDFORM

The landforms comprise of rounded hills at relatively low elevation, and wide valleys through which meandering rivers flow. The wide Lillburn Valley traverses the character area, created by the Lill Burn River which enters the Waiau River above Clifden. The streams and rivers of the area have created a complex area between forest covered hills and terraces.

The Rowallan area is comprised of a series of fault lines such as the east hump fault, west hump fault, Waitutu thrust fault, and the active Hauroko Fault which runs through both Lake Poteriteri and Lake Hauroko. The Hauroko fault line divides the Waitutu-Rowallan rock formations from the rest of Fiordland, with this area being predominantly comprised of sandstone, compared to the granite and quartz of Fiordland (GNS Science, 2014).

LAND COVER

The land cover of the Rowallan Hills consists of a mix between relatively intact podocarp and beech forest, scattered forestry blocks of differing sizes and high producing grassland in the Lillburn Valley and the lower hill slopes on the eastern boundary. North-west of Rarakau are some small farmed, low-producing grassland areas, flaxlands and regenerating shrublands, as well as numerous smaller stands of plantation forestry amongst the native forest. The exotic forest generally follows landforms and is more easily detectable from the air.

The western portion of the Rowallan area is dominated by podocarp forest and in particular rimu (Dacrydium cupressinum). At lower altitudes, the beech forest tends to be located on alluvial sites, and mountain beech (Fuscospora cliffortioides) is found on poorly drained soils. The treeline finishes at approximately 900 metres above sea level, with some sub alpine scrub, snow tussocks, and alpine wetlands found above.

The eastern area has been more modified, and much of the forest cover, including silver beech (Nothofagus menziesii), lowland beech, and podocarp species, have been removed due to land development. Any remains of these forests are found in steeper and more remote areas, and remnants of the once plentiful red tussock (Chionochloa rubra subsp.) still exists in the Lillburn Valley.

The two branches of the Rowallan Burn and Waikoau River have created lower-lying valleys with meandering streams through dense, predominantly native forest cover.

LAND USE

The Lillburn and Alton Valleys and eastern fringes of this character area are in more modified, pastoral farm land. This is where the only settlements are found. Access into the area is primarily gained from farm and forestry developments in the lower country along the eastern fringes. Lake Hauroko, which is a major visitor attraction in the Fiordland character area, can also be accessed from the Lillburn Valley road.

A network of forestry roads traverses through the area of Rowallan Forest and small-scale forestry is scattered through the majority of the area. Forestry blocks in the area are used for hunting.

The conservation land at Motu Bush, which forms part of Deans Forest, provides walking tracks for recreational use and Lillburn River is popular with anglers. However, overall this area sees minimal use compared to neighbouring Fiordland National Park, apart from the access road to Lake Hauroko.

KEY CHARACTERISTICS

- The extensive and intact native forest cover and the sequences of unmodified vegetation from the coast to mountain tops make this one of the important landscapes in the region.
- The smooth terrain of the Rowallan Hills complements the rugged mountains of Fiordland which form a spectacular backdrop.
- The land cover of the Rowallan Hills consists of a mix between relatively intact podocarp and beech forest, scattered forestry blocks of differing sizes and high producing grassland.



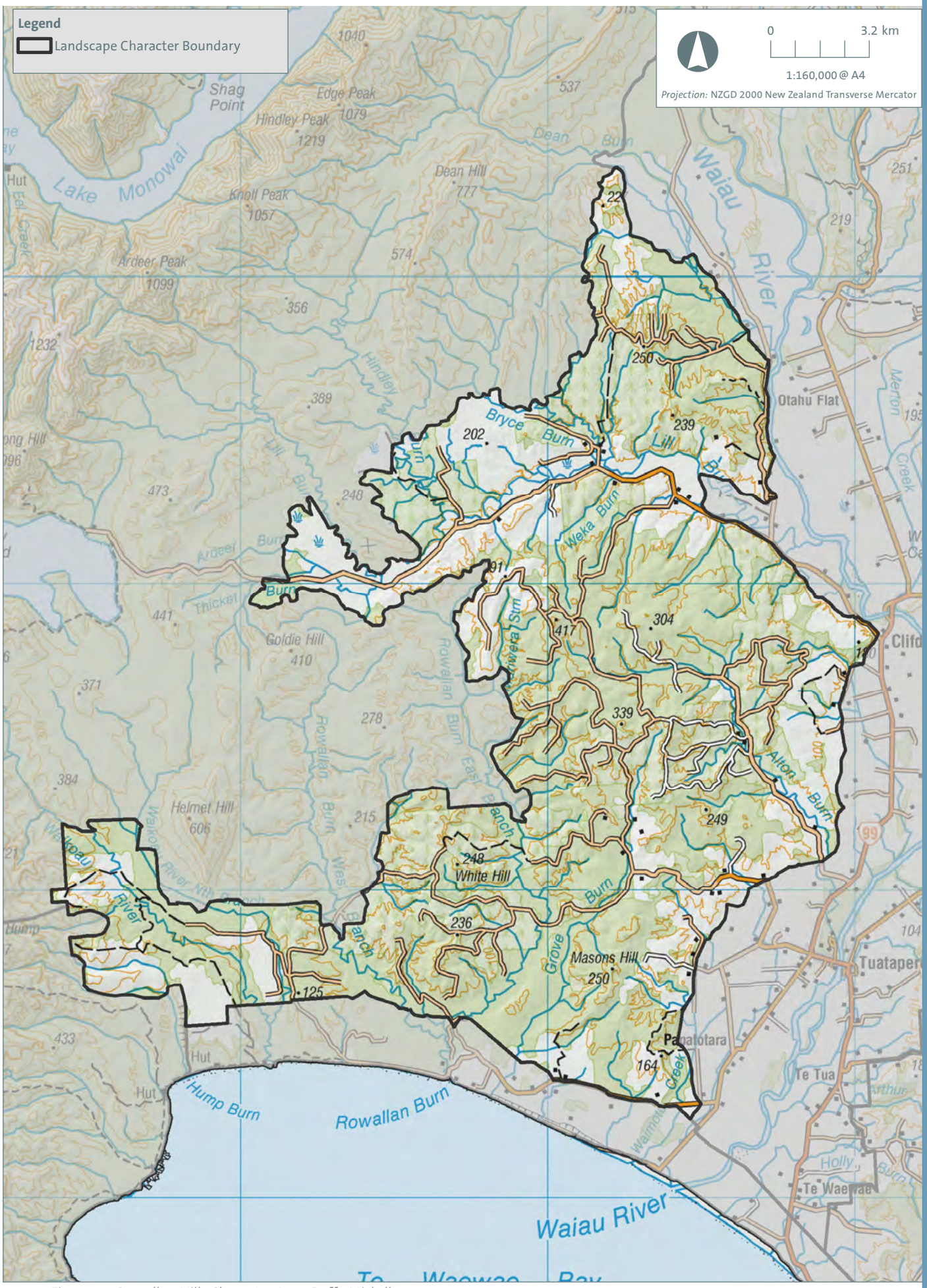


Figure 14: Rowallan Hills Character Area. Boffa Miskell, 2018.



Above: View overlooking the Inland Catlins Character Area and Catlins Conservation Park on the right. Boffa Miskell, 2018.

Right: Eastern view of the Catlins Conservation Park from Gourley Road. Boffa Miskell, 2018.

4.0.10 INLAND CATLINS CHARACTER AREA / WAIKAWA-TAUTUKU

GENERAL DESCRIPTION

The Inland Catlins are located in the south-eastern corner of the Southland region which includes a number of low hill ranges running north-west to south-east extending into the Otago region. The Inland Catlins form part of the Southland Syncline visible from the Southland Plains. The Inland Catlins are surrounded by the Waimea and Southland Plains to the north-west and border the Otago region on the east. The Coastal Catlins character area, includes the prominent coastline and immediate hinterland to the south and east of this character area.

The Inland Catlins contain an attractive agricultural landscape made up of a mosaic of farm paddocks, forest and shrubland remnants, larger areas of native forest and small-scale forestry plantings. The unique combination of vegetation variety, landform undulation and open pasture is a notable feature of this landscape. Traversing through the character area are incised streams, often appearing only as threads of flax and native shrubs where they flow through paddocks. Several rivers flow through this character area including the Mataura River along the western boundary, the Mokoreta River in the north and the Waikawa River which runs along the eastern boundary. Refer to Figure 15 for the extent of the Inland Catlins Character Area.

LANDFORM

The Inland Catlins comprise of folded Jurassic sandstones and mudstones of the eastern extent of the Southland Syncline with low, rolling hills on the western fringe and in the valleys.

The Catlins comprise of a predominantly flat landform with rolling plains. The landscape was formed by ancient river gravels which were carried down from the north and deposited. These rivers, such as the Waikawa River, still remain prominent features within the Inland Catlins character area. The hills which surround the plains were lifted approximately 150 million years ago as a part of the Murihiku Syncline. The Slopedown landform contains an impressive south-east facing escarpment with a distinctive flat top and peak of 713 metres above sea level.

Two fault lines end on either side of this character area, both of which are inactive. The Mahaka fault follows the coastline from Tautuku Peninsula in Otago to just inland of Brothers Point. To the west, the Waimahaka fault line finishes to the western end of Forest Range (GNS Science, 2014).

LAND COVER

All the accessible lowlands and generally the lower valleys are intensively developed farmland. This has involved extensive clearance of forests and drainage of wetlands. The upper slopes and hill crests generally remain in native forest with many areas remaining on private land. The central, large area of native forest falls within the Catlins Conservation Park along the Forest Range, which crosses the regional boundary of Southland and Otago. Slopedown falls outside of the Catlins Conservation Area and forms part of the Slopedown Conservation Area.

Characteristic of the western parts are the deeply incised streams with flax (Phormium spp.) and other native vegetation along the banks. However, much remnant vegetation is grazed by stock and goats. There has been both large and small-scale forestry planting, but native vegetation remains visually dominant in many areas.

Slopedown Hill has some mountain cedar on the southern slopes, while the tops have sub-alpine red tussock and peatlands. The Kamahi Scenic Reserve in Edendale contains one of the very few areas of unlogged matai forest in South Island.

LAND USE

The predominant land use within this landscape is pastoral farming, in particular around the fringes of the character area and within valleys. Many of the hills are covered in native forest or forestry plantations. Because of the scattered nature of small settlements and houses in this gently rolling landform, there is often a sense of isolation. Small settlements include Waimahaka and Tokanui.

Most recreational opportunities are outside of this area and found along the coast, however tourists and locals travelling along the Southern Scenic Route experience the Catlins while driving. Conservation land within this area consists of the Catlins Conservation Park, Slopedown Conservation Area, Chaslands and Haldane Scenic Reserve.

KEY CHARACTERISTICS

- The Inland Catlins form part of the Southland Syncline visible from the Southland Plains.
- The landform of Slopedown provides an impressive escarpment with native forest and a large alpine wetland on the flat top.
- This is an attractive agricultural landscape made up of a mosaic of farm paddocks, forest and shrubland remnants, larger areas of native forest and small-scale forestry plantings.
- The Kamahi Scenic Reserve contains one of the very few areas of unlogged matai forest in South Island. The Catlins Conservation Park contains a large area of native forest in the centre of the character area. Most of the hills of the Catlins are clothed in rimu, kāmahi, rātā and silver beech which together form the largest area of native forest on the east coast of the South Island (Department of Conservation, 2018b).
- Slopedown contains regenerating vegetation of kamahi, podocarp, and mixed broad leaf forest.
- There is a sense of isolation in this landscape due to scattered settlements and houses.





Figure 15: Inland Catlins Character Area. Boffa Miskell, 2018.

1.5 THE PLAINS LANDSCAPE TYPE / NGĀ PĀKIHI O MURIHIKU

The plains landscape consists mostly of flat or gently undulating land where the greatest changes to the land have taken place since settlement. Most of Southland's population lives on the plains and by consequence the greatest concentration of services exist - roads, settlements, power lines and a variety of infrastructure. Large-scale productive land use changes have occurred on the plains, such as farming and forestry.

Four character areas have been distinguished within the Plains Landscape Type. The Southland Plains are the largest which includes Invercargill City and Winton, being the flat and rolling areas from the lower Mataura River in the east, to the Longwood Range in the west; the Waimea plains extending from Mandeville to Mossburn; the Te Anau Basin; and the Lower Waiau Valley south of Blackmount on the western side of the Longwood Range.

The Plains Landscape Character Area contains a highly modified landscape with a strong rural character and a mix of rolling and flat land. The lower reaches of the large Southland Rivers, such as the Waiau, Aparima, Oreti, Mataura and Waimea Rivers run through broad open valley floors where there are remnant wetlands associated with the rivers. In some areas, such as near Clifden, limestone outcrops form distinctive landscape features (Boffa Miskell Ltd, 2011).

Generally, the plains are an intensively used agricultural landscape. There are sporadic indigenous vegetation areas within the landscape such as red tussock land and wetlands in the upper catchment of the Aparima River. Visually the landscape is dominated by shelter belts and rectilinear fence lines. Much of the Waiau Valley has a history of logging that has moved from native timber to exotic forests. The surrounding hills provide contrast and amenity to the rural plains landscape below, however deforestation or exotic forestry may result in further change to the character of the plains unit.

Within the plains the ecological aspects of the landscape are dominated by cultural patterns and processes – for example pastoral production, cropping, growth of towns and settlements, channelisation of rivers and streams, erosion and flood protection. While the landscape has changed substantially, the ecological aspects remain important, in particular where they relate to rivers/ streams, wetlands, and native vegetation remnants. The large wetland complex of the Awarua Plains to the east of Invercargill is one of the largest, most intact systems of its kind in New Zealand. In particular in the Te Anau Basin, and to a lesser extent in Waiau Valley fragmented, but nevertheless important, wetlands also remain.

The rivers were one of the important formative forces in the plains and the river terraces, meanders and floodplains form a distinctive pattern across the character area.

Left: View overlooking the Lower Waiau Plains. Bald Hill can be seen in the distance, and the Waiau river to the bottom right of the image. Boffa Miskell, 2018.



Above: Aerial of the Waiau River leaving Lake Manapouri for Te Waewae Bay. In the distance is the eastern edge of Fiordland National Park. Boffa Miskell, 2018.

Right: View overlooking Te Anau Basin with Lake Te Anau and Harts Hill in the background. Boffa Miskell, 2018.

4.0.11 TE ANAU BASIN CHARACTER AREA

GENERAL DESCRIPTION

The Te Anau Basin provides the main access into the spectacular Fiordland National Park, including to Lake Te Anau and Lake Manapōuri. The basin lies to the south and east of the National Park and is surrounded by mountain landscapes to its east. The Te Anau basin has a complex geological history. This is evident in the variety of landforms, river and drainage patterns, natural vegetation patterns and present day uses of the area. It is strongly influenced by the Fiordland mountains which dominate the climate, but also by the rivers which flow out of the inland mountains carrying gravels with their erosional forces.

This landscape contains many remnant wetlands and tussock areas, a number of which are very significant for both ecological and landscape reasons. The landscape also has great significance as a visual foreground to the mountain landscapes of Fiordland, the Takitimu and the Livingstone Mountains. Altogether, this is a landscape in which landform, land cover and land use are diverse.

Parts of Fiordland National Park and Snowdon Forest Conservation Area extend into the Te Anau Basin landscape which cover a majority of the wetland areas along Milford Road. The Milford Road is a very important tourist route which passes through the Te Anau Basin and enters Fiordland National Park.

Notable features within the Te Anau Basin include Burwood Bush, Freestone Hill which is a prominent glacial landform, the numerous wetland areas in addition to the Eglinton, Upukerora, Whitestone, Mararoa and Waiau Rivers. The Lower Waiau River is modified below Lake Manapōuri through the hydro scheme that conveys water from Lake Manapōuri into Doubtful Sound. Refer to Figure 16 for the extent of the Te Anau Basin Character Area.

LANDFORM

The Te Anau and Waiau Basins were formed as depressions through the subsidence of the north-east trending Moonlight Fault System and are now filled with recent sedimentary rocks. Lake Te Anau has been further gauged out by glaciers during the ice age.

The Te Anau Basin landforms vary from a rolling, rural landscape to a series of large lateral moraine deposits between the Upukerora and Eglinton Rivers. The undulating landscape has knolls and gentle

depressions with countless wetlands. The ice sheet that covered the basin extended as far east as Burwood Bush, where the Mararoa and Oreti Rivers enter from the north. The ice was as high as the upper slopes of Mt Prospect, which forms an important landmark in the basin to the east of Te Anau. Other landforms include legible plateaus, river valleys with terraces and old outwash plains. Bog Lake is an example of moraine deposits on the edge of Lake Te Anau and the Eglinton River.

At the entrance to the Lower Waiau Valley, extensive alluvial fans extend west from the Takitimu Mountains into the basin. The braided Mararoa River crosses through the Te Anau Basin orginiating from the Mavora Lakes.

LANDCOVER

Extensive clearance of native vegetation took place historically in parts of the basin, although a number of larger areas of forest and other habitats remain close to the western and northern edges of the basin. These include manuka/kānuka shrubland, tussockland, beech forest and wetland vegetation. The high rainfall and unusual soil complexes support a number of wetlands of different types. Kepler Mire is the largest wetland in the Te Anau Basin and set in a depression between low moraine hills with some open pools of water visible from the air. Home Creek Wetland is nearby, and numerous other wetlands are associated with the Upukerora River and smaller creeks in the Te Anau Downs area. Snowdon and Margin Forest contains the majority of the beech forest within the basin.

The Wilderness Scientific Reserve located on the Mararoa River has a naturally rare indigenous ecosystem consisting of bog pine shrublands that have survived since the last glaciation period (Department of Conservation, 2016). The Mararoa River contains bird breeding sites near the reserve. Burwood Bush (Red Tussock) Scientific Reserve protects 3104 hectares of red tussock (Chionochloa rubra) and tawai/beech forest.

LAND USE

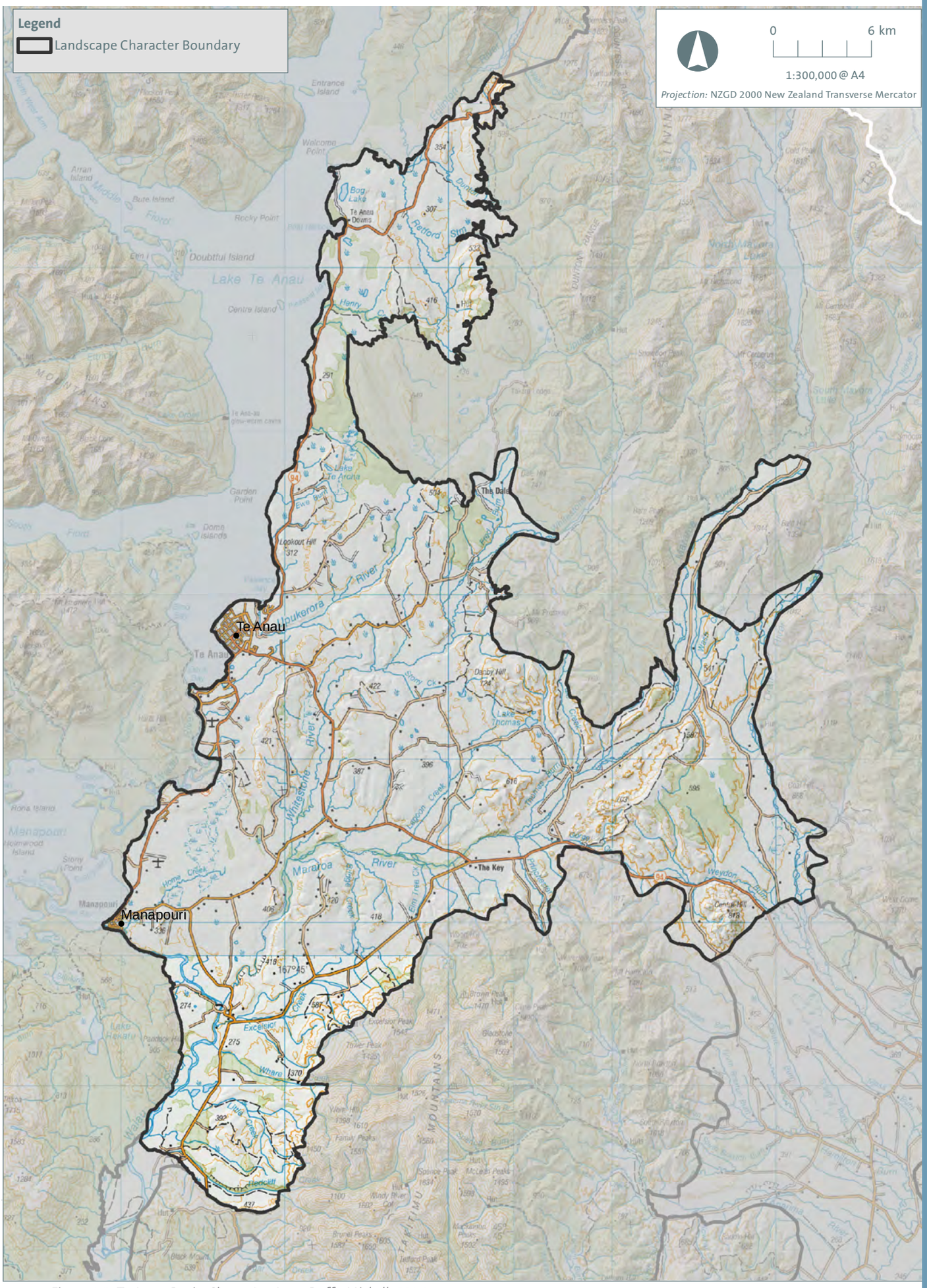
Te Anau and Manapōuri are the largest settlements and have dual roles in servicing both the agricultural industry and the tourist and recreation industry. Both these activities are dependent on natural resources - while farming is focussed on the plains, visitors usually carry on into Fiordland along the world-renowned Milford Road.

The agricultural land use throughout the basin forms a mosaic with small forestry areas and various forms of pastoral grazing. In particular on undulating landform the pattern of land use is generally of a reasonably small scale with shelterbelts and woodlots separating paddocks. This is interspersed with rural life-style developments, in particular along the edges of Te Anau and Manapōuri Townships. The area north of Te Anau, such as along Sinclair Road, and on the Ramparts to the south, has changed to a more settled character. The outer edges of the basin contain larger-scale forestry with the lower slopes of the Takitimu Mountains covered with extensive plantation forest at the entrance to the Waiau Valley.

KEY CHARACTERISTICS

- The Te Anau Basin provides the main access into the spectacular Fiordland National Park, Lake Te Anau and Lake Manapōuri. The basin provides the foreground to the highly valued views towards the surrounding mountains.
- Te Anau Basin is strongly influenced by the Fiordland mountains which dominate the climate.
- The rivers which flow out of the inland mountains shaped the basin with the gravels they transport and their eroding forces that create sequences of terraces.
- This landscape contains many remnant wetlands and tussock areas, a number of which are very significant for both ecological and landscape reasons, such as Kepler Mire. While these wetlands are more fragmented in the centre of the basin, the northern part of Te Anau Basin contains substantial connected wetland areas.
- The Te Anau Basin landforms vary from a rolling, rural landscape to a series of large lateral moraine deposits between the Upukerora and Eglinton Rivers. The history of glaciation is as legible as more recent processes relating to river erosion.
- Te Anau and Manapōuri are the largest settlements and have dual roles in servicing both the agricultural industry and the tourist and recreation industry. Rural living spreads into some of the areas near the settlements.




Legend
Landscape Character Boundary
0
6 km
1:300,000 @ A4
Projection: NZGD 2000 New Zealand Transverse Mercator
Te Anau
Manapouri
Lake Te Anau
Doubtful Island
Centre Island
Entrance Island
Welcome Point
Rocky Point
Garden Point
Dome Islands
Lake Manapouri
Home Creek
Waiau River
Whitestone River
Mararoa River
Lake Thomas
The Key
Lake Hakapt
Lake Monowai
Takitimu Mountains
Eglinton Valley
Te Anau Downs
Lookout Hill
Darby Hill
Centre Hill
Brown Peak
Mt Titiroa
Mt Cerberus
Mt Campbell
Mt Richmond
Mt Prospect
Mt Christina
Mt Irene
Mt Lyttelton
Mt Hamilton
Mt Hall
Mt Hutt
Mt Hicks
Mt Hay
Mt Hay
Mt Hay



Above: View overlooking the Waiau River within the Lower Waiau Plains. Boffa Miskell, 2018.

Right: Confluence of the Wairaki and Waiau Rivers. In the distance the Longwood Forest Conservation Area can be seen. Boffa Miskell, 2018.

4.0.12 LOWER WAIAU PLAINS CHARACTER AREA

GENERAL DESCRIPTION

The Lower Waiau Plains are bordered by hill and mountains landscapes. This landscape includes farmland of the Waiau Valley from the Monowai-Blackmount area down to the boundary with the Coast including the rolling limestone country around Clifden.

The Waiau Valley is a diverse landscape with a mixture of small terraces, plains and a series of hills, scarps and cliffs. It is intensively farmed, although there are remnants of tussock and shrubland in places. The Waiau River has shaped the valley with its extensive terraces and wetlands. At Blackmount the river has carved a narrow gap through the hills that defines the upper and lower Waiau Valley. Although in places only visible as a line of willows, the Waiau River dominates this scenic valley landscape.

The Lower Waiau Valley contains a number of interesting and significant features including limestone caves, a historic suspension bridge at Clifden, and recreational sites at the Waiau River mouth and Tuatapere. Transmission lines from the Manapōuri power scheme run through this landscape and are a noticeable man-made element. Refer to Figure 17 for the extent of the Lower Waiau Plains Character Area.

LANDFORM

The Waiau Plains originated from the Waiau river gravels carried down from the glaciated mountains to the north during the ice ages. The Waiau River is still a very dominant feature in this landscape along with several scattered wetlands. The Waiau River varies from a wide, braided river meandering over shingle to a single channel with rocky bluffs, depending on the surrounding landform. Its flows have been greatly modified through the Manapōuri power scheme. While the plains are predominately flat, rolling hills fringe the edges of this landscape as they rise into the surrounding Rowallan, Taringatura and Longwood landscapes.

The limestone hills along the eastern side of the valley have a distinct landform character with rock outcrops, bluffs and caves. Notable features include the Clifden limestone bluffs which are easily accessible fromState Highway 96 and listed as a Geopreservation Site. These karst features are the best in Southland and are one of the most diverse karstic landscapes in the southern half of the South Island.

LAND COVER

The primary land cover within the Waiau Plains is farmland. However, there are forestry blocks and small remnant native forests spread throughout. The large-scale plantation forests near Blackmount contain the visually most prominent forestry area, but a number of other parts of the valley contain large blocks, such as east of Mangapiri Bush. The Waiau Valley abuts Fiordland National Park and other conservation areas, such as Deans Forest to its west and the views out to these large areas of native forest contribute to the character of the valley. Areas, such as Lonekers Bush, Mangapriri Bush, Taylors Forest and Otahu and Tuatatapere Scenic Reserves contain rare areas of native forest on the valley floor. Native shrub remnants are in most areas confined to gullies, which are more common in particular in the lower Waiau Valley where the western slopes of the Longwood Range form the character area boundary.

LAND USE

Tuatapere is the largest settlement of the character area. It grew as a timber town, based on the native forests of Rowallan and the Longwoods, but more recently has expanded into recreational servicing. Some remnants of beech forest form an attractive riverside reserve in the town, and the State Highway 99 is part of the “Southern Scenic Route” to Fiordland. The valley provides access to a number of key attractions within the eastern part of the Fiordland National Park, such as Lakes Hauroko and Monowai, the Borland Valley and the Hump Ridge track. Further north, the road offers good views of the river and towards the Takitimu Mountains.

Around Clifden some small-scale quarries have established to use the limestone resource in the area. Clifden is one of a number of smaller settlements that occur throughout the valley.

The northern part of the Waiau Valley is less intensively farmed with larger bush remnants (eg Loneker’s Bush Scenic Reserve), and quite intact roadside vegetation communities. Forestry is the most common land use on the adjacent slopes in the northern part, in particular around Blackmount. The eastern part of Blackmount Forest contains native forest within a public conservation area.

KEY CHARACTERISTICS

- The Waiau Valley is a varied landscape with a mixture of river terraces, plains and a series of hills, scarps and cliffs.
- Significant natural features include limestone caves, forest remnants and wetlands.
- The historic suspension bridges at Clifden and Monowai are reminders of the settlement history.
- The Waiau River is still a very dominant feature in this landscape along with several scattered wetlands.
- Tuatapere is the main township of the area with smaller settlements throughout the valley.
- State Highway 99 is part of the “Southern Scenic Route” to Fiordland and provides access to many key recreation destinations on the eastern edge of the national park.



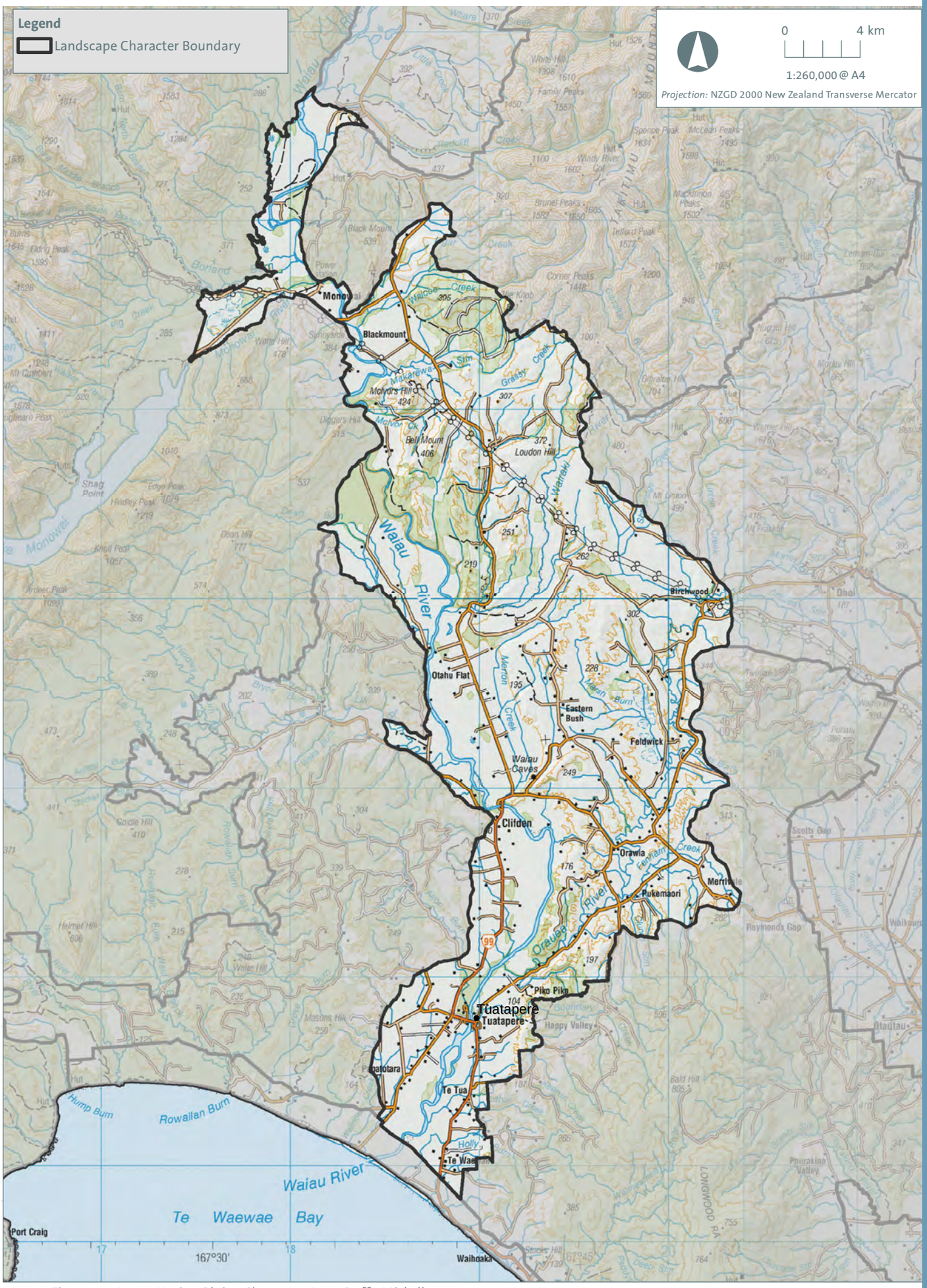


Figure 17: Lower Waiau Plains Character Area. Boffa Miskell, 2018.



Above: View overlooking the Mataura River flowing through the Waimea Plains with Hokonui Hills in the background. Boffa Miskell, 2018.

Right: Northern view of the Hokonui Hills ridgeline. Boffa Miskell, 2018.

4.0.13 WAIMEA PLAINS CHARACTER AREA

GENERAL DESCRIPTION

The Waimea Plains landscape occupies a large area which contains the middle reaches of the Oreti River, its alluvial flats and surrounding hill country. To the north the plains extend into the Waikaia and Garston Valleys. The Oreti and Mataura valleys cut through these glacial gravel plains often forming stepped horizontal terraces. The Waimea Plains are bound by mountain landscapes to the north, with the escarpment of the Hokonui Hills forming the distinctive and visually prominent boundary to the south.

This area is intensively farmed with some substantial remnant wetland areas. In the higher altitudinal section of the plains landscape, there is a strong contrast between the developed river valleys and terraces, with their paddocks enclosed by shelterbelts, and the openness of the surrounding mountains and hills, predominantly covered in tussock and grassland. The highly productive valley area is very modified in terms of landcover, so that few native vegetation remnants remain. Refer to Figure 18 for the extent of the Waimea Plains Character Area.

LANDFORM

The plains originated from ancient river gravels carried down from the glaciated mountains to the north and the rivers remain important features. The Waimea Plains are crossed by major rivers which link the mountains with the lower plains and coast. The Mataura and Oreti Rivers and to a lesser extent the Aparima River, flow in an easterly direction through the Waimea Plains before cutting their way through the hills of the Southland Syncline on their way south towards the sea.

The Murihiku escarpment (a physical expression of the Southland Syncline in this area) is a major visual feature to the south of the plains. The sedimentary rocks were uplifted along the line of the Livingstone Fault, were they form very legible strike ridges that can be particularly well viewed from the Waimea Plains.

LAND COVER

On the flat terraces, the landscape is dominated by long, mature shelter belts, mostly consisting of pine, above a very regular pattern of fence lines. There are no native forest remnants on the valley floor landscape, while they can be seen on the adjacent mountain slopes and gullies. At the western end, red tussock (Chionochloa rubra subsp) occurs in paddocks and on roadsides, usually in modified communities.

Castle Downs Swamp, which is in the catchment of the Aparima River, is enclosed by the slopes of the adjacent Taringatura Hills. Castle Downs Swamp is one of the largest wetlands in the upper plains, together with other wetland areas at Centre Burn and Moss Burn. Peatlands also remain.

LAND USE

The landscape has been extensively modified to pasture, with some cropping and plantations of exotic forest.

There are small settlements, particularly along the State Highway 94 which includes Mossburn, Lumsden, Waikaia, Balfour and Riversdale. The settlements are rural service centres with an open character, wide streets and mostly single storey buildings.

KEY CHARACTERISTICS

- The Waimea Plains are crossed by major rivers which link the mountains with the lower plains and coast. This large area contains the middle reaches of the Oreti and Mataura Rivers, with their alluvial flats.
- The Murihiku escarpment (a physical expression of the Southland Syncline) is a major visual feature to the south of the plains.
- This area is intensively farmed with parts of the plains extending into the Waikaia and Garston Valleys.
- In this higher altitudinal section of the plains landscape, there is a strong contrast between the river valleys and terraces developed for intensive farming use, and the more natural land cover of the surrounding mountains and hills.
- The landscape has been extensively modified to pasture, with some cropping and exotic plantations. Few remnant wetlands remain, although some in the western part near the slopes of the Taringatura and Takitimu ranges are particularly significant.



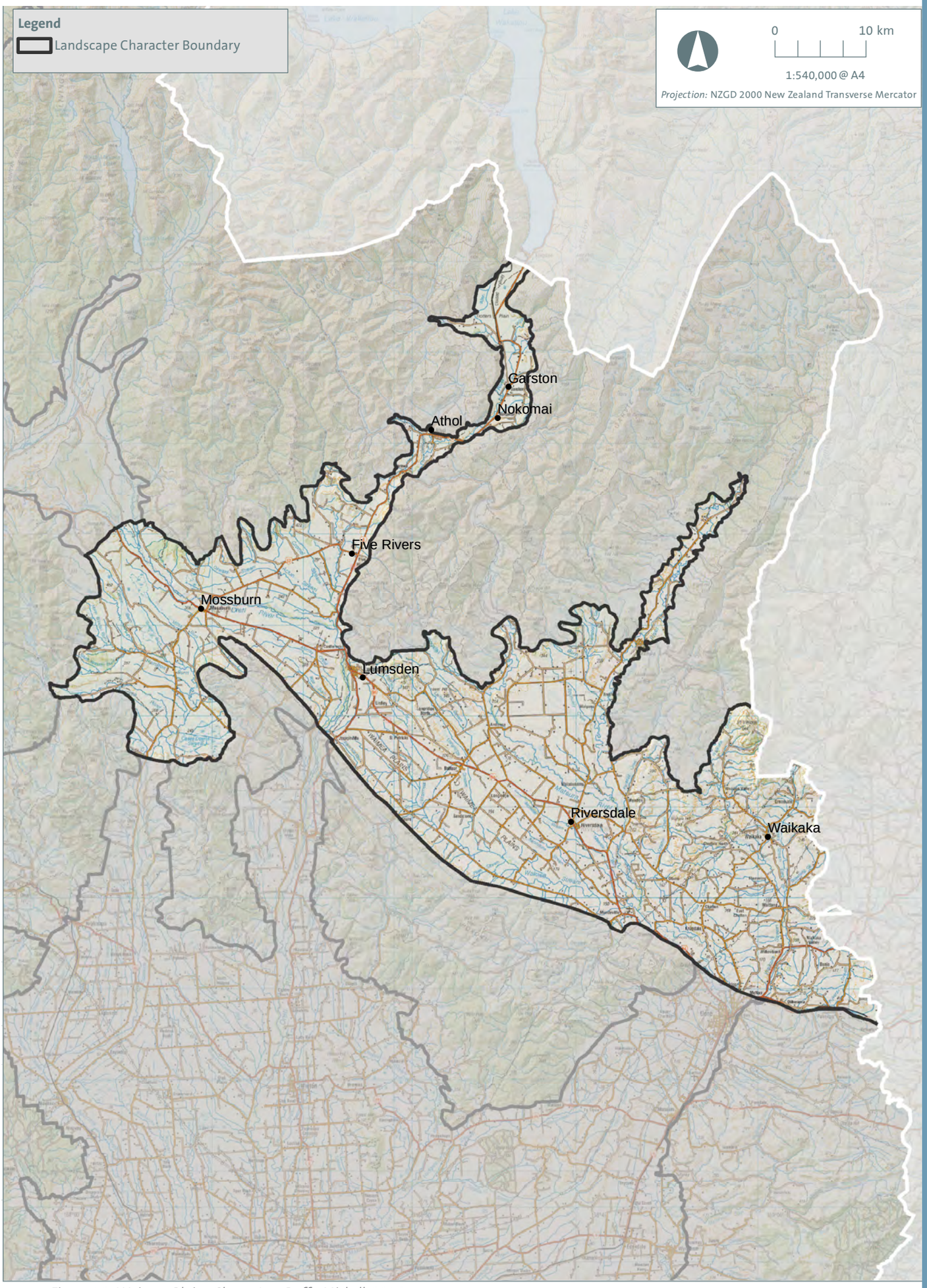


Figure 18: Waimea Plains Character . Boffa Miskell, 2018.



Above: View overlooking the patchwork agricultural land use across the Southland Plains. Boffa Miskell, 2018.

Right: View south towards Oreti beach and Foveaux Strait. Boffa Miskell, 2018.

4.0.14 SOUTHLAND PLAINS CHARACTER AREA / TE RĀ A TAKITIMU

GENERAL DESCRIPTION

The Southland Plains lie to the north of the city of Invercargill, and is formed by several large rivers, the Aparima, Oreti, Mataura and Makarewa Rivers. The Southland Plains are the largest lowland character area within the region which vary from flat to gentle country with some rolling downlands, all below 300m. These southern plains are bound by hill landscapes to the west (Longwood Hills), east (Catlins) and north (Hokonui Hills), and the coast to the south. The plains' strongest characteristic is that of scattered settlements and agricultural land use. Few natural features remain in the flat and gently rolling pastoral land, but the extensive wetland areas near the coast are particularly notable and of international importance. At their southern extent the Southland Plains become the Awarua Plain, a large area of marshy land which stretches from near Bluff to the foot of the Catlins in the far east (for coastal part, see Estuaries Coast Character Area).

Within the Southland Plains key landscape features include the limestone outcrop at Forest Hill which is a geological feature of visual significance, acting as a landmark within the plains. From an ecological and landscape perspective, a number of peatland and wetland reserves, in particular within the Awarua Plains, are of very high significance. In addition, the major rivers that cross the plains, have created a character that can only be found in the lowlands with intensive meandering and a number of small reserves of remnant bush close to the city of Invercargill. Refer to Figure 19 for the extent of the Southland Plains Character Area.

LANDFORM

The plains originated from ancient river gravels carried south from the glaciated mountains. The rivers remain important features and the course of the rivers has naturally changed in many instances over the past. Today most water courses have been modified in some way.

To the east of the Oreti Valley, the plains are rolling, with loess cover over the river gravels, and streams and rivers cutting down through this softer surface layer. Near the sea, the inter-relationship between build-up of sand bars, flooding and fluctuating sea-levels caused ponding to form the large lagoons and

peatlands as seen at Awarua and Waituna. Throughout the plains are scattered peatlands, limestone and lignite deposits (Department of Conservation, 2000). These peatlands tend to be near the estuaries and wetlands at the mouth of the Oreti River. Limestone and lignite deposits are found further inland, north and north east of Winton.

Extenstive sand dunes can be found at behind Oreti Beach, on Sandy Point and around Otatara near the New River Estuary (see Riverton-Aparima Coast Character Area).

LAND COVER

The extensive forests of the Southland Plains and hill country were largely destroyed by fire between 600 and 800 years ago. Following that red tussockland spread across the Southland Plains, with Bracken Fern on hill country sites. Before land modification for agriculture the Southland Plains contained many wetlands (including peatlands), though large areas of these have been lost. Forest cover in the south and east was depleted further during European settlement by fire, milling, and conversion to pasture or plantation forest (Harding, 1999).

In large parts of the character area, the widespread agricultural development which has taken place now covers the relatively diverse underlying ecological patterns which make up the plains. To the west, the plains are flatter, with thinner soils and wider rivers meandering across the gravel surfaces, such as the Aparima River. Cropping is more extensive here than further east.

Overall, small pockets of remnant forest, peat land areas and very few red tussock (Chionochloa rubra subsp) grasslands, swamps or shrublands remain due to land development and the majority of this character area is artificially drained. Soils in the west although artificially drained, are less impeded in comparison to those in the east which are closer to the Awarua Bay and New River Estuary. Both the eastern and western sides however have soils which are equally poorly drained, and are predominantly comprised of fine alluvium in the west and silt loams to the east. The Awarua Wetland complex has been identified as a RAMSAR habitat, and is comprised of tidal mudflats which are surrounded by maritime marsh.

Notable areas of remnant forest patches are Forest Hill, Seaward Bush Reserve (regenerating kamahi, Weinmannia racemosa), Thomsons Bush (remnant kahikatea, Dacrycarpus dacrydioides, totara, Podocarpus totara and matai, Prumnopitys taxifolia swamp forest), Otatara Scenic Reserve (Kahikatea and Halls totara dune forest), which are all located in close proximity to Invercargill. Sand dunes can be found throughout Otatara with the best example being located in the south west corner, however the sand dunes are covered in native vegetation concealing their natural landform.

LAND USE

Within the Southland Plains area several important sites to Ngāi Tahu are located, namely Arowhenua/ Longbush, known for mahinga kai, and Wallacetown for stone working. The Māori Reserves at Forest Hill and Invercargill are important for wāhi tapu and wāhi taoka (Department of Conservation, 2000). Long before the township of Invercargill was developed, the rich natural resources of Sandy Point supported an important settlement/kāinga called Oue, in an area where abundant groves of cabbage tree/tī kouka (Cordyline australis) were available for food and clothing. The arrival of sealers and whalers brought change, although the whaling station established there in 1836 was short-lived. Some totara milling occurred at Daffodil Bay and Kilmock Bush in the 1880s.

The settlements across the plains reflect the historical use of resources and natural patterns. Towards the north-west, the township of Nightcaps was developed through mining activities. Although the old mining township includes some run-down buildings, it is an important historical area. Invercargill City has the largest population with smaller settlements found in Wallacetown, Winton, Otautau, Dipton, Browns and Edendale.

Most of the plains landscape is predominantly farmland now, with only small remnants of the original vegetation remaining scattered throughout the plains. This area is dominated by three major river systems – the Aparima (west), Oreti (central) and Mataura (east) and these are valuable recreational resources particularly for anglers. Other rivers include the Makarewa, the largest tributary of the Oreti and the Waihopai River.



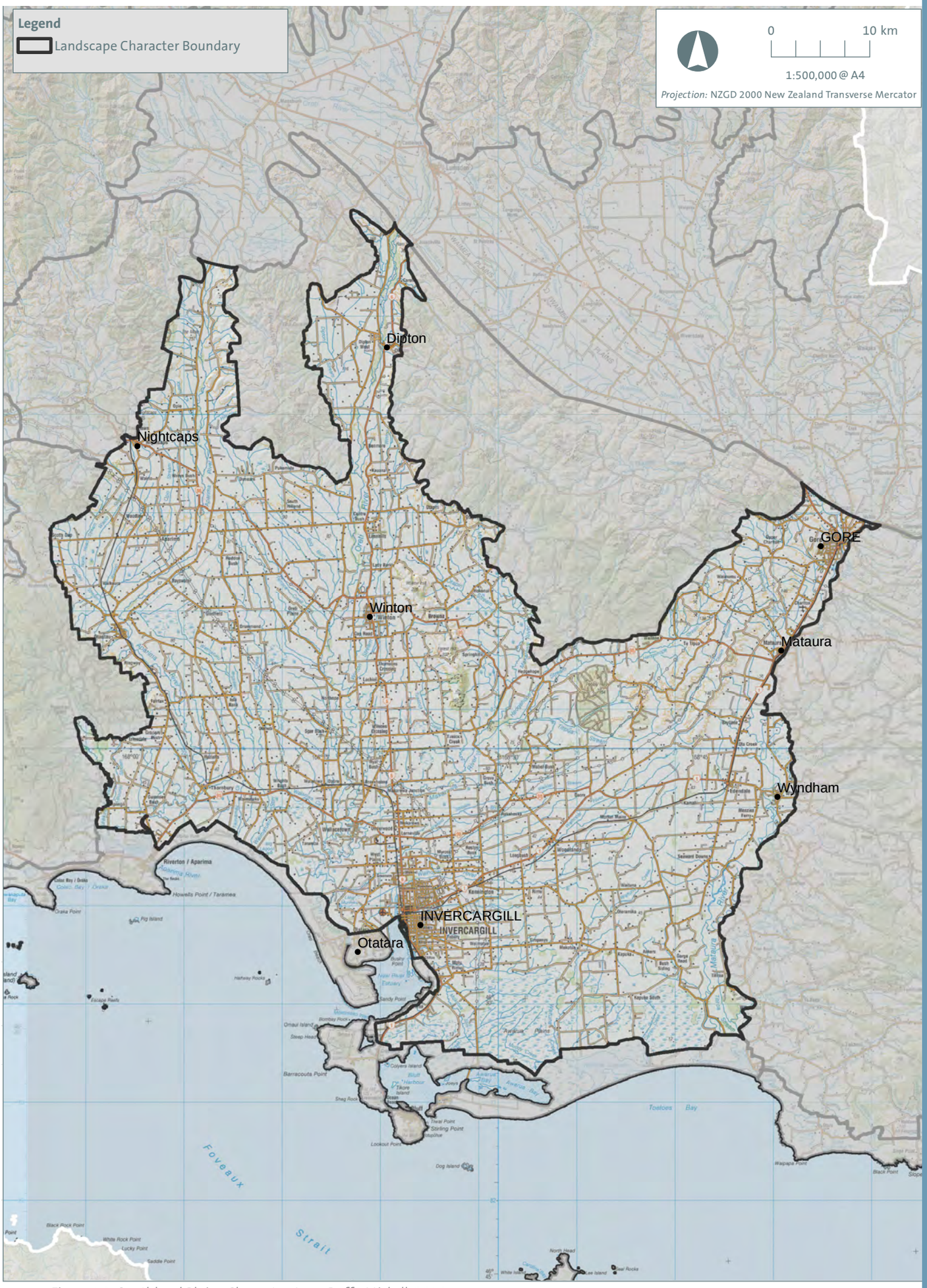


Figure 19: Southland Plains Character Area. Boffa Miskell, 2018.

KEY CHARACTERISTICS

- The Southland Plains are the largest lowlands within the region which vary from flat to gentle country with some rolling downlands, all below 300m.
- The plains originated from ancient river gravels carried south from the glaciated mountains.
- This area is dominated by three major river systems – the Aparima (west), Oreti (central) and Mataura (east).
- A number of peatland and wetland reserves are of high ecological and landscape significance, in particular within the Awarua Plains.
- Limestone outcrop at Forest Hill is a geological feature of visual significance as a landmark within the plains.
- Widespread agricultural development has taken place, which has changed the relatively diverse underlying ecological patterns of the plains.
- The rivers remain visually important features and are valuable recreational resources particularly for anglers.
- The Southland Plains contain several important sites to Iwi, namely Arowhenua/Longbush for mahinga kai and Wallacetown for stone working.



Right: Rocky outcrops along the beach in Porpoise Bay. Boffa Miskell, 2018.



Above: View overlooking White Head along the Catlins Coast to the east of Waikawa Harbour. Boffa Miskell, 2018.

