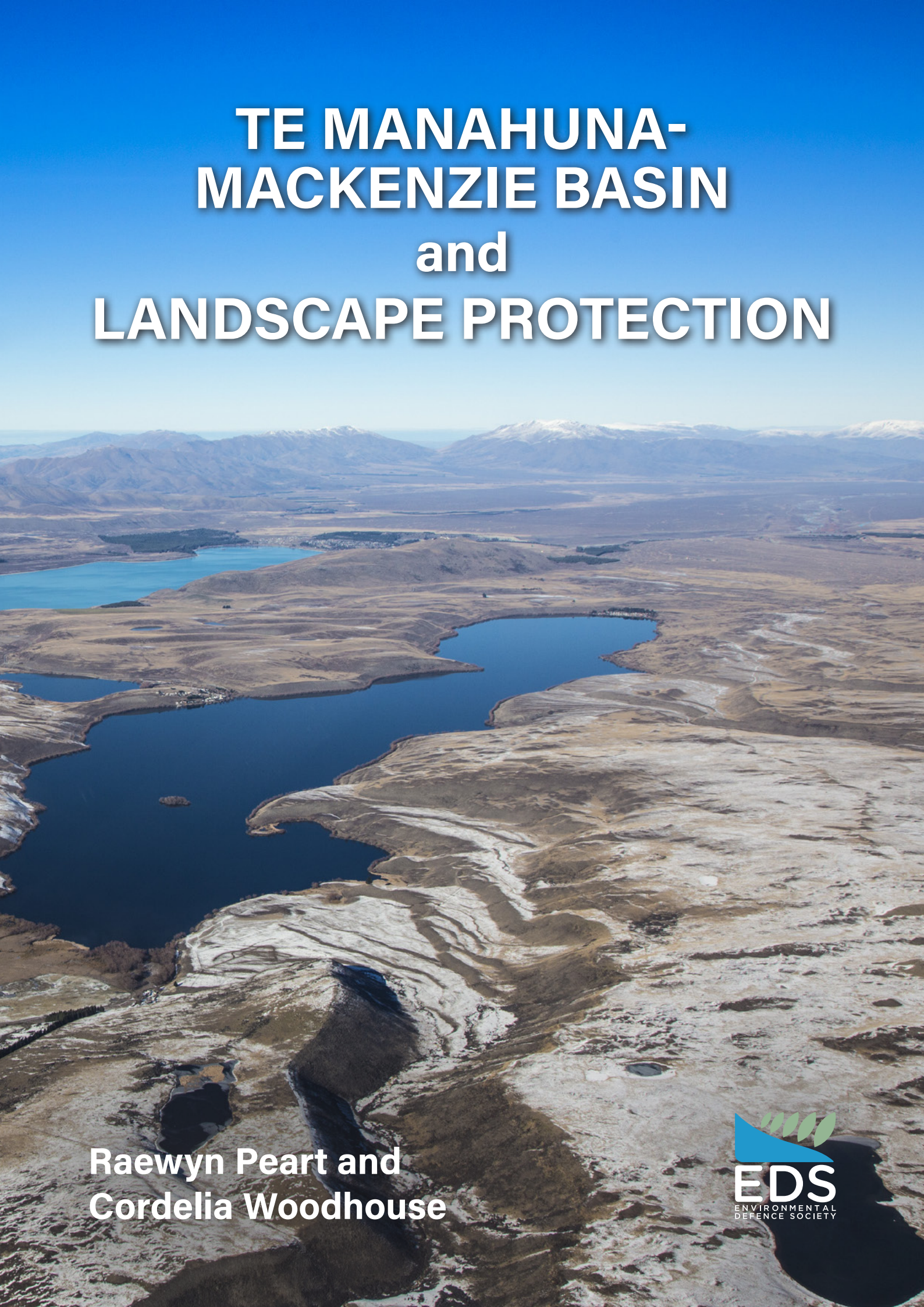
TE MANAHUNA-MACKENZIE BASIN and LANDSCAPE PROTECTION



Raewyn Peart and
Cordelia Woodhouse

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P O Box 91736 Victoria St West
Auckland 1142

Phone (09) 302 2972

manager@eds.org.nz

www.eds.org.nz

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Cover image: View across Te Manahuna/Mackenzie Basin looking south-east towards Lake Tekapō and Tekapō Village

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Allocation Plan	Waitaki Catchment Water Allocation Regional Plan
DOC	Department of Conservation
EDS	Environmental Defence Society
Land and Water Plan	Canterbury Regional Land and Water Plan
LINZ	Land Information New Zealand
Mackenzie Basin	Te Manahuna/Mackenzie Basin
NESPF	National Environmental Standard for Plantation Forestry
NPSFM	National Policy Statement for Freshwater Management
ONL	Outstanding natural landscape
QEII	Queen Elizabeth the Second
RPS	Regional policy statement
RMA	Resource Management Act 1991
SH8	State Highway 8
Te Tiriti	Te Tiriti o Waitangi/Treaty of Waitangi

ACKNOWLEDGEMENTS

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Ben Ohau Range

1. INTRODUCTION

New Zealand's distinctive natural landscapes are an integral component of our individual and national well-being. For Māori, they provide a deep cultural connection with the past and future through whakapapa. Landscapes provide physical and spiritual respite, historical links and havens for biodiversity. They are a source of creative endeavour, a key component of the New Zealand brand, and a major drawcard for tourists.