Right: Waipapa Point at the western end of Waipapa beach. The lighthouse on the point can be seen in the distance. Boffa Miskell, 2018.

4.0.15 CATLINS COAST CHARACTER AREA / TE ĀKAU TAI TOKA

GENERAL DESCRIPTION

The Catlins Coast landscape character area is located between Fortrose and Southland's regional boundary at Waiparau Head. This section of the coast is very diverse and characterised by windswept coastal vegetation with rocky shorelines, high cliffs, coastal lagoons, dunes and long sandy beaches.

Waikawa Harbour, Haldane Estuary and the petrified forests at Curio Bay are three particularly prominent features of this coastline. These tidal estuaries are largely unmodified and provide important habitat for many valued fish and bird species in addition to providing mahinga kai. Waipapa Point Lighthouse and the Tararua Shipwreck are important historic sites in the area. A historic marine beacon is located at Slope Point, which is the southernmost part of the South Island.

The Catlins Coastal Heritage Trail extends from Fortrose to Niagara and provides tourists and locals heritage sites and locations to explore while travelling along this coastline. Refer to Figure 20 for the extent of the Catlins Coast Character Area.

LANDFORM

The Catlins Coast landforms range from gently rolling dunes to uplifted plateaus with rocky headlands where coastal influences are evident.

The coastline also contains sheltered, intimate beaches tucked in between rocky reefs and headlands. Behind the dunelands, there is coastal ponding, peatlands and sand plains with brackish coloured streams (Boffa Miskell Ltd, 2006). Large, curved sandy bays at Waipapa Beach, Haldane Bay and Porpoise Bay

separate the rocky promontories and sea cliffs. Linear landforms of the Southland Syncline protrude into the sea east of Waikawa Harbour. A striking example of this can be seen at Teahimate Bay, where the headland and rocky landforms are a strong expression of the underlying folded rocks.

Haldane estuary is a tidal estuary with salt marshes and rushland. Haldane Bay dunes and dune-dammed lake are easily accessible and an example of remnant sand dunes and wetlands that are being remobilised and eroded. A small valley has been dammed by dune sand, creating a 2 km-long lake ("The Reservoir"). These dunes, lake and the Haldane Estuary are all recognised as Geopreservation Sites of importance.

Curio Bay's petrified fossil forest on the coast is an internationally rare geological feature. A scientific reserve protects these fossil remains at Curio Bay which is also identified as a Geopreservation Site as the best example in New Zealand of a fossilised Jurassic forest. It is a tourist attraction for this area and frequently visited.

LAND COVER

Much of the land cover along the coast is high producing exotic grassland for farmland. Patches of indigenous forest are found on the upper hills and slopes, and are comprised of podocarp and kamahi (Weinmannia racemose) forest. The mature bush within the Catlins is a dominant feature of the area which creates a sense of enclosure and wilderness. Some of the wetland areas behind dunes and around coastal lakes and estuaries are of ecological importance due to being important wading bird habitats.

Several conservation areas and reserves are located along the Catlins coast to protect its diversity, naturalness and landscape quality. In particular, areas around Waikawa Harbour, Haldane Bay, Waipapa Beach and Fraser's Beach are significant for their plant and animal habitats.

LAND USE

This coastline remains largely unspoilt through its inaccessibility. Small, rural settlements of Waikawa, Niagara and Porpoise Bay are the most densely settled parts of the coast with further scattered farm dwellings and holidays homes spread along the remainder of the coastline. These areas provide a social focus for the resident and holiday communities, including the popular coastal campsite at Curio Bay/Tuma Toka.

KEY CHARACTERISTICS

- Diverse coastline characterised by wild, windswept coastal vegetation with rocky shorelines, high cliffs, coastal lagoons, dunes and long sandy beaches.
- Waikawa Harbour and Haldane Bay are notable features within this character area.
- Curio Bay's petrified fossil forest on the coast is an internationally rare geological feature.
- Mature bush within the Catlins is a dominant feature of the area which creates a sense of enclosure





Figure 20: Catlins Coast Character Area. Boffa Miskell, 2018.



Above: View overlooking Waituna Lagoon and Wetlands. Boffa Miskell, 2018.

and wilderness.

4.0.16 ESTUARIES COAST CHARACTER AREA / WAIHŌPAI KI TOETOE

GENERAL DESCRIPTION

The stretch of coast between Invercargill and Toetoes Harbour is characterised by large estuaries and lagoons, sand spits and bars, rocky cliffs and low coastal vegetation. This includes New River Estuary, Bluff Harbour, Awarua Bay, Waituna Lagoon and Toetoes Harbour which are of national and international significance under RAMSAR because of their landforms and populations of birds, fish and plants.

In addition to the water dominated character of this area and the many harbours and estuaries, a number of man-made modifications and settlements can be found. The town of Bluff, well-known for its seafood and specifically oysters, is nestled beside Bluff Harbour. Bluff has a history of whaling, sealing and shipping with the port located in close proximity to the township. At low tide, the remains of several historic shipwrecks dating back to the 1870s are still visible today. Stunning panoramic views can be gained of the southern mountains, Stewart Island, Bluff Harbour and Tiwai Peninsula from the top of The Bluff/ Motupōhue. Stirling Point also draws in many visitors to the area with its lighthouse and world-famous signpost which gives directions to twelve different locations. The Te Araroa Trail, a 3,000km trail that runs the length of New Zealand, also terminates or begins from Stirling Point.

The aluminium smelter complex at Tiwai Point has visual impacts on this area, although its scale is somewhat dwarfed by the expanse of the Awarua Wetlands and Waituna Lagoon. Along the northern side of Awarua Bay farmed land extends close to the shoreline in places. The southern and eastern part of Awarua Bay is generally wind-swept and wild, having a sense of remoteness. Refer to Figure 21 for the extent of the Estuaries Coast Character Area.

LANDFORM

Water, in the form of wetlands, lagoons, estuaries and the sea is a strong feature of this character area. The landforms within this character area vary greatly from volcanic headlands to swampy flats and long



sweeping sandy beaches.

Between Ōmaui and Bluff volcanic landforms of The Three Sisters and Bluff Hill/Motupōhue contrast with the surrounding flat coastline and hinterland to the east. This band of volcanics extends south east from the Takitimu Mountains through the Longwood Range and Riverton hills to Bluff. The underlying volcanic geology (Greenhills ultramafic complex) is most evident along the exposed coastline, where some regionally significant examples of this rock type occur. In particular, the shore of about 500 metre length eastward from Barracouta Point contains a spectacular exposure of layered, deformed gabbroic rock. The windblown sands and dunes at The Three Sisters contrast with the otherwise rocky shoreline adding to the diversity of landforms (Boffa Miskell Ltd, 2010).

This landscape character area lies at the interface of freshwater and saltwater influences with its tidal estuaries and wetlands. The swampy landscape from Awarua Bay to the Mataura River dominates the eastern portion of this character area. The Waituna Lagoon is a geomorphologically largely unmodified, nationally important coastal lake lagoon with intact wetland system trapped behind a barrier beach as identified in the Geopreservation Inventory. The lagoon was formed on a gravel outwash plain into which three streams discharge (Waituna Creek, Moffat Creek and Currans Creek). Longshore drift has produced a mixed sand and gravel barrier beach which restricts drainage forming a brackish lagoon and wetland complex.

Bluff Harbour and Awarua Bay are also nationally important features as identified within the Geopreservation Inventory. They are the largest estuaries and spit on the south coast with excellent examples of coastal features, including flood-tidal deltas, tombolo, wetlands and one of the most extensive series of beach ridges in the country. The New River Estuary is a large tidal-lagoon and enclosed estuary fed by the Oreti and Waihopai Rivers. Its northern shoreline has been modified by the edges of Invercargill City, while the outer parts are geomorphologically intact.

LAND COVER

While some of the land immediately to the north of the Awarua Bay contains agriculture and a few gravel pits, the majority of the wider coastal context is covered by various forms of low indigenous vegetation, including sub-alpine or montane species. Most grass cover on dunes consists of introduced marram grass with native species such as pingao (Ficinia spiralis) and saltmarsh (Lachnagrostis glabra) communities on Toetoes Spit. The wetlands, estuary and harbour edges, and coastal lagoons contain numerous ecologically important species and habitats, such as local waders, waterfowl, and migratory waders like the Siberian Tattler and the Sanderling which are rarely found in other New Zealand estuaries. The Awarua Wetland complex has been identified as a RAMSAR habitat, and is comprised of tidal mudflats which are surrounded by maritime marsh. Toetoes Estuary, Waituna Lagoon and Awarua Bay are identified as the most important bird habitat in Southland and of the five most important wading bird habitats in New Zealand (Department of Conservation, 2016).

The regenerating native vegetation on Tiwai Peninsula landward of the beach includes areas of subalpine shrubs and other subalpine cushion plant species. This protected area is also of high ecological importance due to the rarity of species. The regenerating native vegetation on Tiwai Peninsula landward of the beach includes areas of subalpine shrub and other subalpine cushion plant species. There is also significant invertebrate fauna, which is usually only found in subalpine areas.

The Bluff Peninsula is a mix of low producing grassland with indigenous forest on Motupōhue and the Three Sisters. Near the Three Sisters on Ōmaui peninsula are areas of the native pingao although marram grass is dominant.

LAND USE

This character area includes Bluff and smaller settlements such as Ōmaui, Greenhills, Greenpoint and scattered communities near Awarua Bay and Waituna. It lies immediately adjacent to the city of Invercargill at the inland extent of the New River Estuary.

Farming development comes close to the shore for much of this landscape in between the large water bodies. Bluff Harbour also contains Southland's major port facilities, including a reclaimed wharf area located approximately 2 km north of the narrow entrance channel with its associated strong currents. The railway line extends in close proximity to the west of the Bluff Harbour coastline in addition to eight

turbines located at Flat Hill wind farm. The smelter complex at Tiwai Point located east of Bluff, is set within the surrounding wetlands, however remains a dominant feature in the landscape. There are few roads and tracks around Awarua Bay, and the bridge across the bay to the aluminium smelter at Tiwai Point is paralleled by the twin rows of electricity towers which is a distinctive man-made feature.

The area from Mokomoko inlet to the mouth of Awarua/Bluff Harbour is extremely significant to Ngāi Tahu, and includes numerous pā, kāinga as well as extensive Māori Freehold Land and Reserves, including those at Ōmaui. Bluff Hill/ Motupōhue is a tōpuni site under the Ngāi Tahu Claims Settlement Act, recognising its special values – both as the significant maunga of the local hapū at Awarua as well as being renowned as the taurapa of Te Waka o Aoraki (the canoe of Aoraki). The name also refers to pōhue or native convolvulus that flowers in the forest.

Extensive views across the region and the coast, including Stewart Island can be gained from the top of Bluff Hill/ Motupōhue. The remote coastline between Bluff and the Catlins is popular for viewing the aurora australis also known as the southern lights.

KEY CHARACTERISTICS

- Generally, wind-swept and wild, having a sense of remoteness and isolation caused by the open landscape and its natural appearance.
- Dynamic nature of the coast with such an extensive complex of relatively unmodified coastal lagoons, estuaries and sand spit landscapes.
- A number of intensive nodes of settlement occur within the area, including Bluff which draws in tourists.





Figure 21: Estuaries Coast Character Area, Boffa Miskell, 2018.



Above: View overlooking Riverton and Jacobs River Estuary. Boffa Miskell, 2018.

Right: Outllook over Colac Bay from Howells Point. Boffa Miskell, 2018.

- Notable man-made structures include the smelter at Tiwai Point, the bridge and electricity towers which cross Awarua Bay and Flat Hill Wind Farm.

4.0.17 RIVERTON-APARIMA COAST CHARACTER AREA / WAIMEHA KI WAIHŌPAI

GENERAL DESCRIPTION

The Riverton landscape character area extends along the south coast from Orepuki to Oreti Beach. This stretch of coast is characterised by three long, curved sandy beaches with smaller intimate inlets separated by rocky shorelines and headlands backed by wind swept vegetation or grazed grassland. The largest of the sandy beaches is Oreti Beach which extends from Riverton to Sandy Point. The two smaller beaches include Colac Bay/Ōraka and Kawakaputa Bay which are separated by Ōraka Point, a rocky headland.

This coastline is isolated with few access roads for much of its length but long, impressive views to the hills and islands to the south are gained from the beach. Land-use and land cover are dominated by agricultural patterns in the immediate hinterland of the beaches and headlands. Riverton/Aparima, known as a fishing town, is the largest township within this character area and lies between the beach and Jacobs River Estuary. The estuary is important in relation to the township as it is a harbour for the fishing and recreation fleet, as well as a nursery area for flatfish. Smaller settlements spread along the coast include Oreti Beach, Ōraka and Orepuki. Monkey Island is located south of Orepuki and a popular stop off for locals and tourists in the area to access the coast.

Riverton has a long history of human occupation, reflected in the character of the farming, fishing and mining settlement. Prior to European arrival, Māori called Aparima home and gathered food along the coastline. Round Hill was occupied by Chinese Miners, with approximately 300 living there in 1888, a port was active until rail connected Riverton to Invercargill in 1879, and Colac Bay was a European timber mill in the 1850s. Today Riverton is a popular tourist attraction. From Mores Scenic Reserve located on the top of Howells Hill, panoramic views can be gained of the coast, Riverton and Foveaux Strait.

The “Southern Scenic Route” along State Highway 99 makes this a highly visible part of the Southland coast to local and overseas tourists especially with side visits to coastal settlements such as Cosy Nook. The shoreline in this area is valued for various types of recreation activity including boating, swimming, surfing, picnicking

and rock climbing. Refer to Figure 22 for the extent of the Riverton-Aparima Coast Character Area.

LANDFORM

The shoreline along this stretch of coast is generally rocky and indented, with small bays separated by rugged headlands with the exception of two large sandy embayments at Kawakaputa Bay and Colac Bay in addition to the long, sweeping Oreti Beach. Rock features include crags, pillars, boulder beaches, reefs and off-shore stacks and islands (Boffa Miskell Ltd, 2006).

Oreti Beach is a classic bay beach spanning 29 kilometres in length with dunelands of varying width in its immediate hinterland. At the southern end of Oreti Beach lies Sandy Point, where the beach extends along a large sand and gravel spit that separates Foveaux Strait from the New River estuary that the Oreti River drains into. The spit/ peninsula is made up of sand, gravel and water-borne silt, which was deposited approximately 4000-5000 years ago, when sea levels were higher. This means that the landform is comparatively young in geological terms. Ancient sand dune formations are clearly legble at the south-western corner of Otatara.

Jacobs River Estuary is an extensive area of shallow (mean depth c. 2 m) intertidal mudflats, sandflats and salt marshes. The Aparima and Pourakino Rivers flow into the estuary which is noted in the Geopreservation Inventory as the most unusual of Southland's large tidal estuaries due to it being a double estuary, pinched off between the Pourakino Arm and the main Jacobs River Estuary at The Narrows.

The remaining landscape in this coastal stretch is characterised by rolling, undulating topography and a wet coastal plain. The smooth, rounded landforms of Ōraka and Pahia Hill are key features in the area, displaying their volcanic origin. Ōraka Point was likely a part of a volcanic arc complex that was transitioning from an island arc setting to an active continental margin setting (Galloway, 2017). Lake George, a shallow lake, formed behind parabolic dunes and Monkey Island are also distinctive landscape features.

LAND COVER

This is a predominantly modified rural area with a pleasant, green, agricultural landscape in the hinterland of a rugged coastline. This area once supported extensive areas of pingao (Ficinia spiralis) sandfield dunes and other indigenous vegetation communities however very few coastal communities remain intact. To counter erosion marram grass (Ammophila arenaria) was used to trap and retain windblown sand, which led to the spread of marram grass along the full length of Oreti Beach. However, this coastline is still important for coastal turf habitats.

An area of native forest occurs around Daffodil and Whalers Bay on the eastern side of Sandy Point. Sandy Point's ancient sand dune forest of wind-sculpted totara (Podocarpus totara) and matai (Prumnopitys taxifolia) is rare and nationally important. Other native podocarps include rimu (Dacrydium cupressinum), miro (Prumnopitys ferruginea) and kahikatea (Dacrycarpus dacrydioides). Areas of plantation forest are present in the hinterland of the beach.

The Pahia landscape includes some remnant native shrublands and coastal herbfields along with some other forest remnants near Riverton and Ōraka. Elsewhere, the landscape setting is dominated by agricultural rolling plains.

LAND USE

The popular Sandy Point Domain occupies a large part of the southern spit that contains the New River Estuary. With over 2000 hectares of land, containing numerous tracks, picnic tables and two playgrounds for recreational activities, this area is popular for walking, mountain biking and horse riding. This area provides some of the most easily accessible coastal recreation opportunities near Invercargill. The Te Araroa Trail meets the ocean at Colac Bay and continues the length of the coastal character area finishing at Stirling Point near Bluff.

There are many sites of importance to Ngāi Tahu in this coastal area including for mahinga kai, including kaimoana species such as kūtai, paua, kina, koura and rimurapa, harakeke and raupō, as well as numerous pā/ kāinga and associated urupā, wāhi tapu and waka tūranga.

KEY CHARACTERISTICS

- Characterised by three long, curved sandy beaches with smaller intimate inlets separated by rocky shorelines and headlands backed by wind swept vegetation or grazed grassland.
- The dunelands behind Oreti Beach, on Sandy Point and Otatara Peninsula are particularly legible.
- Impressive views to the hills and islands to the south are gained from the beach.
- Predominantly modified rural area with a pleasant, green, agricultural landscape and a rugged coastline.



Figure 22: Riverton-Aparima Coast Character Area. Boffa Miskell, 2018.



Above: View overlooking Te Waewae Bay with the Longwood Range on the right and the mountains of Fiordland in the distance. Boffa Miskell, 2018.

Right: View of the Hump Ridge and the south west end of Te Waewae Bay. This character area borders Fiordland National Park. Boffa Miskell, 2018.

- The setting and character of Riverton township and popularity of the area for recreation and tourism.
- Importance of the Jacob's River Estuary for birds, salt marsh vegetation, shellfish and fish.

4.0.18 TE WAEWAE COAST CHARACTER AREA / WAIKŌAU KI WAIMEHA

GENERAL DESCRIPTION

The Te Waewae Character Area extends from Hump Burn Stream in the west to the Waimeamea River in the east. Te Waewae Bay is a large, sweeping bay and the largest embayment on the Southland coast. Along the shoreline the beach varies from sand to gravel, cobbles and boulders. Much of the shoreline is contained by high coastal cliffs covered in grassland and windswept shrublands which line the bay and separate it from the elevated land behind. The foreshore is very dynamic, with many of these cliffs subject to erosion.

The western edge of this landscape is more wild, natural land of Southwest Fiordland. More modified farmed landscapes dominate along the Waiau River and coastal flats to the east. Some of the key characteristics of the Te Waewae Bay area include its sense of remoteness, an open, rural character and the grand scale of the elements that make up this landscape.

The semi-braided Waiau River is a key feature in the Southland landscape. It forms a wide river valley, from Fiordland to the south coast. The Longwood Range also features prominently in the wider coastal setting, providing a forested backdrop for much of Te Waewae Bay.

The "Southern Scenic Route" provides a dramatic and scenic drive around Te Waewae Bay as the road sweeps along the cliff-tops, providing expansive bay and mountain views of Fiordland National Park and the Longwood Range in places.

This entire coast, extending into the Fiordland character area, is important in Māori history as coastal Māori-owned land is unique in the Southland Region, in addition to this, the forest extends right down to the coast. Te Tua and Te Waewae are important for mokihi (reed boat) landing sites and river crossings, tetoi aka

and mahinga kai. Māori Reserves in this area are considered waahi tapu and wahi taoka (Department of Conservation, 2000). Refer to Figure 23 for the extent of the Te Waewae Coast Character Area.

LANDFORM

The landform of the eastern and western portions of this bay consists of soft, eroding, high cliffs that separate the shoreline and the inland landscape. In the eastern portion of this character area, streams flow through this landscape from the Longwood Range to the sea, sometimes in deep gullies which erode near the coast.

The central portion of this character area contains the Waiau River which carries gravels into the sea, although its flows have been modified by the power scheme at Lake Manapōuri. Long-shore drift forms the gravels into bars and beaches further east, and there is a lagoon behind the bar at the Waiau mouth. Overall, the riverbed is fairly flat with adjacent river terraces creating a distinctive linear variation in topography.

LAND COVER

Beech forest covers the slopes across much of the Hump Burn range and the southern extent of Rowallan Forest in the western portion of this character area. In general, rural pasture covers the remaining landscape, in particular to the east of Rowallan Burn, where patches of native forest start to give way to agricultural land use to the east.

The Waiau River flats are farmed to the river margins and landcover is predominantly high producing exotic grassland to the Waimeamea River. Paddocks are divided by shelterbelts but the landscape is generally open allowing long views up or over the river to the dark hills and mountains beyond. Shelterbelts of flax and macrocarpa (Cupressus macrocarpa) pine trees are shorn by strong winds, creating a very distinctive landscape character typical for the wild Southland coast.

LAND USE

This is a transitional landscape which ranges from being on the edge of Fiordland National Park to gradually changing into a rural working landscape. The land use patterns in this landscape reflect informal, low levels of development. Although the highway provides good access to this area, the landscape is generally more remote and less settled than the other coastal areas.

Farming is the predominant land use activity with very few coastal vegetation communities remaining intact east of the Waiau River. Development in this area can be seen as a typical rural farming settlement pattern with housing scattered fairly evenly across this landscape. There are small settlements within the coastal margins at Bluecliffs Beach, Waihoaka and Orepuki, as well as scattered clusters of farmhouses and whitebaiting huts located along the Waiau River.

Conservation areas within this area include Waikoau Forest, Waiau River mouth and lagoon and Te Waewae Bay. The area also includes Māori Freehold Land and Reserves. This area contains some natural, coastal recreation opportunities although easy access directly to the shoreline is limited. Popular recreation activities include picnicking, tramping, scenic drives, fishing and seafood gathering.

KEY CHARACTERISTICS

- Te Waewae Bay is a very large, sweeping bay and the largest embayment on the Southland coast.
- Semi-braided Waiau River is a key feature in the Southland landscape.
- The Southern Scenic Route provides a dramatic and scenic drive around Te Waewae Bay as the road sweeps along the cliff-tops, providing expansive bay and mountain views of Fiordland National Park and the Longwood Range in places.

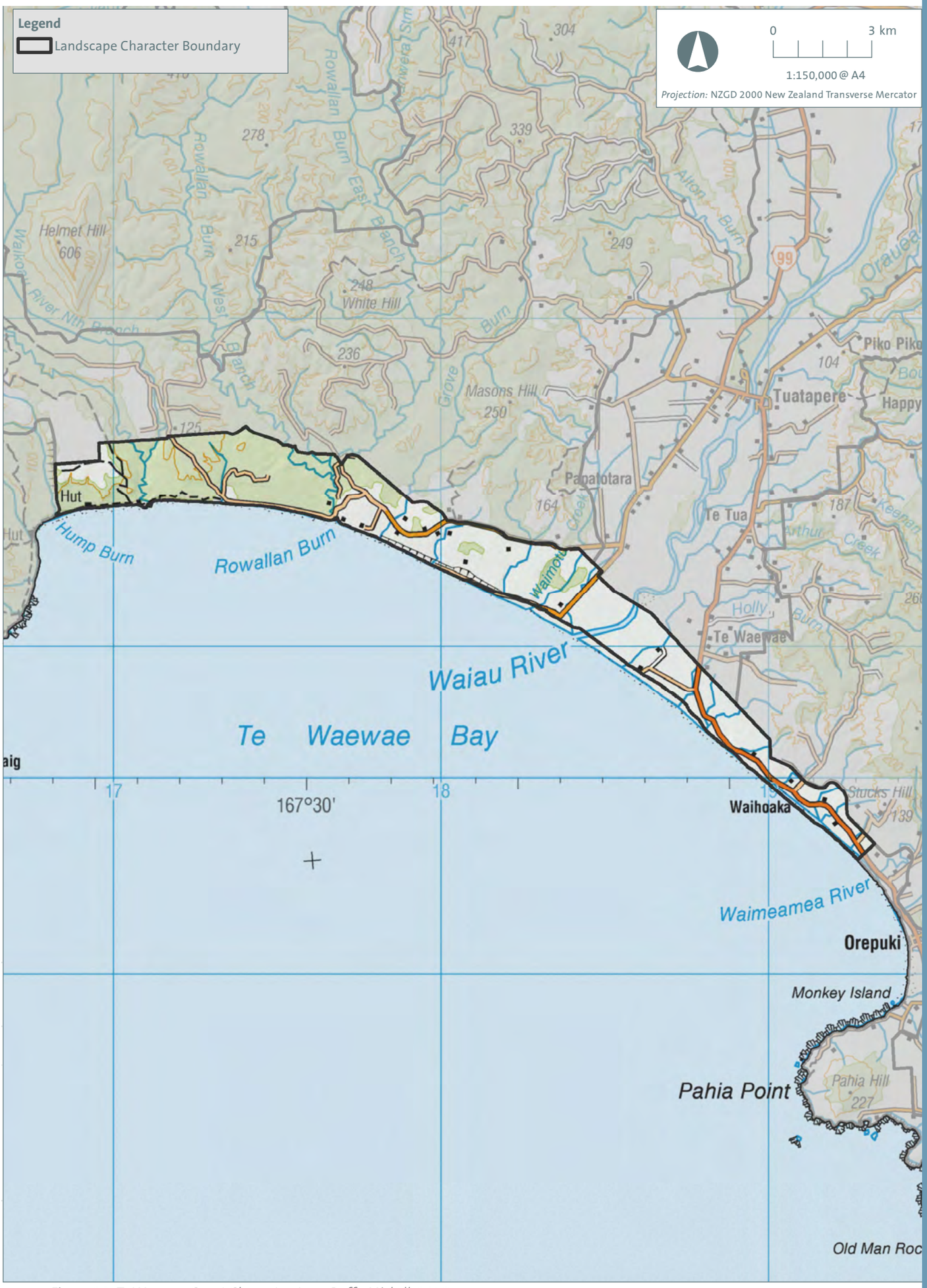


Figure 23: Te Waewae Coast Character Area. Boffa Miskell, 2018.



Above: Pig Island. One of the smaller Outer Islands, known by Maori as Tihaka Island. Boffa Miskell, 2018.

- The entire coast is important to Ngāi Tahu and coastal Māori-owned land is significant in the area.
- This is a transitional landscape which ranges from being on the edge of Fiordland National Park to gradually changing into a rural working landscape.

4.0.19 OUTER ISLANDS CHARACTER AREA / NGĀ MOTU O TE ARA-A-KIWA

GENERAL DESCRIPTION

The Outer Islands between Rakiura (Stewart Island) and the mainland of Southland are all remnants of volcanic or igneous rock formations. The islands are all relatively low lying with exposed and windswept conditions. The Outer Islands are characterised by rocky coastlines, steep cliff faces, sandy bays, low producing grassland, and isolated estuarine environments.

Ruapuke and Rarotoka Islands both have had significant clearances of indigenous vegetation, however the islands still have a strong sense of remoteness and isolation. The rocky outcrops provide habitat and shelter for various wader bird species, as well as mammals such as fur seals (Arctocephalinae spp.) and sea lions (Otariinae spp.). Ruapuke Island has three separate wetland environments which also provide habitat for endangered and trans-equatorial migrant waders.

Both islands are of immense significance to local Ngāi Tahu. Ruapuke Island is famous for being the home of the great southern rakatira Tūhawaiki, who helped lead in the Ngāi Tahu war parties against Te Rauparaha and Ngāti Toa in the 1830s. Ruapuke was set aside from both the Murihiku and Rakiura Crown purchases and remains in Māori Freehold title. Rarotoka was returned to Ngāi Tahu ownership via the Ngāi Tahu Settlement and is currently being restored by local rūnanga Ōraka-Aparima.

As with all outer islands within Te Ara-a-Kiwa, the annual tītī harvest remains a significant endeavour for local Ngāi Tahu, particularly on the forty islands surrounding Rakiura, where approximately half remain as Māori Freehold land while the others were returned via the Ngāi Tahu Settlement. These islands, like Rarotoka are currently being restored to improve the habitat of tītī and other biodiversity. The tītī islands were considered as part of the Rakiura/Stewart Island landscape study.

During the early 19th century, many sealers came to Southland and its surrounding islands to hunt seals for their skins. Although sealers were relatively successful, eventually due to the declining number of seals in



the area the “Sea of Fisheries Act of 1894” created for killing of seals. Whaling also began around the same time as sealing, and saw the wreckage of many boats around the Outer Islands in Foveaux Straight. The first wreckage was Elizabeth Henrietta on Ruapuke Island in 1824 where seventeen people lost their lives. Refer to Figure 24 for the extent of the Outer Islands Character Area.

LANDFORM

Ruapuke Island

Ruapuke Island, which is the largest island, is comprised of different igneous rock types including norite, gabbro, dunite, and diorite (GNS Science, 2014). The island has a mixture of rocky cliff faces and sandy beaches and is relatively low lying with its peak being 64m at West Point. There are a series of lagoons and estuaries on the island including Waitokariro Lagoon, Tauatemaku Lagoon, and Moana Pūtakitaki Lagoon. 1.5km off the eastern shore of Ruapuke Island is Green Island, with its highest point reaching 56m and is also comprised of the same rock types as the main island. A cluster of smaller islands are within close proximity to Ruapuke Island’s shoreline, including Bird Island, Topi Island, White Island, Lee Island, Breaksea Islands, and the South Islets. Small rocky outcrops are also present, such as Seal Rocks to the north east of the island.

Raratoka Island

Rarotoka Island is comprised of gabbro igneous rocks and reaches a total height of 77m at its highest point. The island is approximately 86ha in size and has extensive rocky reefs around and offshore from its coastline, while there are three large, sandy bays to the north-eastern side of the island. Hapuka Rock is a prominent rocky outcrop located 1.6km south west of the island.

Solander Island

The island is 65ha in size and comprised of rock and gravels. The highest peak is 330m above sea level and is remnant of an andesitic volcano. The smaller island, Little Solander Island reaches 148m above sea level and pierced rock lies 250m south of the main island. Volcanic remnants have caused deep caves, such as Sealers Cave, on the eastern side of Solander Island. The island is incredibly exposed to the marine environment of Foveaux Straight.

LAND COVER

Ruapuke Island contains marshland, manuka/kānuka, low producing grassland, and herbaceous freshwater vegetation. There are sand and gravel ecosystems near the small estuaries and bays such as Henrietta Bay, Lagoon Bay, Caroline Bay, and Parangiaio Point.

The majority of Raratoka Island has been developed into low producing grassland with some native



Above: Aerial overlooking Henrietta Bay on Ruapuke Island. Waitokariro Lagoon can be seen in the distance and Tauatemaku Lagoon in the foreground. Boffa Miskell, 2018.

indigenous vegetation being left parallel to the airstrip.

The Solander Islands are essentially devoid of any vegetation due to their rocky forms and exposed, steep cliff faces. However, some rare fern and orchid species are present on the island.

LAND USE

Ruapuke Island

The lagoons, estuaries, and dune systems on the island provide feeding habitat for various endangered wading birds. The island was a popular base during the 19th century whaling era for Ngāi Tahu Leader Tūhawaiki, and it was often travelled to by Māori to gather fish, birds, and shellfish. Johann Wohlers also ran a Lutheran Mission Station from 1844 to 1885. Today there is no permanent population, but remains in Māori ownership, and is frequently visited by fishing boats from Stewart Island and the Mainland (Walrond, 2015). Small huts and dwellings across the island are inhabited at certain times of the year for mutton bird season.

Raratoka Island

The majority of the island was cleared, however local rūnanga Ōraka-Aparima are restoring the island by planting native vegetation, following the island being returned via the Ngāi Tahu Settlement. This is to support the traditional muttonbird gathering that is carried out by local iwi. There are small dwellings on the island which are inhabited for short periods of time throughout the year, and an air strip, however there is no permanent population.

Solander Island

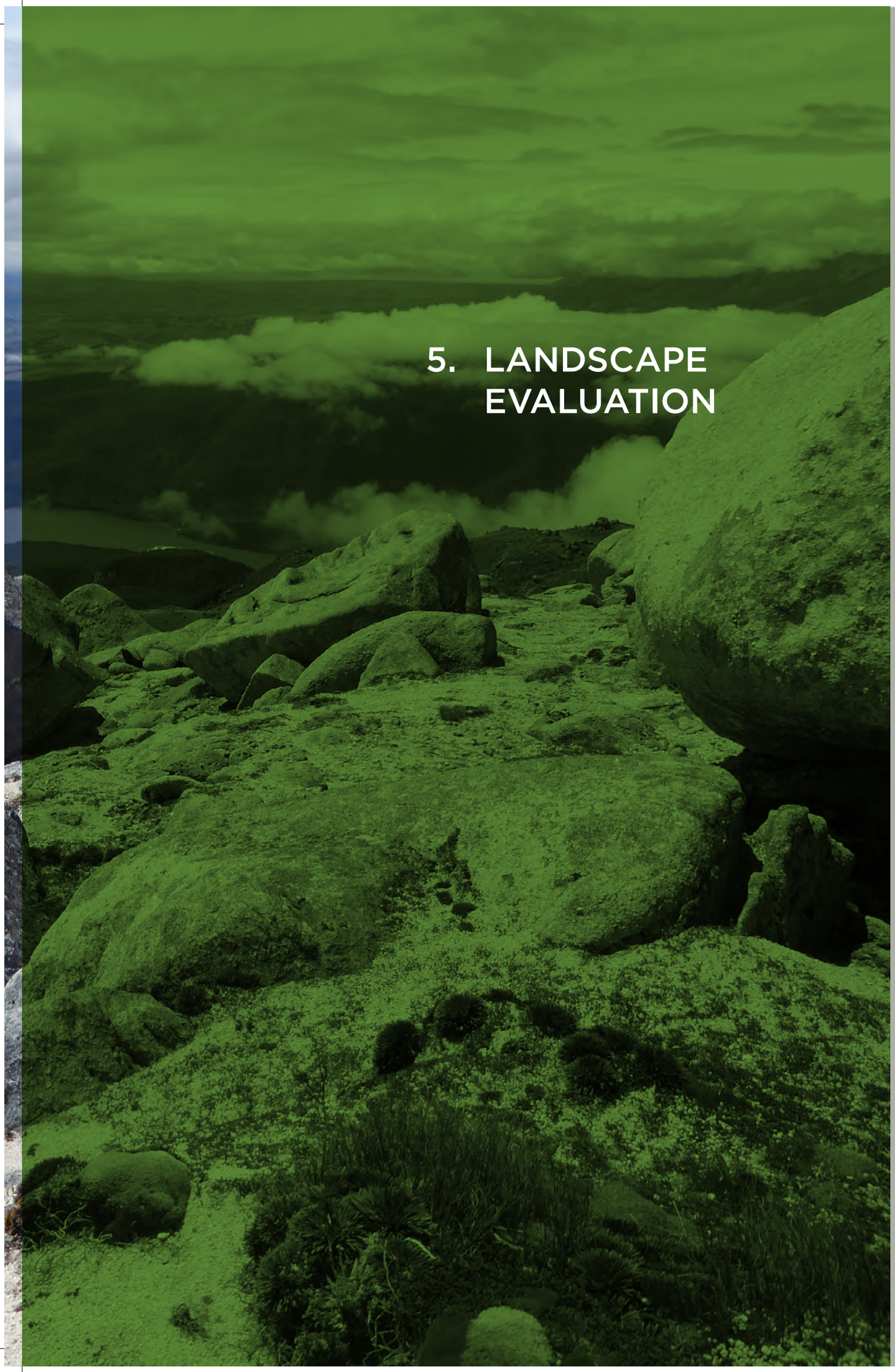
The island forms part of Fiordland National Park. While it is uninhabited by humans, it is populated by 5,680 breeding pairs of Southern Buller Albatross (40% of the overall population) (Thompson, D.; Sagar, P.; Baker, B.; Jensz, K, 2017). The island is free of introduced mammals and most weeds, and is home to a number of rare bird species. This group of islands has New Zealand's largest fur seal colony and sea lions are also present. Other species include the Fiordland Crested Penguin, Sooty Shearwater and Mottled Petrel.

KEY CHARACTERISTICS

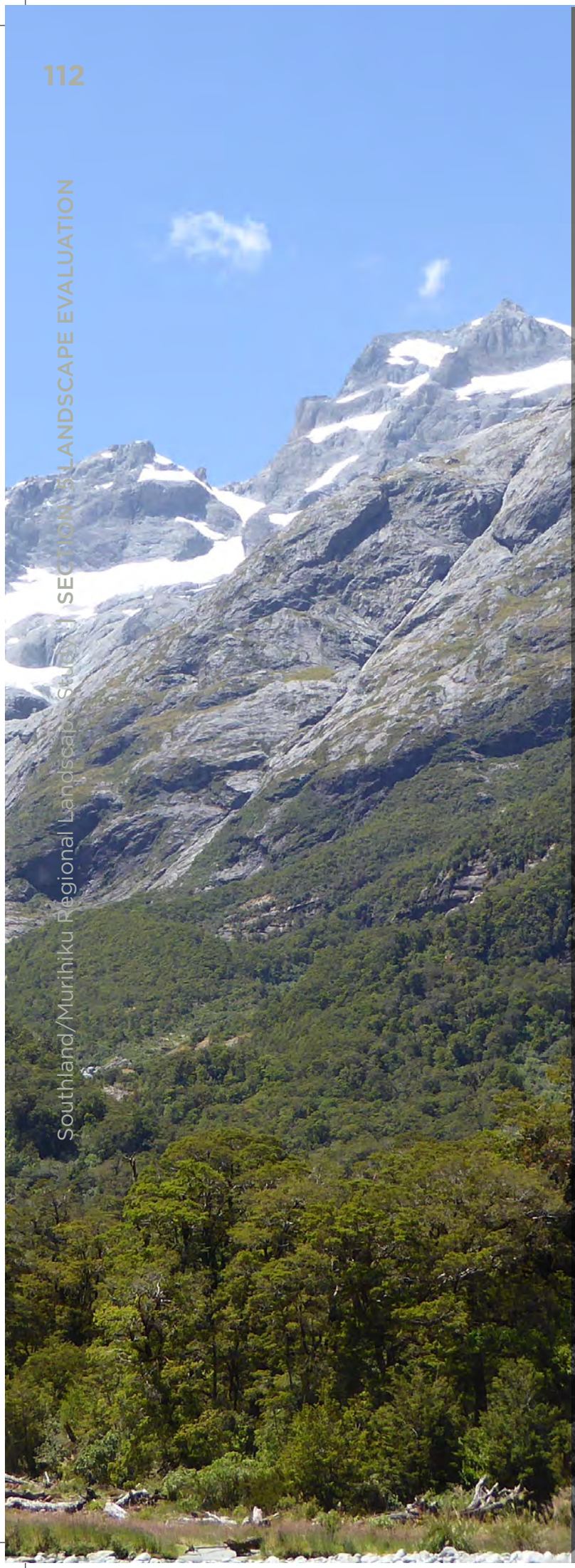
- Exposed, windswept islands with rocky outcrops.
- Sense of remoteness due to the lack of development on each of the islands and the exposed climate.
- Important to Ngāi Tahu, particularly due to their role as part of the annual tītī harvest, as well as the traditional occupation, and contemporary ownership, as well as restoration acitivities being undertaken.
- Some man-made structures are found on Ruapuke and Rarotoka Islands for temporary accommodation. The Solander Islands are very remote, barren and lack human presence.



Figure 24: Outer Islands Character Area Boffa Miskell, 2018.



5. LANDSCAPE EVALUATION



The section below summarises the methodology used for the landscape assessment (refer to Appendix 1 for detailed methodology and background, such as case law).

Based on the landscape evaluation, a key output is the identification of 'natural' features or landscapes that meet the 'outstanding' threshold under RMA section 6(b). For this to occur, the two criteria which must be met are that a feature or landscape is both 'natural' and 'outstanding'. A subsequent consideration is to identify any landscapes that did not meet the necessary 'natural' or 'outstanding' thresholds but have important visual amenity values for which particular regard is to be had under section 7 of the RMA.

OUTSTANDING NATURAL LANDSCAPE (ONL) is a landscape with attributes that are exceptional or pre-eminent which make it stand out from the wider landscape. While evidence of human presence and activity may be apparent, natural attributes dominate. Natural in this sense means perceived naturalness rather than solely the integrity or intactness of natural systems or indigenous naturalness (refer Appendix 1).

OUTSTANDING NATURAL FEATURE (ONF) is defined in the same way as 'outstanding landscape' except it applies to a discrete geographical area or element within a landscape (such as a hill or river), often viewed from outside rather than experienced from within.

VISUAL AMENITY LANDSCAPES (VAL) are identified in this study as a second category outside of ONLs, acknowledging the importance such landscapes make to amenity values 7(c) and/or the quality of the environment 7(f). In short, such landscapes do not make the necessary thresholds of 'outstanding' or 'natural' but continue to require particular regard under section 7 of the Act. More detailed information about the thresholds and ratings of values are provided in Appendix 1.

LOCALLY DISTINCTIVE AND VALUED NATURAL FEATURES AND LANDSCAPES is the term given to the other important natural features and landscapes within the Southland region (as identified in the RPS). They are those landscapes that are distinctive or valued within the Southland region, however, do not meet the criteria for protection under section 6(b) of the RMA. They encompass landscapes and natural features that are valued for amenity, social, intrinsic, ecological, cultural and heritage purposes. Therefore, they include visual amenity landscapes as discussed above, heritage values and natural features of significance. This report has not assessed locally distinctive and valued natural features and landscapes, as further work is required to include heritage values along with second tier natural features. Public consultation will also provide input to identify whether landscapes/features are locally distinctive within the Southland Region.

1.1 EVALUATING LANDSCAPE VALUES

Landscape values reflect the relative value of different landscapes or features held by society. A landscape may be valued for a wide variety of reasons. Such values may also change over time. Most commonly, an assessment of landscape value underpins the traditional approach of protecting the most highly valued landscapes. This typically reflects formal acknowledgment through a recognised landscape classification process.

Appendix 1 outlines relevant case law that has led to the determination of factors for the evaluation and there is now a level of acceptance of using specified factors within a landscape evaluation framework to assess landscape value. Such factors are not intended to form a definitive or 'complete' list of types of landscape value. Notwithstanding this, an assessment determining landscape value recognises that many of the factors overlap and some could be more usefully seen as subsets of others rather than separate matters. Further explanation of the factors and attributes considered is provided in the table below and Appendix 1.

TABLE 1: LANDSCAPE EVALUATION ATTRIBUTES

LANDSCAPE ATTRIBUTES		DESCRIPTION	ASSESSMENT
Biophysical	Abiotic	The presence of important or recognised geological, hydrological or topographical features	The underlying landform or natural feature is recognised as being important for scientific or educational purposes.
	Biotic	The presence of important native vegetation communities, wildlife or ecosystems	The area of landscape or feature contains important native vegetation communities, wildlife or ecosystems.
Sensory	Legibility	How obviously the feature or landscape demonstrates its formative processes	Geomorphological, hydrological, climate, vegetation, coastal and /or cultural processes are actively displayed in the landscape.
	Naturalness	The perception of the predominance of nature in the landscape	The landscape appears largely uncompromised by modification and appears to comprise of natural systems that are functional and healthy.
	Vividness	How striking or memorable an area of landscape is, including its role in the mental maps of a district or region	The landscape is widely recognised across the community with an ability to remain clear in the memory.
	Coherence	The way in which the visual elements or components of any landscape come together	The pattern of land cover and land use appears in harmony and is easily understood with no apparent random or significant discordant elements of land cover or land use.
	Transient values	The presence of wildlife or other values at certain times of the day or year	Changing elements, patterns and processes remain clearly apparent through times of the day or year.
Associative	Shared & recognized values	Whether the values are shared and recognised	The area of landscape or natural feature is widely recognised in the community and commonly referred to in art, literature or tourist maps.
	Tāngata Whenua values	Cultural and spiritual values for Tāngata Whenua	The area of landscape or natural feature contains cultural sites or values which are important to local iwi.
	Historic Heritage Associations	The presence of known historic or heritage associations	There are numerous and/or important historic sites identified within the area of landscape or feature.

To determine landscape classification, each natural feature or landscape was assessed against each of the factors using a seven-point scale from very low to very high to determine an evaluation for the overall biophysical, sensory, and associative attributes for each candidate site.

Evaluation cover page: Mount Titiroa near Manapouri. Boffa Miskell, 2018.

Left: Tutoko Valley. Boffa Miskell, 2018.

A description of landscape values in relation to each identified factor has been used alongside a seven-point scale to evaluate potential important features and landscapes. This is set out in Diagram 1 below.



Diagram 1: Landscape evaluation scale (Very Low through to Very High)

In summary, the threshold used to identify Proposed ONF and ONL must

Rate at Very High in biophysical attributes; or sensory attributes; or associative attributes;

and

Rate at least High in biophysical and sensory attributes to be natural enough

In order for a VAL to be indetified it must reach the following threshold:

Be of a scale to be considered a landscape;

Rate at least High in sensory attributes; and

Rate at least High in associative attributes.

Typically, community and Iwi input is sought to inform and validate the evaluation process, particularly 'shared and recognised' aspects. In this case, the study team have relied on a variety of technical sources, including the iwi management plan (Ngāi Tahu ki Murihiku, 2008), various management plans and information brochures provided by the Department of Conservation (see bibliography), tourist information brochures and books (see bibliography) and a review of submissions on relevant chapters of the Southland Regional Policy Statement and the SDC District Plan.

A process of community, Iwi and land owner engagement may further refine the areas of landscape as defined in this technical assessment.

1.1 MAPPING LANDSCAPE BOUNDARIES

The spatial identification of ONF/L and VAL boundaries was primarily based on broad geomorphological and geographical patterns, see Diagram 2. Variations in land cover and land use are also considered as a secondary factor. This information was sourced from aerial photographs, and other GIS information, such as LCDB4 (Land Cover Data Base v.4). Further information relating to the approaches for defining boundaries of ONF/Ls and VALs on the land is provided in Appendix 1.

In terms of the mapping for ONLs that extend into the seascape, i.e. areas that include the coastal interface and parts of the region within the coastal marine area, a two kilometre offset from the mean high water spring mark was generally applied. This extent applies a 'cautionary signal' which generally captures the coastal shore platforms and islets that occur in many parts of the coast. Islands were identified as separate ONFs, which may also include their surrounding coastal marine area.