Despite the importance of landscapes to New Zealand, and this being recognised by statute for over 25 years, we are still seeing poor landscape outcomes. This indicates that there is institutional and regulatory failure in protecting these high value places in the public interest.

In order to address this matter, the Environmental Defence Society (EDS) has initiated a project to investigate how existing legislative and policy tools could be more effectively deployed to protect important natural landscapes, as well as how a new 'protected landscapes' model could be adopted to achieve better landscape protection in New Zealand.

The project involves case studies of landscape protection in Te Manahuna/Mackenzie Basin (Mackenzie Basin), Te Pātaka o Rākaihautau/Banks Peninsula, Waitakere Ranges and the Hauraki Gulf Islands. It also includes an investigation of potential linkages between tourism and landscape protection. The case studies will be integrated into an overall report, which will also contain a broader exploration of the concept of landscape in the New Zealand context. This will be released later in 2020.

This report presents the findings of the Mackenzie Basin case study. The case study is based on a review of the available literature, relevant statutory provisions and planning documents. We also commissioned an analysis of the economics of pastoral farming and tourism in the Basin, undertook three field trips to the area during 2019 and undertook in-depth interviews with 41 people; consisting of 9 runholders, 17 agency staff, 10 experts and 5 other stakeholders. These interviews were undertaken on a confidential basis to encourage frankness. We have included some quotes from these interviews to provide 'colour' to the analysis below. However, we have only identified the source of these by sector, in order to maintain the confidentiality of the respondent.

Early on in the case study research, we approached Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki regarding the project, but were advised by Te Rūnanga o Waihao that they wished to meet directly with the Department of Conservation (DOC) as their Treaty partner. A second approach later in the project received the same response. We have therefore drawn from the cultural impact assessment that was prepared for the Plan Change 13 Environment Court hearings and associated evidence.

This report is structured into three main parts. Chapter 2 provides a historical context for the case study. This is followed by Part A of the report which explores historical, current and future pressures on the landscapes in the Mackenzie Basin. Part B then investigates current management responses to these pressures, including the use of mechanisms available under the Resource Management Act 1991 (RMA) and other statutory tools, such as discretionary consenting under the Crown Pastoral Land Act 1998, covenanting and protected private land. We also review a range of non-statutory approaches. Part B concludes with a summary of the effectiveness of current management approaches. Finally, Part C explores how existing tools could be better deployed in the future as well as charting a potential new model for the future. Our *Protected Landscapes Synthesis Report* will include

more developed proposals for a new landscape protection model for New Zealand based on lessons from all the case studies and a review of international models.

This report was substantially prepared prior to the outbreak of Covid-19 in March 2020. The pandemic has had catastrophic consequences for the New Zealand economy, incomes and jobs, including in the Mackenzie Basin. Where possible, we have adapted our recommendations to take into account the likely impact of the Covid-19 pandemic.