DIAGRAM 2A

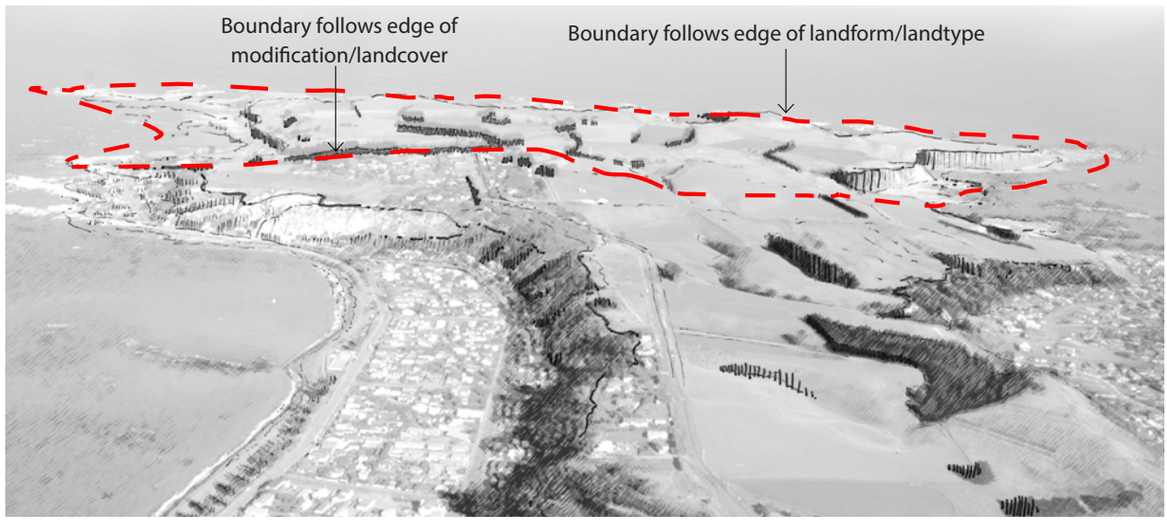


DIAGRAM 2B

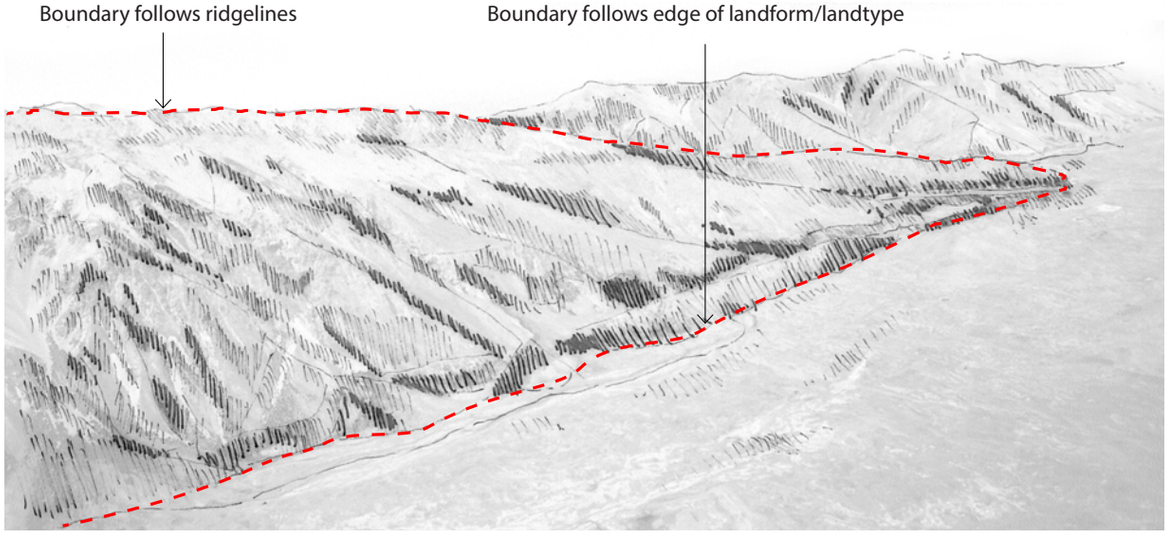
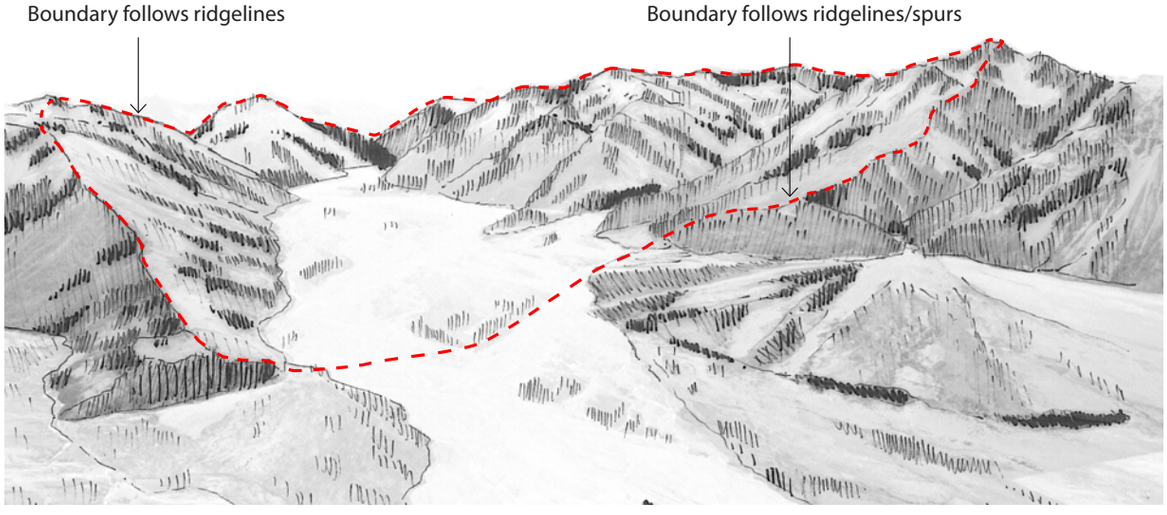


DIAGRAM 2C



Diagrams 2a-c: Illustration depicting ONL and ONF boundaries

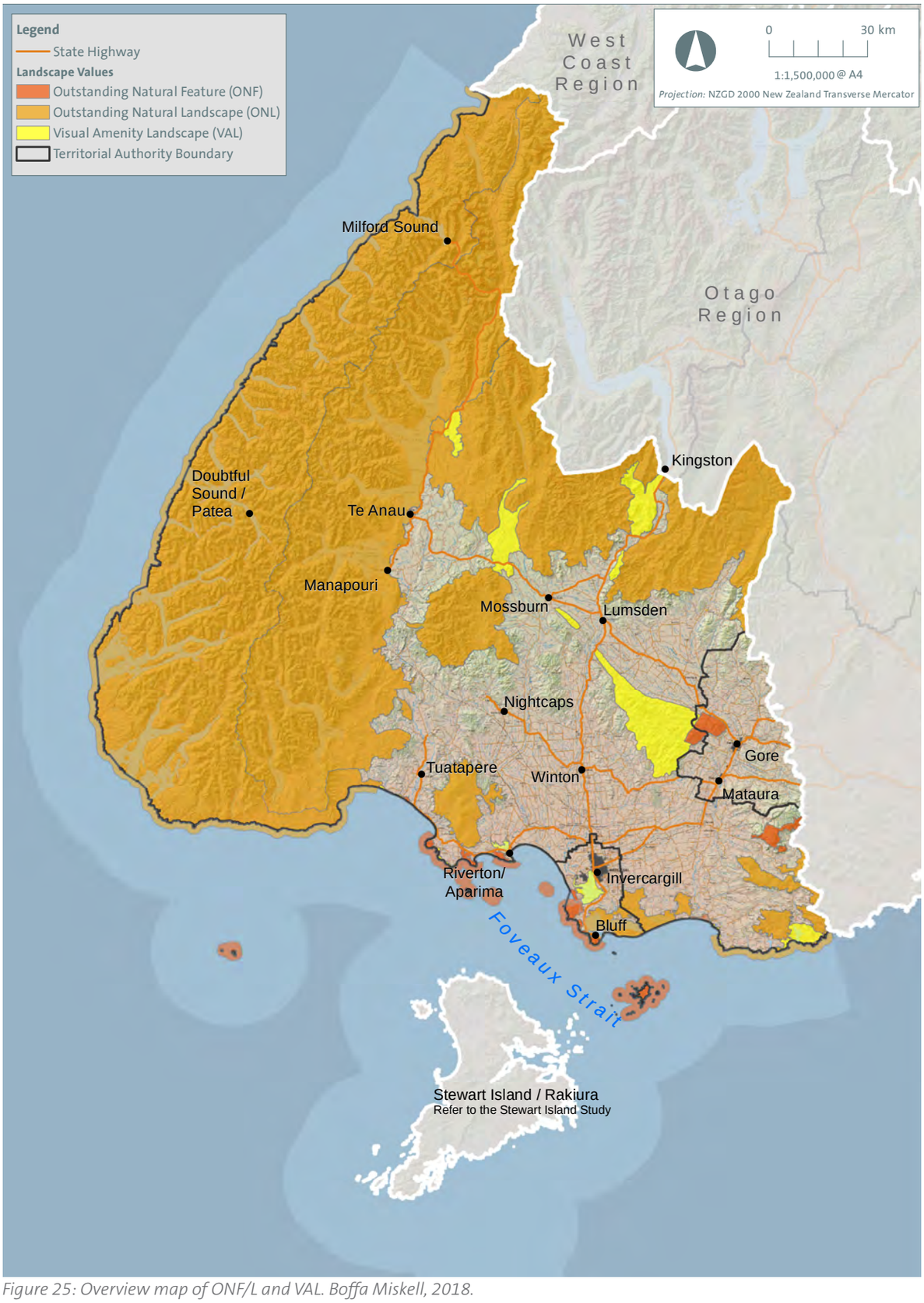


Figure 25: Overview map of ONF/L and VAL. Boffa Miskell, 2018.

1.2 IDENTIFIED OUTSTANDING NATURAL LANDSCAPES

Within the Southland/Murihiku Region, nine ONLs have been identified and these are illustrated on Figure 25 (shown in orange on maps). These are all landscapes in their own right, each containing a range of biophysical, sensory and associative values. Each ONL retains sufficient levels of naturalness to be considered a candidate for being outstanding. Where a high level of modification is present on adjacent land, these areas have been excluded from the ONLs, and boundary outlines follow distinctive changes in land use/land cover. In some instances comparatively small nodes of development are located within ONLs, such as Milford Sound settlement or Manapouri power station within the Coastal Fiordland ONL. Since these nodes were too small to represent a separate landscape, they form part of the wider surrounding ONL despite their comparatively higher level of modification.

Many ONLs contain iconic, prominent features that contribute to the landscape values and hold place-specific values, such as mana whenua associations. While these are outstanding features as well, they are not identified individually, since they are part of the overall ONL and therefore are already protected under section 6(b) of the RMA.

Based on the evaluation undertaken, the following ONLs have been identified and mapped (see Figures 26 - 35). Their associated values and characteristics are described in the following sections, along with a description of the appropriate method of mapping each area.

TABLE 2: OUTSTANDING NATURAL LANDSCAPES (ONL) IN SOUTHLAND/MURIHIKU REGION	
LANDSCAPE AREA	
1	Coastal Fiordland / Te Atawhenua ki Tai
2	Inland Fiordland / Te Atawhenua ki Uta
3	Livingstone-Eyre Mountains / Mata-puke-koikoi
4	Umbrella-Garvie Mountains / Mata-puke-taratara
5	Takitimu Mountains / Te Mauka Takitimu
6	Longwood Range / Ōhekeia
7	Awarua-Waituna Wetland Complex / Awarua ki Waipārera
8	Inland Catlins / Waikawa-Tautuku
9	Coastal Catlins / Te Ākau Tai Toka



Above: View overlooking Cooper Island within Cook Channel showing typical ice-sculpted fiords. Boffa Miskell, 2018.

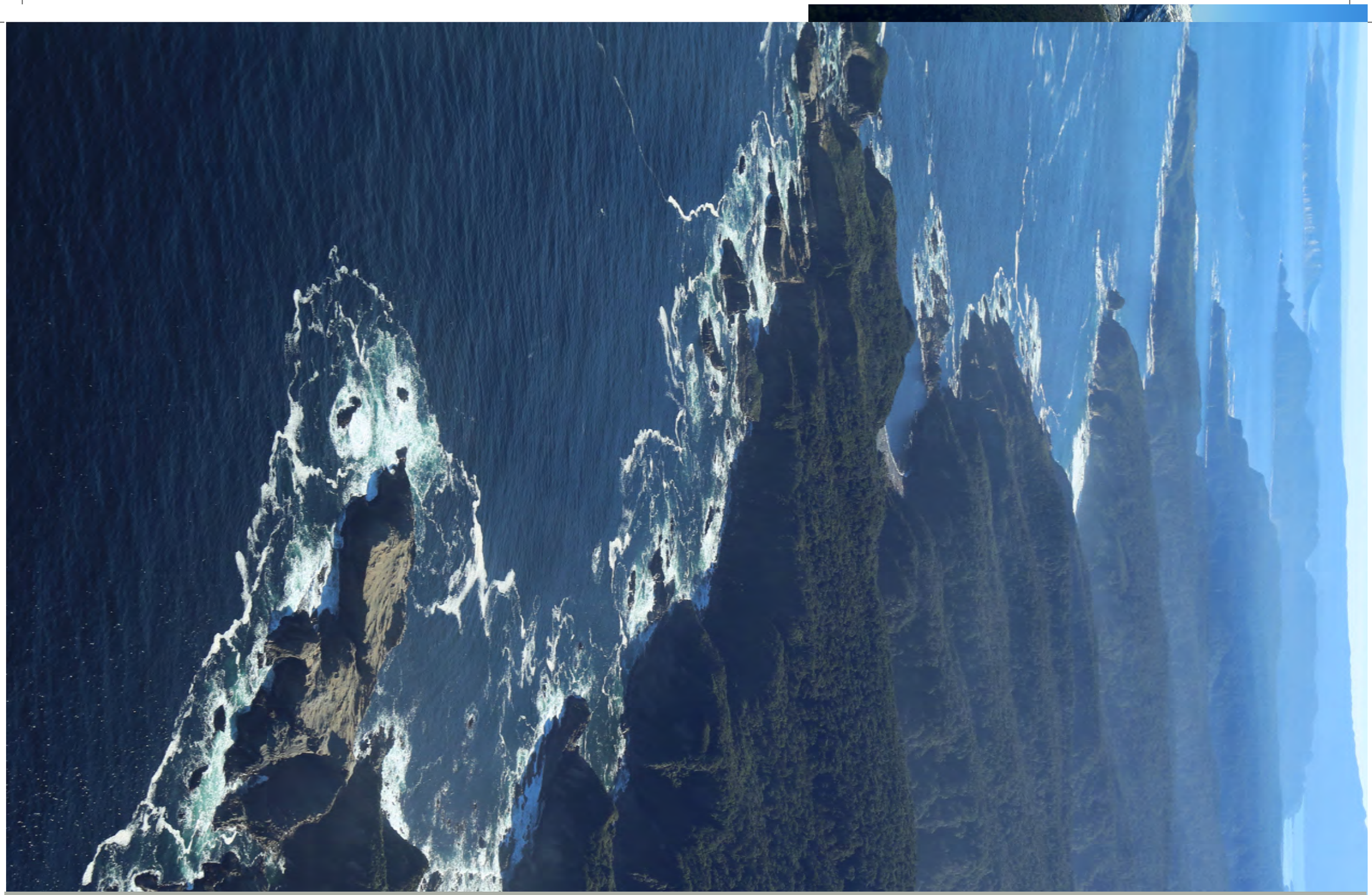
Right: View of Coastal Fiordland's rocky outcrops and indigenous forest. Boffa Miskell, 2018.

COASTAL FIORDLAND / TE ATAWHENUA KI TAI ONL

Dramatic and spectacular fiord landscape with natural beauty and biologically diverse intact landscapes. Extensive, indigenous altitudinal ecosystems provide habitat for special and unique fauna **and flora. Doubtful Sound and the small settlement at Milford Sound are the main modifications in Coastal Fiordland. These nodes of modification form very confined human elements within a large-**scale landscape that is otherwise very remote and largely free of man-made elements.

COASTAL FIORDLAND / TE ATAWHENUA KI TAI ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Coastal Fiordland/Te Atawhenua ki Tai forms part of the spectacular Fiordland National Park and the Te Wāhipounamu – South West New Zealand World Heritage Area. • This International Heritage Area is one of the world's special natural and cultural sites recognised by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) due to its 'superlative natural phenomena' and 'outstanding examples of the earth's evolutionary history' (Department of Conservation, 2007). • Fiordland's wild, untamed, rugged, and largely pristine landscape is the largest National Park in New Zealand. It contains waterfalls, lush rainforest, islands, fiords, cliffs, mountains, lakes, rivers, enclosed beaches and estuaries in a landscape that has been shaped by water, ice and erosion. • Fiordland's steep and crenulated coastline, with fourteen fiords and their associated islands extending from U-shaped glaciated valleys with steep cliffs carved out of the Southern Alps/Kā Tiritiri-o-te-Moana, is unique in New Zealand and rare globally. These include the world-renowned Milford Sound/Piopiotahi, Doubtful Sound/Pātea and Dusky Sound/ Tamatea. • Mitre Peak is a spectacular glacially-carved mountain peak identified as a Geopreservation Site of national significance which rises to 1683m above sea level from Milford Sound. It is also a particularly iconic feature within the Milford Sound landscape. • The densely forested, uplifted Waitutu marine terraces are a special feature within the southern part of Fiordland National Park. They comprise 13 terraces, with the oldest being over 900,000 years old. This sequence of terraces is arguably the best example of its kind in New Zealand and listed as a Geopreservation Site.	VERY HIGH



COASTAL FIORDLAND / TE ATAWHENUA KI TAI ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL (CONTINUED)	• Fiordland contains the most extensive, biologically diverse and natural area within New Zealand. Eighteen ecosystems have been identified which contain over one-third of New Zealand's indigenous plant species. • The lowland forests of Waitutu contain one of the largest tracts of unmilled lowland forest in New Zealand. One of the most significant features are the unmilled tracts of rimu-dominated forests which are of national importance. • Coastal Fiordland is home to very special and unique birds which include the nationally critical takahē, kākāpō, tokoeka/brown kiwi and kea/mountain parrot, in addition to several other important native birds that are also found here. • The Sinbad skink, Oligosoma pikitanga, is a rare species of medium sized skink endemic to New Zealand where it is only found in an alpine habitat in Sinbad Gully, Fiordland National Park (Department of Conservation, 2008).	VERY HIGH
SENSORY	• Impressive and legible landforms range from ice-carved fiords with steep snow-capped mountains that continue for kilometres, pristine alpine lakes found in ice-carved valleys with crystal clear rivers winding through the pristine native forest. • The pristine nature of Coastal Fiordland's indigenous fauna, flora and water systems expresses its superb naturalness. • Coastal Fiordland, especially Milford Sound and Mitre Peak are widely recognised across New Zealand and create extremely vivid memories for visitors. • The extensive indigenous cover in combination with distinctive glacially carved landforms read as a coherent landscape. • The presence of the tawhaki/Fiordland crested penguin, terehu/bottlenose dolphins, aihe/common dolphins, dusky dolphins and kekeno/New Zealand fur seals provide transient wildlife values throughout the year. Occasionally maki/killer, kiwa/Southern Right, paikea/humpback and parāoa/sperm whales can also be seen in the fiords. • Spectacular cascading waterfalls over steep cliffs are a common sight due to the 8,000mm of annual rainfall that Fiordland experiences.	VERY HIGH
ASSOCIATIVE	• The occurrence of pounamu (greenstone), as well as a variety of mahinga kai (food gathering sites and resources) made Fiordland a key area of seasonal and permanent occupation for Ngāi Tahu in the past, and which remains important to this day. • A large number of archaeological sites, including several waka tūranga (canoe landing sites) and nohoanga/campsites are located along the coastline which were used during coastal voyages. • Significant areas of Māori Freehold Land and Reserves also occur within the ONL including the Waitutu and Rowallan blocks. • Fiordland also holds some of New Zealand's earliest sealing and whaling history. More recent historical industries include attempts at gold mining within Preservation Inlet, aerial venison recovery and timber milling. • Four large wooden viaducts were built during the 1920s to enable locomotives to haul logs over ravines to the Port Craig mill (Department of Conservation, 2011). The South Coast Track now follows these viaducts and forms a popular walk delving back into Fiordland's history. • The well-known Milford Road provides access to several camp sites, day walks and backcountry adventures. • Extensive recreational opportunities are available including scuba diving, kayaking, boat cruises, hunting, camping and tramping the popular Milford Great Walk.	VERY HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 26. The Coastal Fiordland/Te Atawhenua ki Tai ONL sits within Fiordland National Park and extends along the western and southern coast and associated seascape of Fiordland, including all fiords and associated islands. The eastern extent borders the Inland Fiordland ONL and follows the ridge lines of Skippers Range, Darran, Matterhorn, Merrie, Heath and Cameron Mountain Ranges. While the nodes of modification at Milford and Doubtful Sounds (incl Manapouri power station) reduce the naturalness of the immediate surroundings they are too small in scale to be excluded from the large-scale ONL.

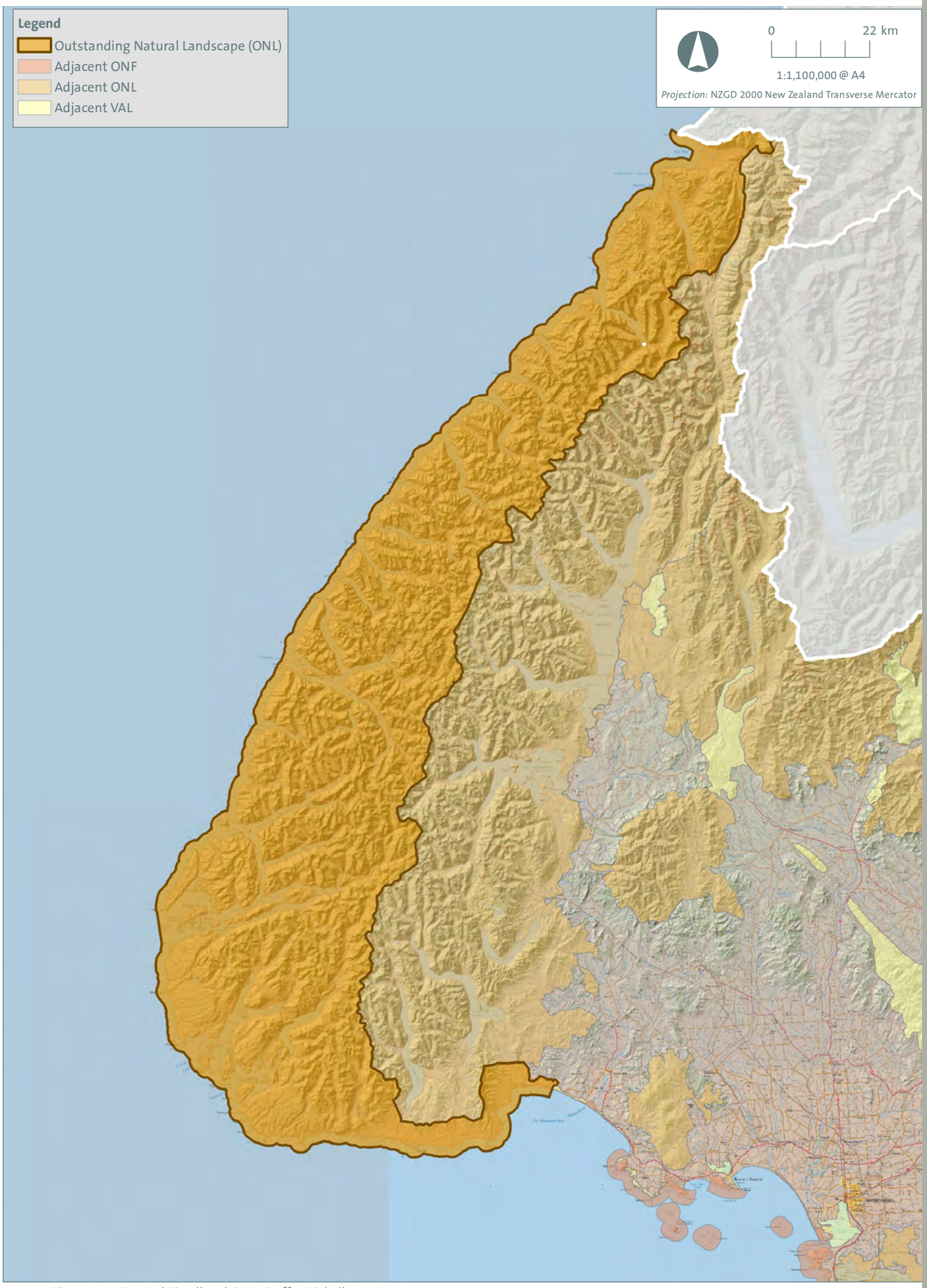


Figure 26: Coastal Fiordland ONL. Boffa Miskell, 2018.



Above: View overlooking Lake Te Anau with the Fiordland Mountains in the background. Boffa Miskell, 2018.

Right: Hope Arm, Lake Manapouri. Boffa Miskell, 2018.

INLAND FIORDLAND / TE ATAWHENUA KI UTA ONL

This spectacular inland landscape forms part of Fiordland National Park and the Te Wāhipounamu – South West New Zealand World Heritage Area. This wild, untamed and rugged landscape boasts **outstanding geological features and pristine forests. Notable modifications include the Manapōuri** power station and associated transmission lines which pass through the Grebe and Borland Valleys. Otherwise this ONL is largely free of man-made elements.

INLAND FIORDLAND / TE ATAWHENUA KI UTA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Inland Fiordland/Te Atawhenua ki Uta forms part of the Te Wāhipounamu – South West New Zealand World Heritage Area which is one of the world's special natural and cultural sites recognised by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) due to its 'superlative natural phenomena' and 'outstanding examples of the earth's evolutionary history' (Department of Conservation, 2007). • Fiordland's wild, untamed, rugged, and largely pristine landscape is the largest National Park in New Zealand. It contains lush rainforest, waterfalls, wetlands, cliffs, steep mountains, lakes, and rivers in a landscape that has been shaped by water, ice, avalanches and erosion. • Nationally significant karst landscapes and cave systems can be found within the Rowallan Forest between Helmet Hill to Goldie Hill. Small but notable karst features can also be found at Mt Luxmore and within the Hunter and Murchison Mountains. • The rock avalanche at Green Lake is one of the world's largest rock avalanches. A 9km segment of the Hunter Mountains collapsed about 12,000 years ago forming Green Lake. Lake Hauroko is New Zealand's deepest lake at 462m. • Fiordland contains the most extensive biologically diverse and natural area within New Zealand. Eighteen ecosystems have been identified which contain over one-third of New Zealand's indigenous plant species. • Temperate rainforests and alpine plant communities create important ecosystems and habitats for native fauna. • The lakeshores of some Fiordland lakes form a special community containing up to 16 rare species of plants. • Inland Fiordland is home to very special and unique birds which include the nationally critical takahē, primarily found in Te Puhi-a-noa/ the Murchison Mountains. Käkä, möhua/ yellowhead, kākāriki/yellow-crowned parakeet, tokoeka/brown kiwi and kea/mountain parrot can also be found in Inland Fiordland. • Ancient indigenous animal associations also include species of pekapeka/bats (specifically within Eglinton Valley), lizards, skinks, fish, wētā and many other invertebrates (Department of Conservation, 2016).	VERY HIGH

INLAND FIORDLAND / TE ATAWHENUA KI UTA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Striking and legible landforms include an extensive array of alpine lakes and rivers set within native bush clad mountains and fiords. • The remoteness, naturalness and predominant absence of man-made structures over such a large area sets this landscape apart from any other part of New Zealand. • The pristine waters of the alpine lakes set within a mountainous landscape are exceptionally natural in appearance. • Deeply indented, mountains and fiords form the backdrop to Lakes Te Ana-au, Moturau/Manapōuri, Monowai/Manokīwai, Hauroko and Poteriteri/ Potiritiri are highly memorable for locals and tourists that visit the area. • The northern Te Anau Basin and Eglington Valley provide an impressive entrance for visitors to the national park, where extensive wetlands, river flats and terraces contrast with the bush clad lower slopes and alpine tops as long-distance views extend through the valley and basin landscape. • The grand scale of glacially carved mountains and fiords in combination with dense altitudinal sequences of indigenous vegetation cover surrounding Lakes Te Anau and Manapōuri read as a coherent landscape. Sudden changes in weather and snow-capped mountain views gained from Lake Te Anau and Manapōuri provide interesting transient values in this landscape.	VERY HIGH
ASSOCIATIVE	• The inland area of Fiordland, particularly the lake environments and the Waiau River, are significant to Ngāi Tahu, highlighted by numerous archaeological sites, including wāhi tapu, tuhituhi nehera/rock art, mahinga kai and urupā sites, as well as both temporary and permanent settlements. • In particular, the mahinga kai available in and around the river and lakes were, and remain, important to Ngāi Tahu. • Lakes Te Ana-au, Moturau/Manapōuri and Hauroko, as well as the Waiau River are all Statutory Acknowledgement Areas for Ngāi Tahu under the Ngāi Tahu Claims Settlement Act. • Homer Tunnel is a 1.2km-long tunnel that passes through the solid rock of the Darran mountain range and is an extraordinary historic element in this alpine environment which gives road access to Milford Sound. • The well-known Milford and Hollyford Roads provide access to several camp sites, day walks and backcountry adventures within Fiordland National Park. • Extensive recreational opportunities are available including kayaking and boat cruises on Lakes Manapōuri and Te Anau, hunting, camping and tramping the popular Milford, Hollyford, Routeburn and Kepler Great Walks.	VERY HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 27. The Inland Fiordland/Te Atawhenua ki Uta ONL sits within Fiordland National Park and includes Lakes Te Anau, Manapōuri, Monowai, Hauroko and Poteriteri, as well as the inland mountain ranges.

The western boundary follows the Pyke River, Skippers Range, Darran, Matterhorn, Merrie, Heath and Cameron Mountains down to the Waitutu Forest, where the Coastal Fiordland ONL is delineated along the character area boundary. The southern boundary also follows the Coastal Fiordland ONL. The north-east portion of this area includes a small section of Mount Aspiring National Park which contains the Little Red Hill Range. The eastern boundary largely follows the extent of Fiordland National Park, Dean and Rowallan Forests, where a distinctive land cover chance occurs along the boundary. Several wetlands on the true right of the Waiau River were included in this ONL where they lie adjacent to it.

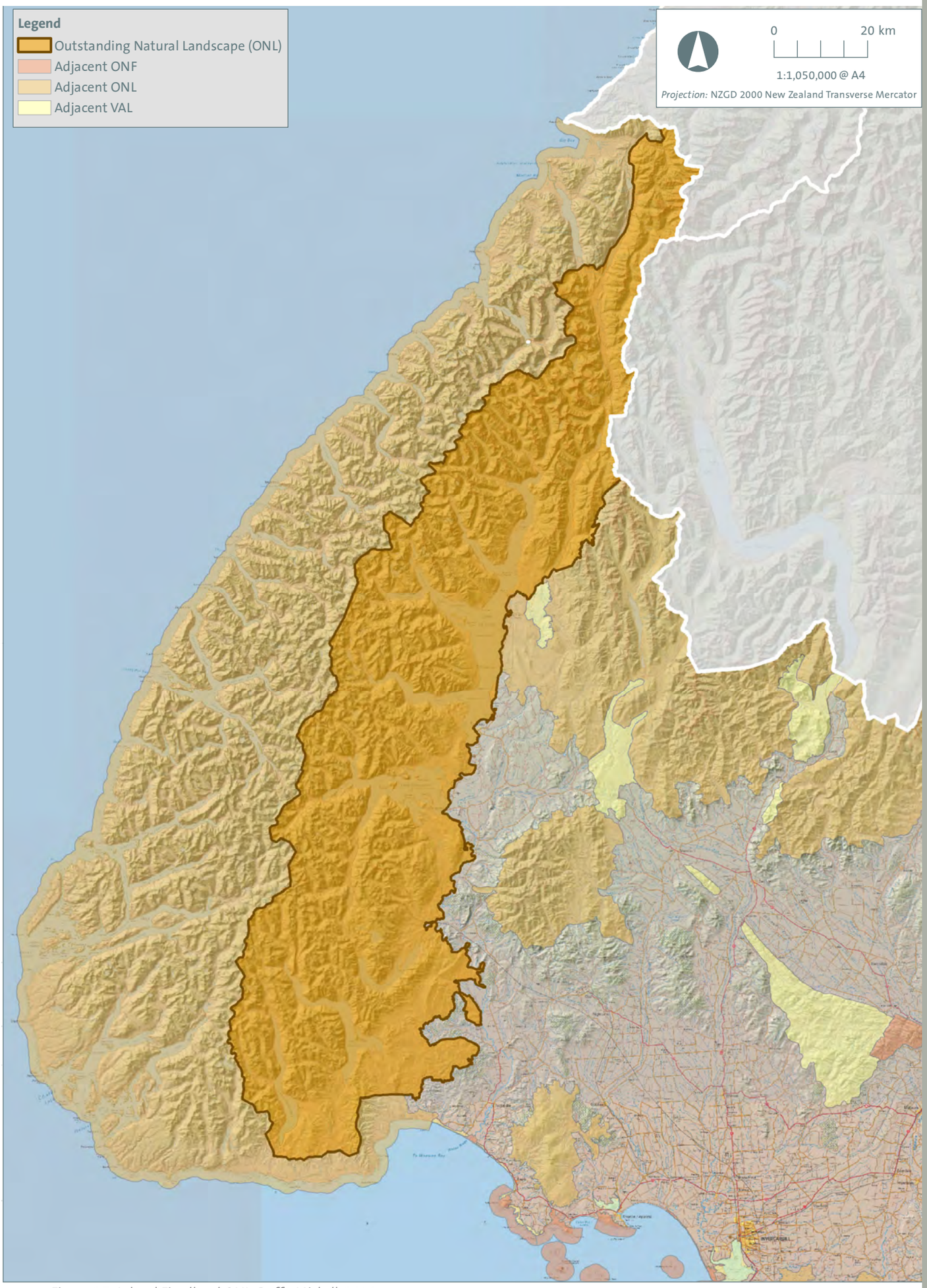


Figure 27: Inland Fiordland ONL. Boffa Miskell, 2018.



Above: View overlooking Snowdon Forest in the foreground with Bald Hill and the Eyre Mountains in the background. Boffa Miskell, 2018.

Right: Valley view of the Livingston-Eyre Mountains. Boffa Miskell, 2018.

LIVINGSTONE-EYRE MOUNTAINS / MATA-PUKE-KOIKOI ONL

Iconic South Island high country landscape with wide river valleys and lakes enclosed by steep mountains.

LIVINGSTONE-EYRE MOUNTAINS / MATA-PUKE-KOIKOI ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Mavora Lakes (Hikuraki and Manawapora) and Snowdon Forest form part of the Te Wāhipounamu – South West New Zealand World Heritage Area. • Extensive tracts of indigenous vegetation, including tussock grasslands and large areas of mountain beech forest exist at low altitudes and extend to alpine habitats. • Wetlands, consisting of peatlands and swamp, have formed in glacial moraine hollows, including a nationally important example of a moraine-dammed lake and swamp that can be found south of South Mavora Lake/Manawapora. • A wide variety of birdlife populations are supported in these ranges including the South Island kākā, kakaruai/South Island robin, koitareke/marsh crake, kea/mountain parrot and kākāriki/yellow-crowned parakeet. • Endemic vegetation species such as Brachyscome “Westdome”, Carex uncifolia, Celmisia thomsonii, Hebe biggarii, Ranunculus scrithalis, Aciphylla spedeni, Myosotis “Mossburn”, Celmisia philocremna, and Celmisia spedeni are found within the Eyre Mountains (Department of Conservation, 2000)..	VERY HIGH

LIVINGSTONE-EYRE MOUNTAINS / MATA-PUKE-KOIKOI ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Highly legible and intact mountain ranges with open, rocky tops still display the fluvial and glacial processes that formed them. • Extensive wetlands, tussock grasslands and beech forest demonstrate intact natural systems. • Highly memorable mountainous landscape which can be experienced from a variety of viewpoints and locations within and outside the ONL. The rocky tors add visual diversity to the open, tussock covered mountain tops of the Livingstone and Eyre Ranges. • The crystal clear, North and South Mavora Lakes (Hikuraki and Manawapora) are striking natural features surrounded by native forest and naturally eroding peaks above the bush line. • The wide, open Oreti River valley with impressive views to the surrounding Livingstone, Thompson and Eyre Mountain Ranges create a coherent landscape. • Snow-capped mountains provide a stunning view and back drop during the winter months.	VERY HIGH
ASSOCIATIVE	• Ngāi Tahu have strong cultural and spiritual connections to the Eyre Mountains which are referred to as Taka Rā Haka noting how the sun sets on the mountain tops at the end of the day. They are also important in relation to mahinga kai (food and resource gathering), and particularly associated with pounamu which occurs in the area. • Hikuraki and Manawapora are both Statutory Acknowledgement Areas under the Ngāi Tahu Claims Settlement Act, as well as the Oreti and Waiau Rivers. • Numerous recreational opportunities are available within this landscape including hunting, tramping the Te Araroa Trail or Mavora – Greenstone Walkway and biking the Around the Mountains Cycle Trail. • The Oreti River is a well-known and renowned fishery in addition to the upper reaches of the Mararoa/Mararoa River and Mavora Lakes. • Historical huts dating back to the high-country mustering days are now utilised along the network of tramping tracks.	VERY HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 28. The Livingstone Eyre/Mata-puke-koikoi ONL contains the swamps and peatlands surrounding Te Anau Downs, Snowdon Forest, the Livingstone Mountain Range, the upper reaches of the Mararoa River, the North and South Mavora Lakes, the Thompson Mountain Range, the upper reaches of the Oreti River, the Eyre Mountain Range, Eyre Forest and West Dome.

The Livingstone Eyre ONL borders the Otago/Southland Regional boundaries on the north and the Inland Fiordland ONL on the west. The southern extent of the ONL excludes the more modified land on the Oreti valley floor and lower hill slopes of the Eyre Range. The Upper Mararoa/Oreti VAL extends up the check/Oreti valley floor on either side of Bald Hill to meet the ONL that includes the upper reaches and headwaters. The eastern extent of the ONL borders the Upper Mataura VAL.



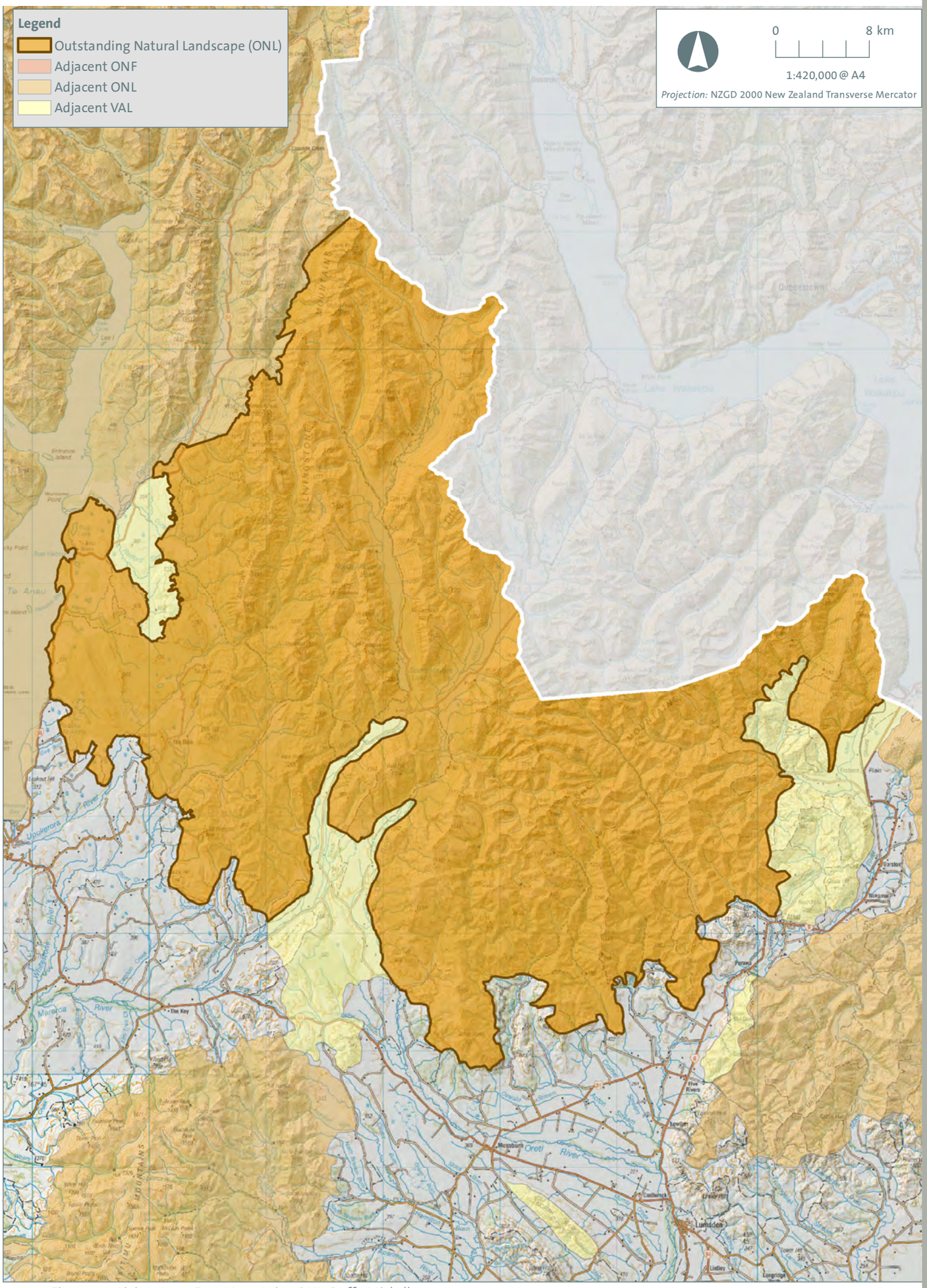


Figure 28: Livingstone-Eyre Mountains ONL. Boffa Miskell, 2018.



Above: View overlooking the Garvie Mountain Range with the upper Mataura Valley on the left. Boffa Miskell, 2018.

Right: Aerial of Cattle Flat. Boffa Miskell, 2018.

UMBRELLA-GARVIE MOUNTAINS / MATA-PUKE-TARATARA ONL

The Umbrella-Garvie ranges feature extensive tussock grasslands and form an impressive backdrop for locals and tourists travelling along State Highway 6 between Queenstown and Te Anau.

UMBRELLA-GARVIE MOUNTAINS / MATA-PUKE-TARATARA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Garvie Mountains/Te Rau glacierised plain is regionally important and contains glaciated gullies and cirque basins. • These mountain ranges are remnants of the uplifted schist block faulted mountains that continue into Central Otago with characteristic "flat topped" range and more subdued landform (Dickinson, 1989). • The Nokomai patterned mire which is a spectacular example of string bogs, mires and wetlands is natural feature is of international significance being one of the few southern hemisphere examples of sub-Arctic landform/hydrological features (Dickinson, 1989). • Large remnant mixed beech forest areas exist within the Waikaia Forest from the valley floor to the alpine tops. • Alpine areas contain extensive snow tussocklands and large alpine wetlands with the Nokomai patterned mire as the the most distinctive string bog and island wetland systems being located near Mt Tennyson/Karu-a-hine. • Grey shrublands are present on lower mountain slopes with tūmatakuru/tūmatakuru/matagouri and harakeke/flax found in the gullies. • Notable native wildlife in the area include kakaruai/South Island robin, kererū/New Zealand pigeon, kākāriki/yellow-crowned parakeet and the pekapeka/long-tailed bat.	HIGH

UMBRELLA-GARVIE MOUNTAINS / MATA-PUKE-TARATARA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Legible rock outcrops with distinctive tors along the ridgelines are a key element of the mountain ranges. Recent fluvial processes are still visible in the valley floors where rivers created terraces and fans. • The naturalness of this area is displayed by native forest in the valleys, gullies and lower slopes, with alpine vegetation on the mountain tops. • Vivid landscape with long distance mountain views present a memorable entrance to Southland/Murihiku or Lake Wakatipu/ Whakatipu Waimāori. There is a strong visual reference to the flat-topped ranges of Central Otago, especially in the Umbrella Range/ Ōtūparāoa. • Highly coherent landscape with cohesive tussock grassland land cover. • Changeable weather patterns and snow-capped mountains in the winter are typical transient values.	VERY HIGH
ASSOCIATIVE	• The Wakaia River and its upper catchment, is significant to Ngāi Tahu as a mahinga kai area with Piano Flat being recognised as a nohoanga entitlement under the Ngāi Tahu Claims Settlement Act, meaning a 'place to sit' and gives Ngāi Tahu people exclusive rights to camp, access customary fishing areas and gather natural resources (Department of Conservation, 2001). • The Matāura River is also a Statutory Acknowledgement Area under the Ngāi Tahu Claims Settlement Act. • Karu-a-hine (Mt Tennyson); Ōtūparāoa and Kōpūwai (Old Man Range) are significant peaks for Ngāi Tahu within the ONL, as in Ōteparawa – a former mahinga kai settlement near modern day Parawa. • The only operational water race in Southland is located at Piano Flat. Waikaia water race was built in the late 1800s to provide water for gold sluicing operations (Department of Conservation, 2001). • Gold mining explorations have taken place in the Nokomai valley. • Popular recreational activities in the area include horse riding, mountain biking, fishing, hunting, walking and four-wheel drive excursions.	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 29. The Umbrella Garvie/Mata-puke-taratara ONL includes the Mataura Range, the middle reaches of the Mataura River, the Garvie Mountain Range and the western slopes of the Black/Umbrella Mountain Ranges which include the Waikaia Forest.

The Umbrella Garvie ONL borders the Southland/Otago Regional boundaries on the north and east. The western extent of the ONL follows the mountainous landform boundary but excludes the western slopes of Mid Dome, where wilding pines have led to extensive land cover modifications. These western slopes of Mid Dome form a VAL which borders the ONL. The southern extent of the ONL includes the relatively unmodified tussocklands that extend along the ridgelines of the Umbrella and Garvie Ranges.



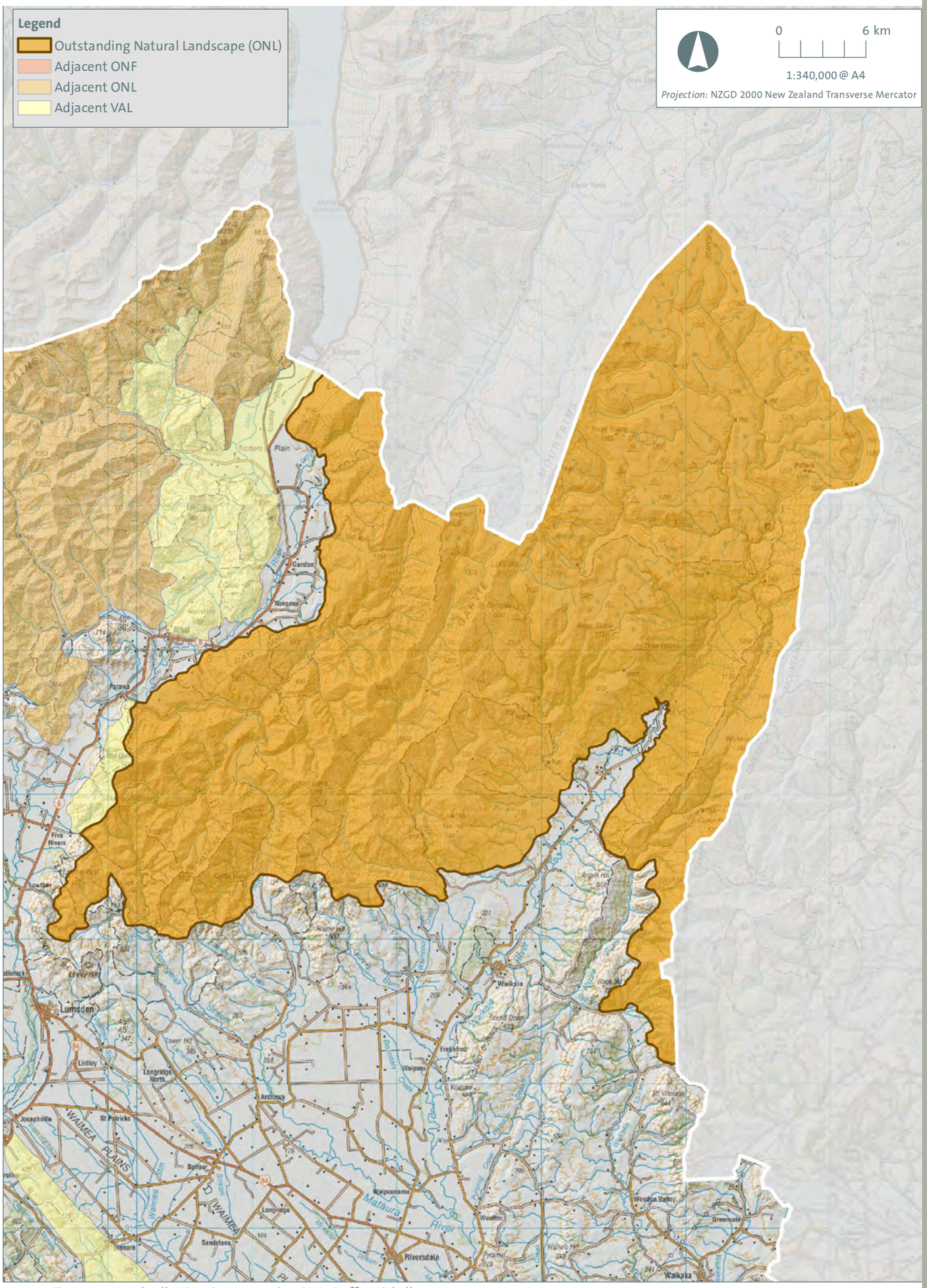


Figure 29: Umbrella-Garvie Mountains ONL. Boffa Miskell, 2018.



Above: View overlooking the high peaks in the heart of the Takitimu Mountains. Boffa Miskell, 2018.

Right: View into Whare Creek. Boffa Miskell, 2018.

TAKITIMU MOUNTAINS / TE MAUKA TAKITIMU ONL

The Takitimu Mountains ONL is a volcanic and isolated mountain range with extensive indigenous **vegetation and wetlands on the valley floor which provide habitats for native fauna. The outer scree** slopes and rugged mountain silhouette dominate the skyline from the surrounding landscape and Southern Scenic Route between the Te Anau Basin and the upper Waiau Valley.

TAKITIMU MOUNTAINS / TE MAUKA TAKITIMU ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The steep, eroded and rugged Takitimu Mountains are regionally important geological landforms originating from volcanic rocks including submarine and pillow lava flows. • These mountains form part of the western limb of the Southland Syncline. • The Takitimu Mountains contain extensive tawhai/silver beech and mixed hardwood forests containing kōwhai. • Bush clad valleys and mountain slopes, wetlands, sub-alpine shrublands, alpine tussocklands, screes and rocky outcrops form intact altitudinal sequences. • The valley floors in the headwaters of the Waterloo, Aparima and Wairaki/Mangarewa Rivers contain extensive wetlands and peatlands. • The nationally critical pekapeka/long-tailed bat, nationally endangered Barrier Skink and nationally vulnerable Takitimu gecko are found within the Takitimu Mountain Ranges.	HIGH

TAKITIMU MOUNTAINS / TE MAUKA TAKITIMU ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Scree features, expressive uplift and erosive forces are highly legible and dominate the Takitimu skyline. • The inner parts of the Takitimu Mountains are predominately in their natural state as seen through the sequence of extensive native forest cover extending from the wetland valley floor to the alpine tussockland. • The Takitimu Mountains are a notable and memorable landmark in Southland for travellers along the "Southern Scenic Route" as they clearly stand out from the Te Anau Basin and surrounding plains landscape. • An intact mosaic of vegetation and rugged silhouette mountains read as a coherent landscape from the surrounding areas which border the Takitimu Mountains. • This isolated mountain range has seasonal snow cover in the winter months and can experience sudden changes in weather.	VERY HIGH
ASSOCIATIVE	• The Takitimu Mountains are named after the famed Takitimu waka that capsized at Te Waewae Bay. The range is also recognised as Tōpuni Area under the Ngāi Tahu Claims Settlement Act. • Te Kōawa Turoa o Takitimu/Jericho Valley is an important area owned and managed by Ngāi Tahu, particularly for mahinga kai resource managed (Department of Conservation, 2016). • The Aparima River is a popular fishery and is also a Statutory Acknowledgement Area under the Ngāi Tahu Claims Settlement Act. holding historic, spiritual and traditional values important to Ngāi Tahu (Department of Conservation, 2016). • The Takitimu Mountain range is widely recognised by the local community for the recreational opportunities available. These include hunting, fishing and tramping. The backcountry network of huts is an important aspect of the area's history. • The Te Araora Trail is widely published in tourist maps and provides public access through the Takitimu Mountains.	HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 30. The Takitimu Mountains/Te Mauka Takitimu ONL includes the entirety of the Takitimu Conservation Area, the Waterloo Burn and Letham Burn wetlands and Etal Hill.

The Takitimu ONL primarily follows a landform boundary where the land cover is predominantly native. This ONL excludes the highly modified lower slopes of the mountain range where plantation forestry dominates.



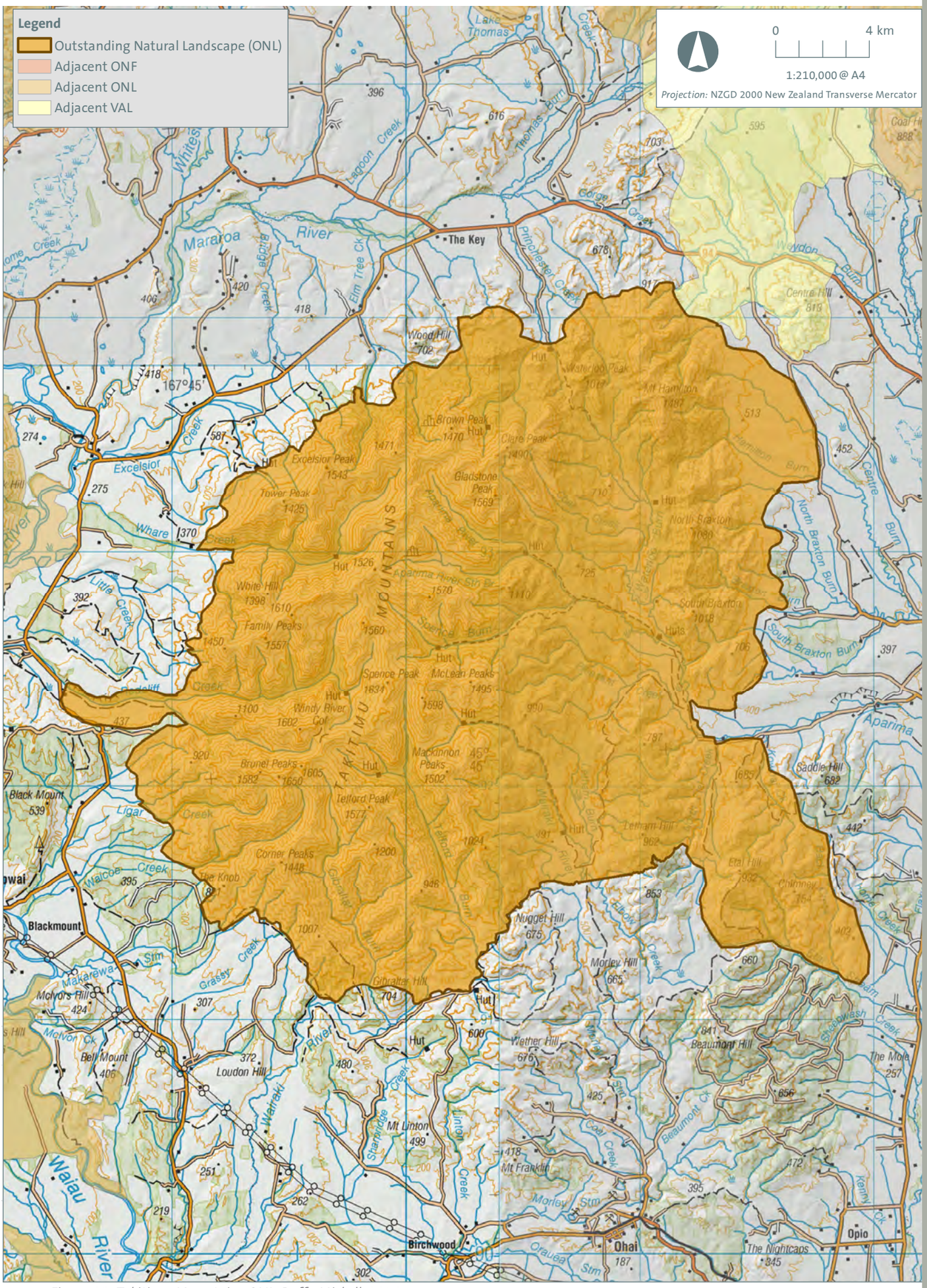


Figure 30: Takitimu Mountains ONL. Boffa Miskell, 2018.



Above: View overlooking the Longwood Range / Ōhekeia with consistent native forest cover in the conservation area. Boffa Miskell, 2018.

Right: Perspective of Longwood Range from Otautau. Boffa Miskell, 2018.

LONGWOOD RANGE / ŌHEKEIA ONL

The Longwoods form a distinctive linear mountain range sequence separating the Southland Plains from the Waiau Valley which is almost entirely covered with lowland or montane beech forest and capped by subalpine grassland on mountain tops. The resultant extensive forested backdrop forms a vivid skyline within southern Southland reinforced through important recreational uses and associative connections including tangata whenua associations and its Chinese gold mining past.

LONGWOOD RANGE / ŌHEKEIA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Lower Permian intrusive rocks and volcanics formed along the intra-oceanic subduction zone which represent the main Longwood Range/Ōhekeia today. Tertiary sedimentary rocks form the lower hill country and areas of recent sediments can be found in surrounding valleys. • Extensive areas of lowland broadleaved forest, podocarp forest and tawhai/beech forest. • The tops of the range contain areas of subalpine tussock grasslands and wetlands which provide important habitat for threatened plants. • The indigenous flora is relatively rich and includes several species that are at their southern or eastern limit of their upland peatland community habitat, such as the terete-leaved snow tussock (Chionochloa teretifolia) (Department of Conservation, 2016). • The Declining pirinoa/scarlet mistletoe (Peraxilla colensoi) is scattered through some of these forests in addition to the Nationally Vulnerable mohua/yellowhead (Department of Conservation, 2016).	HIGH

LONGWOOD RANGE / ŌHEKEIA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The elongated mountain range forms an impressive and highly legible sequence of intrusive rocks and rounded volcanic hills separating the Southland Plains from the Waiau Valley. • Overt sense of naturalness with intact altitudinal vegetation sequences up to the summit, which makes the range distinct from surrounding land uses including agriculture and forestry at lower altitudes. • Vivid and memorable long linear mountain range and vegetated backdrop visible from the Waiau Valley and Southland Plains. • Highly coherent cover of indigenous vegetation with isolated areas of obvious modification and built development including historic gold mine workings, tramping huts and a single mast structure on Bald Hill. • Seasonal variation along subalpine mountain tops provide important and recognised transient values.	VERY HIGH
ASSOCIATIVE	• Ngāi Tahu have a significant relationship with Longwood Range/Ōhekeia area – referring to the 'Place of Hekeia' a noted southern rangatira associated with Aparima, Te Anau and other areas. The forests of the range supported numerous kāinga around the coast from Te Waewae Bay to Aparima/Riverton. • Waihuka (Holly Burn); Waimeha (Waimeamea River); Taunoa Stream; Ōuruwera Stream and the Pourakino River are all significant waterways for Ngāi Tahu providing mahinga kai resources, particularly tuna (eel) as well numerous precious stones. • Strong historic association with gold mining and sawmilling use, and there are a number of actively conserved heritage sites relating to these activities: Mores' Top Mill; Printz's Battery; Turnbull's water race, dam site and hut; Martin's hut and water race; and Mores' Johnston locomotive (Department of Conservation, 2016). • Round Hill/Kā Puketai was the site of NZ's largest, predominantly Chinese, gold mining settlement (Known as 'Canton' or 'Long Hee-lee') in the 1880s. • The Te Araroa trail extends through this area and provides important and recognised recreation associations. • The Longwoods are seen as the region's 'playground' for recreation, particularly for people from Ōtautau, Riverton and Invercargill/Waihōpai (Department of Conservation, 2016). • Popular for hunting, walking, mountain biking and four-wheel driving.	HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 31. The mapped extent of the Longwood Range/Ōhekeia follows the boundary encompassing the distinctive sequence of rounded volcanic forms which maintain a cohesive cover of indigenous vegetation. Productive forests and mixed vegetation along the lower slopes are excluded from the ONL, while the conservation area falls entirely within the ONL.





Figure 31: Longwood Range ONL. Boffa Miskell, 2018.



Above: View overlooking Awarua Bay and Tiwai Point. Boffa Miskell, 2018.

Right: Matarua River Mouth and Toetoes Bay. Boffa Miskell, 2018.

AWARUA-WAITUNA WETLAND COMPLEX / AWARUA KI WAIPĀRERA ONL

The Awarua and Waituna Wetland Complex ONL are intact, significant wetlands recognised in Murihiku/Southland, New Zealand and internationally for providing important habitats for wading birds and extensive indigenous vegetation cover.

AWARUA-WAITUNA WETLAND COMPLEX / AWARUA KI WAIPĀRERA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Awarua and Waituna Wetland Complex/Awarua ki Waipārera is designated as a wetland area of international importance under the RAMSAR convention, which includes some of the most significant wetlands in New Zealand. • The Waituna Lagoon and associated wetlands are nationally important for being largely unmodified and an intact coastal wetland system trapped behind a barrier beach. • Bluff Harbour/Awarua and Awarua Bay are the largest estuaries on the south coast with excellent examples of coastal features such as tidal deltas, tombolos (small island), wetlands and extensive beach ridges. • The tidal mud flats are an important component of the Awarua Wetland Complex in addition to the extensive peatlands which provide important feeding areas for wading birds. • This landscape is one of the most important wading bird habitats in Southland/Murihiku and New Zealand, featuring species such as the matuku/Australasian bittern and the mata/South Island fernbird. • A diverse range of freshwater and estuarine species such as the threatened giant kōkopu, banded kōkopu, īnanga and tuna/eels are found within Waituna Lagoon's brackish waters, Awarua Bay and Bluff Harbour. • A wide range of wetland plant communities exist as well as areas dominated by peatland, manuka shrubland, harakeke/flax, tussock and swamp. • A notable area of red tussocklands can be found on Tiwai Peninsula in addition to regenerating areas of subalpine shrub and other subalpine cushion plant species.	VERY HIGH

AWARUA-WAITUNA WETLAND COMPLEX / AWARUA KI WAIPĀRERA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The wetland complex is highly legible due to its vast size and scale along the Southland coastline. The vast views in this open landscape are a key feature. • There is a high perception of naturalness due to the relatively unmodified state of the wetland complex, lagoon and Awarua Bay. • The contrast between the widespread indigenous vegetation and ecosystems with the surrounding agricultural lands are very striking and memorable. • The landscape is highly coherent with a consistent cover of native vegetation, wetland systems and water bodies. • Wading birds and waterfowl can be seen feeding during differing tides adding to the transient values of the wetland landscape. • Occasional whales and dolphins can be seen from the coastline.	VERY HIGH
ASSOCIATIVE	• The Awarua-Waituna area is hugely significant to Ngāi Tahu, particularly due to the proximity of the Awarua marae in Bluff. The name Awarua, means two bodies of water, while 'Waituna' means 'water of eels', alluding to the value of the lagoon as an area for mahinga kai and as habitat for indigenous species. Waipārera is an older name for Waituna referring to the grey duck or pārera. • Waituna Lagoon is a major food basket, valued and utilised for its wide variety of mahinga kai and the wetlands are an important kōhanga (spawning ground) for indigenous fish species (Department of Conservation, 2016). • Tiwai Peninsula was once the location of a workshop where Ngāi Tahu honed tools from argillite rock but now is the site of a large aluminium smelter (Boffa Miskell Ltd, 2010). • Historically, the general area was a focus of early cultural interaction between Māori and European sealers, whalers and traders, with settlements emerging to provide food for the newcomers and a transport route. • The Awarua-Waituna Wetlands provide recreational opportunities such as bird watching, fishing and nature walks. Boating, specifically yachting is popular in Awarua Bay.	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 32. The Awarua-Waituna Wetland Complex/Awarua ki Waipārera ONL include the waters of Bluff Harbour, Awarua Bay, Waituna Lagoon and their associated wetland and peatlands which extend to the coastline. The more modified pasture land, Bluff Port and the aluminium smelter with its associated infrastructure has been excluded.





Figure 32: Awarua-Waituna Wetland Complex ONL. Boffa Miskell, 2018.



Above: View overlooking the extensive indigenous forests of the Inland Catlins. Boffa Miskell, 2018.

Right: Terraced land formations, a common feature of the Inland Catlins. Boffa Miskell, 2018.

INLAND CATLINS / WAIKAWA-TAUTUKU ONL

The Inland Catlins form an elevated sequence of vegetated landforms which provide a highly memorable and natural backdrop to the coastal parts of the Catlins and the Southland Plains.

INLAND CATLINS / WAIKAWA-TAUTUKU ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Part of the nationally important Southland Syncline, although visually not as expressive of the system of dramatic synclines and anticlines found elsewhere. • The Inland Catlins / Waikawa-Tautuku area is characterised by the parallel low hills, escarpments and valleys of the Southland Syncline (Department of Conservation, 2000). • Part of the largest remaining area of indigenous forest on the east coast of the South Island (Department of Conservation, 2016). • Podocarps including rimu/red pine, tōtara, matai/black pine, kahikatea/white pine and miro/brown pine grow closer to the coast and extends into tawhai/silver beech forest in higher areas as part of a larger unbroken altitudinal sequence of indigenous vegetation from the coast to sub-alpine tops (Department of Conservation, 2016). • The area is very significant as habitat and breeding areas for indigenous wildlife including the threatened pirita/Green mistletoe, the fragrant tree daisy (Olearia fragrantissima), kererū/New Zealand pigeon, pekapeka and the kākāriki/yellow-crowned parakeet (Department of Conservation, 2016).	HIGH
SENSORY	• Assemblage of folded ridges and valleys along the Southland Syncline remains clearly apparent. • Sense of naturalness and wilderness which encompasses a cohesive cover of native forest, which can be experienced within the area. • The extent of native forest forms a memorable backdrop adjoining agriculture and exotic forestry. • High levels of coherence in which the dominant cover of native vegetation remains in harmony with the natural landform pattern. • Opportunities to experience wildlife and wilderness enhance transient values.	VERY HIGH

INLAND CATLINS / WAIKAWA-TAUTUKU ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• The entire Waikawa River catchment, including the associated ranges and coastal area is significant to Ngāi Tahu, particularly due to it being an area of both traditional and ongoing settlement, and mahinga kai. • Local Ngāi Tahu still utilise Mangai Piri or Niagra Falls as a place for mahinga kai and as a nohoanga, including a nohoanga entitlement being created there as part of the Ngāi Tahu Claims Settlement Act. A mātaitai customary fishing reserve also exists within the harbour, river and part of the surrounding coast. • Significant Māori Freehold Land and Reserves are also present within the ONL, including the Waikawa and Tautuku blocks. • Kahukura (Bush Cone) is a significant peak for Ngāi Tahu within the ONL, as well as part of Kā Pukemāeroero (Maclennan Range). • The Southern Scenic Route runs through this area, from which the extensive forested Inland Catlins landscape is appreciated. • Development for recreational use is confined to the periphery with opportunities for more active, experienced and self-reliant backcountry visitors who are not dependent on facilities in the central parts of the area (Department of Conservation, 2000).	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 33. The Inland Catlins/Waikawa-Tautuku ONL has primarily been mapped according to the extent of native forest. This encompasses the western end of the Maclennan Range/ Kā Pukemāeroero which extends into Southland/Murihiku from Otago and includes the adjacent areas of Forest Range and Mount Darby.

The boundary of the Inland Catlins generally aligns with landscape values identified over the border in the Clutha District (Moore, 2015), however has been drawn to more closely follow the transition between indigenous vegetation and more modified areas of rural hinterland including pasture and forestry.



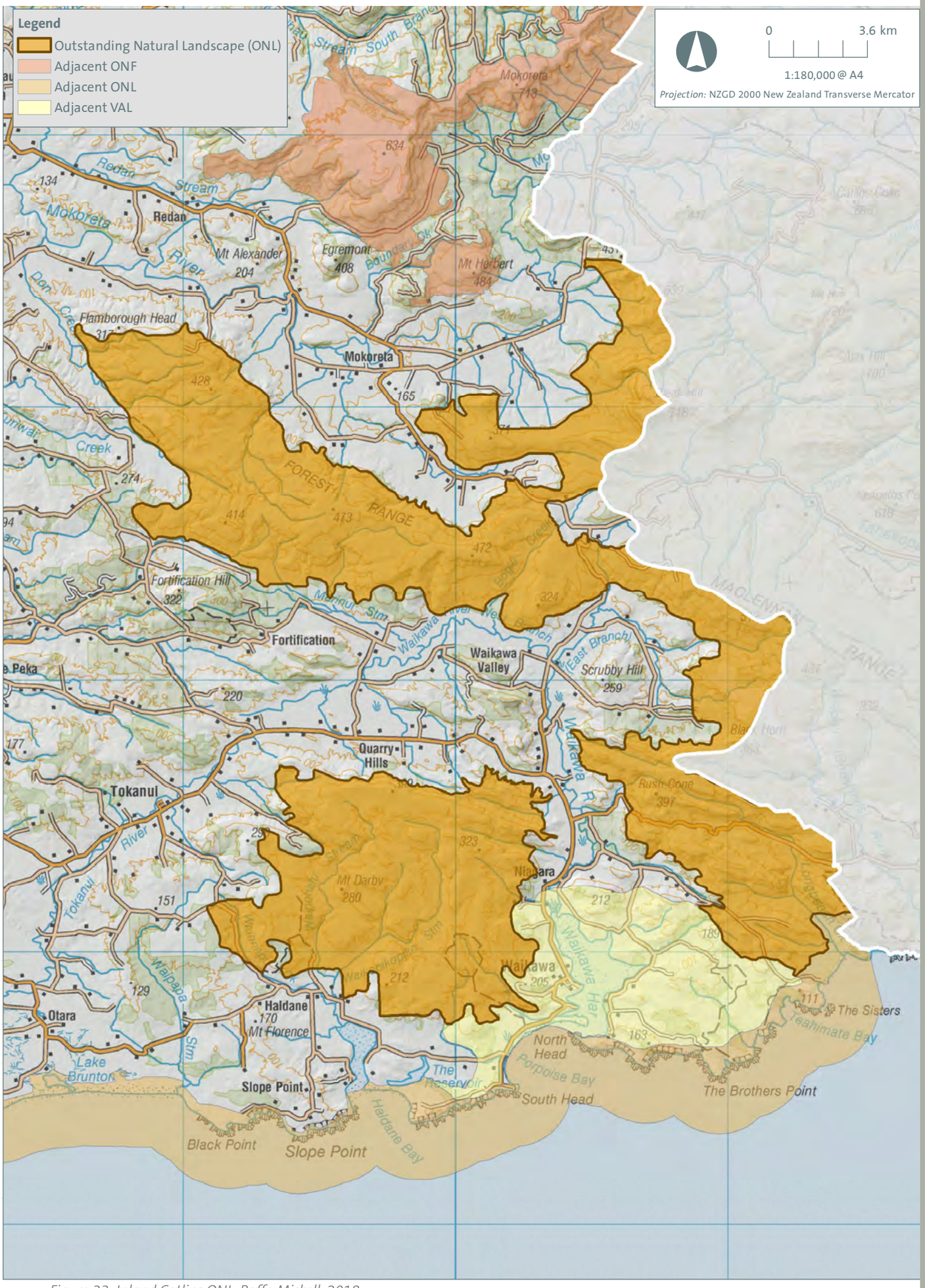


Figure 33: Inland Catlins ONL. Boffa Miskell, 2018.



Above: View overlooking the rocky coastline around Slope Point to the west of Haldane Bay. Boffa Miskell, 2018.

Right: Porpoise Bay beach at sunset. Boffa Miskell, 2018.

COASTAL CATLINS / TE ĀKAU TAI TOKA ONL

The Coastal Catlins ONL encompasses the striking coastal landforms and forests which extend between Waipapa/Slope Point and the eastern end of the region at Waiparau Head. This ONL includes the entrances to Waikawa Harbour, Haldane and excludes the small coastal settlement in Porpoise Bay/Curio Bay.

COASTAL CATLINS / TE ĀKAU TAI TOKA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Part of the nationally important Southland Syncline, including the headland at Teahimate Bay which forms one of the best sections of the ragged, creviced Catlins Coast/ Te Ākau Tai Toka (Geological Society of New Zealand, 1998). • The petrified forest at Curio Bay is the best example in New Zealand of a fossilised forest (Geological Society of New Zealand, 1998) from the Jurassic period (160 million years ago), which is rare worldwide (Department of Conservation, 2000). • Waipapa/Slope Point marks the southernmost point of the South Island. • Includes part of a wider unbroken sequence of indigenous vegetation which extends from the coast to sub-alpine tops (Department of Conservation, 2016b). • Numerous areas of ecological significance including wetlands, coastal dune lakes, remnant bush and other areas with significant natural values. • Several threatened species are found on the coast including the plants mātiatia/sand tussock, pingao/golden sand sedge and shore cress (Lepidium tenuicaule) and the birds turiwhatu/banded dotterel, Stewart Island shag, reef heron and variable oystercatcher (Department of Conservation, 2000).	VERY HIGH

COASTAL CATLINS / TE ĀKAU TAI TOKA ONL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Important feeding and breeding habitat for marine mammals, and sea and wading birds including the threatened hoiho/yellow-eyed penguin, kekeno/New Zealand fur seals and whakahao/New Zealand sea lions. Ihupuku/southern elephant seals and popoiangore/leopard seals are also regular occasional visitors to the area (Department of Conservation, 2016). • The coastal zone is strongly influenced by the Tasman Current. The productive coastal ecosystem supports a mix of widespread species and those typical of southern New Zealand (Department of Conservation, 2016). • A large marine mammal sanctuary extends south from the Catlins coastline, which forms part of the seascape ONL that includes the rugged coastline and adjacent marine area. • A pod of upokohue/Hector's dolphins are resident off Curio-Porpoise Bay (Department of Conservation, 2000).	VERY HIGH
SENSORY	• The tilted rock forms of the Southland Syncline are vividly expressed in various locations along the coast such as the headlands associated with Teahimate Bay. • The coastal cliffs, beaches, dunes and dune lakes are highly expressive of the erosive (and depositional) power of the sea and its formative processes. • Limited settlement or development has extended along the exposed coastal edge. The area provides an immersive coastal experience which retains an overwhelming sense of naturalness. • Spectacular and highly memorable coastal landforms encompass prominent headlands, ragged and creviced coastal cliffs and striking rock outcrops which frame the dramatic moods of the sea and extend out into the seascape in many places. • This section of coast generally expresses a coherent cover of coastal shrub land or forest, with local herb fields or coastal turf on exposed headlands and areas of sand dune associated with sandy beaches which contribute to an overwhelming sense of naturalness. • Numerous opportunities to experience transient values including observation of marine mammals and birds in their remarkable and dynamic coastal settings.	VERY HIGH
ASSOCIATIVE	• The Te Āku Tai Toka / Catlins coastal area is significant to Ngāi Tahu particularly in relation to mahinga kai and numerous settlement and occupation areas, as well as the presence of Māori Reserves. These are highlighted by extensive archaeological sites along the entire coast. • A mātaitai customary fishing reserve exists within the Waikawa Harbour, river and part of the surrounding coast and Māori Freehold Land and Reserves are located within the ONL, including the Waikawa and Tautuku blocks. • Gold mining occurred in Dummy's Beach and Long Beach with a few relics remaining in Long Beach Creek (Peat, 2009) and a bucket dredge in the vicinity of Lake Cook (Department of Conservation, 2000). • The Catlins attracts many domestic and international visitors travelling the Southern Scenic Route, which extends through to Invercargill and on to Te Anau with Curio Bay as one of the main tourist attractions (Department of Conservation, 2016).	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 34. The Coastal Catlins/Te Ākau Tai Toka ONL encompasses the dramatic and exposed coastal interface and a portion of the seascape that contains the Catlins Coast Marine Mammal Sanctuary.



Figure 34: Coastal Catlins ONL. Boffa Miskell, 2018.



1.1 IDENTIFIED OUTSTANDING NATURAL FEATURES

Within the Southland/Murihiku Region, ten ONFs have been identified and these are illustrated on Figure 25 (shown in red on maps). These are all landscape features in their own right, each containing a range of biophysical, sensory and associative values. Each ONF retains sufficient levels of naturalness to be considered a candidate for being outstanding.

Based on the evaluation undertaken, the following ONFs have been identified and mapped (see Figures 35- 44). Their associated values and characteristics are described in the following sections, along with a description of the appropriate method of mapping each area.

TABLE 3: OUTSTANDING NATURAL FEATURES (ONF) IN SOUTHLAND/MURIHIKU REGION

LANDSCAPE FEATURE AREA	
1	Waterfall Range / Hokonui
2	Slopedown / Mokoreta - Pukemimihau
3	Waiau River Mouth / Matatarawae
4	Pahia Hill / Ōmāwhero
5	Ōraka-Kawakaputa Bay / Ōraka ki Kawhakaputaputa
6	Riverton Hill / Te Haki ki Taramea
7	Oreti Beach-Sandy Point / Mateawaewae – Oreti ki Waimatuku
8	Bluff Hill - Omaui / Motupōhue ki Ōmāui
9	Toetoes Harbour / Toetoe
10	Outer Islands / Ngā Motu o Te Ara-a-Kiwa

Above: Porpoise Bay coastal rocky outcrops, Coastal Catlins ONL.



Above: View overlooking the Waterfall Range/ Hokonui and Croydon Bush on the left. Boffa Miskell, 2018.

Right: Hokonui Hills in the distance overlooking the plains below. Boffa Miskell, 2018.

WATERFALL RANGE / HOKONUI ONF

The Waterfall Range forms a dramatic and highly expressive feature of the Southland Syncline which contains several significant ecological and scenic areas. Croydon Bush Scenic Reserve is a particularly significant area of remnant vegetation.

WATERFALL RANGE / HOKONUI ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Some of New Zealand's most distinctive strike ridges and trellised drainage pattern along the Southland Syncline (Geological Society of New Zealand, 1998). • Croydon Bush Scenic Reserve is the only substantial area of native forest remaining near Gore. This supports a range of successional communities that show recovery from fire and logging including kahikatea and mataī (Department of Conservation, 2000). • A flora of at least 240 native species has been recorded from Dolamore Park and the adjacent Croydon Bush. The flora also contains several nationally threatened and locally uncommon species (Gore District Council, 2017). • Red tussock is found on the summit areas often with manuka (Department of Conservation, 2000). • At least 35 indigenous birds also breed within the forest remnants, including the kōparapara/ bellbird, pīwakawaka/fantail, pīpipi/brown creeper and ker-erū/New Zealand wood pigeon (Gore District Council, 2017).	HIGH

WATERFALL RANGE / HOKONUI ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Striking and very legible part of the broader Southland Syncline which forms the skyline to the west of Gore. • Open ridgeline and Croydon Bush/Haumuri form an impressive natural backdrop observed from State Highway 1 around Gore and along State Highway 94. • The dramatic sequence of defined ridgetops and conical hills including, Kelvin Peak, Ship Cone/Whakaoma and East Peak/Hokonui form vivid and memorable landmarks. • Highly coherent skyline within the adjoining ONL remains free of prominent built development, while structures are found to the south.	VERY HIGH
ASSOCIATIVE	• The area has important Ngāi Tahu associations including traditions associating the taniwha, Matamata with the creation and distinctive profile of the hills, as well as the Ōtamatea Stream being linked to the Takitimu tradition. • Manuka (Charlton Stream) and Waimumu Stream are important waterways for Ngāi Tahu as are the peaks of Hokonui (East Peak) and Whakaoma (Ship Cone) as well as Haumuri (Croydons Bush). • A number of Māori Reserves, including the Waimumu blocks are nearby. • The Croydon area was the site of one of the earliest European settlements in inland Southland. One of the first of these was run 116, Hokonui Station; which later became Croydon Bush Scenic Reserve (Gore District Council, 2017). • Croydon Bush/Haumuri is managed as a Scenic Reserve and used predominantly by the Gore population for recreation including walking and tramping and the Hokonui mountain bike track through Dolamore Park.	HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 35. The mapped extent of the Waterfall Range/Hokonui ONF encompasses the eastern end of the Hokonui Hills including Croydon Bush following the defined change in topography where the hills rise from the Southland/Murihiku and Waimea Plains. The southern boundary of the ONF follows Bushy Park Road adjoining the Hokonui Hills VAL which encompasses the Hokonui Forest VAL to the south-west. The centre of the Waterfall Range is bisected by Dolamore Park Road and adjoins the Hokonui Hills VAL in the vicinity of the defined change in topography along Otamita Gorge Road.



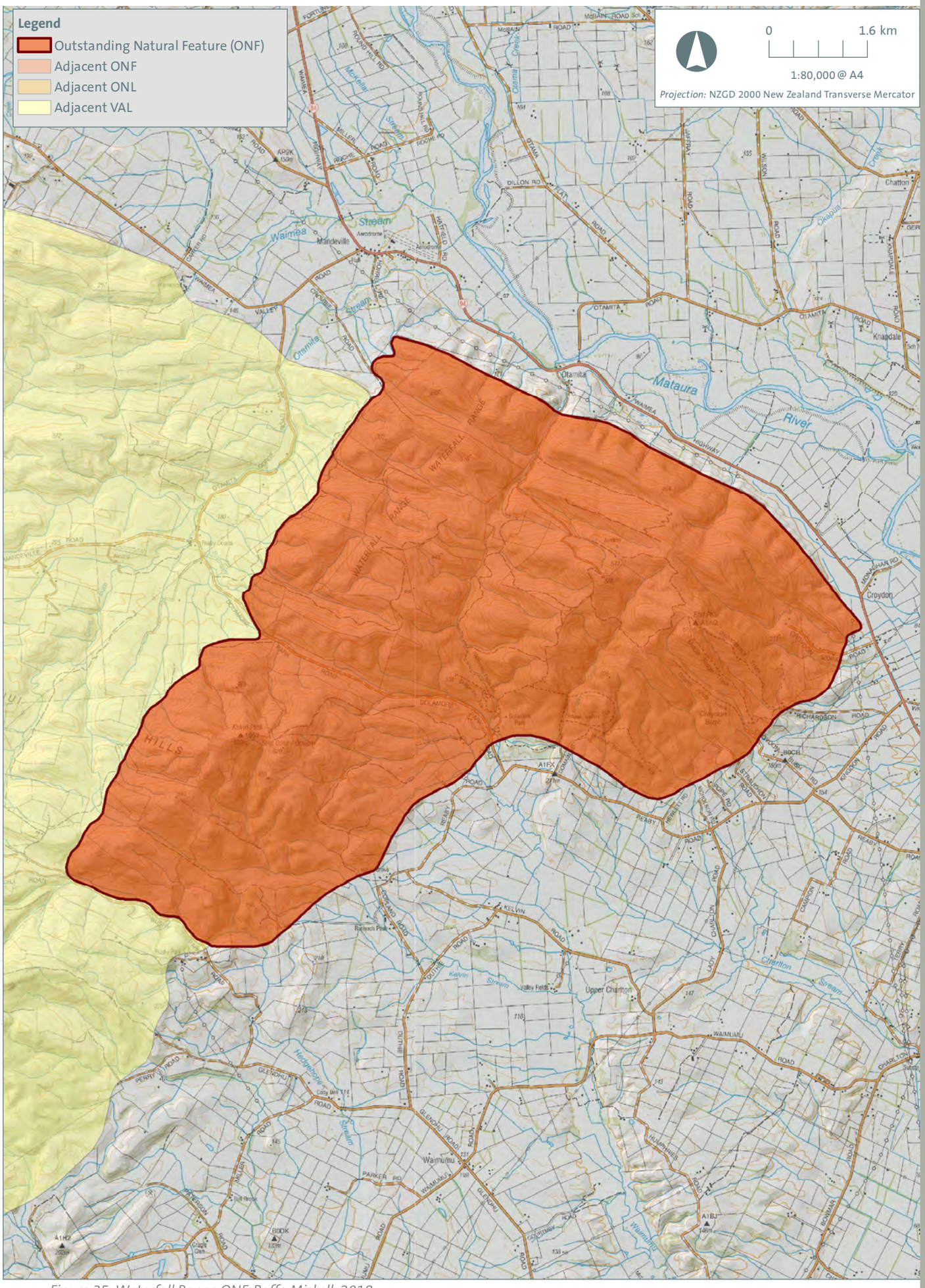


Figure 35: Waterfall Range ONF. Boffa Miskell, 2018.



Above: View overlooking Mt Herbert and the Slopedown escarpment on the right. Boffa Miskell, 2018.

SLOPEDOWN / MOKORETA – PUKEMIMIHAU ONF

Slopedown forms a striking part of the Southland Syncline and contains an impressive altitudinal sequence of indigenous vegetation providing recreation opportunities.

SLOPEDOWN / MOKORETA – PUKEMIMIHAU ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Part of the geologically significant Southland Syncline which incorporates a series of striking ridges and valleys from western Southland through to the Catlins/Te Ākau Tai Toka. • This unit is divided into two sub-units. Although the whole unit is part of the wider area known as the Catlins and is part of the Southland Syncline, the physical characteristics of the two sub-units are quite distinct. • The Catlins area is characterised by the parallel low hills, escarpments and valleys of the Southland Syncline (Department of Conservation, 2000). • One of the last largely undisturbed examples of the transitional vegetation between the region's predominant rimu-kamahi- forest and the former mixed podocarp forest of the Southland/Murihiku plains and peripheral hill country (Sandercock, 1987). • Slopedown Hill has some mountain cedar (Libocedrus bidwillii) on the southern slopes, while the tops have a significant amount of intact red tussock and peatlands (Department of Conservation, 2000). • The Slopedown Ecological Area contains altitudinal sequences of regenerating kamahi, podocarp and mixed broadleaved forest on relatively flat to steep hill sides (Department of Conservation, 2016).	HIGH
SENSORY	• Distinctive plateau and sloping strike ridge remains highly legible and expressive of the Southland Syncline through this area. • The dominant cover and sequence of indigenous forest which culminates along grassland and scrub upon the plateau establishes an overt sense of naturalness. • Combination of flattened ridgetop and distinctive sloping forested scarp forms a memorable feature and skyline observed from the Southland Plains. • Highly coherent sequence of native vegetation and sub-alpine tussock which expresses a notable altitude sequence in harmony with the landform.	VERY HIGH
ASSOCIATIVE	• The Mimihau Stream is important to Ngāi Tahu and the wider area includes a number of archaeological sites of Māori origin highlighting traditional use and occupation. • Slopedown Forest has been used as an outdoor education area (Department of Conservation, 2000). • Recognised important backcountry hunting and tramping opportunities.	MODERATE-HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 36. The Slopedown/Mokoreta - Pukemimihau ONF has primarily been mapped according to the extent of native vegetation. This encompasses the full extent of the vegetated scarp slope and extends onto the plateau top where existing vegetation predominantly remains intact. It also includes the adjacent vegetated form of Mount Herbert. Exotic plantation forestry has been excluded from the ONF and typically forms the boundary along which the extent of the ONF has been defined.

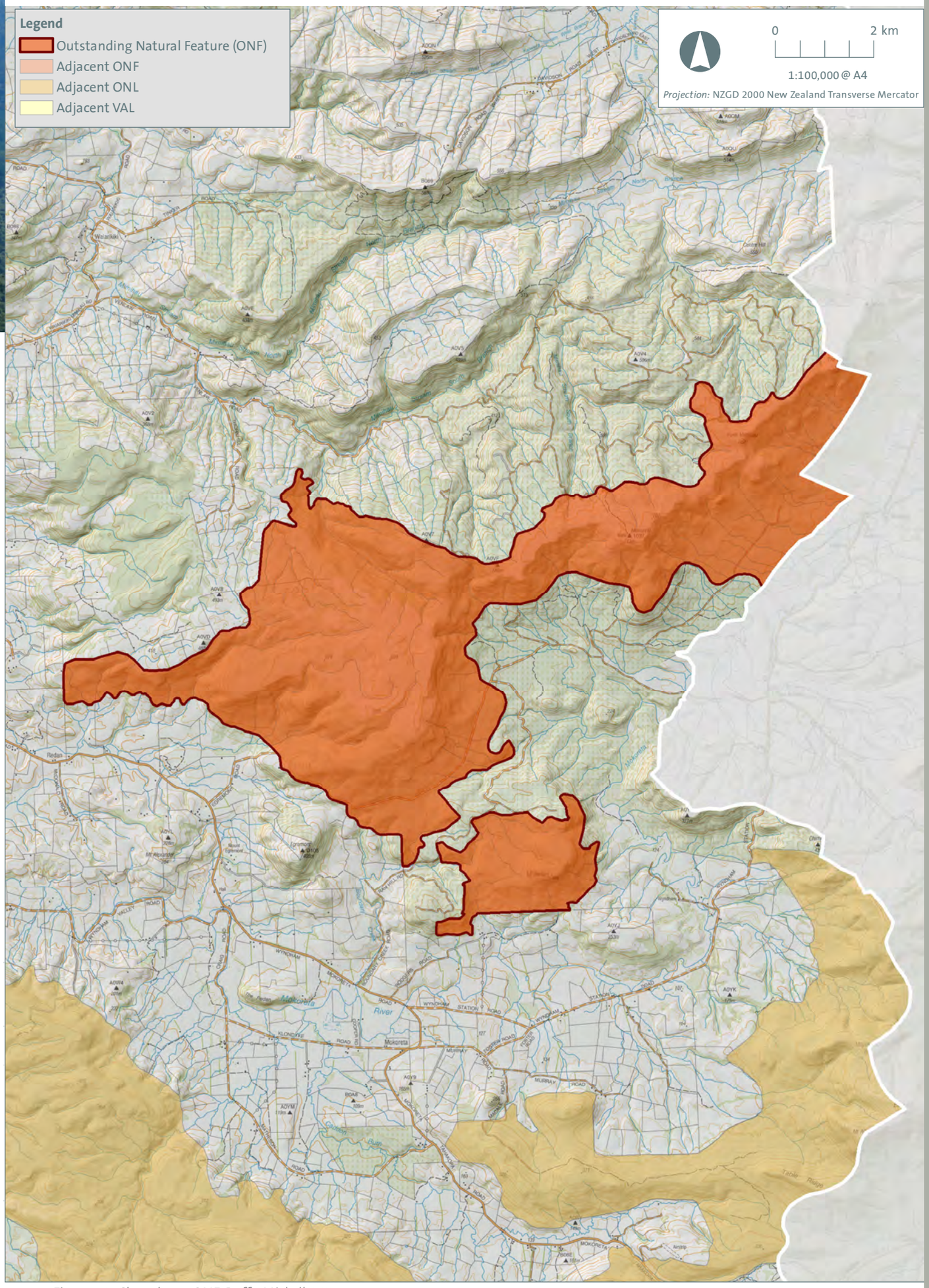


Figure 36: Slopedown ONF. Boffa Miskell, 2018.



Above: View overlooking the Waiau River mouth where it flows into Te Waewae Bay. Boffa Miskell, 2018.

WAIAU RIVER MOUTH / MATATARAWAE ONF

The Waiau River Mouth ONF is a striking feature along the Southland Coast with legible river **channels, wetlands and a small coastal lagoon. The water flows of the Waiau River have been modified near Manapouri for the West Arm powerstation.**

WAIAU RIVER MOUTH / MATATARAWAE ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Waiau River mouth consists of a barrier beach, gravel bar and lagoon. • The gravel bar between the lagoon and the sea is a roost for spotted shags. • The coastal wetlands and lagoons of the Waiau River are a very important wildlife habitat for native fish and bird species such as the tōrea/variable oyster catcher, turiwhatu/banded dotterel and mottled petrel. • Seasonal īnaka/whitebait spawning areas are found in vegetation at the margins of tidal wetlands and streams.	HIGH
SENSORY	• Legible river channels and gravel banks demonstrate the river's formative processes. • The interaction between coastal and river processes make the Waiau River mouth a striking feature along the Southland coast, specifically within Te Waewae Bay. • The Waiau River mouth and its sinuous braided river system read coherently against the patchwork of the surrounding modified plains landscape. • The river braids are dynamic and constantly changing in flood events, providing ephemeral values. • Dolphins and whales can occasionally be seen within Te Waewae Bay, which contains a marine mammal sanctuary.	VERY HIGH
ASSOCIATIVE	• The Waiau River is a Statutory Acknowledgement area under the Ngāi Tahu Claims Setttlement Act. • Numerous archaeological sites and wāhi taonga reflect the past use of the area, including a kāinga known as Te Tua a Hatu (Environment Southland Regional Council, 2017). • Matatarawae refers to the lagoon that forms at the river mouth and which is a mahinga kai area where īnaka/whitebait, pātiki/flounder, tuna/eels and aua/mullet are gathered. • Recreational opportunities at the Waiau River mouth include bird watching, whitebaiting and fishing.	MODERATE-HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 37. The Waiau River Mouth/Matatarawae ONF mapped extent includes the gravel bar which separates the lagoon from the sea, the lagoons on either side of the river mouth, the wetlands and sinuous braids which extend just over 1km inland.

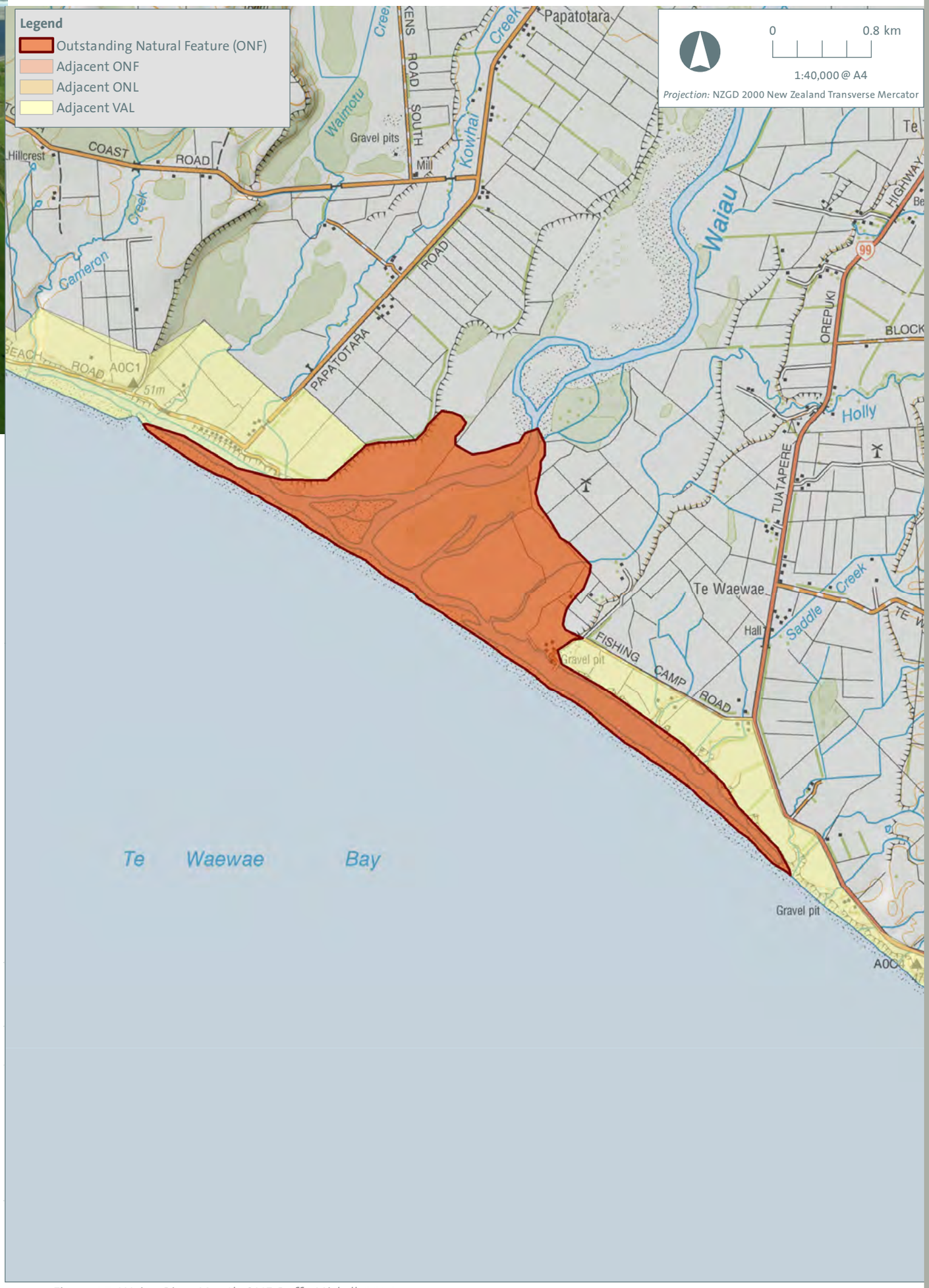


Figure 37: Waiau River Mouth ONF. Boffa Miskell, 2018.



Above: Aerial of Pahia Hill in the distance. The hill marks the eastern end of Te Waewae Bay. Boffa Miskell, 2018.

PAHIA HILL / ŌMĀWHERO ONF

The Pahia Hill ONF is a highly legible, smooth and rounded headland of volcanic origin which **provides a vivid contrast to the surrounding flat agricultural land.**

PAHIA HILL / ŌMĀWHERO ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Layered mafic rocks and shore platform potholes at Pahia Point/Te Ahi Rahuru are regionally important landforms, which are recognised as a Geopreservation Site. • Rugged, remote and exposed headland with rocky coastal edge. • The low headland and smooth, round hill slopes contain remnant native shrublands. The surrounding area is predominantly modified rural landscape with pasture and little public access.	VERY HIGH
SENSORY	• The rounded form of Pahia Hill is a very legible volcanic feature along the Southland Coast. • Native shrublands form a distinctive cover on the top of Pahia Hill. • Pahia Hill is a highly vivid landscape feature within long distance views providing a memorable contrast between the flatter agricultural landscape surroundings. • The coastline surrounding Pahia Hill is exposed to big stormy seas and the continual westerly swell (Environment Southland, 2013).	HIGH
ASSOCIATIVE	• Te Ahi Rahuru is the traditional Māori name for Pahia Point which means "the fire glowing like sunrise." Ōmāwhero is the traditional Māori name for Pahia Hill. Pahi was a local chief who played an important role in preserving peace between Ngāi Tahu and early sealers. Pahia is a corruption of "Pahi" made by the then Railway Department (Te Rūnanga o Ngāi Tahu, 2018). • A Māori transport route from Riverton/Aparima to the Waiau River crossed through this landscape (Te Rūnanga o Ngāi Tahu, 2018). • This landscape has a history of sawmilling which dates back to the late 1800s. • Pahia Hill is a Scenic Reserve which gives it recognition as a landscape feature within and for the community.	MODERATE-HIGH
OVERALL LANDSCAPE VALUE		OUTSTANDING

Mapped Extent:

Refer to Figure 38. The Pahia Hill/Ōmāwhero ONF includes Pahia Hill Scenic Reserve and extends into the seascape from Monkey Island/Kumikumi to Wakaputa Point encompassing the western coastal edge of the Pahia Point headland. The exposed headland with its volcanic features and sea cliffs relates so closely to the surrounding ocean in terms of the legible erosional processes and perceptual attributes that the adjacent sea was included as part of the ONF. The more modified coastal, agricultural land north and south of Pahia Hill has been excluded from this ONF and the areas have been identified as VALs. The coastal interface of these areas is however highly dynamic and legible and forms part of the ONF.

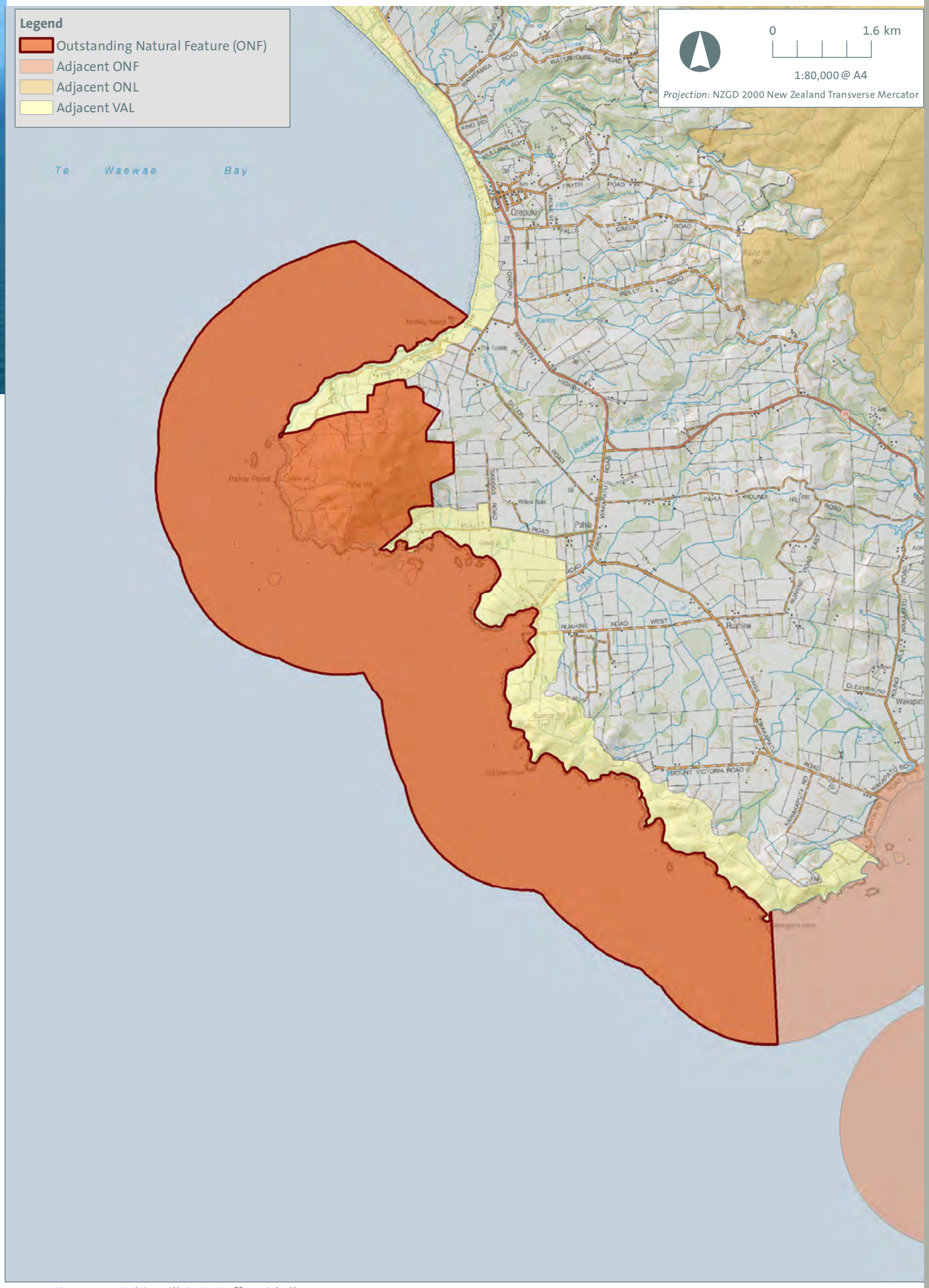


Figure 38: Pahia Hill ONF. Boffa Miskell, 2018.



Above: View overlooking Ōraka Point and Ōraka headland with Lake George/ Kurumoeanu in the distance. Boffa Miskell, 2018.

Right: View of the beach from ground level. Boffa Miskell, 2018.

ŌRAKA-KAWAKAPUTA BAY / ŌRAKA KI KAWHAKAPUTAPUTA ONF

The Ōraka-Kawakaputa Bay ONF consists of a protruding headland, crescent shaped sandy bay and a remnant wetland containing native flora and fauna.

ŌRAKA-KAWAKAPUTA BAY / ŌRAKA KI KAWHAKAPUTAPUTA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Kawakaputa/Kawhakaputaputa Bay is a large, sandy embayment backed by a dune ecosystem and contained by the prominent rocky Ōraka headland. • The shallow Lake George/Kurumoeanu is a regionally important dune dammed lake with swamps which have formed behind parabolic dunes. • Lake George is a Wildlife Management Reserve and a remnant of what was once an extensive wetland system. • Ōraka Point intrusions are remarkable examples of the assimilation of basic rocks by a high-level granitic magma. • Indigenous vegetation that surrounds Lake George/Ōuruwera includes rimu, kamahi, tawai/ beech forest, matata-flaxland and sedgeland. • Lake George/Ōuruwera supports a rich range of indigenous freshwater fish and wetland, waterfowl and wading bird species.	VERY HIGH
SENSORY	• The Ōraka headland is a highly legible headland with volcanic origins along the Southland Coast. • The sequence of indigenous forest and wetlands surrounding Lake George provides a coherent and natural link between the Longwood Range to Kawakaputa Bay. • The extensive bush clad Longwood Range forms a memorable backdrop to Ōraka, Lake George and Kawakaputa Bay. • The presence of seasonal bird life on Lake George add transient value to this feature.	HIGH



ŌRAKA-KAWAKAPUTA BAY / ŌRAKA KI KAWHAKAPUTAPUTA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Ōuruwera / Lake George is significant to Ngāi Tahu and is a Statutory Acknolwedgement area under the Ngāi Tahu Claims Settlement Act. • Kurumoeanu was an earlier name for the lake, while Ōuruwera refers to the place of Uruwera, is a descendant of the Waitaha rangatira (chief), Rākaihautū. The lake is a major food source, particularly pātiki (flounder), tuna (eels), inaka (whitebait) and waterfowl (Te Rūnanga o Ngāi Tahu, 2018). • The surrounding area is also important for mahinga kai, with a traditional transport route crossing through Pahia Hill from Riverton/Aparima to the Waiau River (Te Rūnanga o Ngāi Tahu, 2018). • Historic and heritage associations with whaling settlements can be found within this area.	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 39. The Ōraka-Kawakaputa Bay/Ōraka ki Kawhakaputaputa ONF mapped extent includes all of the Lake George Wildlife Management Reserve in addition to Ōraka headland, Kawakaputa Bay and the associated dunelands. This ONF also extends into the seascape from Wakaputa Point to just north of Ōraka Point. Wakaputa Point separates the two adjacent seascapes associated with the ONFs at Ōraka Point and Pahia Hill (see previous ONF description).



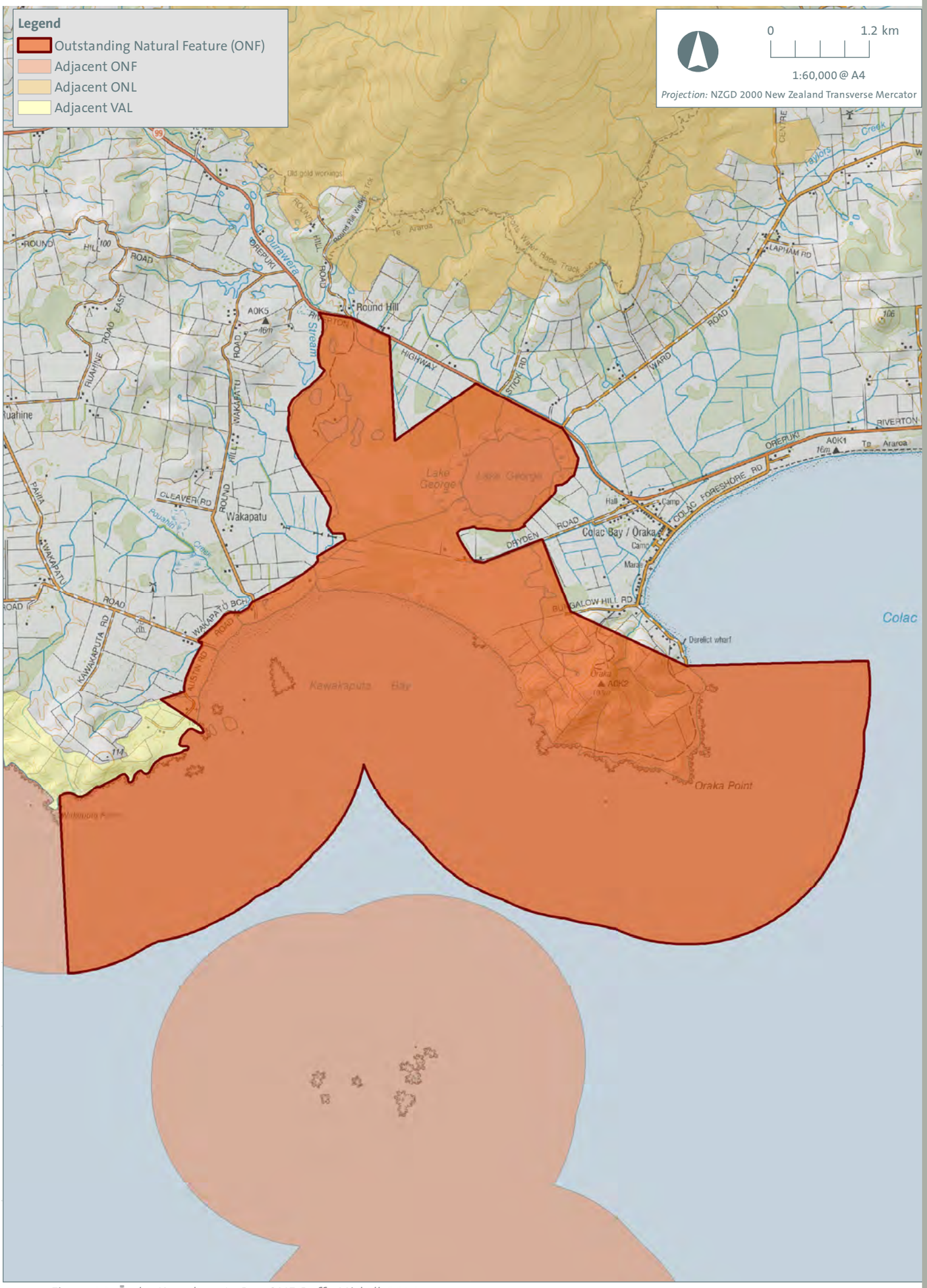


Figure 39: Ōraka-Kawakaputa Bay ONF. Boffa Miskell, 2018.



Above: View overlooking the rocky coastline below Riverton Hill (Howells Point out of view to right). Boffa Miskell, 2018.

Right: Stretch of beach leading to Colac Bay from Howells Point. Boffa Miskell, 2018.

RIVERTON HILL / TE HAKI KI TARAMEA ONF

The Riverton Hill ONF includes the prominent, bush clad ridgeline which extends from Howells **Point to Colac Bay/Ōraka featuring small sandy and boulder beaches in addition to rocky outcrops** and reefs.

RIVERTON HILL / TE HAKI KI TARAMEA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Nationally significant, well developed pillow lavas are found at Howells Point/Taramea. • The rocky, rugged and remote southern side of Riverton headland features crags, pillars, several small sandy and boulder beaches. • Howells Point has a series of steep gravel beaches with adjacent dunes. • Extensive native forest consisting of broadleaf, fernland, manuka and kānuka span the length of Howells Point/Taramea headland.	HIGH
SENSORY	• Windswept coastal shrublands legibly demonstrate the battering of the westerly wind to this coastline. • The presence of dunes, tussock grasslands and native forests create a coherent and natural pattern from the sea to the ridgeline. • Howells Point/Taramea headland physically and visually separates Riverton from Colac Bay/Ōraka creating a vivid backdrop from either side of the headland. • Presence of dolphins in the waters surrounding the headland varies during on the time of year and adds to the transient values of this land/seascape which is intricately linked to its coastal interface.	VERY HIGH

RIVERTON HILL / TE HAKI KI TARAMEA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Ngāi Tahu hold both traditional and contemporary relationships with this area, particularly in relation to occupation, stone working and mahinga kai. The area sits between the current marae at Ōraka and the rūnanga office in Aparima/Riverton. • Howells Point/Taramea is owned by Ngāi Tahu via the Ngāi Tahu Claims Settlement Act 1998. • Howells Point was named after an English born whaler, John Howell in 1835. He established a whaling station in the area and worked with local iwi (Southland District Council, Venture Southland, & Riverton Community Board, n.d.). • This coastline is valued for its recreational activities including short forest and coastal walks including the Te Araroa Trail in addition to surfing, rock climbing, swimming and boating.	 MODERATE-HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 40. The Riverton Hill/Te Haki ki Taramea ONF follows the ridgeline of Howells Point from the coast to State Highway 99 and includes the native vegetation cover. The southern boundary extends past the rocky coastline and into the seascape.





Figure 40: Riverton Hill ONF. Boffa Miskell, 2018.



Above Oreti Beach sand dune system. Boffa Miskell, 2018.

Right: View from Sandy Point looking down Oreti Beach to Riverton. Boffa Miskell, 2018.

ORETI BEACH-SANDY POINT / MATEAWAEWAE – ORETI KI WAIMATUKU ONF

The Oreti Beach-Sandy Point ONF is a highly valued beach in close proximity to Invercargill which offers numerous recreational opportunities and open views as far as to Stewart Island/Rakiura. To counter erosion, marram grass was used to trap and retain windblown sand, which led to the spread of marram grass along the full length of Oreti Beach.

ORETI BEACH-SANDY POINT / MATEAWAEWAE – ORETI KI WAIMATUKU ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The long curved, Oreti Beach is backed by a narrow strip of distinctive dunelands and features backwater ponds and peatlands. • Ponds which have formed in old gravel workings at Oreti Beach are now part of the network of coastal wetlands in Southland providing food and roosting areas for migratory birds. • The spit/peninsula is made up of sand, gravel and water-borne silt, which was deposited approximately 4000-5000 years ago, when sea levels were higher. • The toheroa (shellfish) beds on Oreti Beach are of national significance, as they are the largest in New Zealand.	HIGH
SENSORY	• The very exposed, windswept Oreti Beach demonstrates legible erosion and aggradation processes. • Distinctive dunes back Oreti Beach and the formative processes along the sand spit are clearly legible. • A predominantly horizontal landscape allows for impressive long-distance views to Bluff headland, Ōmāui, Stewart Island/Rakiura and the Inland Hills. • Highly coherent landscape with uninterrupted vistas and dunelands along the beach.	VERY HIGH

ORETI BEACH-SANDY POINT / MATEAWAEWAE – ORETI KI WAIMATUKU ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Oreti Beach was the trail used by Ngāi Tahu travelling between the settlements at Aparima/Riverton, and Oue/Sandy Point. The south end of the beach was called Mateawaewae (Southern Scenic Route, 2018). • The kāinga of Oue was located near Sandy Point which features historic Māori archaeological sites, and is known for mahinga kai. • Oreti Beach offers recreation opportunities such as tramping the Te Araroa Trail, motorbike racing (in honour of Burt Munro), surfing and recreational fishing for those living in Invercargill.	HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 41. The Oreti Beach-Sandy Point/ Mateawaewae – Oreti ki Waimatuku ONF includes a narrow strip of dunelands which widens near Sandy Point. It extends to the tip of the Sandy Point peninsula where it meets the mouth of the New River Estuary. The entrance to the estuary near the spit forms part of the ONF on Bluff Peninsula that extends into the seascape (see next ONF description).

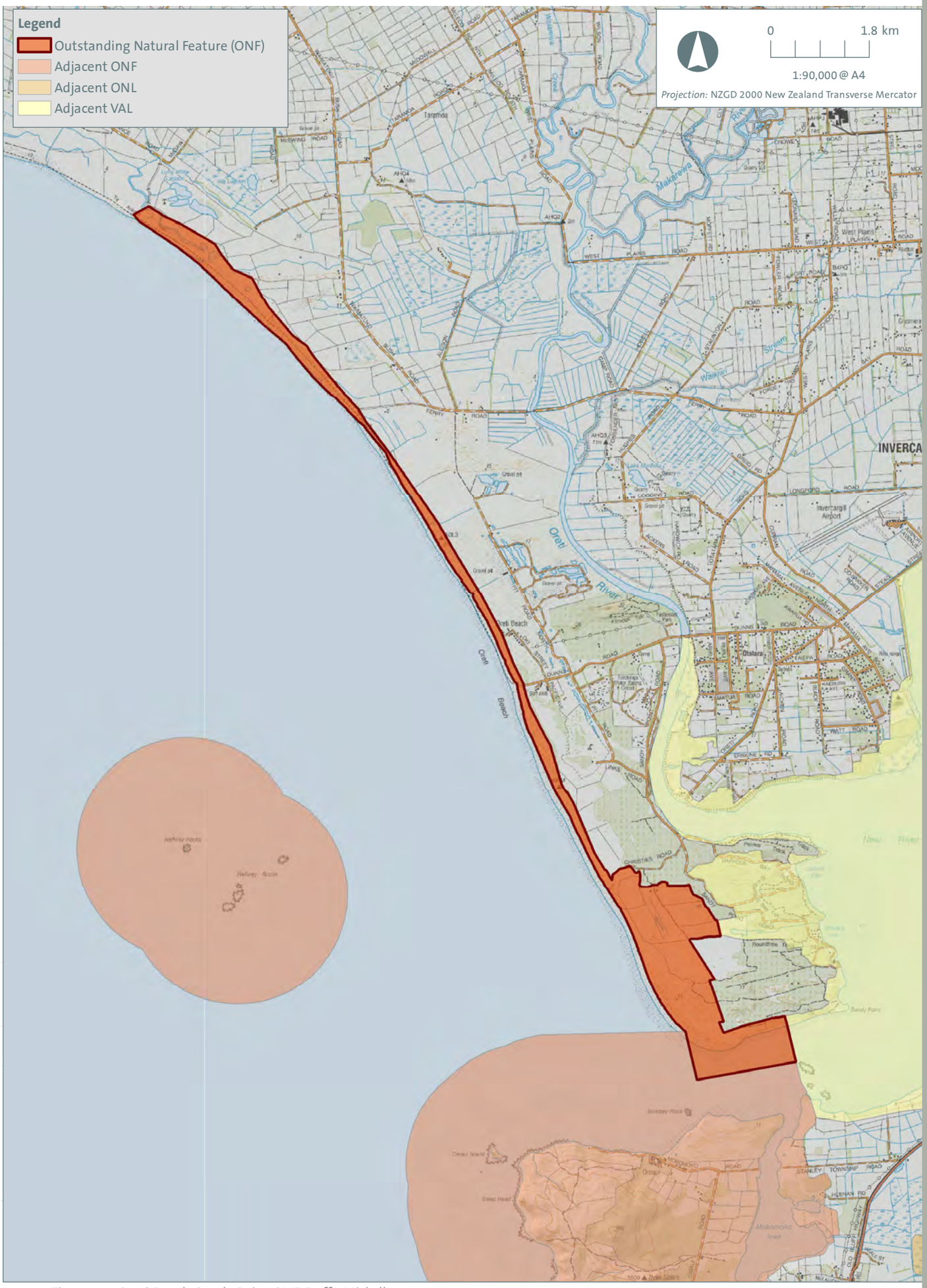


Figure 41: Oreti Beach-Sandy Point ONF. Boffa Miskell, 2018.



Above: Aerial overlooking Steep Head on the Ōmāui headland. Boffa Miskell, 2018.

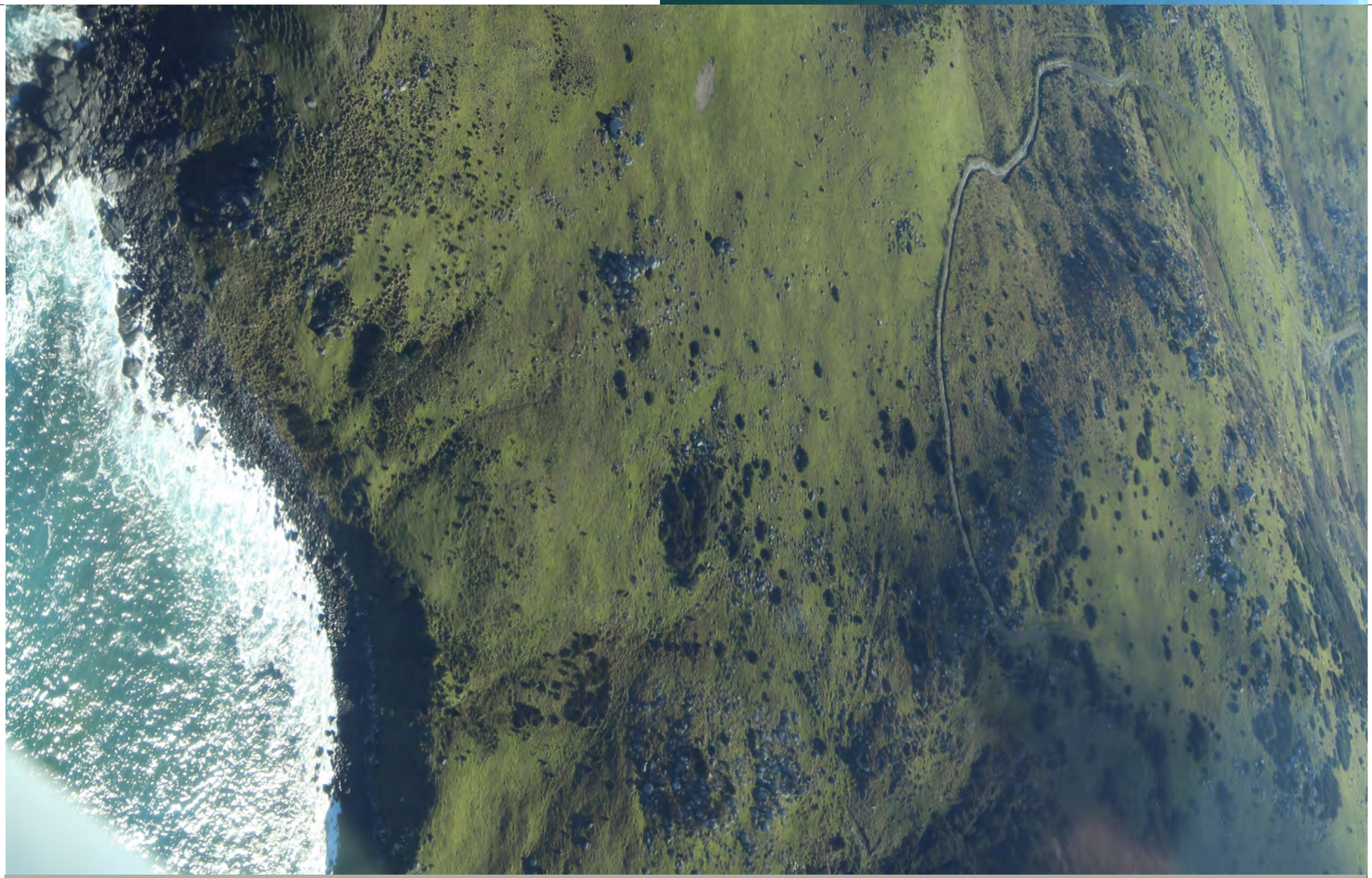
Right: Rocky outcrops at the lower reaches of Bluff Hill. Boffa Miskell, 2018.

BLUFF HILL - OMAUI / MOTUPŌHUE KI ŌMĀUI ONF

The Bluff Hill – Omaui Headland ONF contains legible volcanic landforms consisting of the **prominent, forested Bluff Hill and Three Sisters. Wind shorn vegetation reflects the coastline's** exposure to the prevailing wind and dominating force of the sea within Foveaux Strait/Te Ara a **Kiwa. The windfarm on Flat Hill has been excluded from this ONF.**

BLUFF HILL - OMAUI / MOTUPŌHUE KI ŌMĀUI ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Between Bluff and Ōmāui headlands, important landscape features include coastal bluffs with prominent rocky outcrops, sea cliffs with jagged reefs, small sandy beaches and secondary dunelands. • Mokomoko Inlet is identified as a Geopreservation Site with an exceptionally well-preserved sequence of well-bedded, indurated sandstones and mudstones. • The underlying volcanic geology (Greenhills ultramafic complex) of Bluff Hill/Motupōhue and The Three Sisters at Ōmāui is most evident along the exposed coastline, where some regionally significant examples of this rock type occur. • The shore eastward from Barracouta Point contains a spectacular exposure of layered, deformed gabbroic rock. • Spectacular windblown sand and dunes at the Three Sisters are a regionally important example of how wind-blown sand can transgress steep topography. • The Three Sisters dunes are significant for the presence of rare pingao and endangered Gunnera hamiltonii and carpets of low, salt-tolerant plants adjoining the mean high-water mark. • Ōmāui Island is the breeding ground of several species of birds, especially shags, gulls, kororā /blue penguins and sooty shearwaters and royal spoonbills.	VERY HIGH



BLUFF HILL - OMAUI / MOTUPŌHUE KI ŌMĀUI ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The volcanic landforms of Bluff Hill/Motupōhue and the Three Sisters are highly legible of their formative processes. • The windswept dunelands between Mokomoko Inlet and the Three Sisters are highly expressive of powerful coastal processes such as the battering of the prevailing wind. • High level of naturalness near the isolated and remote windswept forests of Ōmāui and Motupōhue Scenic Reserve. • Bluff Hill, Flat Hill and The Three Sisters at Ōmāui are highly visible and recognised landmarks of the southern coast. • Occasionally kekeno/fur seals are seen on rock promontories or outcrops along the rocky coastline in addition to hoiho/yellow-eyed penguins at Lookout Point. • Stunning panoramic views can be gained of the southern mountains, Stewart Island, Bluff Harbour and Tiwai Peninsula from the top of The Bluff/Motupōhue. • The rugged coastal interface in this area visually links the seascape and steep rock bluffs above.	 HIGH
ASSOCIATIVE	• The area from Mokomoko inlet to the mouth of Awarua/Bluff Harbour is extremely significant to Ngāi Tahu, and includes numerous pā, kāinga as well as extensive Māori Freehold Land and Reserves, including those at Ōmaui. • Motupōhue / Bluff Hill is a tōpuni site under the Ngāi Tahu Claims Settlement Act, recognising its special values – both as the significant maunga of the local hapū at Awarua as well as being renowned as the taurapa of Te Waka o Aoraki (the canoe of Aoraki). The name also refers to pōhue or native convolvulus that flowers in the forest. • This coastline has a history of whaling and shipwrecks. • Stirling Point also draws in many visitors to the area with its lighthouse and famous signpost which gives directions to twelve different locations. • The Te Araroa Trail, a 3,000km trail that runs the entire length of New Zealand, terminates or begins from Stirling Point. • Surfing, fishing, walking, boating and scenic beauty draw people to this area including the extensive forests found within Ōmāui and Motupōhue Scenic Reserve.	 HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 42. The Bluff Hill – Omaui / Motupōhue ki Ōmāui ONF includes Mokomoko Inlet and the exposed, west-facing coastline from Ōmāui to Stirling Point which extends 2km into the sea as well. Extensive areas of dunelands and native forests are included within this ONF.

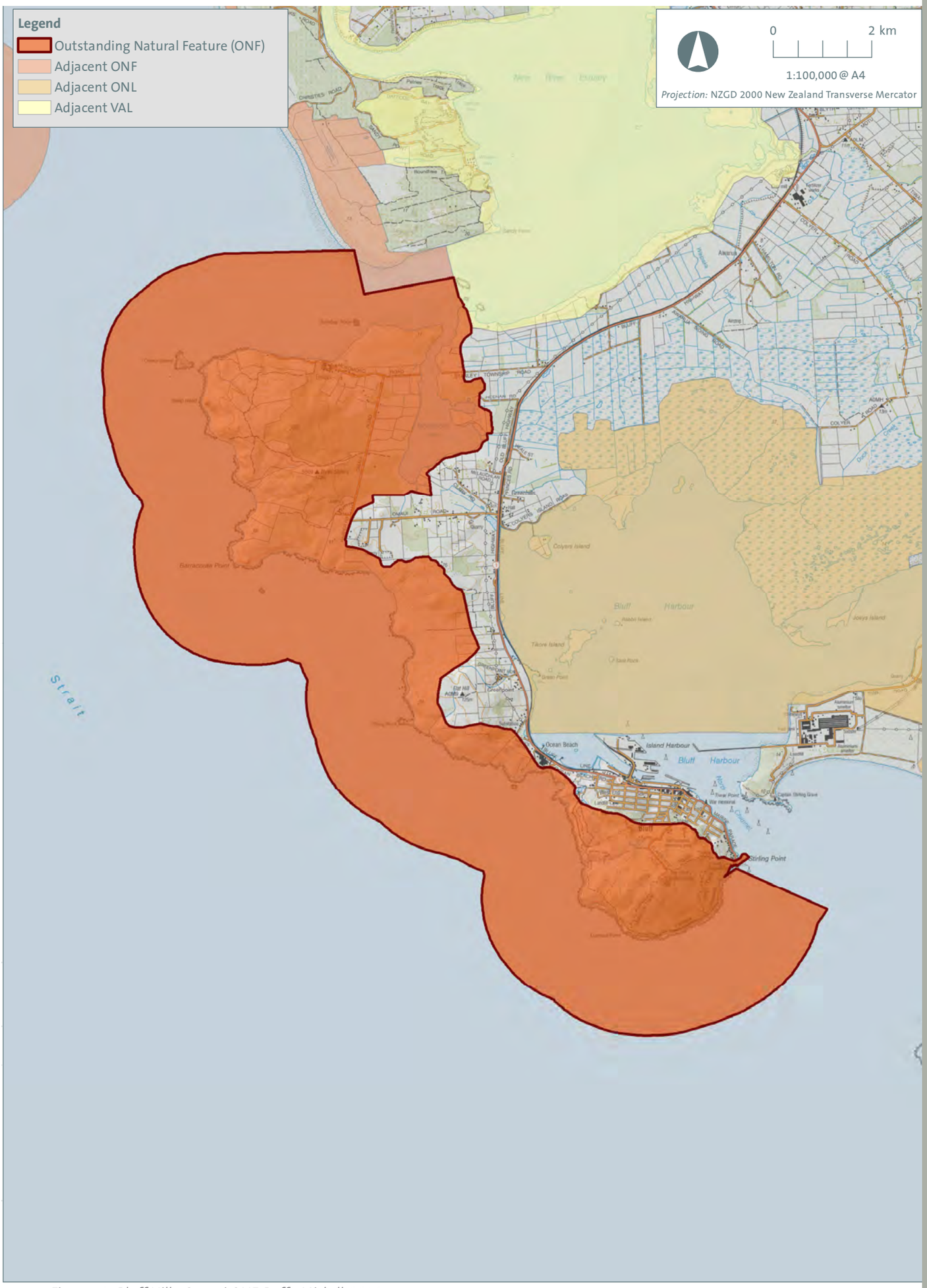


Figure 42: Bluff Hill - Omaui ONF. Boffa Miskell, 2018.



Above: View overlooking Toetoes Harbour near the mouth of Titiroa Stream. Boffa Miskell, 2018.

Right: Outlook from Toetoes Harbour to the Awarua wetalnds and Bluff. Boffa Miskell, 2018.

TOETOES HARBOUR / TOETOE ONF

The Toetoes Harbour ONF is fed by the Mataura River and enclosed by an intact, natural sandspit which features a range of coastal and saltmarsh plant communities.

TOETOES HARBOUR / TOETOE ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Toetoes Harbour is an expansive barrier-enclosed, tidal estuary fed by the Matarua River and Titiroa Stream which forms part of the Awarua Wetland complex and RAMSAR wetlands of international significance status. • Regionally important and rare deltaic deposits are found within the Toetoes estuary as identified in the Geopreservation Inventory. • The Toetoes Harbour Spit is one of the few remaining intact natural dune systems found along an estuary on the southern Southland coast and is a very important dune ecosystem. • Extensive, declining coastal mat daisy cushionfields and the unusual Raoulia aff. hookerii are found on the spit in addition to saltmarsh communities containing pingao/golden sand sedge, mātiatia/sand tussock and toroheke/sand pimelia. • The wider estuarine landscape that includes Toetoes Harbour has been identified as the most important bird habitat in Southland and one of the five most important wading bird habitats in New Zealand (Department of Conservation, 2016).	VERY HIGH
SENSORY	• Toetoes Harbour is highly legible, demonstrating its formative processes of an estuarine environment in association with the Mataura River mouth. • There is a high level of naturalness in Toetoes Harbour due to the functional and healthy systems of the estuary. • The sinuous outlines of the river and harbour are particularly vivid in contrast with the linear modifications of the surrounding agricultural environment. • Although it sits within a relatively modified surrounding context, the harbour remains a coherent system with little modification or human influence.	HIGH

TOETOES HARBOUR / TOETOE ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Toetoe is an important traditional mahinga kai and settlement area for Ngāi Tahu, highlighted by extensive archaeological sites surrounding the mouth of estuary and along the coast towards Ōtara/Waipapa Point. • Prior to the 1830s a shore whaling station operated out of the harbour, although Māori were the first to settle the area. Several archaeological sites have been recorded in the area of Fortrose township and on the spit (Environment Southland, 2013). • From about 1850 to the early 1900s ships regularly visited Fortrose and unloaded onto the jetty (which no longer stands). In 1886 the steamship 'Ino' was wrecked in the harbour, its remains still visible today at low tide (Environment Southland, 2013) • Recreational opportunities within Toetoes Harbour include bird watching and whitebaiting near the mouth of the Mataura River. • Four-wheel driving on the sandspit is common to access the small baches that line the Mataura River.	 MODERATE-HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 43. The Toetoes Harbour/Toetoe ONF includes the waters of the estuary which border the highway to the east and the sandspit which extends to the coast and encloses the harbour. The Mataura River mouth and several small batches that line the river banks are also included within the mapped extent, but represent a higher level of modification.



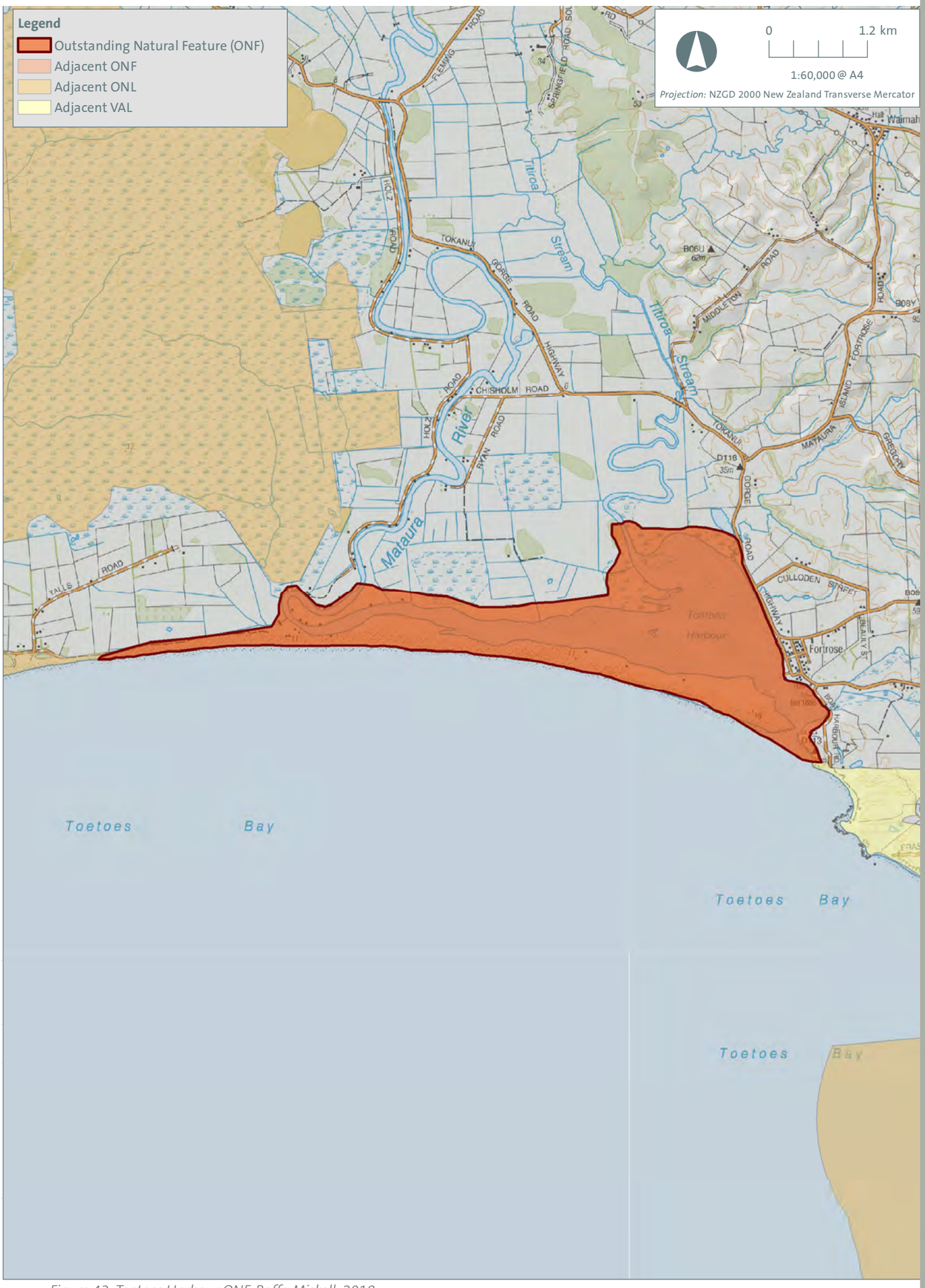


Figure 43: Toetoes Harbour ONF. Boffa Miskell, 2018.



Above: Ruapuke Island and the Moana Putakitaki Lagoon. Boffa Miskell, 2018.

Right: Aerial of the Waitokariro Lagoon on Ruapuke Island. Boffa Miskell, 2018.

OUTER ISLANDS / NGĀ MOTU O TE ARA-A-KIWA ONF

The Outer Islands ONF features remote and rugged islands with a rich history of sealing and **whaling. Rare, indigenous fauna and flora are found in high numbers throughout these islands making them even more special due to their exposure within Foveaux Strait/Te Ara-a-Kiwa.**

OUTER ISLANDS / NGĀ MOTU O TE ARA-A-KIWA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Solander Islands/Hautere are part of a "Specially Protected Area" of Fiordland National Park and the South-West New Zealand World Heritage Area. • The impressive, rock pinnacles of the Solander Islands are eroded, remnants of an andesitic volcano with rocky shores and deep rock caves (such as Sealers Cave). • Sweeping, sandy beaches with intact dune and freshwater lagoon systems exist on Ruapuke Island which provide feeding habitats for various endangered wading bird species. • Extensive windswept indigenous vegetation consisting of marshland, manuka and kānuka is found on Ruapuke, Green/Papatea and Bird/Motuhara Islands. • Rare ferns, orchid species and Cook's Scurvy Grass are found on the generally rocky Solander Islands (Environment Southland, 2013). • The Solander Islands contain New Zealand's largest kekeno/fur seal colony apart from the Sub Antarctic Islands. Sealions and nearly half of the known Buller Mollymawk population are found here as well. (Environment Southland, 2013) • Rare bird species such as the tawhaki/Fiordland crested penguin, kororā/blue penguins, hoiho/yellow-eyed penguins, pararā/broad-billed prion, tītī/sooty shearwater, tara/white-fronted tern and mottled petrel are found on the various islands.	VERY HIGH

OUTER ISLANDS / NGĀ MOTU O TE ARA-A-KIWA ONF

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The rocky cliff faces and outcrops of the islands make them legible in the surrounding marine environment. Solander Island is particularly legible due to its height and steep, rocky cliff faces. • The Outer Islands/Ngā Motu o Te-Ara-a-Kiwa have high degrees of naturalness due to being remote and exposed to the wild Foveaux Strait environment. The islands with their rugged coastline are intricately linked to the surrounding seascape in terms of their natural patterns and processes. • The vivid formation of Solander Island is particularly memorable, as well as the rocky outcrops, and sweeping sandy beaches on Ruapuke and Rarotoka Islands. • The lack of modification on the Outer Islands, create a highly coherent landscape. • Occasionally parāoa/sperm whales, kiwa/Southern Right whales and ururoa/great white sharks are seen around the Outer Islands.	 HIGH
ASSOCIATIVE	• The Outer Islands are immensely significant for Ngāi Tahu. Ruapuke and Rarotoka in particular are owned by local Ngāi Tahu, and are significant in the history, heritage and ongoing identity of Rakiura Māori, particularly associated with tītī harvesting. • Local Ngāi Tahu are currently restoring Rarotoka Island by planting indigenous vegetation to support the practice of tītī/muttonbird collection and Ruapuke Island is frequented for tītī/muttonbird collection in autumn each year. • In the early 1800s, there was a thriving Māori community on Ruapuke, being the home of the great southern rakatira Tūhawaiki. It was also an early mission station and an important provisioning point for early whalers, sealers and traders, as well as a significant provider to mainland Southland (Environment Southland, 2013). This saw the wreckage of many boats, with the first being Elizabeth Henrietta on Ruapuke Island in 1824, where seventeen people lost their lives. • Whalers and sealers occupied these islands during the 18th century.	 VERY HIGH

OVERALL LANDSCAPE VALUE	OUTSTANDING

Mapped Extent:

Refer to Figure 44. The Outer Islands/Ngā Motu o Te-Ara-a-Kiwa ONF mapped extent includes Solander, Little Solander, Rarotoka, Ruapuke and their associated islands in addition to a 2km offset to include the surrounding seascape.

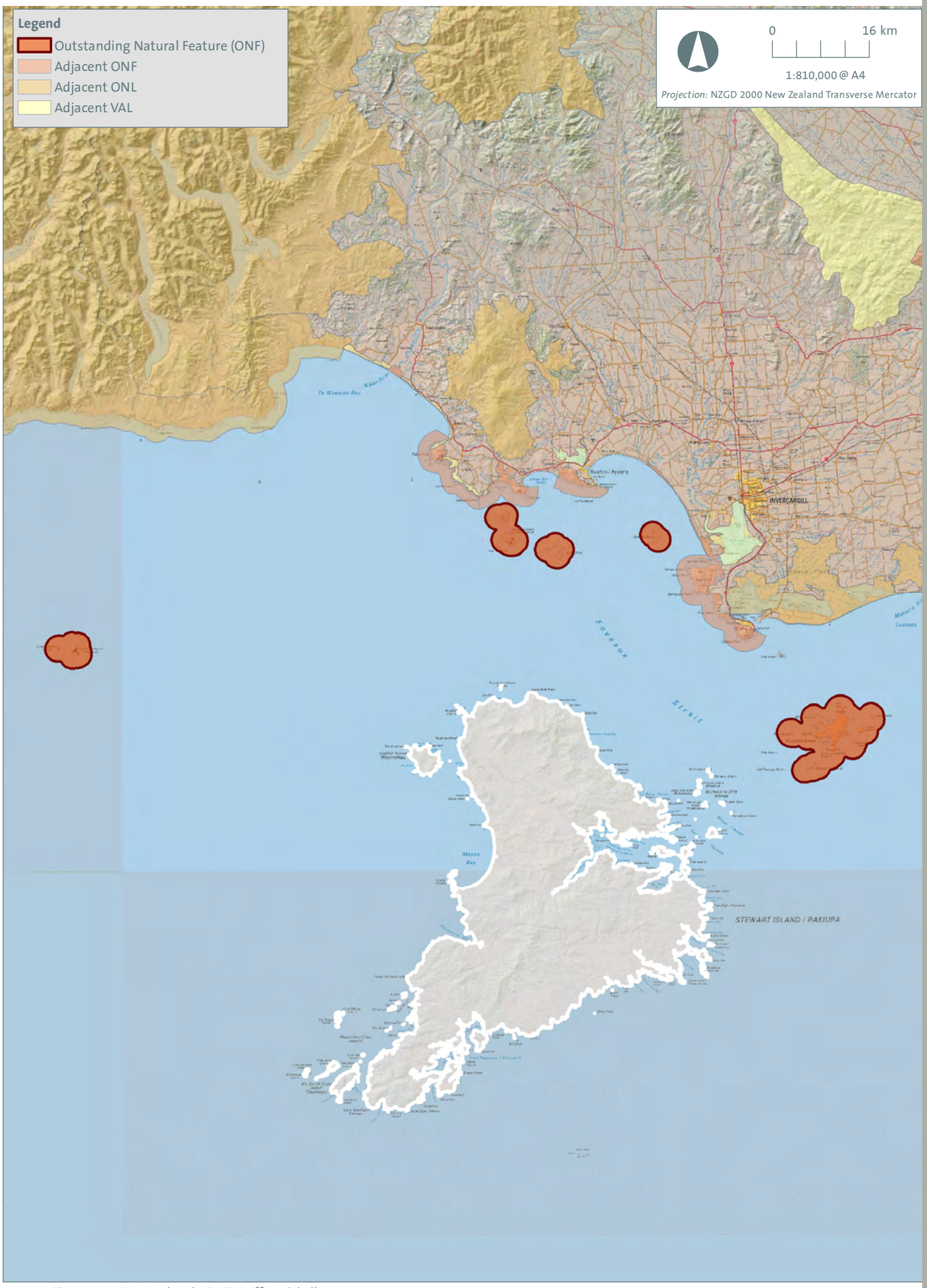
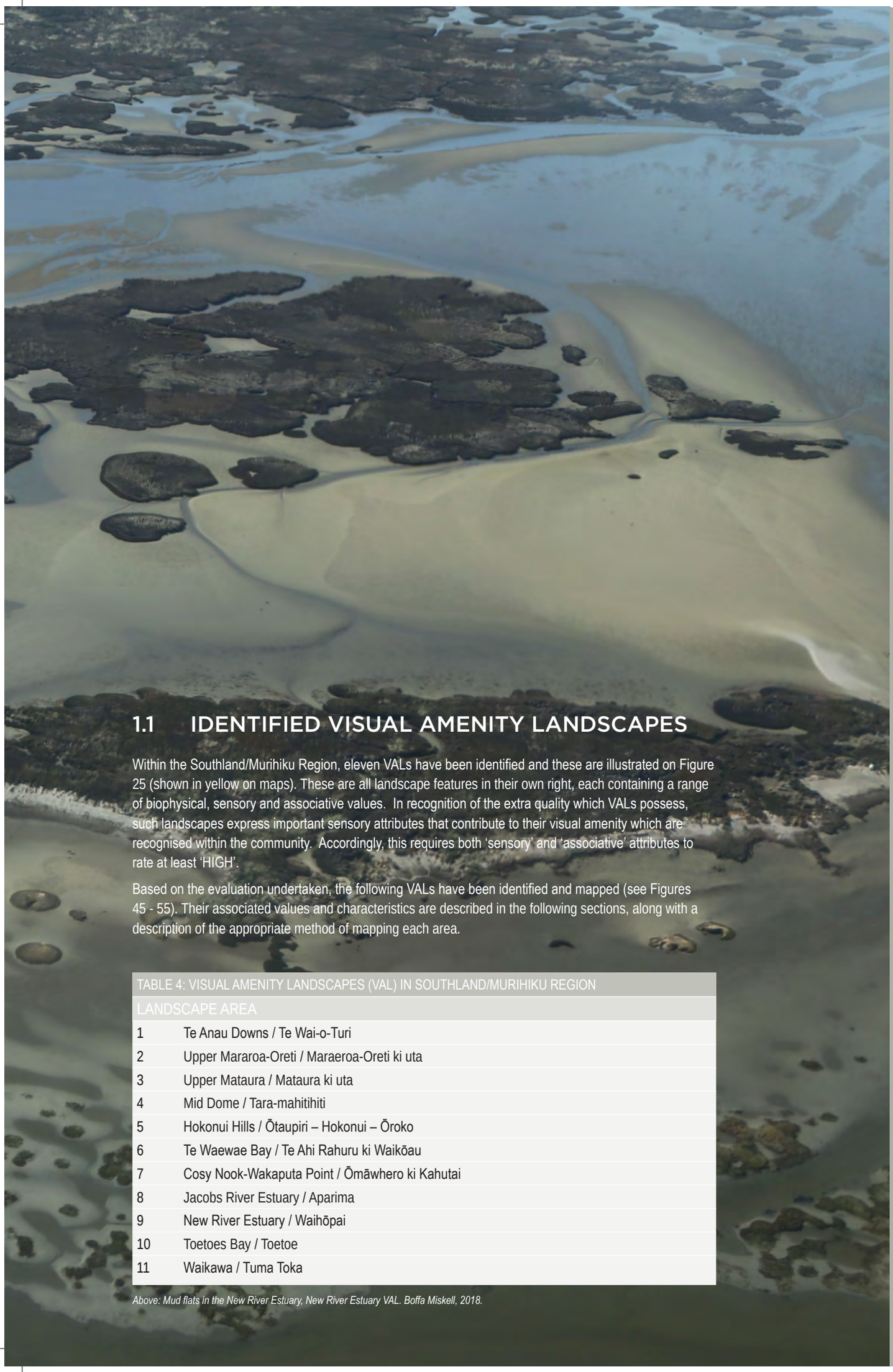


Figure 44: Outer Islands ONF. Boffa Miskell, 2018.



1.1 IDENTIFIED VISUAL AMENITY LANDSCAPES

Within the Southland/Murihiku Region, eleven VALs have been identified and these are illustrated on Figure 25 (shown in yellow on maps). These are all landscape features in their own right, each containing a range of biophysical, sensory and associative values. In recognition of the extra quality which VALs possess, such landscapes express important sensory attributes that contribute to their visual amenity which are recognised within the community. Accordingly, this requires both 'sensory' and 'associative' attributes to rate at least 'HIGH'.

Based on the evaluation undertaken, the following VALs have been identified and mapped (see Figures 45 - 55). Their associated values and characteristics are described in the following sections, along with a description of the appropriate method of mapping each area.

TABLE 4: VISUAL AMENITY LANDSCAPES (VAL) IN SOUTHLAND/MURIHIKU REGION

LANDSCAPE AREA	
1	Te Anau Downs / Te Wai-o-Turi
2	Upper Mararoa-Oreti / Maraeroa-Oreti ki uta
3	Upper Mataura / Mataura ki uta
4	Mid Dome / Tara-mahitihiti
5	Hokonui Hills / Ōtaupiri – Hokonui – Ōroko
6	Te Waewae Bay / Te Ahi Rahuru ki Waikōau
7	Cosy Nook-Wakaputa Point / Ōmāwhero ki Kahutai
8	Jacobs River Estuary / Aparima
9	New River Estuary / Waihōpai
10	Toetoes Bay / Toetoe
11	Waikawa / Tuma Toka

Above: Mud flats in the New River Estuary, New River Estuary VAL. Boffa Miskell, 2018.



Above: Aerial overlooking the Retford Stream with the Inland Fiordland ONL in the background. Boffa Miskell, 2018.

TE ANAU DOWNS / TE WAI-O-TURI VAL

The Te Anau Downs VAL contains a broad glacial valley landscape with river terraces, wetlands and large tracts of indigenous vegetation. This VAL follows a portion of State Highway 94 which is on the main tourist route to Milford Sound/Piopiotahi.

UPPER MARAROA-ORETI / MARAEROA-ORETI KI UTA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Te Anau Downs/Te Wai-o-Turi has an extensive series of large, legible lateral glacial moraine deposits between the Marakura/Upukerora and Eglington Rivers. • Wetlands are an important feature within the Te Anau Downs landscape and form part of a wider network of internationally significant wetlands within the Te Anau Basin. • Large tracts of indigenous vegetation cover consisting of beech forest and scrubland exist on the valley floor and lower slopes of the surrounding hills.	MODERATE-HIGH
SENSORY	• Formative processes of the river and glaciers visible. • Te Anau Basin is a memorable part of the journey towards Milford Sound with open views towards the Eglington Valley and the Livingstone Mountains/Mata-puke-koikoi beyond. • Clear views of transient weather patterns occurring in Fiordland/Te Rua o Te Moko are seen from Te Anau Downs at the boundary to the mountains. • Seasonal change, such as snow on the steep mountain tops, adds to the transient values of the landscape.	HIGH
ASSOCIATIVE	• A traditional Māori route followed the Upukerora/Eglinton River which was used to travel between Lake Te Anau and Martins Bay in Fiordland (Te Rūnanga o Ngāi Tahu, 2018). • The first Europeans to explore the area came here in 1861. The Eglinton River is named after the British Earl of Eglinton. In 1935 the road was built, allowing more visitors to experience the valley's beauty ("Eglinton Valley," 2017). • State Highway 94 forms part of the journey to Milford Sound and is a major tourist route in Southland.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 45. The Te Anau Downs/Te Wai-o-Turi VAL consists of the more modified valley floor and lower hill slopes between State Highway 94 and south of Retford Stream. The mapped extent primarily follows a land use and land cover boundary. This VAL borders the western boundary of the Snowdon Forest Conservation Area, which is included in the Livingstone-Eyre Mountains ONL.

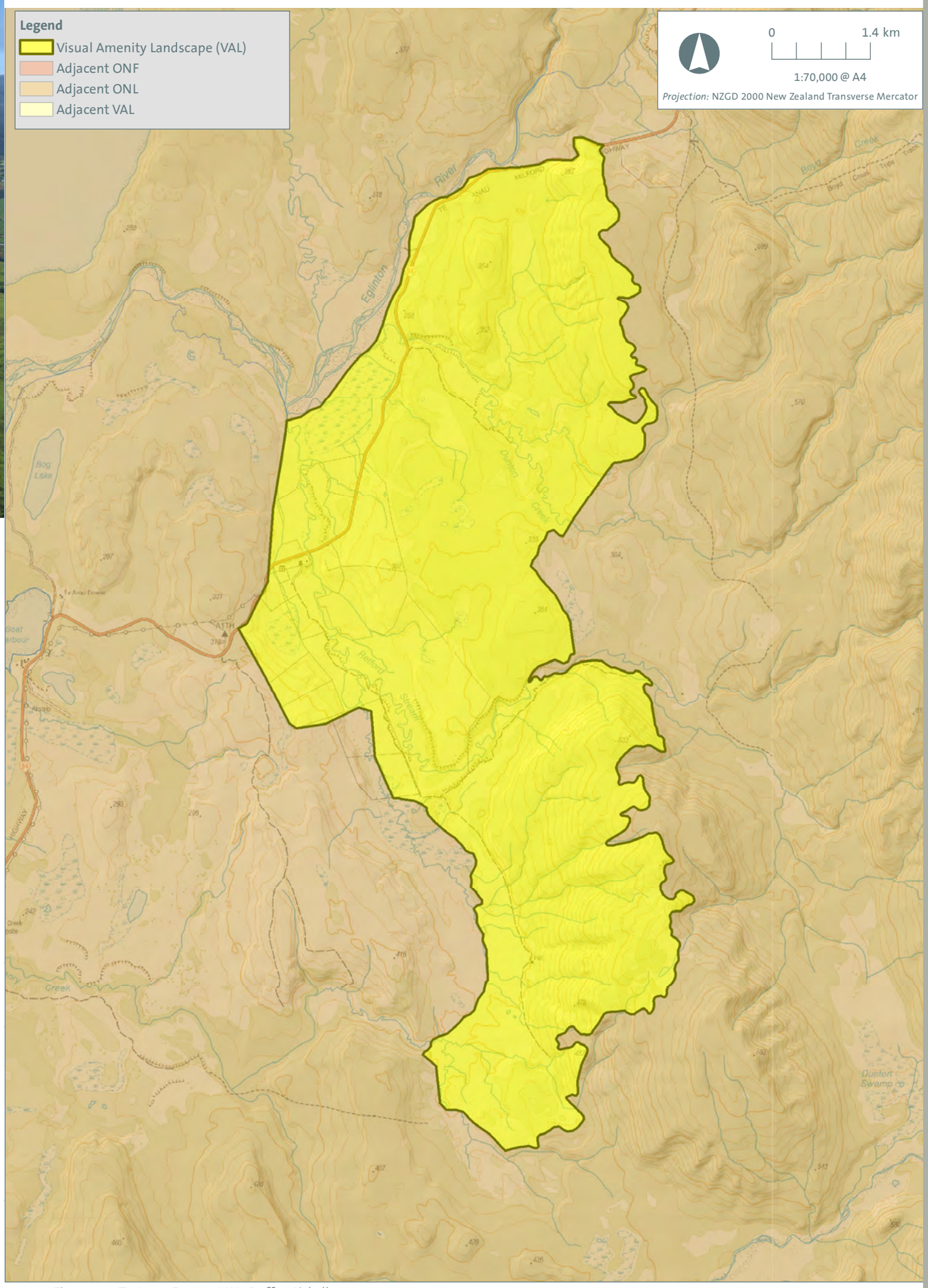


Figure 45: Te Anau Downs VAL. Boffa Miskell, 2018.



Above: View overlooking Burwood Bush and the upper Mararoa River Valley. Boffa Miskell, 2018.

Right: Upper Mararoa River. Boffa Miskell, 2018.

UPPER MARARROA-ORETI / MARAEROA-ORETI KI UTA VAL

The Upper Mararoa-Oreti VAL sits within an iconic high-country landscape boosting extensive tussocklands and sinuous braided rivers.

UPPER MARARROA-ORETI / MARAEROA-ORETI KI UTA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The river terraces and valleys of the Oreti and Mararoa Rivers are very important natural features amongst this high-country landscape. • The Oreti River has a Water Conservation Order (2008) because of its brown trout (Salmo trutta) and Nationally Critical tarāpunga/black-billed gull habitat (Department of Conservation, 2016). • Centre Hill is covered in mature red tussock, part of which is protected as a Conservation Area. Valleys contain a mix of pasture, shelterbelts, tūmatakuru/tūmatakuru/matagouri and tussock. • The Burwood Bush (Red Tussock) Scientific Reserve contains extensive tracts of red tussock (Chionochloa rubra) and tawai/beech forest. • Burwood Bush Scientific Reserve provides vegetation cover and climate to support a Takahē Rearing Unit. The tawai/beech forest contains vital winter food including the summer green fern Hypolepis millefolium (Department of Conservation, 2018a).	HIGH

UPPER MARARAOA-ORETI / MARAEROA-ORETI KI UTA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The Maraeroa/Mararoa and Oreti River terraces and wetlands are highly legible amongst a combination of other landform features including Centre Hill. • There is a high level of naturalness in this landscape due to extensive tussocklands, wetland areas and braided rivers. • This iconic high-country landscape provides a memorable journey to the Mavora Lakes in the Mararoa Valley and along State Highway 94. • The extensive tussock coverage creates a highly coherent landscape along State Highway 94. • Transient values relate to the effect of the weather on the landscape, particularly the tussocks in wind and sunlight.	HIGH
ASSOCIATIVE	• The Oreti was a traditional travel route, providing access from coastal settlements into the hinterland of Te Wāipounamu and the Mavora Lakes (Te Rūnanga o Ngāi Tahu, 2018). • This landscape is valued as it forms part of the approach to the Mavora Lakes and is located along the Around the Mountain cycle trail. • The Oreti River is a very important fishery within the Southland region and recoginsed as having angling amenity and significance in accordance with tikanga Māori under its Water Conservation Order. • Numerous other recreational opportunities are available within this landscape including biking the Around the Mountains Cycle Trail.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 46. The Upper Mararoa-Oreti/Maraeroa-Oreti ki uta VAL contains the more modified valley floors of the upper Mararoa and Oreti Rivers which straddle Bald Hill. Burwood Bush and Centre Hill are also included within the mapped extent. This VAL sits in between the Livingstone-Eyre and Umbrella-Garvie ONLs with the Takatimu Mountains ONL to the south. The boundary primarily follows land use.



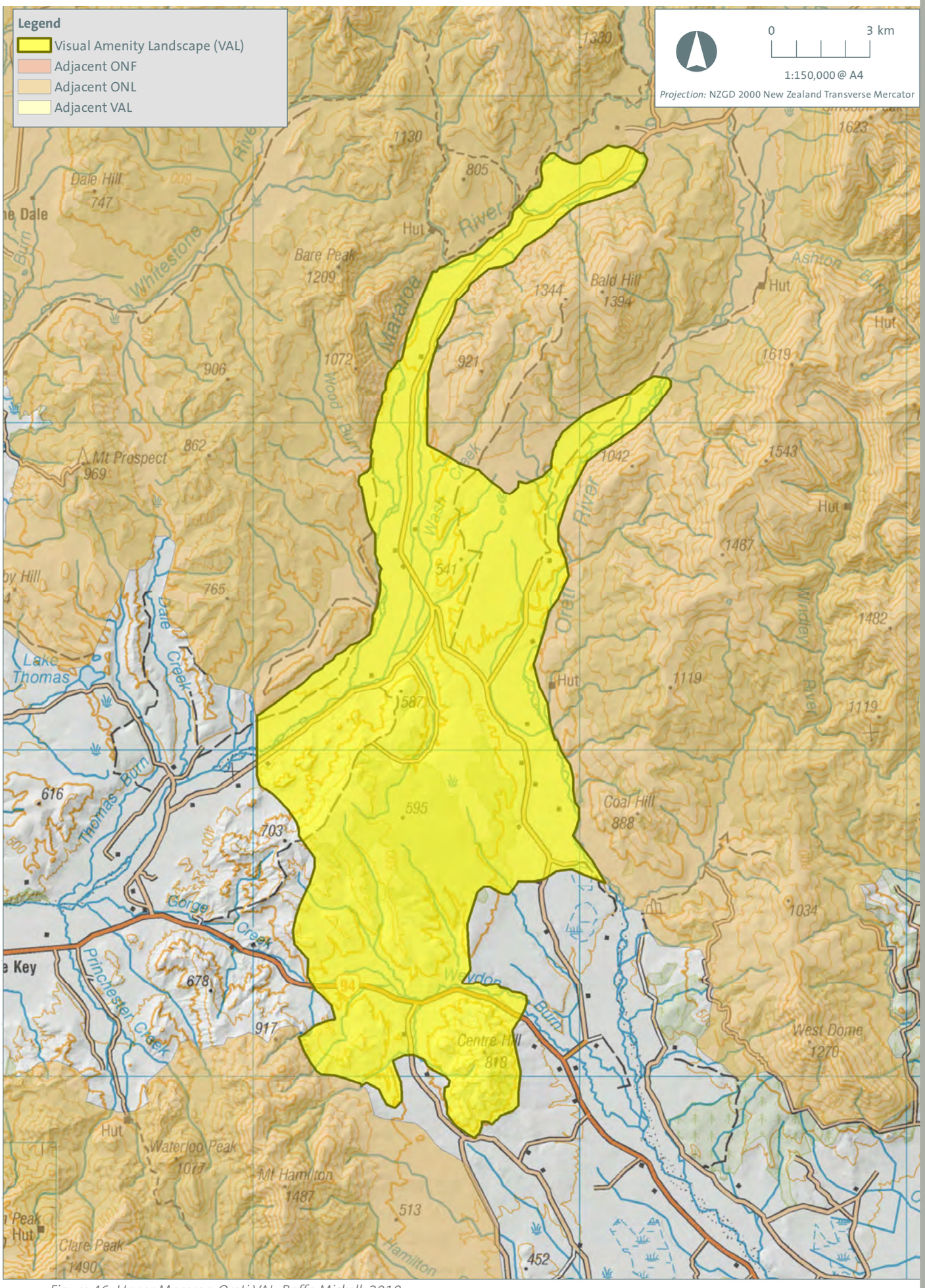


Figure 46: Upper Mararoa-Oreti VAL. Boffa Miskell, 2018.



Above: View overlooking the Upper Mataura River Valley. Boffa Miskell, 2018.

Right: More modified flats along the Kingston Garston Highway with the Hector Mountain ONL in the backdrop. Boffa Miskell, 2018.

UPPER MATAURA / MATAURA KI UTA VAL

The Upper Mataura valley and foothills provide a memorable landscape entrance to Southland/ Murihiku and Lake Wakatipu framed by impressive mountain ranges. The glacially sculpted, U-shaped valley with patches of native vegetation make this VAL distinctive and memorable to visitors and locals travelling along State Highway 6. During winter, the snow-capped mountains further enhance the amenity values of this landscape.

UPPER MATAURA / MATAURA KI UTA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The glacially sculpted, U-shaped valley floor with river terraces, channels and associated wetlands remain legible in a modified environment. • The Mataura River has a Water Conservation Order (1997) in recognition of its outstanding fisheries and angling amenity features (Department of Conservation, 2016). • The Kingston terminal moraine and spillway channel is a regionally important site as noted in the Geopreservation Index. • Native vegetation on the river scarps include tūmatakuru/matagouri and tussock grasslands. Tall tussocks grasslands are also prevalent on the tops of the mountains with patches of tūmatakuru/matagouri, grey scrub, native forest and fernlands found in the gullies.	HIGH

UPPER MATAURA / MATAURA KI UTA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The U-shaped valley remains legible with the outlines of former river channels on the valley floor. • A moderate level of naturalness relates to a mix of native vegetation and pastoral rural land use, farm tracks, and buildings. • This valley with distinctive rocky outcrops along the ridges of the front ranges is highly memorable as an entrance to either Southland/Murihiku or Lake Wakatipu by locals and visitors. Scattered rocks and schist boulders on the valley floor have similarities to Central Otago landscapes. • Some discordant elements relate to the rural land use. However, overall the uniform land cover and open views to the distant mountains make this landscape read coherently. • During the winter months, snow-capped mountains create a stunning backdrop to the Upper Mataura valley and views from State Highway 6. • Moderate to high transient values associated with the rural landscapes.	HIGH
ASSOCIATIVE	• The Oreti was a traditional travel route, providing access from coastal settlements into the hinterland of Te Wāipounamu and the Mavora Lakes (Te Rūnanga o Ngāi Tahu, 2018). • This landscape is valued as it forms part of the approach to the Mavora Lakes and is located along the Around the Mountain cycle trail. • The Oreti River is a very important fishery within the Southland region and recoginsed as having angling amenity and significance in accordance with tikanga Māori under its Water Conservation Order. • Numerous other recreational opportunities are available within this landscape including biking the Around the Mountains Cycle Trail.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 47. The Upper Mataura/Mataura ki uta VAL includes a portion of the Waimea Plains and the Mataura River valley floor along State Highway 6 upon entering the Southland region. The more modified eastern slopes of the Eyre Mountains Range and front ranges south of the Mataura River also form part of this VAL as they visually relate to the valley floor.



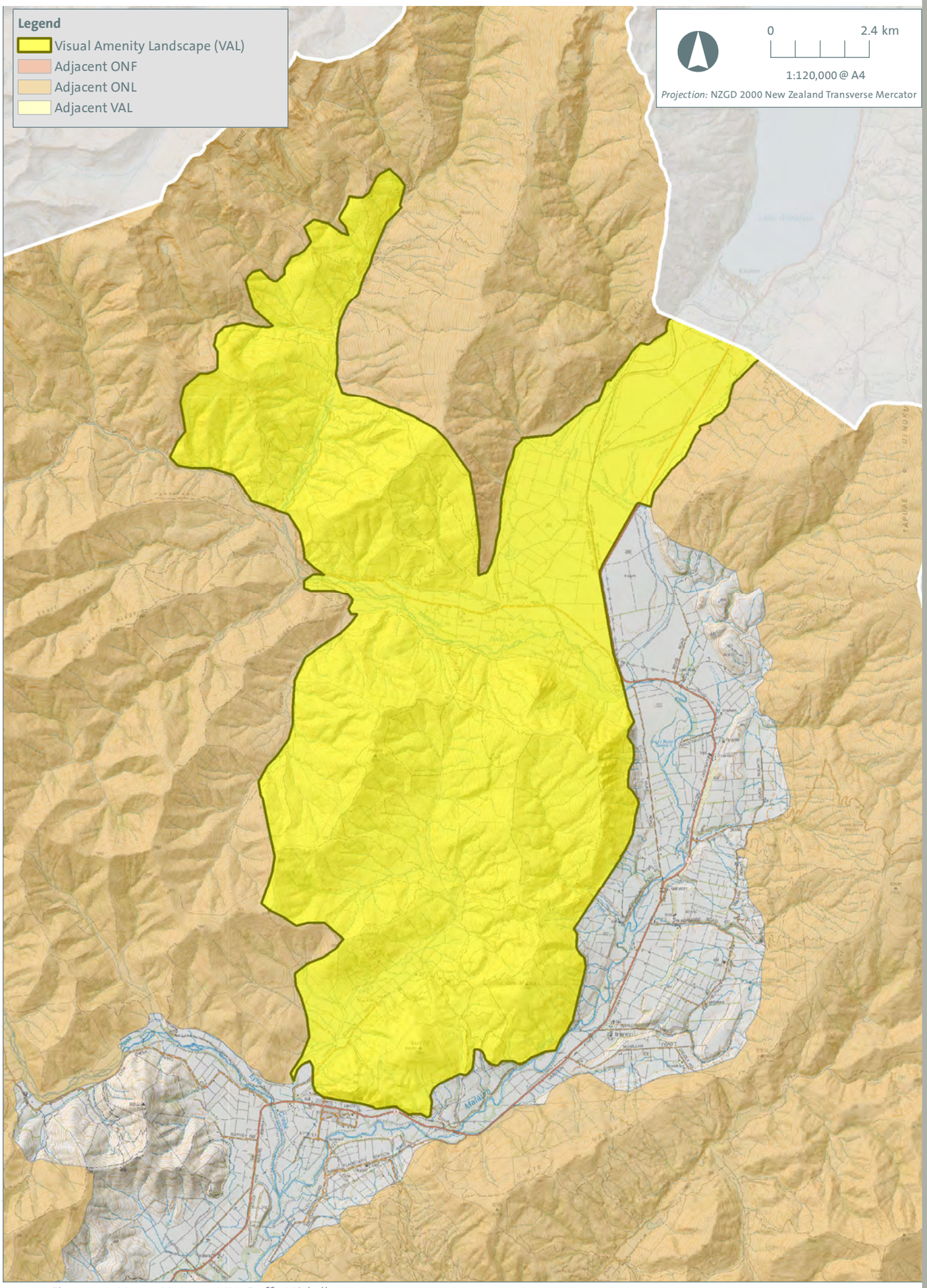


Figure 47: Upper Mataura VAL. Boffa Miskell, 2018.



Above: View overlooking Mid Dome (left) and Cupola (right) Peaks. Boffa Miskell, 2018.

Right: Mid Dome from State Highway 6. Boffa Miskell, 2018.

MID DOME / TARA-MAHITIHITI VAL

The Mid Dome VAL is a memorable landscape for locals and tourists travelling along State Highway 6 between Lake Wakatipu and Te Anau. Extensive tracts of mixed indigenous scrub and tussocklands feature on the upper slopes of Mid Dome and Cupola.

MID DOME / TARA-MAHITIHITI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Mid Dome/Tara-mahitihiti and Cupola mountains are remnants of uplifted schist block faulted mountains. • Expanses of tussocks dominate the upper slopes of Mid Dome and mixed indigenous scrub cloak the middle slopes and gullies.	MODERATE-HIGH
SENSORY	• Mid Dome stands out as a clearly visible and legible landscape feature in relation to the valley plains when viewed from State Highway 6. It is a striking feature and can be easily identified. • Highly erodible gully systems are very legible where vegetation is non-existent. • The area has a moderate level of naturalness as it has been modified for agricultural purposes. • A mixture of agricultural landscapes with patches of exotic tree species present a moderately coherent landscape. The wilding trees in this area are currently controlled to restore more natural ecosystems. • Snow-capped mountains feature during the winter months.	HIGH

MID DOME / TARA-MAHITIHITI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Māori used Mid Dome as a navigation guide while travelling through the plains to hunt, fish or while on pounamu expeditions into Fiordland or when venturing further north (Northern Southland Development Trust, 2018). • Historically, the Jolly Waggoner Hotel (near Jollies Hill Pass) was a popular resting place for travellers following a steady climb over Dome Pass for travellers coming from Dunedin, Invercargill and Riverton (Northern Southland Development Trust, 2018). • This VAL is recognisable to visitors and locals when travelling along State Highway 6 between Lake Wakatipu and Te Anau.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 48. The Mid Dome/Tara-mahitihiti VAL mapped extent encompasses the upper slopes of the western face of Mid Dome and Cupola. The highly modified lower slopes of Mid Dome have been excluded. This VAL borders the western boundary of the Umbrella-Garvie Mountains ONL, which displays higher levels of naturalness.



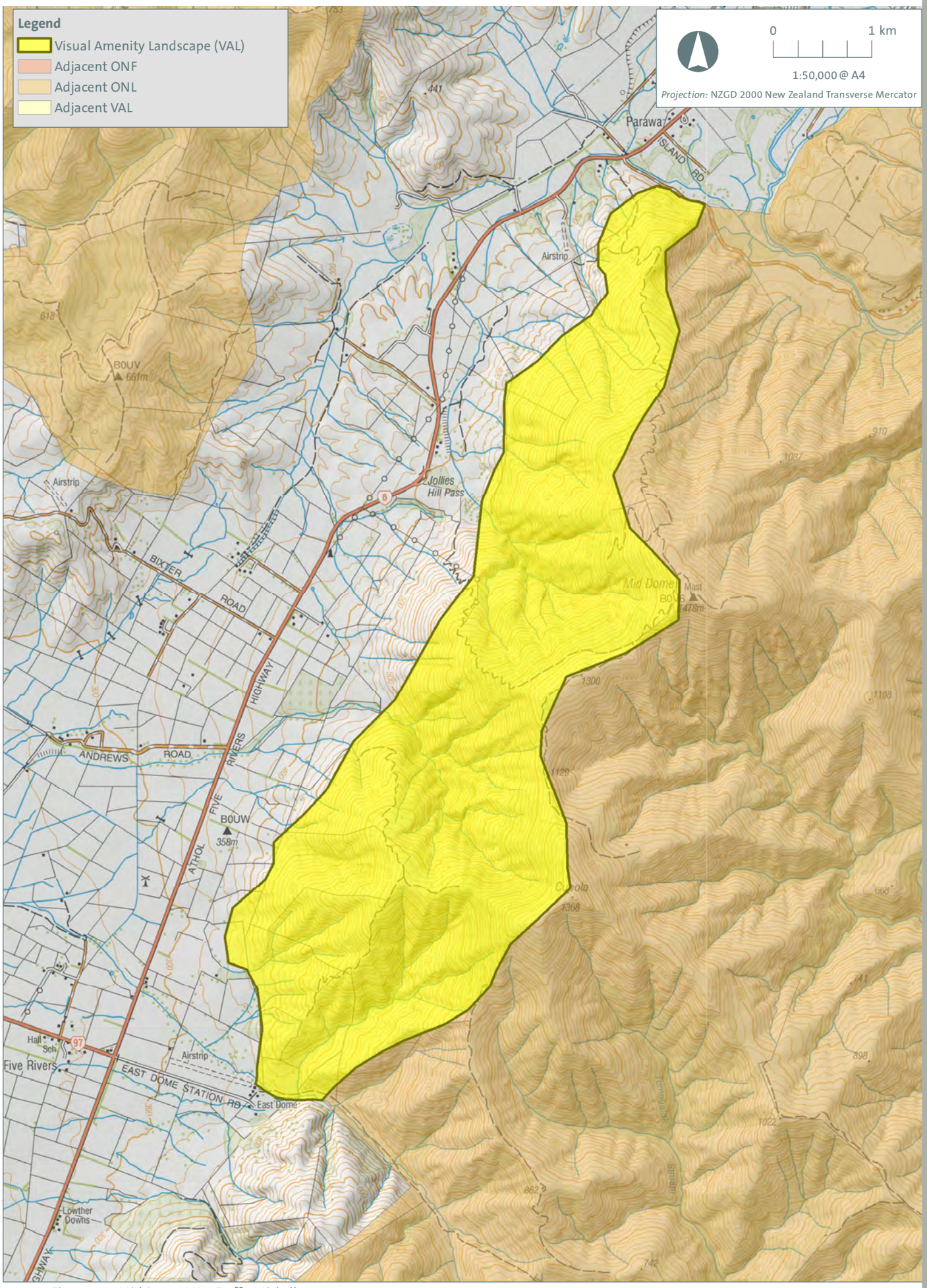


Figure 48: Mid Dome VAL. Boffa Miskell, 2018.



Above: View overlooking the Hokonui Hills and the Southland Syncline. Boffa Miskell, 2018.

Right: Western end of the Hokonui Hills. The Oreti River can be seen in the foreground. Boffa Miskell, 2018.

HOKONUI HILLS / ŌTAUPIRI – HOKONUI – ŌROKO VAL

The Hokonui Hills form part of the larger sequence of the Southland Syncline landform which extends south of the Waimea Plains and encompasses the Hokonui Forest to the south. Parts of **this landscape are modified by agricultural use with pockets of forestry whilst remaining highly** legible. The north-western end of the Hokonui Hills is bisected by the Oreti River whilst retaining a prominent open backdrop along the larger syncline at North Range.

HOKONUI HILLS / ŌTAUPIRI – HOKONUI – ŌROKO VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• The Hokonui Hills/Ōtaupiri-Hokonui-Ōroko form part of the Southland Syncline, one of the most significant structural elements in New Zealand geology (Department of Conservation, 2000). • Bare Hill is listed in the Geopreservation Index as having international importance as an example of zeolite facial burial metamorphism (Geological Society of New Zealand, 1998). • Hokonui Forest represents a remnant of the once extensive podocarp-hardwood forest which occupied this area. • Many threatened plant species are located on private land (Department of Conservation, 2000).	HIGH

HOKONUI HILLS / ŌTAUPIRI – HOKONUI – ŌROKO VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The folded landform of the Southland Syncline remains clearly legible, particularly along its northern edge adjoining the Waimea Plains between Mossburn and Gore/Maruawai with strike ridges forming prominent bluffs in the southwestern hills. • Hokonui Forest retains a high level of naturalness along the southern edge of the Hokonui Hills with much of the remaining area managed as working rural farms. • The folded landform of the Hokonui Hills forms a memorable landmark and skyline which separates the Waimea and Southland Plains. • Part of a coherent working rural landscape which includes a mosaic of agriculture, forestry and extensive native vegetation within Hokonui Forest. • Prominent 120-metre-high mast on Hedgehope Hill defines a prominent man-made land mark, located to the south of the more striking open skyline along the Waterfall Range ONF.	HIGH
ASSOCIATIVE	• Strong Māori associations including obtaining mahinga kai from the Hokonui forests, including Kukupa/kereru, weka/ kaka and tui after traveling hundreds of kilometres (Gore District Council, 2017) and mythology associating the taniwha, Matamata with the creation and distinctive profile of the hills. • Old Hokonui Whisky originated from this area which was made and sold illegally in the area in response to the Distillation Prohibition Act of 1865. • Recreational hunting of fallow deer occurs in Hokonui Forest Park.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 49. The Hokonui Hills/Ōtaupiri-Hokonui-Ōroko VAL encompasses legible parts of the Southland Syncline which rise to the south of the Waimea Plains west of the Waterfall Range, including part of North Range. The southern boundary of the Hokonui Hills encompasses the Hokonui Forest and include Ben Callum, Bare Hill and Mt Peel through the folded rural landscape which connects with the more defined ridges of the syncline.

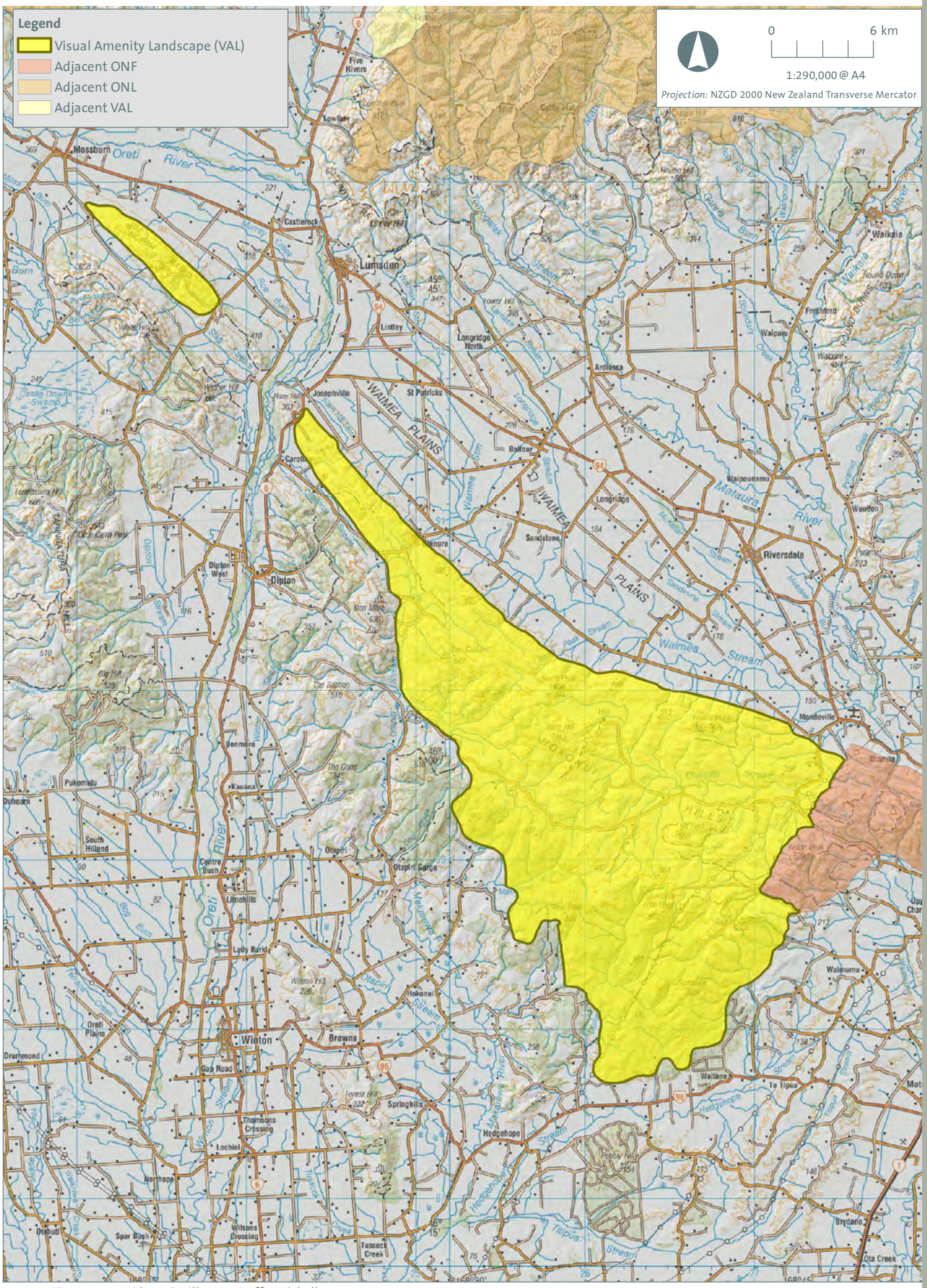


Figure 49: Hokonui Hills VAL. Boffa Miskell, 2018.



Above: The coastal strip included in the Te Waewae Bay VAL on the coastal side of the Scenic Highway. Boffa Miskell, 2018.

Right: Coastal terraces seen along the stretch of the bay. Boffa Miskell, 2018.

TE WAEWAE BAY / TE AHI RAHURU KI WAIKŌAU VAL

The Te Waewae Bay VAL offers impressive coastal views of the largest bay in Southland/Murihiku and to the extraordinary Fiordland mountains. The beach offers very accessible recreational activities and has a rich cultural history.

TE WAEWAE BAY / TE AHI RAHURU KI WAIKŌAU VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Te Waewae Bay/Te Ahi Rahuru ki Waikōau is the largest bay along the Southland/Murihiku south coast and features numerous gullies and coastal sandstone cliffs. • Layered mafic rocks and shore platform potholes near Monkey Island/Kumikumi are regionally important landforms as Geopreservation Sites. • Shallow water fossil shells of national importance are found east of Rowallan Burn River near the coastal cliffs. • Harakeke/flax and coastal shrubs fill the steep cliffs and gullies along Te Waewae Bay.	MODERATE-HIGH
SENSORY	• The formative processes of Te Waewae Bay from exposure to the sea and coastal erosion are clearly legible along the steep cliffs. • Typical cliff and terrace landforms and gullies formed by coastal streams are also seen. • Highly memorable and expansive views can be gained of the bay, foreshore and out to Fiordland National Park from the Southern Scenic Route along State Highway 99. • Transient values include the presence of seasonal snow on the mountains of Fiordland in addition to the sightings of upokohue/Hector's dolphins and the nationally endangered tohorā/southern right whales (Department of Conservation, 2016).	HIGH

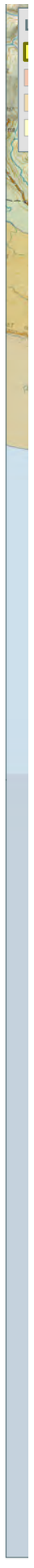
TE WAEWAE BAY / TE AHI RAHURU KI WAIKŌAU VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Te Waewae was named after the southern rangatira/Māori leader and is known as the location where the legendary Takitimu waka capsized (Te Rūnanga o Ngāi Tahu, 2018). • Te Waewae is important for a Māori track connecting Aparima to the Waiau, with associated mokihi/reed boat land sites and river crossings, tetoi aka/middens and mahinga kai (Department of Conservation, 2000) & (Te Rūnanga o Ngāi Tahu, 2018). • A small kāika/settlement was situated at Taunoa Stream near Orepuki, but it was abandoned in the early 1800s due to early mining polluting the waters (Te Rūnanga o Ngāi Tahu, 2018). • Monkey Island/Kumikumi was used as a lookout for whales, and the name Kumikumi refers to the blackened bones of the tohorā/southern right whale. • In the late 1800s and early 1930s, gold mining was very prevalent near Orepuki. The landscape west of the Waiau River has a long history of timber milling (Environment Southland, 2013). • The bay has high shared and recognised values along the Southern Scenic Route with impressive scenic views across the bay and a tourist rest area at McCrackens Rest that serves as a photo view point. • Recreational activities include surfing, fishing, swimming and a popular picnic and swimming spot at Monkey Island.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 50. The Te Waewae Bay / Te Ahi Rahuru ki Waikōau VAL encompasses a thin strip of coastal land and cliffs on either side of the Waiau River from the Rowallan Burn River in the west to Pahia Point in the east (refer to Pahia Hill ONF). The Waiau River Mouth is excluded from the VAL as it is a separate ONF due to its higher level of naturalness and values (refer to Waiau River Mouth ONF). The inland mapped extent follows State Highway 99 on the eastern side of the Waiau River and the extent of incised streams/less modified coastal context land on the western side of the Waiau.



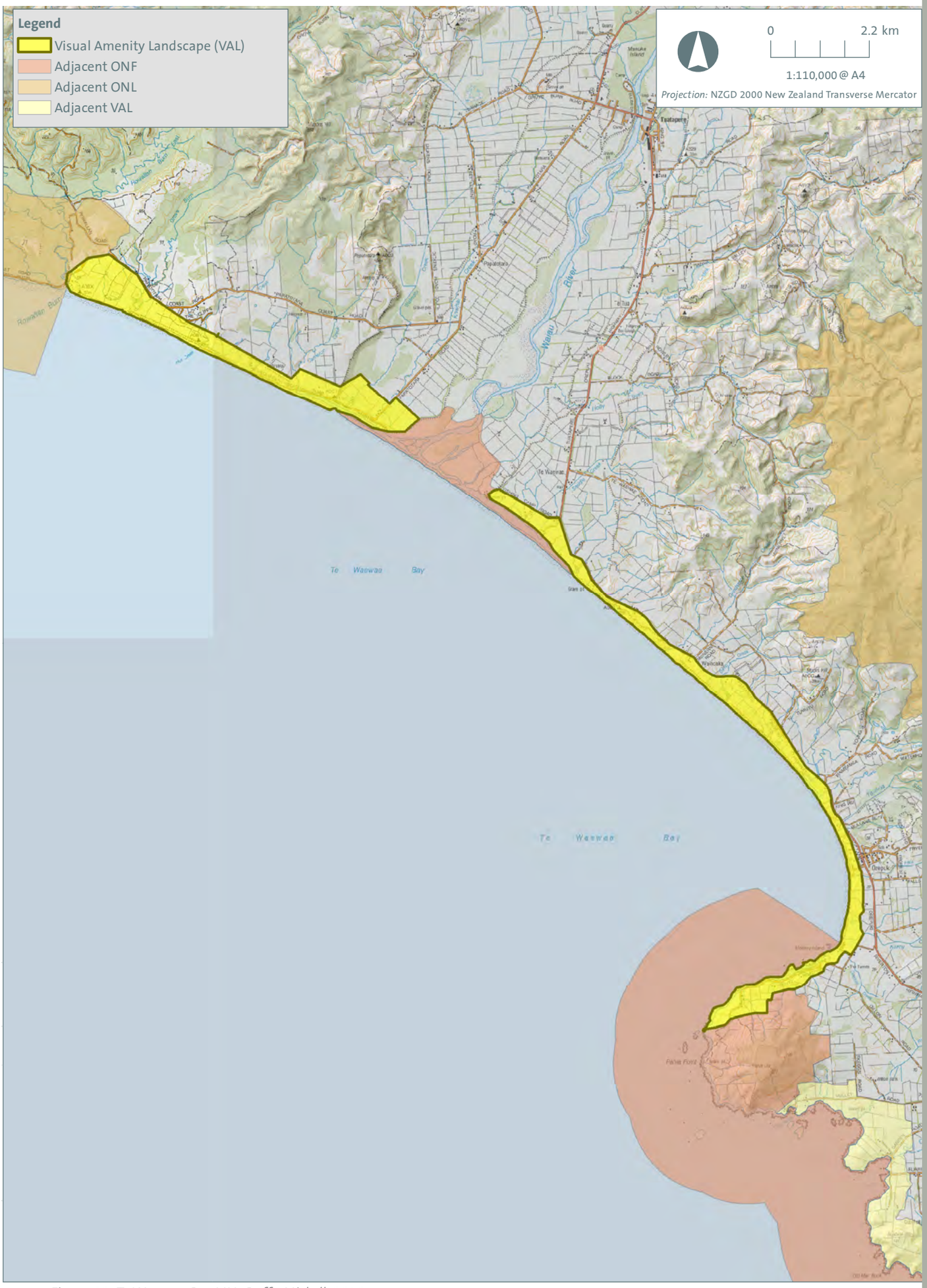


Figure 50: Te Waewae Bay VAL. Boffa Miskell, 2018.



Above: Aerial of the rocky Cosy Nook-Wakaputa Point coastline with enclosed bay. Boffa Miskell, 2018.

Right: Cosy Nook with Pahia Hill to the left of the image. Boffa Miskell, 2018.

COSY NOOK-WAKAPUTA POINT / ŌMĀWHERO KI KAHUTAI VAL

Cosy Nook-Wakaputa Point VAL has diverse coastal features exposed to Foveaux Strait which includes a remote and rugged landscape.

COSY NOOK-WAKAPUTA POINT / ŌMĀWHERO KI KAHUTAI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• This coastline features a diversity of rock landform features including sea cliffs, crags, pillars and small boulder beaches/bays. • The sea cliffs are rocky, exposed to Foveaux Strait/Te Ara-a-Kiwa and difficult to access from the land. • The landscape includes some remnant native shrublands and coastal herbfields with dunelands and saltmarshes at Wakaputa/Kahutai (Boffa Miskell, 2006) & (Environment Southland, 2013). • Above the mean high-water mark, the rock forms provide nesting and roosting sites for many seabirds.	MODERATE-HIGH
SENSORY	• Rocky outcrops and small coves are legible along the coastline. • Although the coastline has been heavily modified due to agricultural practices, rocky outcrops and cliff faces remain intact due to their remoteness. • The landscape is an important area with a distinctive sense of place to the local community while not particularly obvious to passers-by. • The continuous series of gullies and pattern of land cover read coherently along the coastline.	HIGH

COSY NOOK-WAKAPUTA POINT / ŌMĀWHERO KI KAHUTAI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• The land was traditionally used for settlement, cultivation and as an urupā. An important Māori village was once located near Cosy Nook however, no visible signs of the settlement remain. • The entire coastline remains valued as a source of kaimoana. • Cosy Nook has a unique charm and character which draws people to visit. It also has a small fishing fleet that operates out of the area. • The entire coastal stretch is used by the general public for recreational fishing, diving, swimming and picnicking.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 51. The Cosy Nook-Wakaputa Point/Ōmāwhero ki Kahutai VAL extends from Cosy Nook to the western end of Kawakaputa Bay. This VAL encompasses a thin strip of the hinterland, the sea cliffs, boulder beaches and gullies that front Foveaux Strait. The seascape adjacent to this VAL is included within the Pahia Hill ONF.



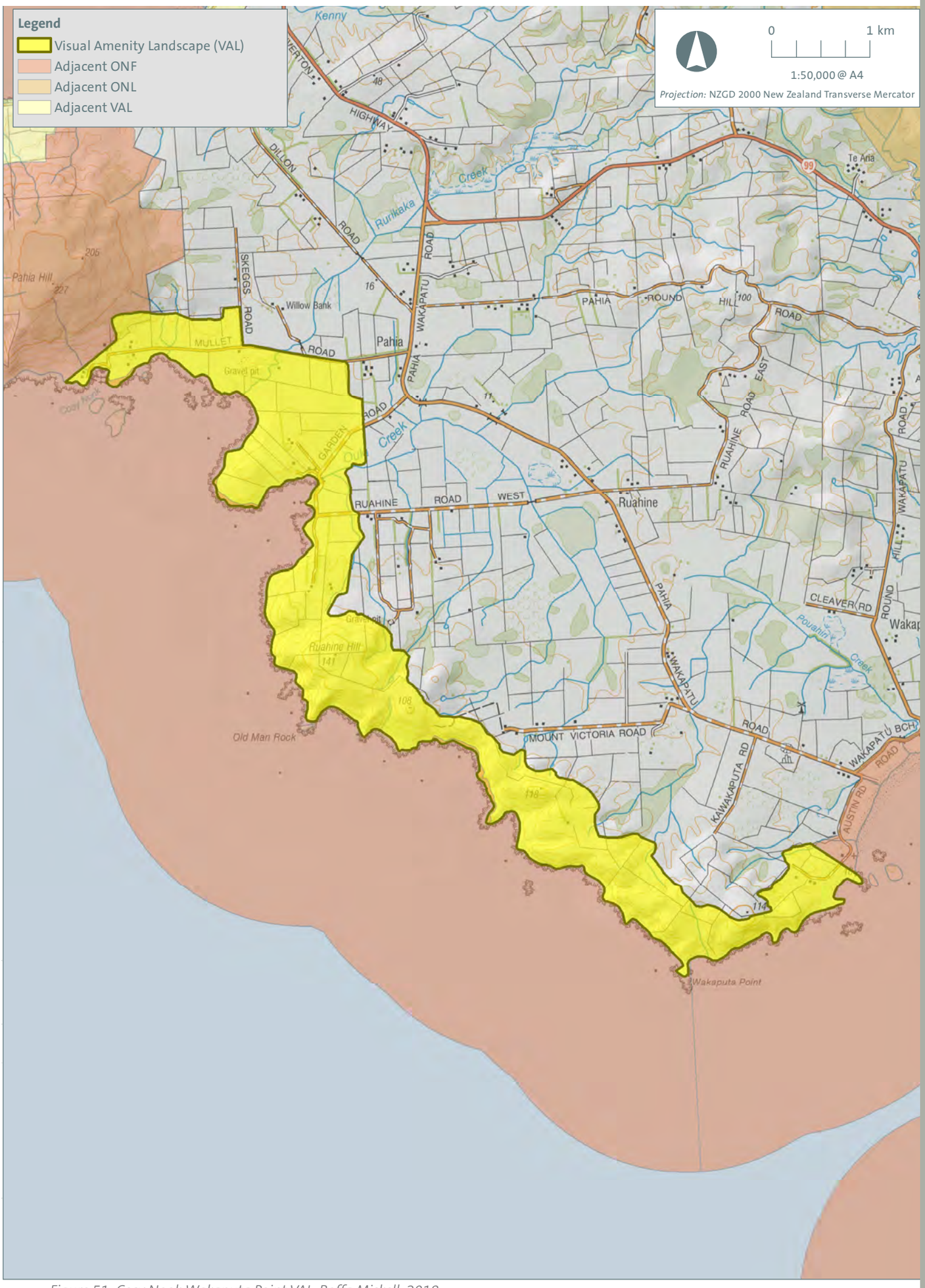


Figure 51: Cosy Nook-Wakaputa Point VAL. Boffa Miskell, 2018.



Above: Jacobs River Estuary meeting the Pourakino River mouth. Boffa Miskell, 2018.

Right: Jacobs River Estuary meeting Foveaux straight and the town of Riverton. Boffa Miskell, 2018.

JACOBS RIVER ESTUARY / APARIMA VAL

The Jacobs River Estuary VAL forms part of a very important bird habitat in Southland/Murihiku and is valued by the Riverton community.

JACOBS RIVER ESTUARY / APARIMA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Jacobs River Estuary/Aparima is a regionally important tidal estuary which is fed by both the Pourakino and Aparima Rivers. • The main estuary is pinched off near the Pourakino Arm which is referred to as 'the narrows.' • An extensive area of shallow intertidal mudflats, sandflats and salt marshes with marginal vegetation form important habitats for wading birds and waterfowl. • Jacobs River Estuary forms part of a wider wetland landscape making up one of the most important wading bird habitats in Southland/Murihiku, and at a national scale (Department of Conservation, 2000). • The estuary is ranked as nationally important for fisheries as a flatfish nursery by the Water and Environmental Research Institute (WERI) (Environment Southland, 2013).	MODERATE-HIGH

JACOBS RIVER ESTUARY / APARIMA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• Coastal and estuarine processes are legible as the estuary remains largely unmodified in its morphology. • The Jacobs River Estuary is memorable as viewed from the Southern Scenic Route and the local community of Riverton. • The estuary displays a distinctive sinuous pattern that contrasts with the unnatural lines of the adjacent agricultural landscape. • Transient tidal processes within the lagoon support wildlife presence at different times of the day and year.	HIGH
ASSOCIATIVE	• A permanent kāika (settlement) was once situated at the Aparima River mouth. • Both the river and estuary are an important source of mahinga kai, with species such as shellfish, tuaki/cockle, pātiki/flounder, kūtai/mussels, tuna/eels and inaka/whitebait able to be gathered here (Te Rūnanga o Ngāi Tahu, 2018). • The Aparima River was an important ara tawhito (traditional travel route) providing access to Lake Wakatipu. The river was also known as Jacobs River, named after an elderly Māori man known to the whalers as 'Old Jacob.' (Te Rūnanga o Ngāi Tahu, 2018) • Riverton was one of the first European settlements in New Zealand, beginning in the 1830s. Land uses grew from agriculture to support new industries such as flaxmilling, sawmilling, gold mining and boat building as the land was cleared (Southland District Council, Venture Southland, & Riverton Community Board, n.d.). • Jacobs River Estuary is valued by the local community, as it provides a sense of place to Riverton and bird watching opportunities.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 52. The Jacobs River Estuary/Aparima VAL includes the Pourakino and Aparima River mouths, the margins that surround the estuary and the waters of the estuary itself.



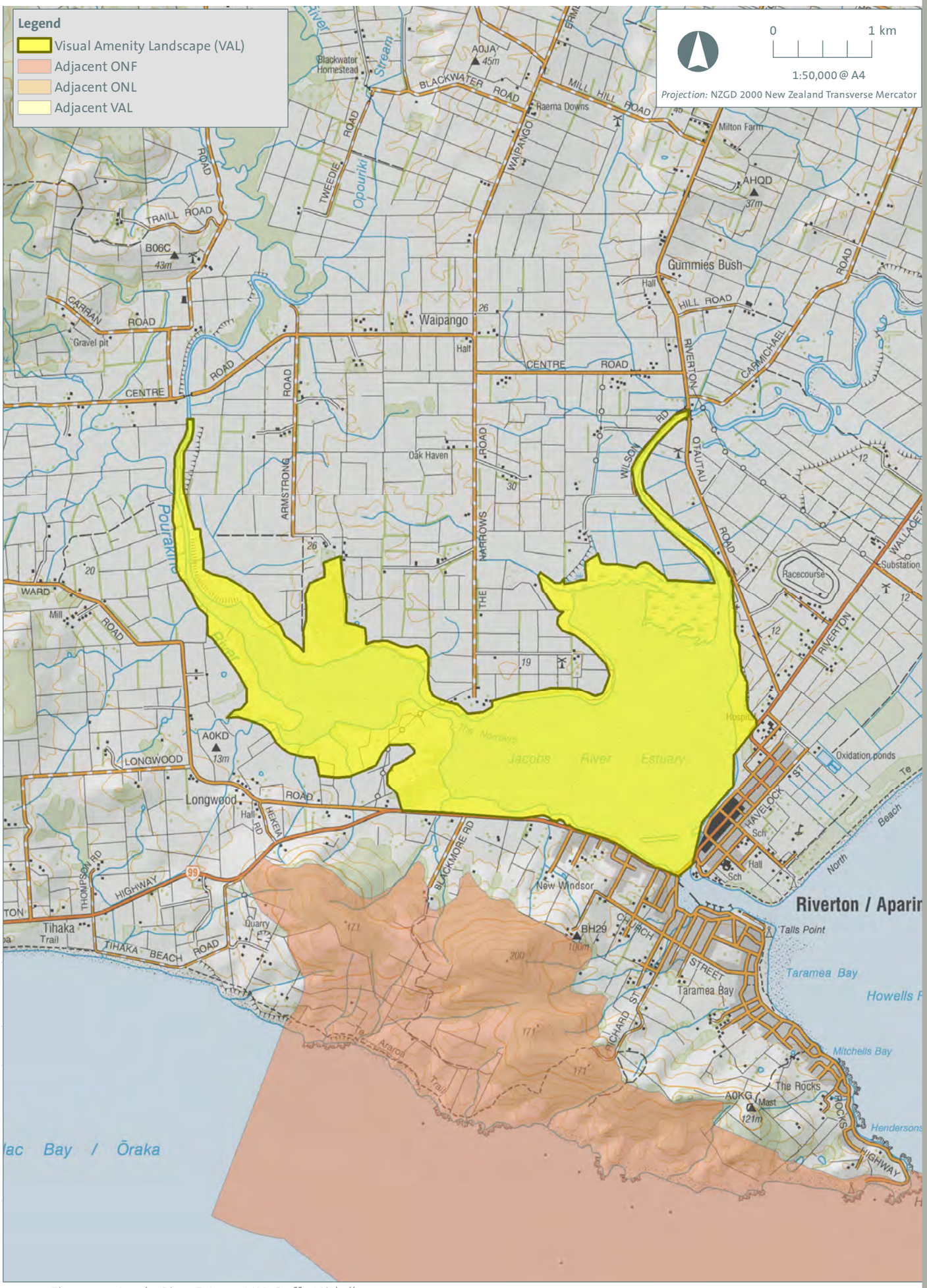


Figure 52: Jacobs River Estuary VAL. Boffa Miskell, 2018.



Above: The margins of New River Estuary contrasting with the modified agricultural hinterland. Boffa Miskell, 2018.

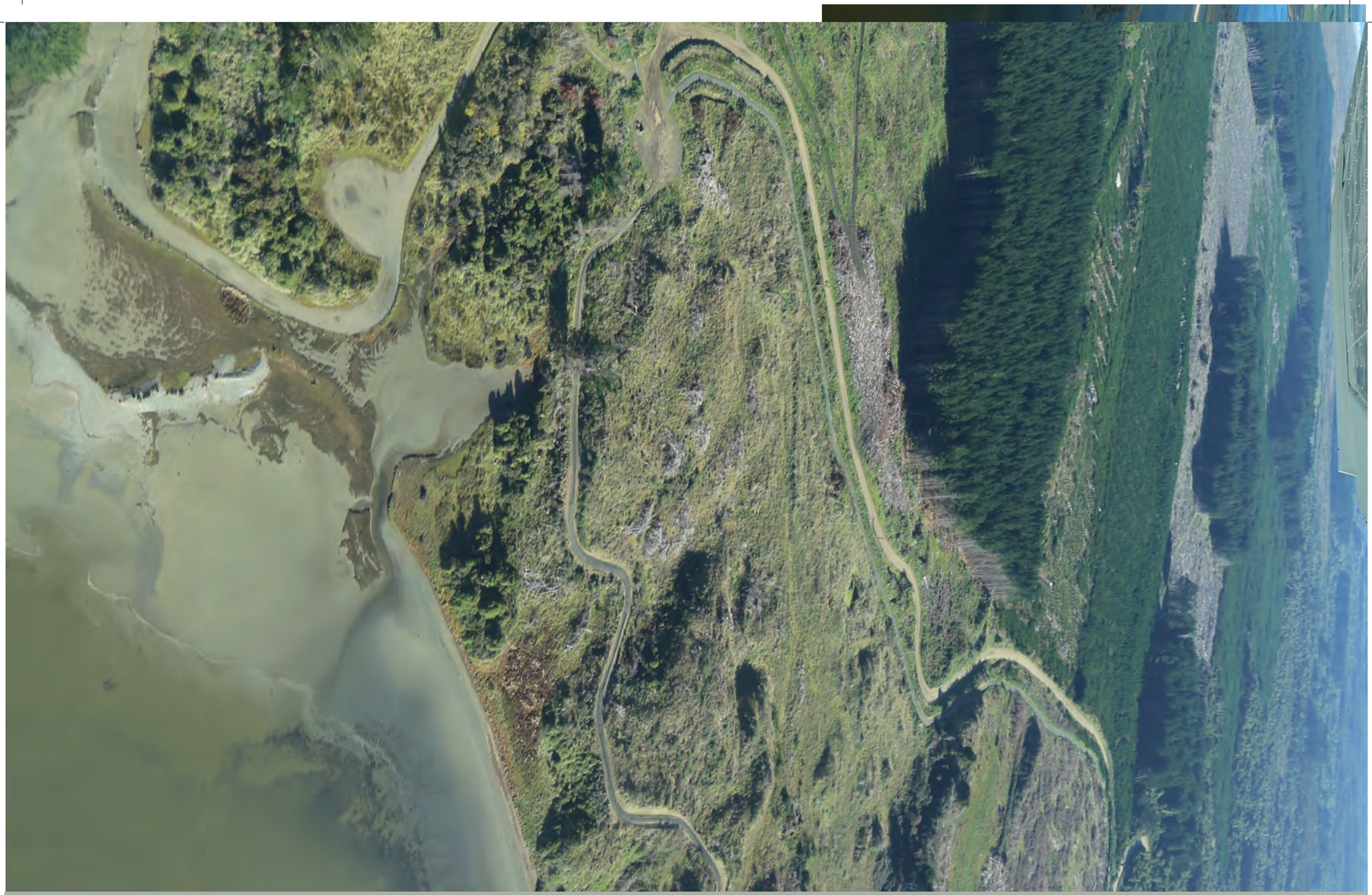
Right: Forest near Whalers Bay on the south western side of the westuary. Boffa Miskell, 2018.

NEW RIVER ESTUARY / WAIHŌPAI VAL

The New River Estuary VAL is the largest tidal lagoon and estuary in Southland/Murihiku which lies **adjacent to the Awarua Plains wetland complex and provides internationally significant bird habitat** under the RAMSAR convention.

NEW RIVER ESTUARY / WAIHŌPAI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Regionally important, large tidal lagoon and barrier, enclosed estuary fed by the Oreti and Waihōpai Rivers. • Tidal flats, wetland and saltmarsh margins surround New River Estuary/Waihōpai which forms part of the wider Awarua Plains wetland complex. • Sandy Point's ancient sand dune forest of wind-sculpted tōtara and matai is rare and nationally important. Other native podocarps include rimu, miro and kahikatea. • Ancient sand dune formations covered in remnant indigenous forest are found within Otatara Scenic Reserve and surrounding areas. • Bushy Point, contains extensive maritime marshes including an excellent sequence of marsh to sand dune tōtara forest, which is of national significance. • Mix of saltwater and freshwater vegetation including salt-tolerant herbs and rushes grow close to the tide mark, merging with manuka shrublands and tōtara-dominated coastal forest. • The ecosystems of the estuary provide habitats for 74 species of wading and waterfowl birds. • The New River Estuary forms part of the internationally significant bird habitat under the RAMSAR convention. • At low tide shellfish and mud crabs can be seen on the mudflats in addition to shell banks which provide a significant breeding site for Caspian Terns. • The estuary provides a nursery and spawning habitat for numerous marine and freshwater fish species including īnanga/whitebait, pātiki/flounder, taiwharu/giant and banded kokopu, kanakana/lamprey and tuna/long finned eel.	HIGH



NEW RIVER ESTUARY / WAIHŌPAI VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The coastal processes and formation of the New River Estuary and the sand dune formations at Otatara are highly legible. • A high perception of naturalness can be gained from Bushy Point and Daffodil Bay due to extensive intact, wind-sculpted forest and sand dunes. • Expansive mud flats, salt marshes and wetlands associated with New River Estuary are striking and memorable features along this coast. • The presence of wading birds feeding is usually possible on receding tides.	HIGH
ASSOCIATIVE	• New River Estuary contains wāhi tapu, archaeological sites of significance to Māori and kaimoana. • Māori travelled across the mouth of the estuary on their journey between Mokomoko and Riverton. The earliest port to serve Invercargill was in New River Estuary. • Sandy Point provides educational opportunities for schools and recreational opportunities such as walking and picnicking for visitors. A portion of the Te Araroa Trail follows the north-eastern margins of the estuary.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 53. The mapped extent of the New River Estuary/Waihōpai VAL includes the unmodified margins that surround the estuary, the water itself, ancient sand dune formations on the south-west side of Otatara and the sand sculpted native forest on the eastern side of Sandy Point. The mapped extent of the Oreti River extends to Dunns Road and the Waihōpai River extends to Stead Street.



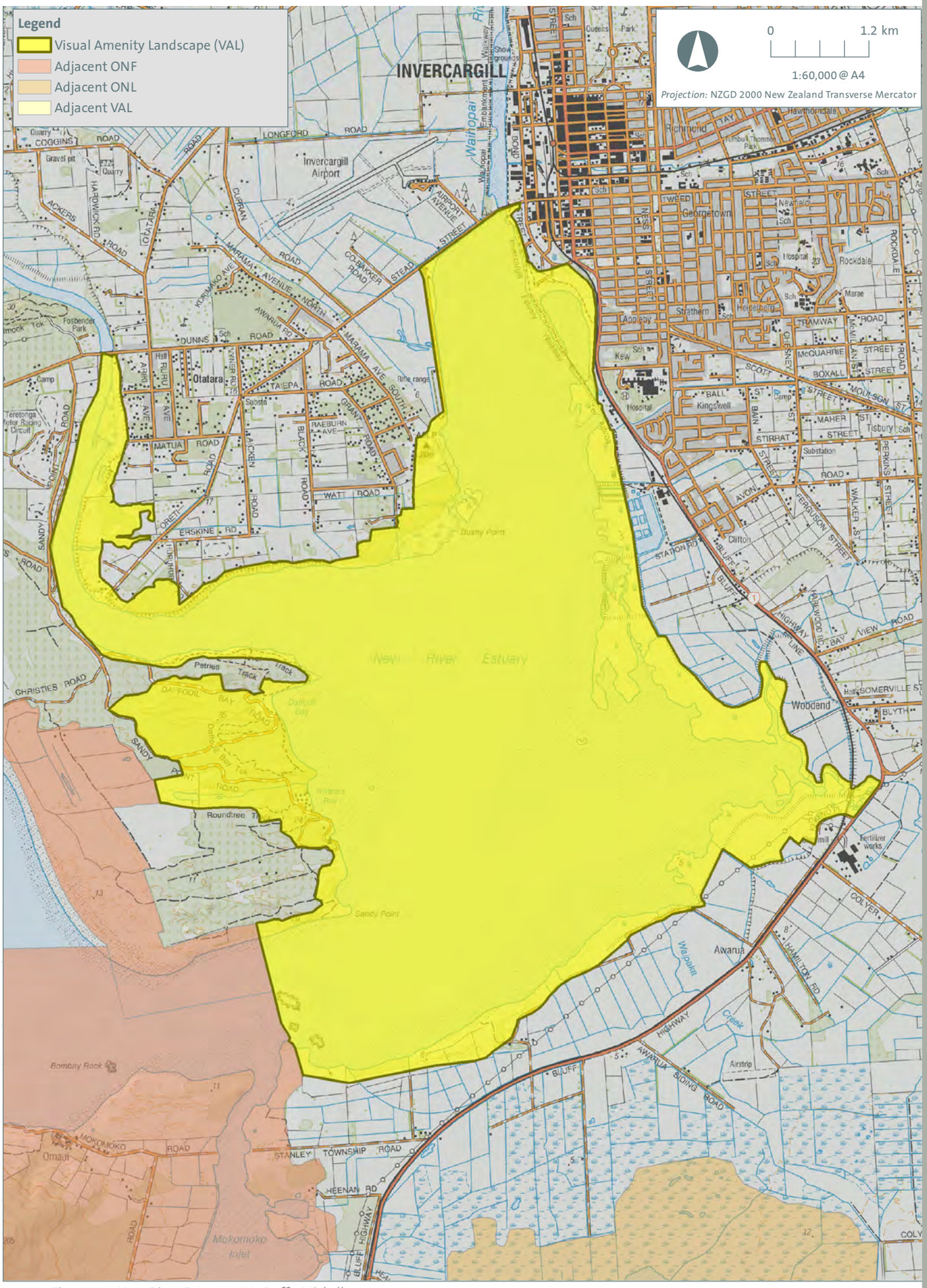


Figure 53: New River Estuary VAL. Boffa Miskell, 2018.



Above: The eastern coastline of Toetoes Bay with Waipapa Point to the right. Boffa Miskell, 2018.

Over the page: Rocky outcrops at the southern end of Toetoes Bay. Boffa Miskell, 2018.

TOETOES BAY / TOETOE VAL

The Toetoes Bay VAL encompasses Frasers Beach and the eastern extent of Toetoes Bay defining the western craggy edge of the Catlins Coast. A sequence of low headlands, steep gravel beaches and offshore reefs border a sparsely settled rural fringe.

TOETOES BAY / TOETOE VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Sequence of low lying headlands and offshore reefs which enclose a series of intimate steep gravel and coarse sand beaches along the eastern extent of Toetoes Bay/Toetoe. • Dunelands with ponding, peatlands and sand plains support small pockets of remnant coastal and wetland vegetation, however most of the dunes in this area are dominated by marram grass. • Lakes Cook, Vincent and Forest and Brunton provide important fish habitat. • Parts of the clifftop have coastal herbfield (turf and sedge) communities near the edge and pasture behind (Robertson, B.; Stevens, L., 2008).	HIGH
SENSORY	• Legible beach and headland reef sequence with dunes which demonstrate formative coastal processes. • Sheltered, intimate and secluded beaches retain a strong sense of naturalness. • The vivid interplay between the land and the sea forms an integral and memorable component of the broader coastal Catlins landscape. • Scattered farm dwellings are predominantly set along the main road at Ōtara, which means that the remainder of the area retains a high level of coherence without man-made structures.	HIGH



TOETOES BAY / TOETOE VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Māori journeyed through, settled and gathered food from coastal areas, wetlands, estuaries and forests of The Catlins (Department of Conservation, 2016). • New Zealand's second worst shipping tragedy occurred at Waipapa Point in 1881 when the SS Tararua struck Otara Reef about 1km off the coast (Peat, 2009). • The lighthouse at Waipapa Point was built in 1884 and represents the last wooden light house built in New Zealand (Peat, 2009). • The Southern Scenic Route runs through this area along which Waipapa Light House forms a popular visitor destination. • Recreational activities such as paua gathering, scuba diving, snorkelling and surfcasting take place along this stretch of coast.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 54. The boundary of the Toetoes Bay/Toetoe VAL follows the coastal edge between the eastern entrance to Toetoes Harbour and Waipapa Point encompassing Waipapa Point Lighthouse. The inland boundary generally follows a legible transition between undulating dune landform and flatter areas of modified pasture. The seascape with its impressive coastal interface adjacent to the VAL forms part of the Coastal Catlins ONL.



Figure 54: Toetoes Bay VAL. Boffa Miskell, 2018.



Above: The tidal channels of Waikawa Harbour with Catlins forest in the background. Boffa Miskell, 2018.

WAIKAWA / TUMA TOKA VAL

Part of the settled Catlins landscape along the Southern Scenic Route which is nestled between the Catlin's striking coastal landforms and impressive inland forests. Waikawa Harbour forms the **picturesque heart of this coastal landscape which also serves as a port for several fishing boats which** operate from the jetties near the centre of Waikawa township. The coastal edge also encompasses settlement along Porpoise Bay Beach and part of the memorable entrance to Curio Bay.

WAIKAWA / TUMA TOKA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
BIOPHYSICAL	• Gentle rolling landforms which encompass Waikawa Harbour and Porpoise Bay which support sparsely settled rural land uses and small townships at Waikawa and Curio Bay. • The majority of the landcover is pasture with small pockets of plantation forestry and extensive regenerating native vegetation in gullies and along the margins of watercourses. • Porpoise Bay has extensive and impressive dunelands. • Waikawa Estuary forms a largely unmodified tidal lagoon estuary and is known nursery area for pātiki/flounder, with taiwharu/giant kokopu, tuna/eels, kanakana/lamprey and īnanga/ whitebait spawning in the Waikawa River (Department of Conservation, 2000). • The estuary is used as a feeding ground by godwits, white-faced herons, South Island pied oystercatchers, wrybills, pied stilts, spur-wing plovers and mallard ducks (Department of Conservation, 2000).	HIGH



WAIKAWA / TUMA TOKA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
SENSORY	• The tidal coastal estuarine system remains highly legible with distinctive sinuous outlines of the tidal channels. • In spite of the rich history of settlement and historic land clearance with continued farming, the margins of Waikawa Estuary and most surrounding areas remain relatively unmodified and express high natural values. • Picturesque and highly memorable quaint coastal landscape surrounded by bush clad gullies and pasture on ridge tops adopting a pattern that generally follows and responds to the land. • Most houses are located on the lower slopes and around the harbour, expressing historic settlement pattern with few conflicting elements. • High transient values within Waikawa Estuary comprising the changing tides and exposed mud flats at low tide.	HIGH

WAIKAWA / TUMA TOKA VAL

LANDSCAPE ATTRIBUTES	EVALUATION	RATING
ASSOCIATIVE	• Māori journeyed through, settled and gathered food from coastal areas, wetlands, estuaries and forests of The Catlins. An ara tawhito (traditional Māori travel route) extended from Waikawa to Curio Bay (Department of Conservation, 2016a). • Waikawa is important for mahinga kai, particularly flatfish, native trout, giant kokopu, tuna, kanakana, and for shellfish regeneration (Department of Conservation, 1998). This area is still a traditional fishing ground for many Ngāi Tahu Whānui (Ngāi Tahu ki Murihiku, 2008). • Since European arrival the district has supported a range of land-uses including whaling, timber, gold, stone and flax collecting, together with pastoral runholding and dairy farming. Waikawa's port was busy during the 1880s and up until the early 1920s when shipping ceased (South Catlins Promotions Incorporated, 2016). • The Southern Scenic Route runs through this area, inviting many visitors to experience The Catlins each year. Porpoise Bay and Waikawa are popular visitor destinations within this area. It serves as an entrance to the Coastal Catlins ONL that includes Curio Bay fossil forest.	HIGH

OVERALL LANDSCAPE VALUE	VAL

Mapped Extent:

Refer to Figure 55. The boundary of the Waikawa/Tuma Toka VAL typically adjoins the Coastal and Inland Catlins ONLs. Relative to the coast, it encompasses the inland area between Curio Bay and Dummys Beach and includes Waikawa Harbour and Porpoise Bay Beach in its centre. The Inland boundary extends between the Inland Catlins ONL which encompasses the forested area surrounding Mount Darby to the north-west and the MacLennan Range to the north-east. The northern boundary which does not adjoin an ONL culminates along the visual catchment of Waikawa Harbour to the south of Progress Valley Road.



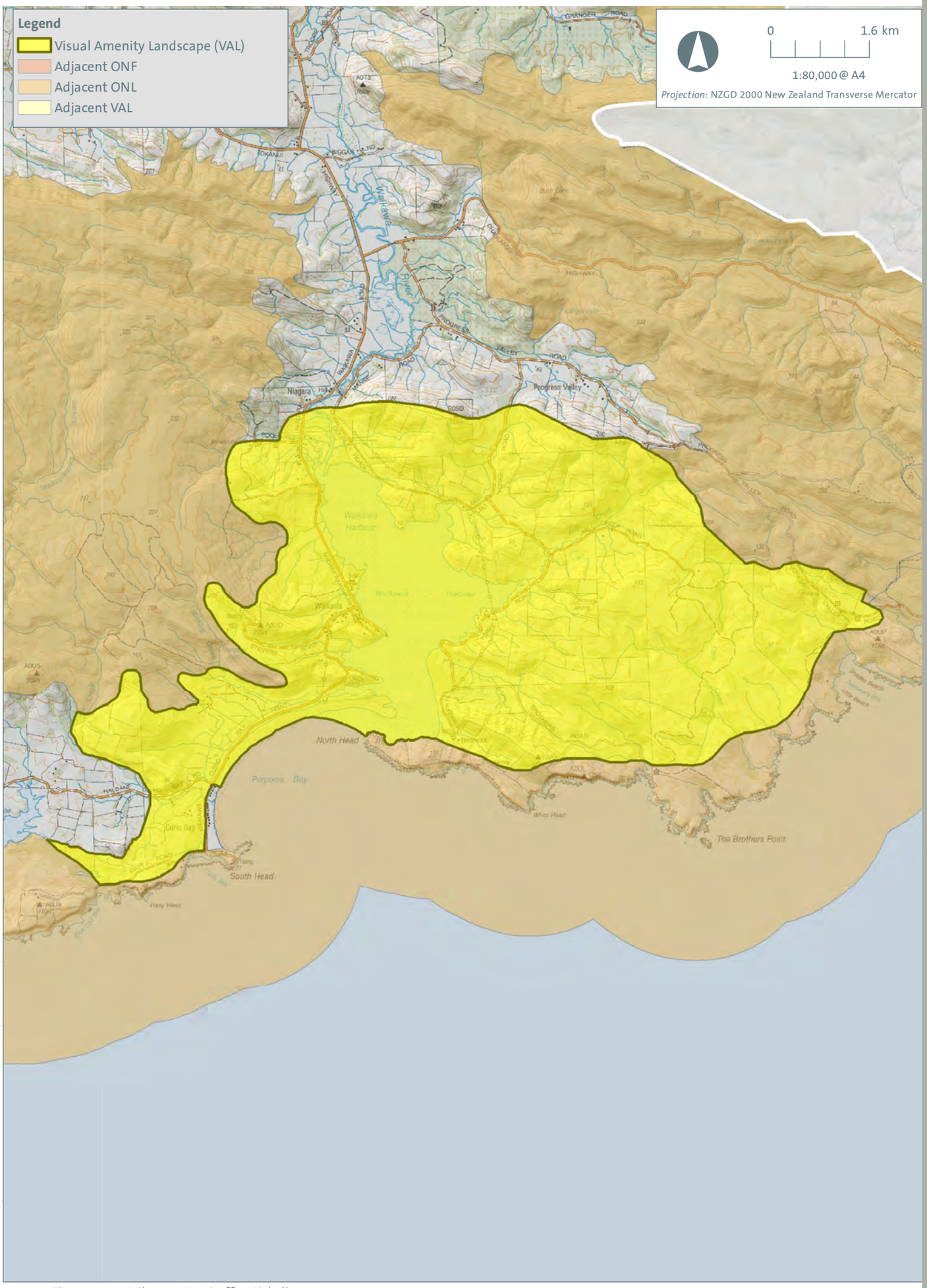
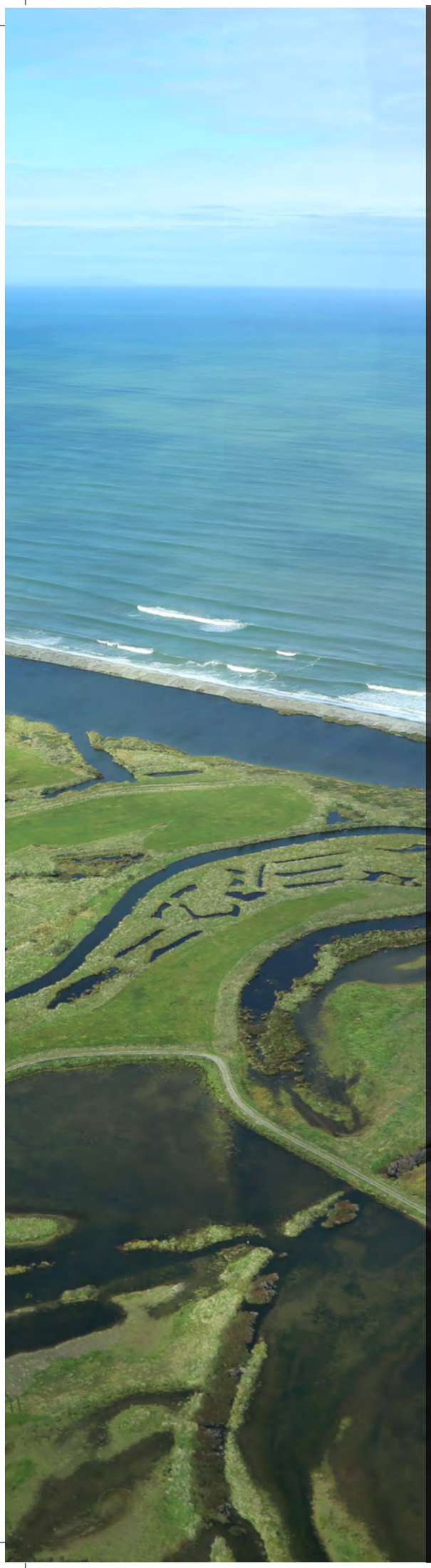


Figure 55: Waikawa VAL. Boffa Miskell, 2018.



APPENDIX 1
METHODOLOGY



LANDSCAPE VALUES

All landscapes are valuable and the clearest and most robust way in which landscapes or features can be judged as being more valuable than others is to adopt valid and reliable criteria or considerations on which the judgement is to be made. There are various ways in which landscape value may be appreciated by communities and thresholds **used to determine 'valued landscapes'. The range of factors that** the Environment Court has endorsed when landscape practitioners consider landscape value is referred to as the Amended Pigeon Bay criteria or factors (C32/1999 – Pigeon Bay Aquaculture Ltd v CRC and C180/1999 – Wakatipu Env. Society v QLDC). These 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.

The New Zealand Coastal Policy Statement (2010) gives more specific direction when identifying and assessing natural features and landscapes of the coastal environment through having regard to:

i. Natural science factors, including geological, topographical, ecological and dynamic components;
ii. The presence of water including seas, lakes, rivers and streams;
iii. Legibility or expressiveness – how obviously the feature or landscape demonstrates its formative processes;
iv. Aesthetic values including memorability and naturalness;
v. Vegetation (native and exotic);
vi. Transient values, including presence of wildlife or other values at certain times of the day or year;
vii. Whether the values are shared and recognized;
viii. Cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori, including their expression as cultural landscapes or features;
ix. Historical and heritage associations; and
x. Wild or scenic values.

Appendix 1 Cover page: Waiau River mouth with Pahia Hill in the distance. Boffa Miskell, 2018.

Left: Aerial of Lake Te Anau with Fiordland National park in the background. Boffa Miskell, 2018.

In addition, Policy LNF.1 of the Southland Regional Policy Statement includes the following factors to identify and assess Southland's outstanding natural features and landscapes:

a. natural science factors, which specifically includes the geological, topographical, ecological and dynamic components of the landscape;

b. aesthetic values, including memorability and naturalness;

c. expressiveness (legibility), which is how obviously the landscape demonstrates the formative processes which helped to create it;

d. transient values, which specifically includes the occasional presence of wildlife or its values at certain times of the day or of the year;

e. whether the values are shared and recognised;

f. value to tangata whenua;

g. historical and heritage association;

h. the presence of water including in seas, lakes, rivers and streams;

i. vegetation, particularly native vegetation; and

j. wild or scenic values.

Current Best Practice Guidance prepared by the New Zealand Institute of Landscape Architects (NZILA, 2010) and endorsed by previous Environment Court decisions (see C11/2009 – Unison Networks v Hastings District Council) promotes grouping relevant landscape factors into three categories, focusing on the landscapes' broad biophysical or natural science aspects, sensory and aesthetic aspects, 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 Amended Pigeon Bay and NZCPS factors into these categories reduces the risk of emphasising some at the cost of others and enables assessors to interpret the landscape values with greater validity and reliability. These three attributes are listed in Table 1 of the report and described in detail below.

Below: View of the Takitimu Mountains and lower hills. Boffa Miskell, 2018.



BIOPHYSICAL ASPECTS

Biophysical aspects incorporate a landscapes natural science elements, including its geological, ecological and dynamic components which can be directly attributed to place.

Natural Science aspects previously considered by the Environment Court were described in the Queenstown decision as “the geological, ecological and dynamic components of the landscape” (C180/1999 – Waikatipu Env. Society v QLDC). In broad terms, this identifies that natural science values can represent both abiotic (including geology, geomorphology and soils) and biotic (including native vegetation communities, wildlife and ecosystems) components.

Where biophysical aspects are relevant, the qualities of the landscape will be present in a way that more generally defines the character of the place. Natural landscapes or features in a good state of preservation will remain representative of the natural geological, geomorphological or ecological processes and diversity of the region. Natural features that are unique or rare in the region or nationally, if few comparable examples exist. Natural features may also form a landscape feature or an element / component of the landscape.

Where possible, the analysis of biophysical aspects of landscape should use objective and quantifiable data to support an evaluation were available. The Department of Conservation (DOC) are the largest landholders in the Southland Region covering much of Fiordland, inland ranges and areas of coastline. Accordingly, information available from various Department of Conservation publications including Recommended Areas for Protection and Reserve Management Plans provides a useful source of information. The Geopreservation Inventory and LINZ landcover database (lcdb v4.1) are also relevant.

In summary, the key biophysical aspects of landscape value include the following:

- Abiotic components including the presence of important or recognised geological or topographical features
- Biotic components including the presence of important native vegetation communities, wildlife or ecosystems



SENSORY ASPECTS

Sensory qualities are landscape phenomena which are experienced by people, such as the view of a scenic landscape or transient matters such as the distinctive smell and sound of the sea and foreshore. Aesthetic aspects of landscape are perceived through our senses and involve judgmental and subjective interpretations of nature and beauty, contributing to our overall human experience.

The Oxford English Dictionary (2002) defines 'aesthetic' as 'concerned with beauty or the appreciation of beauty; of pleasing appearance'. An understanding of aesthetic landscape values endorsed by the Environment Court were described in the Queenstown decision as "including memorability and naturalness" (C180/1999 – Wakatipu Env. Society v QLDC). This decision also included some discussion of the adequacy of this description. It was of the view that traditional scenic and visual considerations may be underplayed. It also noted that considerations such as pleasantness raised in the RMA definition of amenity values may also be relevant.

The memorability of an area of landscape is often closely associated with its vividness or symbolic contribution to an area due to its recognised iconic qualities. Vivid or striking landscapes are also more likely to be widely recognised across the community. Highly memorable landscapes often comprise a key component of a person's recall or mental map of a region or district and remain clear in the memory. It is not necessary for vivid landscapes to have a high degree of naturalness. A landscape may be vivid or striking through other recognised scenic associations.

By contrast, the perception of naturalness is where landscapes appear largely uncompromised by modification and typically describes the perception of the predominance of nature in the landscape.

Put simply, a 'natural' landscape does not require a pristine indigenous environment. The Court of Appeal has endorsed this view noting that some working rural landscapes can still be perceived as 'natural' (NZHC 767/ 2015 - Man O War Station Limited v Auckland Council). Conversely, landscapes that have high ecological values may not display such visual qualities.

In accordance with the above, the term 'natural' used in the context of landscape evaluation under RMA section 6(b) is not a direct term referring to the ecological intactness (e.g. EC C387/2011 – PC13 Mackenzie Basin) of an area. Rather it is inferring a visual or aesthetic view where a landscape might qualify as 'natural', i.e. it holds natural elements and patterns of colonising vegetation even though they might not be indigenous. To further assist in an assessment of the level of naturalness of a landscape, the Environment Court has recognised four criteria which assist with assessing naturalness (A78/2008, Long Bay – Okura Great Park Society v North Shore City Council):

- Relatively unmodified and legible physical landform and relief;
- The landscape being uncluttered by structures and /or obvious human influences;
- The presence of water (lake, river, sea); and
- The presence of vegetation (especially native vegetation) and other ecological patterns.

The first two criteria outlined above are necessary components of a natural landscape as they are indicators of human induced modification. However, the last two criteria are not essential as highly natural landscapes may have little or no water and vegetation cover in the absence of human modification. Notwithstanding this, it is accepted that the last two criteria may enhance naturalness in landscape terms, however their absence does not necessarily detract from naturalness.

In combination with the above, legibility forms a key factor considered when assessing sensory or aesthetic value. The Environment Court has defined legibility as "how obviously the landscape demonstrates the formative processes leading to it" (C180/99 – WESI vs QLDC); 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.

The criterion of legibility is closely linked to geological and geomorphological values. 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 processes that formed them may also have strong historical connotations and a distinctive sense of place. Legibility need not necessarily relate to 'attractiveness', but the ability to clearly discern its underlying formative processes is important.

Left: Aerial of Lake Te Anau looking south towards Fiordland. Boffa Miskell, 2018.

Cultural legibility is also vital component of landscapes where many centuries of human endeavour can be unravelled through studying the present landscape. This can also often reflect an imposed landscape aesthetic which has modified the way we appreciate our 'natural' areas. In New Zealand, this aspect of landscape has received only limited and belated attention and has led to increasing contemporary recognition of how modified our 'natural' landscapes really are.

Coherence forms a related aesthetic factor which can contribute to the value of a landscape. Coherence describes the way in which the visual elements or components of any landscape come together. People generally respond positively to a landscape they can read and understand. The patterns of land cover and land use are largely in harmony with the underlying natural landform pattern and there are no random or significant discordant elements resulting from conflicting land uses. Landscapes with high levels of coherence will have their visual elements in harmony which reinforce each other. They will have unity, whilst they may be either visually diverse or relatively simple in terms of their elements. They 'hang together' in terms of their composition.

Transient values encompass wild associations and 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'. This criterion is linked to those of the ecological values set and provide for the recognition of the contribution to wildlife – which may or may not have intrinsic scientific value – to the perception of landscape.

The consistent occurrence of transient features (for example the seasonal changes in the mountains or 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. Where these characteristics occur regularly they become a recognised and integral part of the landscape.

In summary, the key sensory and aesthetic aspects of landscape value include the following:

Legibility -
how obviously the feature or landscape demonstrates its formative processes

Naturalness -
the perception of the predominance of nature in the landscape

Vividness -
how striking or memorable an area of landscape is, including its role in the mental maps of a district or region

Coherence -
where land cover and land use appear in harmony with the underlying landform and there are no significant discordant elements

Transient values -
including presence of wildlife or other values at certain times of the day or year

ASSOCIATIVE ASPECTS

Certain natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to 'sense of place' leading to strong community association or high public esteem. There should be a substantial measure of agreement between professional and public opinion as to the value of natural features and landscapes, for example, as reflected through writings and paintings or through favourite locations for visitors. The presence of existing protected sites is also likely to reflect shared and recognised values.

Research has shown that many professional landscape assessments frequently reflect the views of the public (Kaplan, 1979). Some of the main tourist attractions in the district are often considered to be 'iconic landscapes' such as mountain ranges or coastal areas. Certain types of recreation destinations reflect the landscape resource. Conservation areas and popular recreation opportunities within them have been considered under this set of values. Scenic reserves and other protected areas reflect community recognition of an area's landscape quality affording them a high level of protection. Nonetheless, it is fully accepted that in some circumstances the expert's perceptions may be different and the findings of this assessment should be validated through community engagement.

Some natural features and landscapes are clearly special or widely known and influenced by their connection to Māori values. Such aspects are covered under the cultural and spiritual values for tangata whenua evaluation criterion. While publicly available, information was used to inform this aspect of the assessment. Where such values are identified, this may also add to increasing the significance attached to the sensory associations including the legibility, memorability and identity of Southland's landscapes and other related biophysical and aesthetic associations.

Cultural and historical values are based on traditional land uses such as gathering food and materials, traditional settlement patterns, 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 and this inevitably changes through time. 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. All landscapes are inextricably linked to historic processes.

In summary, the key associative aspects of landscape value include the following:

- Shared and recognized values
- Cultural and spiritual values for tangata whenua
- Historic and heritage associations

WHAT QUALIFIES AS 'OUTSTANDING'?

The Environment Court has endorsed the finding that the word 'outstanding' in 'outstanding natural features and landscapes' in section 6(b) means 'conspicuous, eminent, especially because of excellence' and 'remarkable' (C180 /1999 - WESI v QLDC p. 48). In general terms, outstanding natural features and landscapes will usually be so obvious that there is no further need for expert analysis aside from determining where the landscape or feature begins and ends (C180/1999 - WESI v QLDC p. 57).

The process of determining what is 'outstanding' acknowledges that not all landscapes or features need to rate very high in every factor to be considered outstanding, although this will depend on the landscape or feature under consideration. The evaluation process used to determine whether a landscape or feature qualifies as outstanding, adopts a threshold which ensures it clearly stands out as exceptional or remarkable, i.e answer the question "is this an outstanding natural landscape?" This maintains a nationally recognised standard in concluding whether a landscape (or feature) is an 'outstanding natural feature' or 'outstanding natural landscape'.

Regional Context and ONFLs

In discussing the appropriate reference when determining what is 'outstanding', the Man O'War Station Limited v Auckland Council High Court Decision (NZHC 767 (2015)) identifies that it is the protection of ONFL which is a matter of national importance and it is not just landscapes of national significance that require protection. It also determines that such judgements are not undertaken on a national basis and there is no need to apply a national comparator to determine this threshold. The High Court also notes that the identification of ONLs has developed through divisions of the Environment Court considering the issue on a regional or district basis as an appropriate reference.

Below: View of Te Waewae Bay from Hump Ridge. Boffa Miskell, 2018.



Consistent with the above, the study has applied the following reference:

> *"The evaluation process used to determine whether a landscape* ***or feature qualifies as outstanding, adopts a threshold which*** *ensures it clearly stands out as exceptional or remarkable in the* ***context of the Southland Region."***

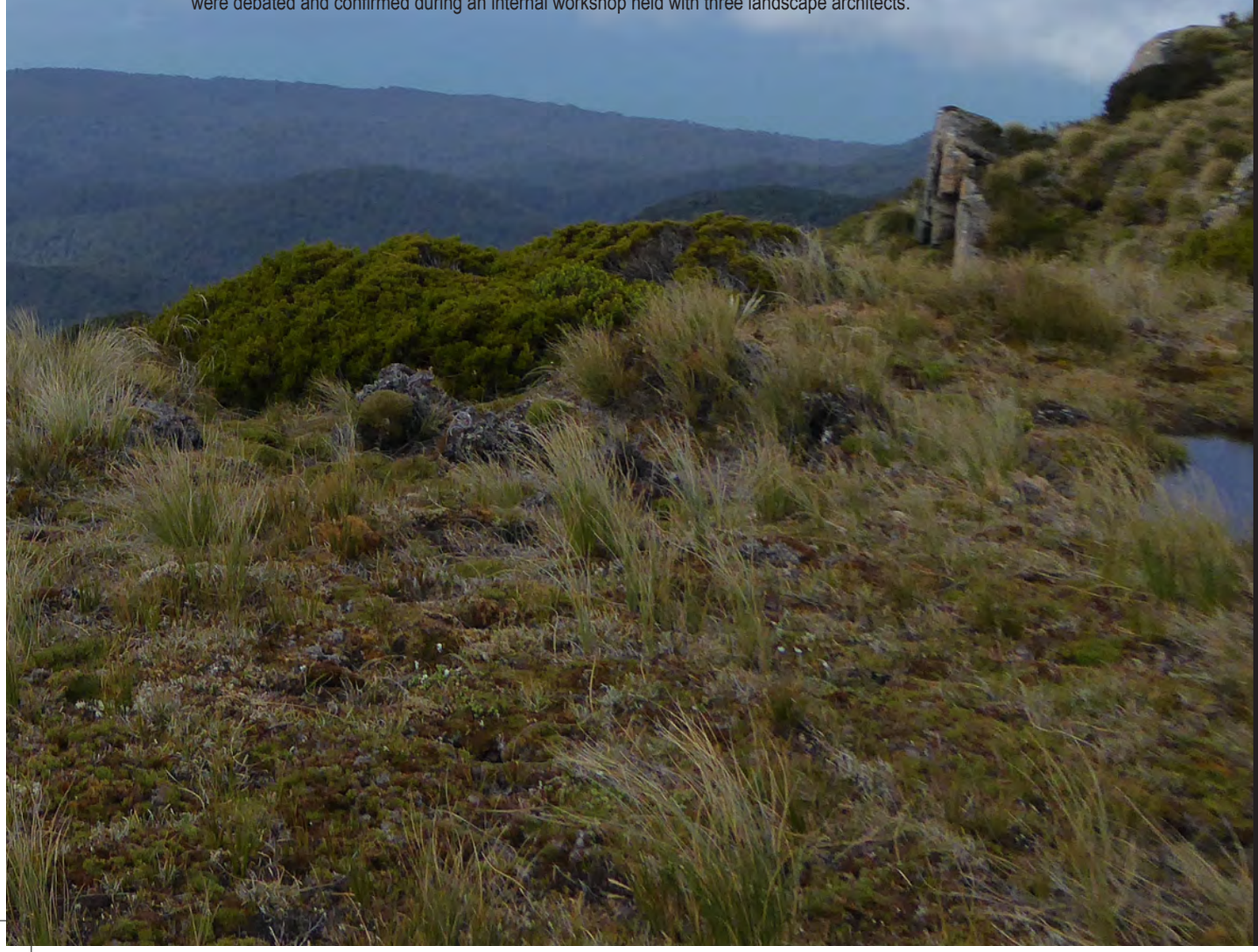
A land form approach was used to identify outstanding natural landscapes and features, with the definition of outlines generally undertaken at a scale of 1:25.000. While GIS allows the viewer to zoom in and assess the exact location of land type boundaries, they are meant to be viewed in the context of surrounding broad geographical features and not a site scale.

In this study, a broad scale geomorphological approach has been taken and landcover and land use were secondary considerations. In some locations, if there was a significant contrast in naturalness of land cover along an ONL boundary, such as adjacent to urban, intensively modified pasture or forestry areas, the land cover was given more weight than the landform. This also applies in low land sections of major rivers, where the ONL boundaries were drawn to include the river bed and banks, while historic floodplains were excluded.

Typically land type boundaries were followed, where ONL areas included mountain ranges, but excluded the adjacent flats or plains. In these instances, which occurred most frequently, the boundary outline followed the base of the range/ mountain.

Where basins or upper river valleys were part of an ONL a (visual) catchment approach was sometimes taken. This means that the slopes containing a valley or basin were identified as part of such an ONL up to the ridgeline.

The ONL areas identified in this study were mapped at a scale, where spatial relationships between different landscape types become apparent. The accuracy of boundaries reflects this broad assessment scale (based on NZ maps scale 1:50.000 and aerial photos a 1:25.000), comparable to the view of the region from a plane. The spatial extent of ONLs is primarily based on findings from the GIS desktop analysis and only limited site investigations (flight and targeted on-site assessments). The ONF/L outlines were debated and confirmed during an internal workshop held with three landscape architects.



WHAT IS 'NATURAL'?

In terms of section 6(b), a natural feature or landscape is understood as one which possesses a dominance of natural elements, patterns and processes over those created by humans. The Environment Court has endorsed this view, stating that the word natural does not necessarily equate with the words 'endemic' or 'pristine' (C180/1999 WESI v QLDC p. 51).

Consistent with previous Environment Court direction, a natural landscape or feature must be assessed as 'natural enough' to qualify as an 'outstanding natural landscape' or an 'outstanding natural feature'. For this assessment, such 'natural' features or landscapes will be predominantly characterised by unchanged landforms, functioning waterways/sea, drainage and soil processes and tree, plant and animal patterns, compared to areas where development such as buildings, earthworks, vegetation modification, fencing, roads, quarries, reclamations or subdivision prevail. This takes account of both biophysical landscape attributes relating to landscape condition together with sensory attributes relating to people's perception of naturalness.

In the Mackenzie Basin Interim Decision (C387/2011) the Environment Court 'provisionally endorsed' the use of a scale of naturalness in quantifying the degree of naturalness which occurs (but subject to a caveat about naturalness being a cultural construct rather than a scientific term). The Environment Court viewed the concept of applying such a scale as having potential to standardise references to the degree of naturalness. In accordance with this direction, a feature or landscape must be considered to have at least a moderate-high level of naturalness (based on the seven-point scale used in this assessment) to ensure it is 'natural enough' to qualify as an 'outstanding natural landscape' or 'outstanding natural feature' in accordance with Section 6 (b).

In applying the definition of 'natural' which has been interpreted under RMA section 6(b), the Environment Court has also cautioned that an outstanding natural landscape is not necessarily an 'outstandingly natural landscape' (ENV 432/ 2010 Upper Clutha Tracks). An area of landscape without exceptional biophysical or aesthetic naturalness values, may continue to be identified as an outstanding natural feature or outstanding natural landscape simply because other sensory / aesthetic or associative landscape attributes are so remarkable that they lift the landscape or feature into this category.

HOW IS USE AND DEVELOPMENT CONSIDERED IN NATURAL AREAS?

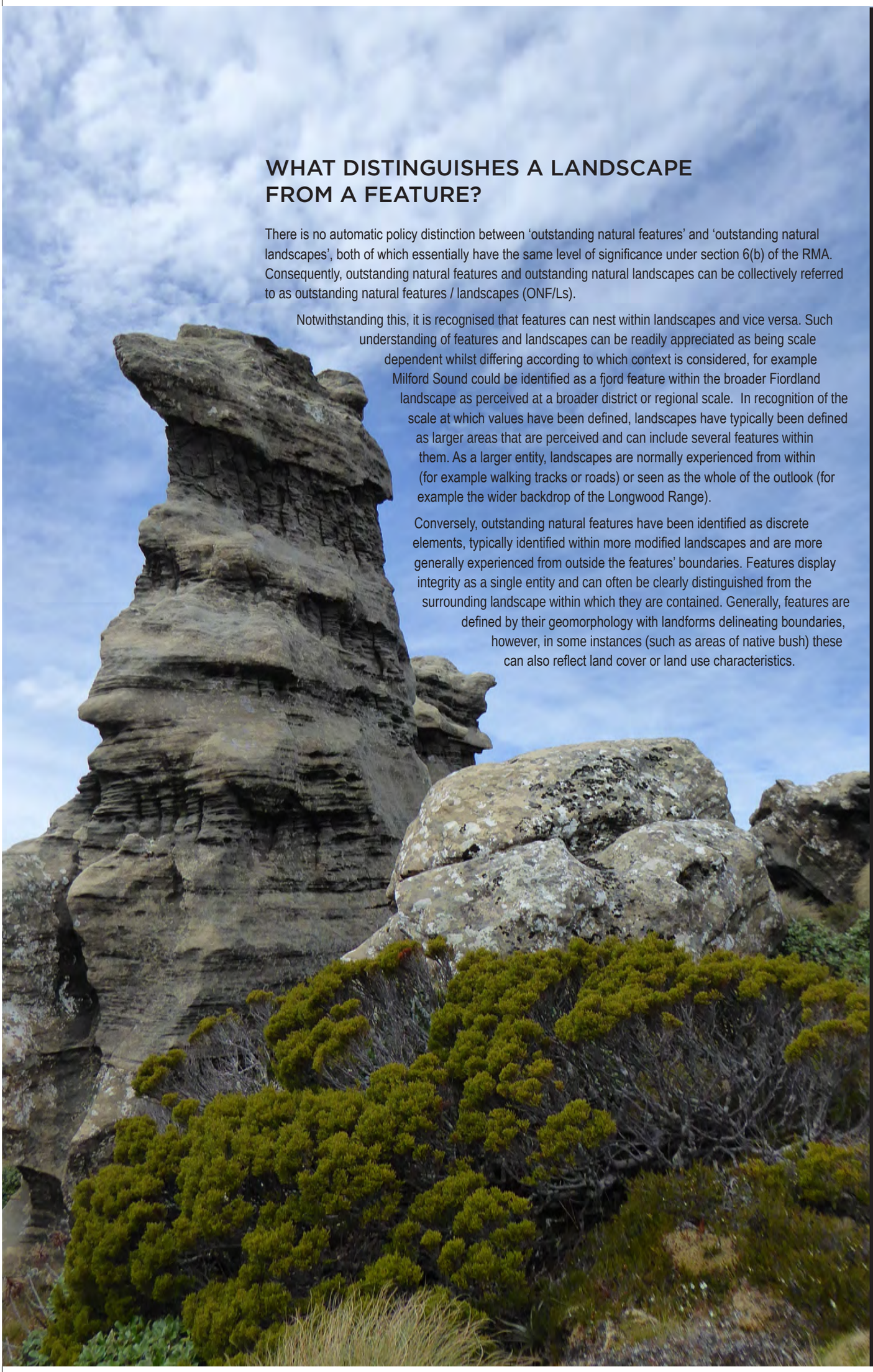
It is acknowledged that Outstanding Natural Landscapes vary internally in landcover and landscape quality. Where small settlements occur in the ONL area (for example Milford Sound), they may not provide the outstanding natural qualities displayed in the wider ONL, but may be too small to be excluded at a landscape-wide scale.

The perception of naturalness also takes the landscape context into account and therefore some landscapes and features close to urban development, such as near Invercargill or Te Anau, may be appreciated more than in a largely unmodified context.

The study brief highlighted that it was important to identify 'outstanding natural features and landscapes' in the regional context. The focus was not therefore on a detailed, site-specific analysis, but rather on large-scale landscape patterns.



Right: Weathered rock formation. Boffa Miskell, 2018.



WHAT DISTINGUISHES A LANDSCAPE FROM A FEATURE?

There is no automatic policy distinction between 'outstanding natural features' and 'outstanding natural landscapes', both of which essentially have the same level of significance under section 6(b) of the RMA. Consequently, outstanding natural features and outstanding natural landscapes can be collectively referred to as outstanding natural features / landscapes (ONF/Ls).

Notwithstanding this, it is recognised that features can nest within landscapes and vice versa. Such understanding of features and landscapes can be readily appreciated as being scale dependent whilst differing according to which context is considered, for example Milford Sound could be identified as a fjord feature within the broader Fiordland landscape as perceived at a broader district or regional scale. In recognition of the scale at which values have been defined, landscapes have typically been defined as larger areas that are perceived and can include several features within them. As a larger entity, landscapes are normally experienced from within (for example walking tracks or roads) or seen as the whole of the outlook (for example the wider backdrop of the Longwood Range).

Conversely, outstanding natural features have been identified as discrete elements, typically identified within more modified landscapes and are more generally experienced from outside the features' boundaries. Features display integrity as a single entity and can often be clearly distinguished from the surrounding landscape within which they are contained. Generally, features are defined by their geomorphology with landforms delineating boundaries, however, in some instances (such as areas of native bush) these can also reflect land cover or land use characteristics.

OUTSTANDING NATURAL FEATURES AND LANDSCAPES

In summary, based on the above definitions and thresholds, an outstanding natural feature (ONF) or outstanding natural landscape (ONL) must be:

- exceptional and out of the ordinary; and
- natural components must dominate over the influence of human activity

The reason a feature or landscape may stand out as exceptional may result from a range of natural science, sensory or shared and recognised landscape factors. Accordingly, one such attribute must rate very high to ensure this can stand out as exceptional in the context of the Southland Region. In addition, biophysical aspects which contribute to recognition of a natural feature rate at least moderate-high, ensuring the landscape is natural enough.

In summary, the threshold used to identify Proposed ONF and ONL must (as set out in the diagram below):

- Rate at Very High in biophysical attributes; or sensory attributes; or associative attributes.
  and
- Rate at least High in biophysical and sensory attributes to be natural enough

CRITERIA

'Exception or out of the ordinary'

'natural components must dominate over the influence of human activity'

ONL OR ONF THRESHOLDS

1. 'Very high' in at leaat one attribute



2. At least 'Moderate - High' to be natural enough



Landscapes or features that do not qualify as ONFs or ONLs can nonetheless qualify for protection under other clauses in section 6 of the RMA. Thus, for example, areas of landscape within the coastal environment or wetlands, rivers lakes and their margins that are not identified as 'outstanding' would still be required to have their 'natural character' preserved under RMA section 6(a). In addition, areas of significant indigenous vegetation and significant habitats of indigenous fauna would continue to be protected under section 6(c), as would the relationship of Māori and culture and traditions with ancestral lands, water, sites, waahi tapu, and other taonga 6(e); and historic heritage 6(f).

VISUAL AMENITY LANDSCAPES

Outside of ONLs, this study has also identified 'visual amenity landscapes' (VAL) acknowledging the importance such landscapes make to amenity values (section 7(c) of the RMA) and/or the quality of the environment (section 7(f) of the RMA). In short, such landscapes may not make the necessary thresholds of 'outstanding' or 'natural' but continue to require particular regard under section 7 of the RMA.

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 RMA.

In recognition of the extra quality which VALs possess, such landscapes must express important sensory attributes that contribute to their visual amenity which are recognised in the community. Accordingly, this requires both 'sensory' and 'associative' attributes to rate at least 'high'. In the context of this study, visibility is not in itself a criterion for a landscape to qualify as a VAL. Where visible, VALs must also contribute to widely recognised sensory values which may include prominence because it:

- is adjacent to an outstanding natural feature or landscape;
- includes important ridges or hills;
- provides for recreational activities;
- accommodates important scenic roads; or
- a combination of the above.

Sensory values form a key factor which leads to landscape appreciation and subsequent identification as a VAL. Whilst VALs may qualify as 'outstanding' in terms of sensory attributes, such areas may also be insufficiently 'natural' to qualify as an ONL. Accordingly, 'biophysical' attributes need not achieve any necessary threshold to be recognised as a VAL, acknowledging human activity can strongly influence amenity values and landscape character. Notwithstanding this, biophysical factors which remain may continue to contribute important landscape values.

Combined with sensory values, associative values take account of how a landscape is likely to be valued by members of the community. This aspect of the study adopts a professional expert approach which considers how landscape values likely contribute to 'sense of place' through strong community associations. Where associative values are identified, the sources of such values are referenced, including identification of historic artefacts or recorded cultural associations. As identified above, there are plans to undertake a Southland region-wide cultural assessment which will enhance an understanding of relevant associative values together with consultation on the findings of this assessment as part of the plan review.

As with ONL, all VALs must also be of a sufficient scale to be recognised as a landscape. Accordingly, to qualify as a landscape it must comprise of a larger entity that is normally experienced from within or seen as the whole of the outlook.

In summary, the threshold used was that a VAL must:

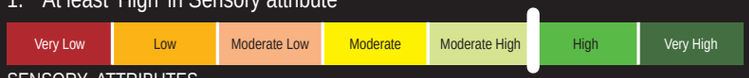
- Be of a scale to be considered a landscape;
- Rate at least High in sensory attributes; and
- Rate at least High in associative attributes.

CRITERIA

'distinctive, recognised & valued by the community for its contribution to the amenity and quality of the environment'

VAL THRESHOLDS

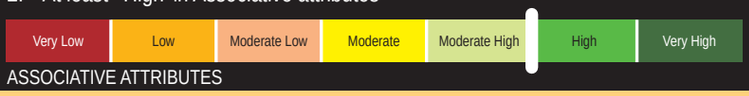
1. At least 'High' in Sensory attribute



SENSORY ATTRIBUTES

and

2. At least ' High' in Associative attributes



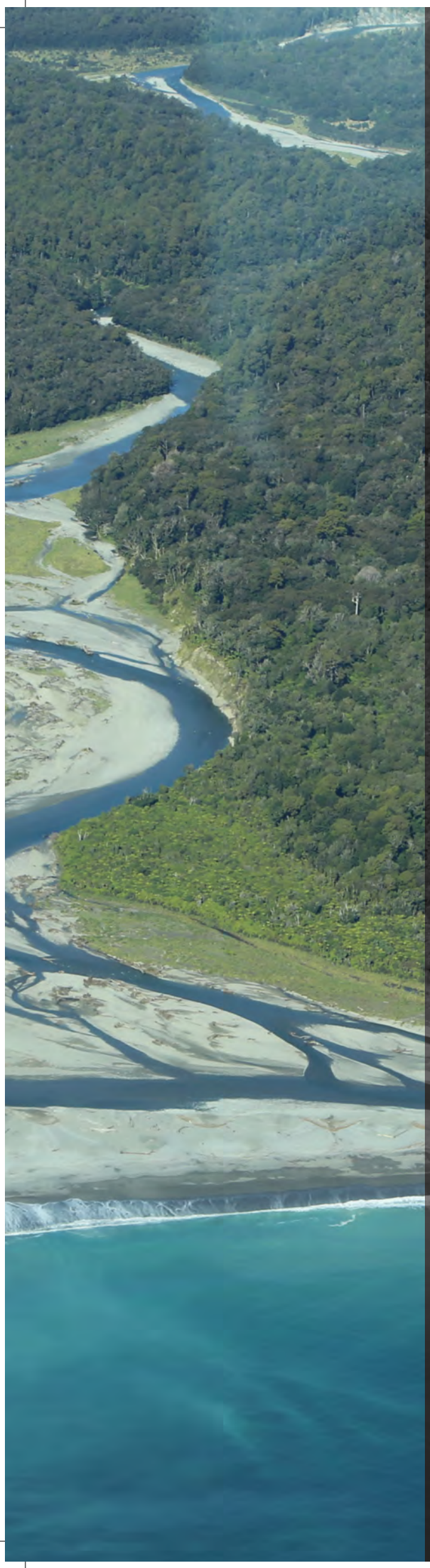
ASSOCIATIVE ATTRIBUTES

GIS DATA FOR LANDSCAPE CHARACTERISATION AND EVALUATION

Relevant GIS information that has been used to inform the landscape characterisation and evaluation, included:

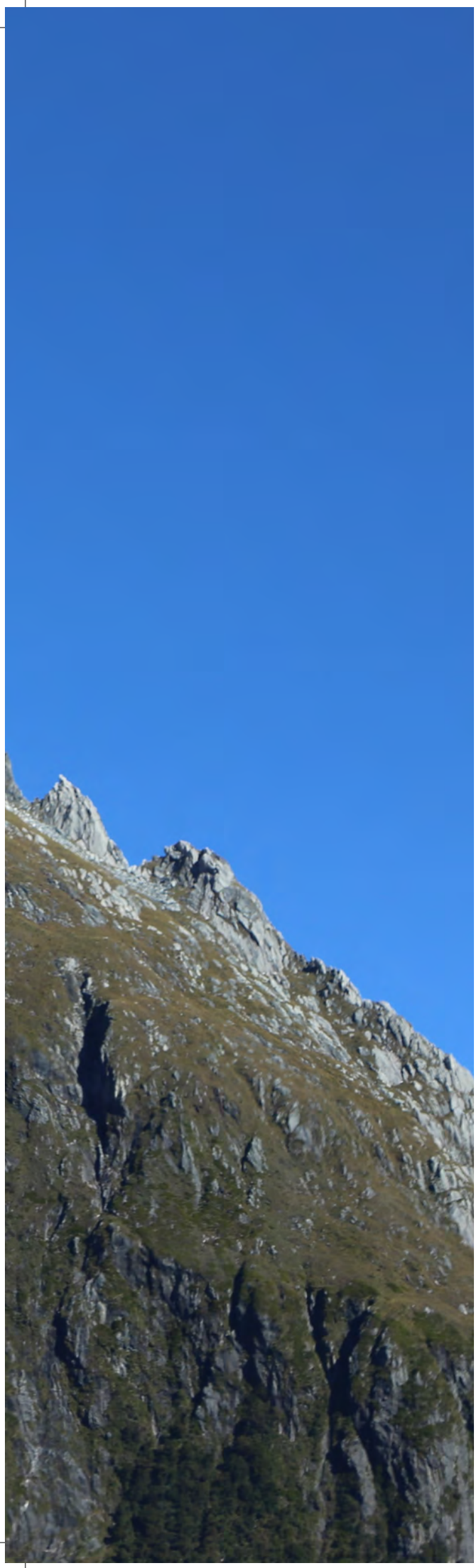
- Topographical Maps (LINZ)
- Digital contour information at 20 meter intervals (LINZ)
- Land Cover Database 4 (Terralink, based on 2012/2013 aerials)
- Aerial Photography
- Geology (NZLRI)
- Soils (New Zealand Land Resources Inventory)
- Geopreservation Sites and Areas (Geological Society of New Zealand)
- Heritage Sites (New Zealand Historic Places Trust)
- Public Conservation Land (Department of Conservation managed)
- Ecological Regions and Districts (Department of Conservation)
- Ngai Tahu Claims Settlement Act Tribal Property (tbc)
- Ngai Tahu Claims Settlement Act Statutory Acknowledgement Area (tbc)
- Māori Land Online for Māori land block information
- New Zealand Archaeological Association for archaeological sites
- Elevation and Slopes





APPENDIX 2 GEOPRESERVATION SITES IN SOUTHLAND/ MURIHIKU REGION





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 (1998))** Inventory and Maps of Important Geological Sites and Landforms in the Southland Region (Geological Society of New Zealand Miscellaneous **Publication 98) 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 Southland/Murihiki Region there are 161 recognised sites of geological importance, ranging from geological faults, volcanics, fossils and Māori rock drawings. 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 in Appendix four, Figure 60.

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 (1-4) 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;

Appendix 2 Cover page: Mouth of the Kaipo River Fiordland. Boffa Miskell, 2018.

Left: Steep, rocky cliff formation, Fiordland. Boffa Miskell, 2018.

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Alpine Fault, Hokuri Creek	Excellent exposures and traces of Alpine Fault, with good stratigraphuic and topographic control.	C	3
Alpine Fault, Kaipo River	Excellent exposures and traces of the Alpine Fault with good stratigraphic and topographic controls.	C	3
Anchorage Cove Springs		C	2
Arthur River delta	A good example of a lacustrine birdsfoot delta.	C	3
Awarua River catchment capture, northern Fiordland	An excellent example of catchment capture, in this case due to uplift along the Alpine Fault.	C	3
Balloon Loop river meander, Te Anau	Excellent example of a cut-off river meander.	C	3
Barracouta Point gabbro	Spectacular exposures of layered gabbroic rocks.	C	3
Big Bay dune sequence and Waiuna Lagoon, northern Fiordland	The most comprehensive dune sequence in northern Fiordland, similar to those in South Westland and slightly more extensive than the dune ridges 14 km SW in Martins Bay. Waiuna Lagoon is the largest dune-dammed lake in Fiordland and southern Westland.	C	3
Blue Cliff Miocene fossils, Te Waewae Bay	Moderately diverse Kapitean fauna.	C	3
Braida Crags limestone bluffs, Feldwick	Best example of limestone bluff (occasionally fluted) in western Southland, easily visible from Ohai-Clifden Highway (SH 96).	C	2
Chimney Peaks ridge pillow lava	Well exposed pillow lava and pillow breccia sequence.	C	3
Clifden limestone bluffs	Best, easily accessible karst features in Southland and one of the most diverse karstic landscapes in southern half of the South Island.	C	2
Coal River mouth sandspit, southern Fiordland	Only significant barrier spit and dunes in southern Fiordland.	C	3
Croydon clinker	Representative example of thermally metamorphosed sediments associated with naturally burnt coal in Southland.	C	2
Diorite Stream hanging valley	A good example of a hanging valley.	C	3
Donne Glacier roche moutonnee and glacierised surfaces	Examples of roche moutonnee and glacierised surfaces which are undisturbed by NZ standards.	C	3
Doubtful Xanadu Cave, Doubtful Sound, Fiordland	Best example of a marble cave in Fiordland. Notable speleothems.	C	2
Earl Mountains Cenozoic sequence	Complete sequence through lower half of Te Anau Basin Cenozoic succession. Type section for Earl Mountains Sandstone. Spectacular scarp exposures along crest of range.	C	3
Forest Hill karst, Winton	Isolated limestone outcrops with spectacular solution weathering. Small pitfalls contain common avifaunal fossils.	C	2
Freestone Hill limestone bluff, Manapouri	Only karstic limestone in the Manapouri area. One of the most impressive limestone bluffs in Southland.	C	2

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Haldane Bay dunes and dune-dammed lake	An easily accessible example of a remnant area of sand dunes and wetlands that is being remobilised and eroded. A small valley has been dammed by dune sand, creating a 2 km-long lake (The Reservoir).	C	3
Haldane estuary	A good representative example of a Southland estuary.	C	3
Hyde Rock solifluction stripes	Excellent example of solifluction stripes	C	3
Iris Burn Slip, Kepler Track	Excellent example of a huge recent rockfall from the steep side of a glacial valley.	C	3
Jacobs River double estuary, Riverton	Westernmost and most unusual of Southland's large tidal estuaries and lagoons; it is a double estuary, pinched off between the Pourakino Arm and the main Jacobs River Estuary at 'The Narrows'.	C	2
Kaherekoau aegirine	A good example of a mineral rare in New Zealand.	C	3
Kershaw to Coal Creeks ridge intrusion	Well exposed shallow gabbro intrusion.	C	3
Kingston terminal moraine and spillway channel	An accessible good local example of terminal moraine, and a well-defined example of an uncommon lake overflow spillway channel.	C	2
Knobs Flat slump mounds	Easily accessible debris mounds from a large valley wall collapse.	C	2
Kowhai Creek Triassic fossils	Well-preserved Triassic (Kaihikuan) macrofossil fauna.	C	3
Lake George, Kawakaputa Bay, Riverton	Shallow lake impounded by Pleistocene (last interglacial) terrace deposits and parabolic dunes. An unusual feature along this western Southland coastline.	C	3
Lake Hakapoua debris dam and relict fiord	Only fiord along the south coast of Fiordland. Debris dam from earthquake generated rockfall, in 1915 partly blocks the outlet.	C	3
Lake Harris and staircase of cirques	Excellent and easily accessible example of a cirque lake (Lake Harris) as part of a staircase of cirques along Routeburn Track.	C	3
Lake Hauroko fault scarp	Fault scarp that displaces Holocene (and older) surfaces in the Wairaurahiri valley (N side up). Example of late Quaternary faulting in eastern Fiordland.	C	3
Lake Marian, Darran Mountains	Excellent example of a tarn in a classic U-shaped hanging valley visible from Milford Rd.	C	3
Lake McKerrow dune-dammed fiord	An unusual landform in Fiordland. Lake McKerrow is a former fiord no longer open directly to the sea and partly blocked by a sand dune barrier; but still connected by a tidal river.	C	3
Luxmore Cave, Te Anau	Largest of Mt Luxmore caves, and best representative example of these alpine caves.	C	3
MacLean Peak basalt and andesite type section	Type section of the MacLean Peak Formation, basalt to andesite flows.	C	3
MacLean Peak pillow lava	Interesting features within a pillow lava flow.	C	3
Mararoa River Permo-Triassic Maitai Group sediments	Excellent exposure of Upukerora Breccia and Waiau and Stephens Formations, Maitai Group.	C	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Martins Bay spit, dune sequence and wetlands, northern Fiordland	At 3 km in length, by far the longest sandspit along the Fiordland and southern Westland coastline. Associated with a contemporary dune complex merging landward into relict foredune ridges and intervening swamps, including McKenzie Lagoon.	C	3
Mataura River barrier-enclosed estuary (Toetoes Harbour)	One of the few remaining natural dune systems along an estuary-enclosing spit on the southern Southland coast. Rare deltaic deposits within an estuary.	C	2
Monkey Creek hanging valley	A well defined hanging valley.	C	3
Monowai Suspension Bridge Oligocene flysch	A good exposure of mass flow breccia and flysch for educational purposes.	C	4
Moonlight Fault backtilted terrace	Excellent example of post-glacial backtilting of late Quaternary terrace surface.	C	3
Mossburn serpentinite quarry	Excellent exposure of serpentinite melange.	C	2
Murchison Mountains granodiorite tors	An area of many spectacular granodiorite tors.	C	3
Narrow Neck Isthmus, Fiordland	One of the narrowest and lowest altitude isthmuses in Fiordland separating a region as large as Resolution Island from its hinterland.	C	3
New River Estuary, Invercargill	An example of the rescue of a tidal estuary by a local body-initiated restoration scheme.	C	2
Omaui Island polished cliffs, Bluff	Spectacular polished coastal cliff faces.	C	3
Oraka Point intrusions	Type location of Oraka Hybrids containing basic xenoliths. Good coastal exposures. Remarkable example of the assimilation of basic rocks by a high-level granitic magma.	C	3
Orepuki oil shale pit	Only oil shale in New Zealand worked specifically for oil.	C	3
Pahia Point layered mafic rocks and shore platform potholes	Type location of Pahia Intrusives. Well defined shore platforms with excellent examples of potholes.	C	3
Pears Track Triassic fossils	Good Triassic (early Oretian) macrofauna.	C	3
Port Craig Tertiary sequence	Magnificent example of submarine turbidites (Oligocene) overlain unconformably by a nearshore bioclastic limestone/breccia sequence (Pliocene). Regionally significant unconformity of Late Miocene age, reflecting progressive uplift of Hump Ridge horst dur	C	3
Potters Graben	One of the best examples of quartzose 'cover' sediments preserved on the uplifted peneplain of Central Otago.	C	2
Preservation Inlet hornfels	Well-exposed example of horfelses and contact schists.	C	3
Redcliff Creek section, Takitimu Mountains	Type section of the Brunel Formation, volcaniclastic sediments and basaltic lava flows.	C	3
St Anne Point gneiss	Excellent example of well exposed quartzo-feldspathic, garnetiferous gneiss, locally with marble or calc-gneiss.	C	3
Staircase Falls, Milford Track	Excellent and easily accessible example of a staircase waterfall.	C	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Sutherland Sound fiord	Unusual fiord landform because it does not open directly to the sea; it is only connected to the sea by a tidal river.	C	3
Te Anau erratic boulder	An isolated 3 m erratic boulder sitting on the flat outwash surface beside the road providing evidence of a former extensive glacier about 100,000 years BP. Interpreted to be a lag deposit from a moraine related to an extensive glacier.	C	1
Te Anau South Fiord sedimentary sequence	Well exposed Oligocene-Miocene sequence typical of the west margin of Te Anau Basin, with excellent cross-bedding and cyclic sedimentation.	C	3
Teahimate Bay creviced headland, Catlins coast	One of the best sections of the ragged, creviced Catlins coast, formed by the truncation of steeply-dipping strata of the Southland Syncline as it is eroded by the sea.	C	3
Three Sisters steep dunes, Bluff	An example of how wind-blown sand can transgress steep topography in southern New Zealand. Spectacular wind erosion of rock exposures and stonefields.	C	2
Waiau Cave, Clifden	Isolated lowland cave.	C	1
Waiau River Miocene deep-water fossils	Well-preserved, diverse, bathyal, middle Miocene (Waiauan) fossil macrofauna.	C	3
Wairaki Hills Triassic fossiliferous volcaniclastics	The most fossiliferous and diverse early middle Triassic locality in New Zealand.	C	3
Wairaki Peaks rhyodacitic tuff	Good example of a Permian rhyodacitic Plinian-style tuff.	C	3
Wairaki Peaks, Heartbreak Formation igneous section	Type section of the Heartbreak Formation, microgabbro and basaltic lavas, pillow lava and breccia.	C	3
Wairaki River fault trace	Excellent regional example of a Late Quaternary fault scarp.	C	3
Waituna Miocene lignite pit	Lignite pit, type locality for pollen species.	C	3
West Plains igneous basement	Only exposure of Bluff/Greenhills Igneous Complex in extensive West Plains area. Important for understanding geology of the region.	C	1
Winton Hills tomos	Best examples in an extensive area along a ridgeline of small dolines and pitfalls, otherwise rare in Southland. Contain common avifaunal fossils.	C	2
Abyss Creek Triassic fauna	Together with Coal Creek, only richly fossiliferous early Triassic in New Zealand.	B	3
Anita Bay bowenite and dunite mylonite	Excellent examples of gem-quality serpentine (bowenite) and of mylonitised dunite in-situ.	B	2
Beaumont Stream and quarry Triassic fossils	Endemic, in-situ Etalian fauna with ammonites used in international correlation (quarry). Also holostratotype of Etalian Stage in stream section.	B	3
Ben Bolt Jurassic fossils	Richest and most diverse Aratauran (Jurassic) fossil fauna in New Zealand.	B	3
Birch's Mill Pliocene shellbed	Very diverse macrofauna. Only good Pliocene fauna in southern South Island.	B	3
Bluff and Tiwai Point hornfels	Well-exposed hornfelses associated with norite intrusion.	B	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Bluff double estuary coastal features	Largest estuaries and spit on the South Island's south coast, with excellent examples of coastal features including flood-tidal deltas, tombolos, wetlands and one of the most extensive series of beach ridges in the country.	B	2
Bowen Falls and Darran Complex	Very well-exposed meta-igneous rocks with amphibolite facies overprint (example of passage from Darran Igneous Complex to Harrison Formation layered gneisses). Highest waterfall in New Zealand that plunges directly into the sea (162 m).	B	3
Browne Falls	Highest cascading waterfall in New Zealand falling into the sea. Their drop of 836 m would make them ninth highest waterfall in the world except that they are a cascade rather than a true waterfall.	B	3
Brydone Oligocene molluscan fossils	Very diverse Oligocene (Waitakian) molluscan fossils.	B	3
Cape Providence graptolite-rich Ordovician black shales	Exceptionally well exposed black shale - turbidite associaton, important biostratigraphic section through lower Ordovician graptolite-rich rocks, important for understanding Ordovician paleoenvironments.	B	2
Caroline cutting Triassic fossils	Rich and diverse Triassic (Kaihikuan) brachiopods and bivalves. Historically important type locality for brachiopod species described by Trechman.	B	3
Castle Rock karst, Dipton	Best karstic limestone bluff in Southland. Spectacular limestone ridgeline with one of the most impressive development of castle-like ramparts in Tertiary limestone in New Zealand. Easily viewed from main road. One of the most significant avifaunal sites	B	2
Chalky Island shore platform, Fiordland	Most extensive shore platform of jagged strata on the west coast of New Zealand south of Kawhia Harbour.	B	3
Chalky Island submarine canyon and fan deposits	Excellent exposures of canyon and rise sediments related to Oligocene shelf-edge environments. Some of best submarine canyon deposits in New Zealand.	B	3
Cleddau Chasm	A well defined and easily accesible gorge.	B	3
Coal Creek Triassic fossils	One of only two, richly fossiliferous early Triassic sites in New Zealand. Holostratotype of Malakovian Stage.	B	3
Conical Hill Jurassic brachiopod fossils	Diverse lower Ururoan (Jurassic) brachiopod fauna. Type locality of several taxa.	B	3
Curio Bay Jurassic fossil forest	Best example in New Zealand of a fossilised Jurassic forest.	B	1
Doubtful Sound fiord	Deepest and second longest fiord in New Zealand.	B	3
Doubtful Sound gneisses	Well-exposed high grade gneisses of both sedimentary and igneous origin.	B	3
Dusky Sound fiord	Longest and one of the most complex fiords in New Zealand.	B	3
Eglinton River delta, Lake Te Anau	An actively prograding river delta in a lake, a good example with easy access.	B	3
Gair Loch debris dam	A good example of many such features in the district.	B	3
Garvie Mountains glacierised peneplain	The best example of transitional glaciated terrain between east and west Otago, best example of glaciated uplifted peneplain in Central Otago and a good example of structural controls on glaciation.	B	3
George Sound orthogneiss	Excellent representative section of exposures of large and variable granulite basement of igneous origin.	B	3
Goose-Woodhen Isthmus, Resolution Island	One of the smallest, most low-lying isthmuses in New Zealand, separating two U-shaped coves that were once glaciated valleys. Now almost cuts Resolution Island in two.	B	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

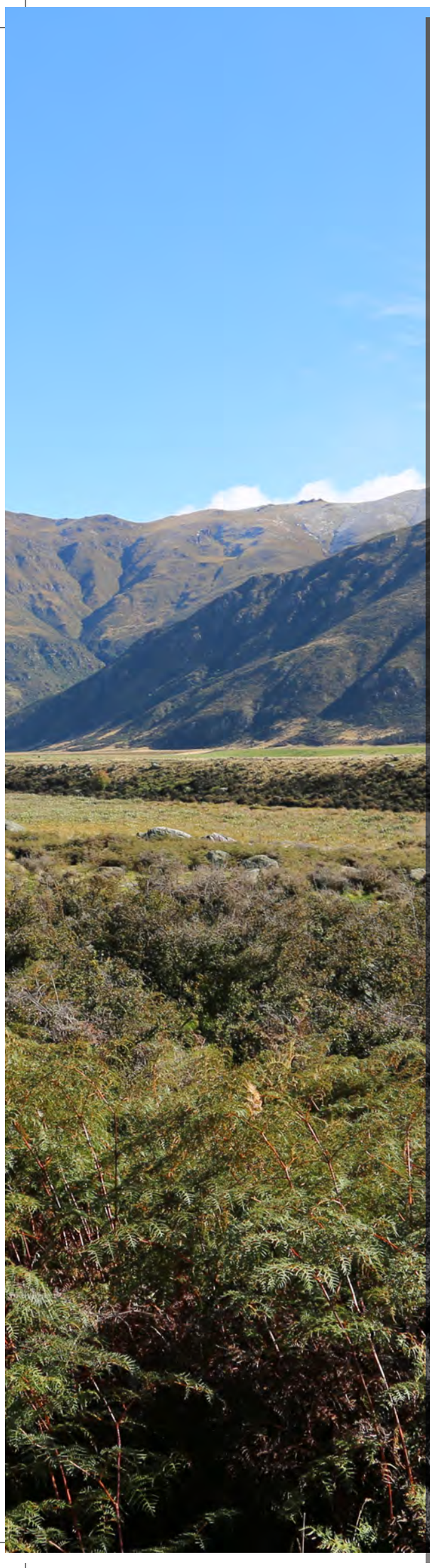
NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Green Islets wave-cut notches	A spectacular set of wave-cut notches, caves and arches.	B	3
Greenhills ventifacts, Bluff	Some of largest and best developed ventifacts in New Zealand	B	1
Heale Ridge Jurassic fossils	Very rich, shallow marine bivalve and brachiopod fauna. Unique New Zealand locality for several bivalve genera.	B	3
Helmet Hill to Goldie Hill karst	Pristine active and fossil karstic landscape in virgin forest, with potential for future discovery of major cave systems and significant fossil avifauna.	B	2
Hokonui Hills strike ridges	Some of New Zealand's most distinctive strike ridges and trellised drainage pattern.	B	3
Homer Saddle glacial features	A collection of well defined glacial features, the Homer Saddle being of particular historic importance as the only direct inland crossing to Milford Sound.	B	3
Howells Point pillow lavas	Pillow lavas and pumpellyite mineral location.	B	3
Humboldt Falls	Highest falls in New Zealand.	B	3
Kellard Point marble	Well-exposed marble in central Fiordland high-grade gneisses.	B	3
Key Summit Permian lower Maitai Group meta-sediments and syncline	Best, easily accessible outcrops of lower Maitai Group lawsonite-bearing, low temperature/pressure slate. Includes an unusual occurrence of sodic-amphibole, an indicator of high pressure, low temperature metamorphic condition. A good exposure of a syncli	B	2
Kisbee Bay Ordovician biostratigraphic section	Important biostratigraphic section through lower Ordovician graptolite-bearing rocks.	B	2
Lake Adelaide rockfall	New Zealand's best example of a rockfall. Covers a large area with a depression in behind.	B	3
Lake Erskine, Earl Mountains	A text book example of a large tarn.	B	3
Lake Quill cirque and Sutherland Falls	An extremely scenic cirque lake (approximately 1 sq km) at high elevation, with an outlet direct to a magnificent high waterfall.	B	3
Landslip Hill landslide and mid-Tertiary plant beds	Unusual sedimentary environment of plant beds well-preserved in silcrete and an excellent example of a landslide.	B	2
Letham Ridge thrust zone and melange	The best regional exposure of a terrane boundary and one of the best examples of a mudstone melange in New Zealand.	B	3
Mataura Falls and plant beds	Spectacular falls and narrow gorge together with historic site of description of rich Jurassic plant fossils. Type locality of one species.	B	3
Mavora Lakes glacial swamp and lake	Excellent example of a moraine-dammed lake and swamp.	B	3
Mavora Lakes vuagnatite	Only in situ occurrence of vuagnatite in New Zealand.	B	3
Milford Sound fiord	Best known and most accessible of the breathtaking fiords in Fiordland.	B	3
Mitre Peak	Spectacular glacially-carved mountain peak with high tourist value.	B	3
Mokomoko Inlet Permian sedimentary rocks	Exceptionally well preserved Early Permian sea floor sedimentology and trace fossils.	B	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Morley Bridge quarry Triassic macrofossils	Good Etalian macrofauna.	B	3
Mossburn Permo-Triassic fossiliferous volcaniclastic sequence	Only example of Maitai Group rocks in the region. Diverse late Permian fauna. Allochthonous material in the exposure.	B	2
Newton River fossil sea arch, West Cape	The best example of a number of fossil coastal stacks and arches preserved on a 120 000-year-old marine bench between West Cape and Cape Provenence, Fiordland. One of the only examples of a fossil sea arch in New Zealand.	B	1
North Range metasomatites	An excellent example of low-temperature metasomatites.	B	3
Old Woman Range patterned ground and solifluction stripes	A collection of large hummocks and solifluction stripes.	B	2
Oreti River (east) Triassic fossils	Rich fossil fauna and lower part of the holostratotype of New Zealand Oretian Stage (Triassic).	B	4
Otamita Stream Triassic fossils and stratotype	Stratotype of New Zealand Otamitan Stage (Triassic). Very well-preserved fossil material.	B	3
Otamita Valley Rd sequence	Stratigraphic section through Taringatura Group, with well exposed sedimentological features at various horizons.	B	4
Otapiri Stream Triassic stratotype	Holostratotype of Otapirian Stage. Diverse fossil faunal assemblage. Type locality of endemic Otapirian fauna. Nationally important exposure of Triassic-Jurassic boundary.	B	3
Productus Creek laumontite	An unusually well developed example of replacement of fossils by laumontite - one of the best examples in New Zealand.	B	3
Productus Creek Permian fossils, Letham Burn	Holostratotype of Braxtonian Stage.	B	3
Pyke Valley asbestos	One of best examples in New Zealand of an asbestos deposit.	B	3
Shell Gully Oligocene fossils	Diverse, well-preserved Oligocene (Duntroonian) fossil molluscs.	B	2
Silver moraine wall	A spectacular example of a moraine wall.	B	3
Southern Fiordland uplifted marine terraces	The best preserved sequence of uplifted marine terraces in New Zealand, Documenting the Quaternary uplift history of southern Fiordland.	B	3
Stirling Falls, Milford Sound	One of the highest and most spectacular waterfalls in New Zealand plunging directly into the sea (151 m). Major tourist attraction.	B	3
Takitimu epistilbite	Good exposure of the mineral epistilbite, which is regionally developed in the eastern Takitimu Mountains, but rare elsewhere in New Zealand.	B	3
Takitimu yugawaralite	The only New Zealand occurrence of yugawaralite.	B	3
Taringatura Hills Triassic locality	Only fossiliferous Otapirian in southern South Island, with distinctive large Lima.	B	3
Taylors Stream / Otapiri Valley junction Jurassic fossils	Historically important Aratauran (Jurassic) locality with significant ammonoid, bivalve and brachiopod fossil fauna.	B	3

TABLE 5: GEOPRESERVATION SITES WITHIN SOUTHLAND/MURIHIKU REGION

NAME	SIGNIFICANCE	IMPORTANCE	VULNERABILITY
Transit River garnet sand dunes	Only known concentration of garnet in New Zealand and spectacular pink sand dunes.	B	2
Upukerora authigenic minerals	A rare occurrence of authigenic low temperature minerals replacing the matrix of a Quaternary landslide deposit.	B	3
Waiau River Oligocene sandstone dikes	One of the best examples of sand injection structures developed during large scale folding in New Zealand Tertiary rocks.	B	2
Wairaki River Permain fossils	Holostratotype of Telfordian and Mangapirian Stages.	B	4
Waituna coastal lake lagoon and wetlands	The classic example in New Zealand of a largely unmodified coastal lake-type lagoon within an intact coastal wetland system trapped behind a barrier beach.	B	2
Wendon Valley Oligocene fossil molluscs	Very diverse fossil Oligocene (Duntroonian) molluscs.	B	3
Aurora Cave (= Te Ana au), Lake Te Anau	Large, internationally important cave system with its development related to Pleistocene glaciations. Contains significant sedimentary deposits, giving history of glacier retreats and lake level fluctuations in Lake Te Anau Basin. The resurgence cave is	A	3
Bare Hill zeolitised tuff zone, Hokonui Hills	Section through heulandite and analcime-bearing Late Triassic tuffs in the Southland Syncline; a world class example of zeolite facies burial metamorphism.	A	3
Clifden Miocene sediments	The 'classic' highly fossiliferous reference section for middle Miocene sedimentary sequence in the South Island. Very diverse macrofaunas and holostratotypes of Altonian, Clifdenian, Lillburnian and Waiauan Stages.	A	3
Fiordland fiords	Fiordland's steep and crenulated coastline, with fiords running from U-shaped glaciated valleys carved out of the Southern Alps, is unique in New Zealand and rare globally. The sheltered, steep-walled fiords, have a total shoreline length of nearly 100	A	3
Green Lake rock avalanche deposit	One of the world's largest rock avalanches.	A	3
Hidden Lake, Milford Track	A well defined avalanche formed tarn.	A	3
Pembroke granulite	First described and probably best developed planar alteration zones in granulite, world-wide.	A	3
Pikopiko fossil forest	Best example of an Eocene fossil forest in New Zealand. One of few fossil plant loacalities in the world having ferns with fertile sporangia and more than 3 kinds of fern leaf.	A	2
Productus Creek Permian fossils, Mangarewa locality	Rich, well-preserved brachiopod and molluscan fauna. Only New Zealand occurrence of Glossopteris leaf fossils.	A	2
Productus Creek Permian Wairaki Breccia localities (Letham Trig)	Youngest Permian fauna from New Zealand. Holostratotype of Makarewan Stage, Wairaki Breccia.	A	3
Wether Hill zeolite metamorphism	Internationally classic example of zeolite facxies metamorphism.	A	3
White Hill zeolite metamorphism	Internationally classic example of zeolite facies metamorphism.	A	3



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View of the Livingstone-Eyre Mountains. Boffa Miskell, 2018.

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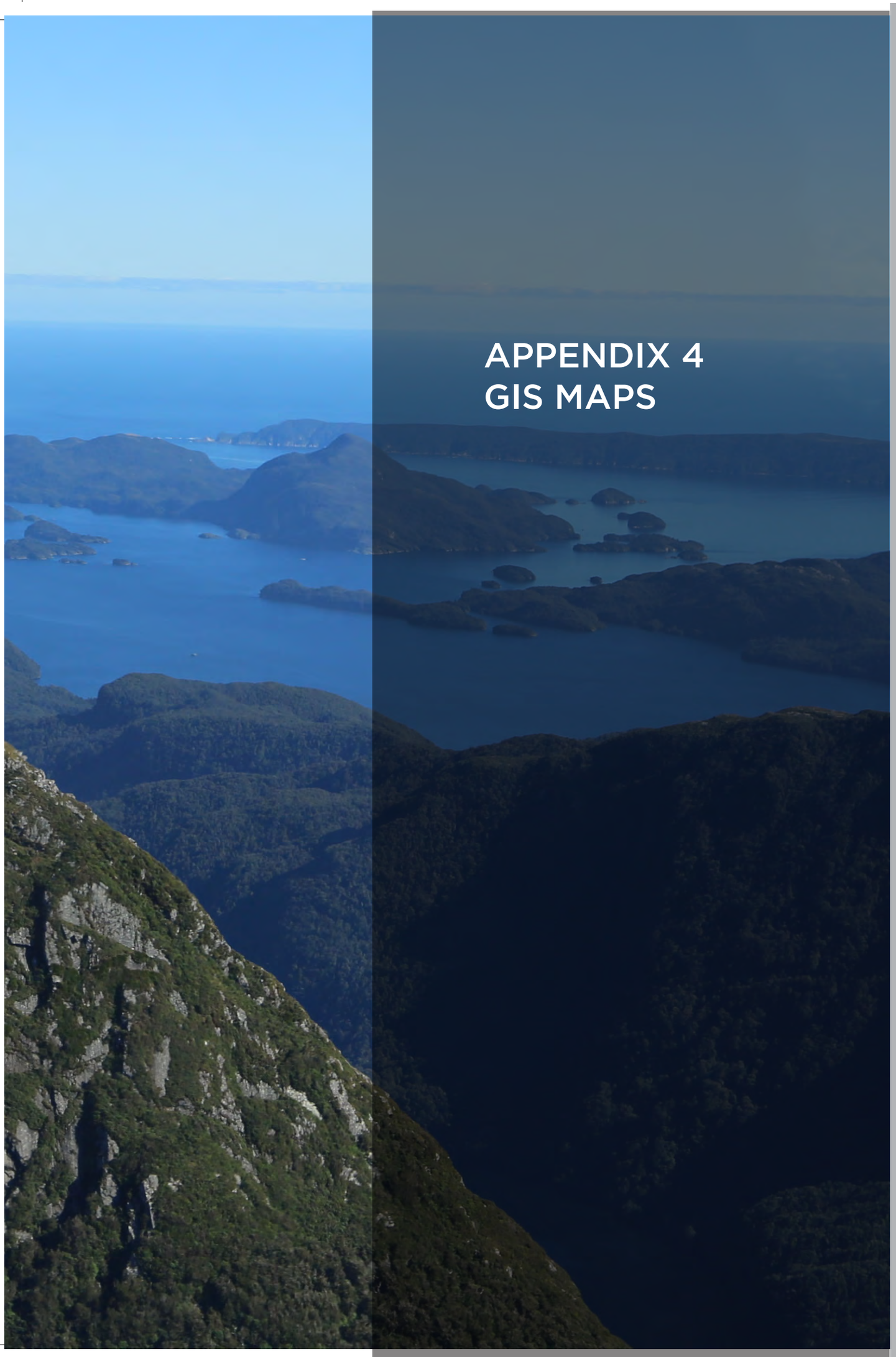
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APPENDIX 4
GIS MAPS



Figure 56: Natural (Conservation) Areas Map. Boffa Miskell, 2018.

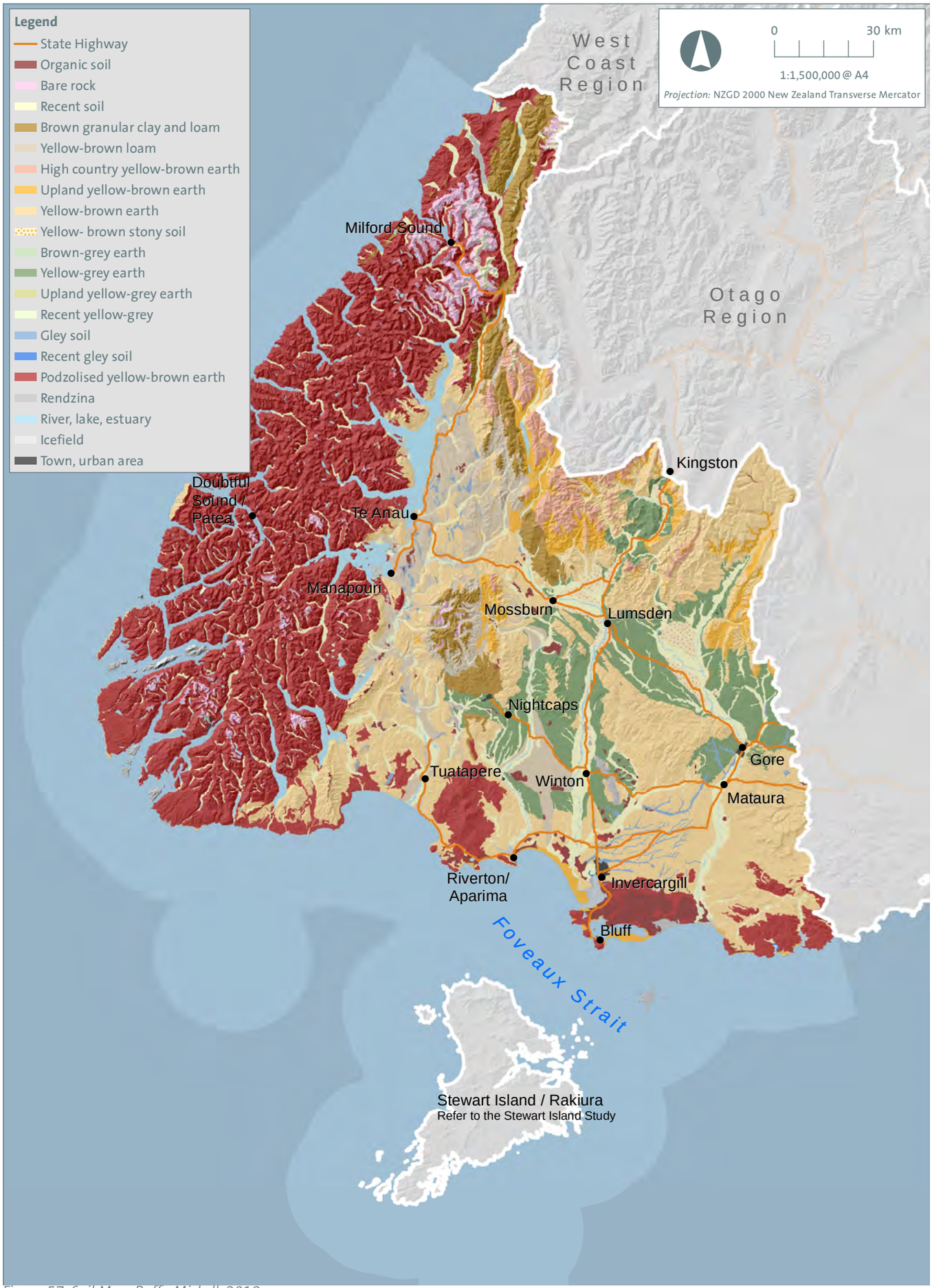


Figure 57: Soil Map. Boffa Miskell, 2018.



Figure 58: Elevation Map. Boffa Miskell, 2018.



Figure 59: Slope Map. Boffa Miskell, 2018.



Figure 60: Geopreservation Sites Map. Boffa Miskell, 2018.

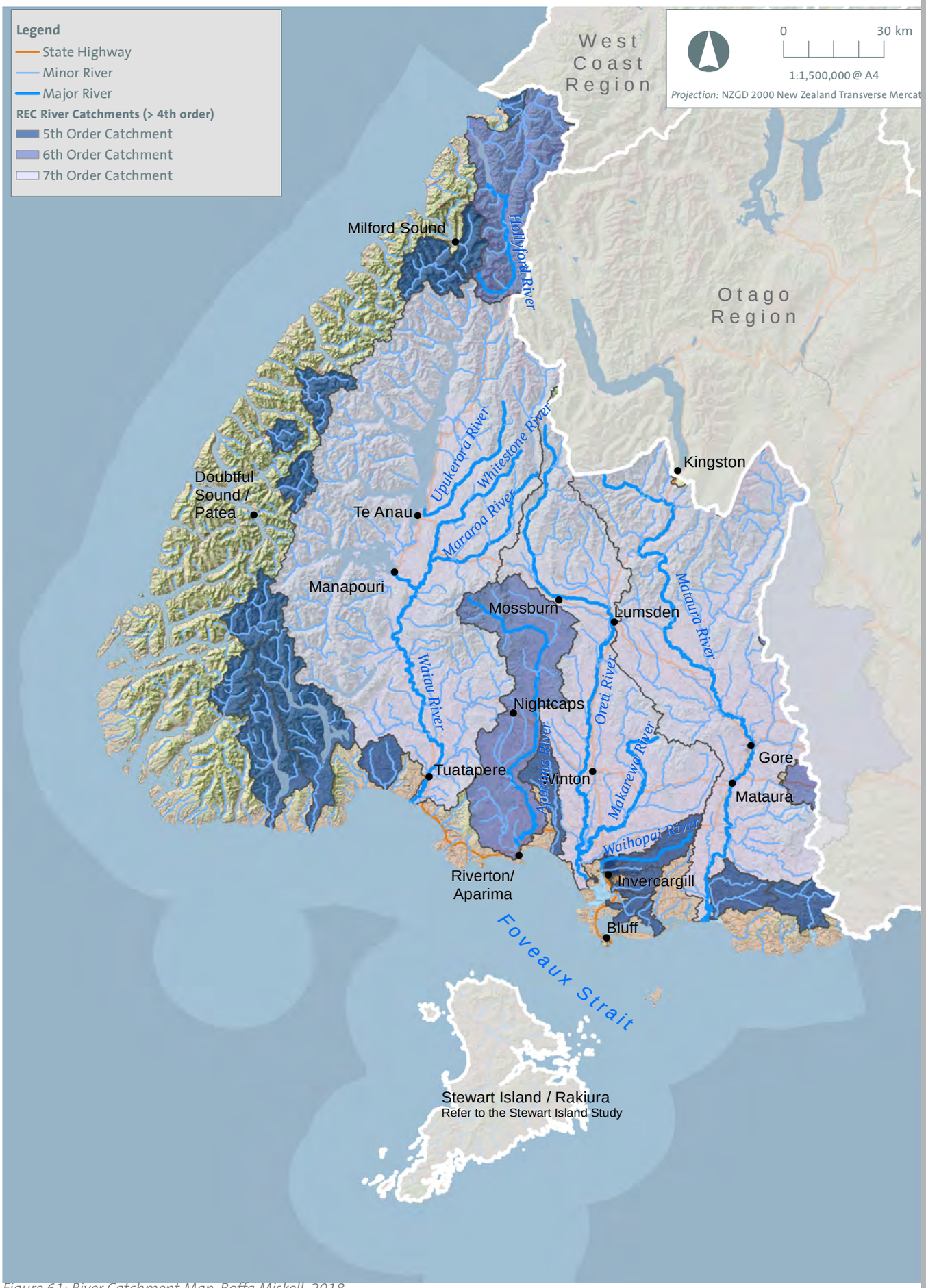
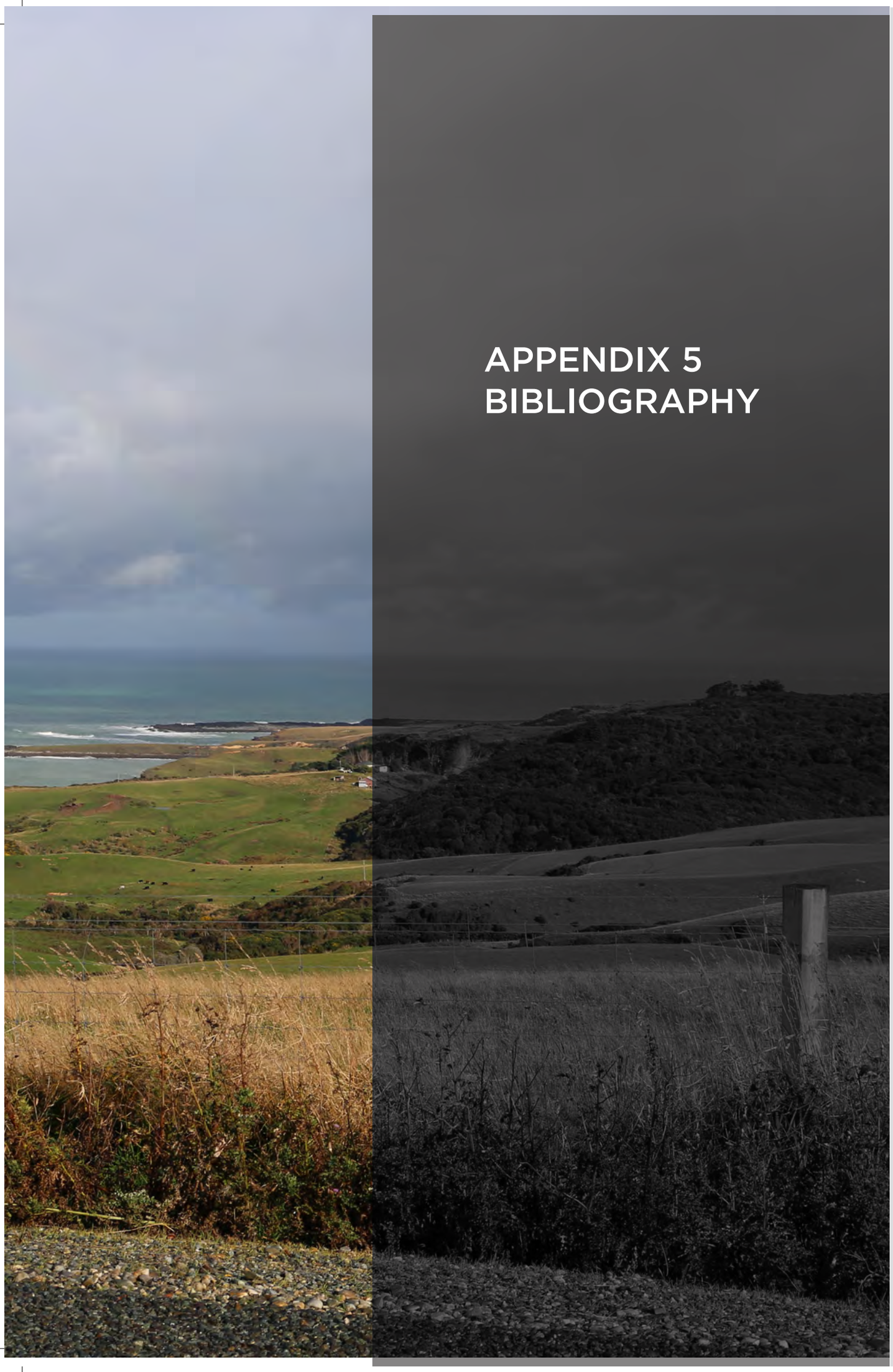


Figure 61: River Catchment Map. Boffa Miskell, 2018.



APPENDIX 5
BIBLIOGRAPHY

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