View to the south-east looking towards Tekapō Village

Tasman River

2 HISTORICAL CONTEXT

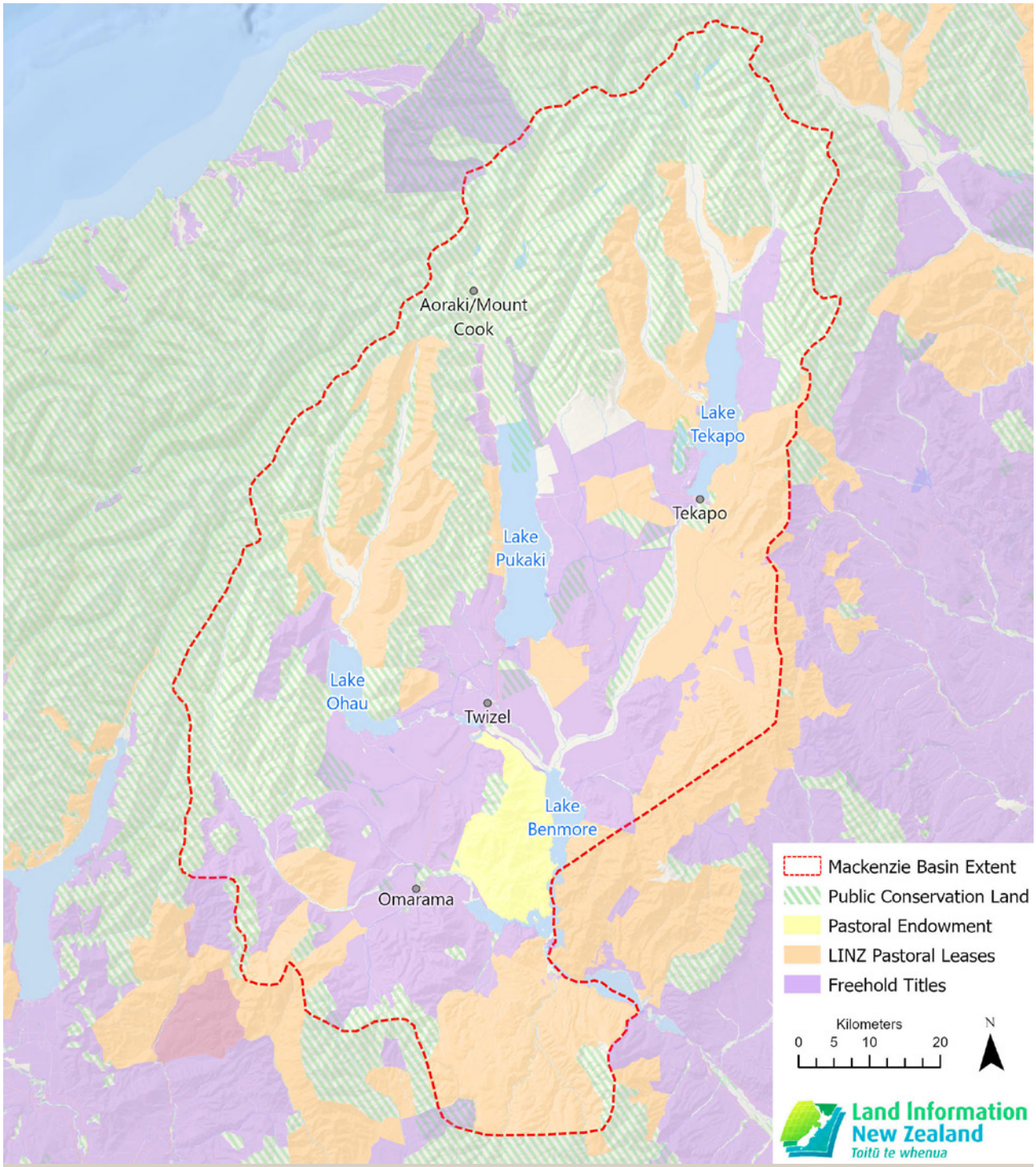
2.1 Glacial history

Glaciers have carved out the Mackenzie Basin landscape from ancient greywacke rock during three main periods. The earliest was the Waimaunga glaciation which occurred some 280,000 to 220,000 years ago. At that time, much of the higher Basin was covered in ice including what are now Lakes Ōhau, Pūkaki and Tekapō.[1] This was followed by two more recent glacial events, the Waimea (180,000 to 125,000 years ago) and Ōtira (75,000 to 14,500 years ago), when the glacial advances were less extensive. When they retreated, the glaciers left behind vast deposits of rock and shingle and these form the extensive moraines and outwash sequences that can be seen in the Basin today.[2] The retreating glaciers also created lakes and distinctive roche mountonnée where hard bedrock was sculpted by the ice.

To the west of the Basin is the main divide, including the highest mountain in New Zealand – Aoraki/Mount Cook. Notable are the Hooker and Tasman glaciers (the Tasman being the largest glacier in New Zealand) which flow down the steep mountain slopes and end in terminal glacial lakes (Hooker and Tasman Lakes). The Two Thumb Range forms the north-eastern boundary of the Mackenzie Basin to the east of Lake Tekapō, the Barrier Range (just to the west of Lake Ōhau) forms the north-western side of the Basin, and there are a series of ranges to the south.

Between these mountain ranges sits the Mackenzie Basin proper (see Figure 2.1), covering an area of around 269,000ha and varying in height from around 800m on the terraces at the head of Lake Tekapō, to around 375m at Lake Benmore. The Mackenzie Basin is one of only four intermontane basins in New Zealand (the others being the Heron, Upper Clutha and Waimakariri). It is by far the largest and most complex and is one of only two basins (the other being the Heron) that retain indigenous ecosystems to any large extent, particularly on the valley floors.[3]

Lake Tekapō



2.1: Map of Mackenzie Basin *(Source: LINZ)*

The three largest natural lakes in the Mackenzie Basin – Tekapō, Pūkaki and Ōhau occupy glacially-scoured trenches and were formed when the retreating glacier dumped sediment in the river bed blocking water flow. The lakes are all around 6 to 8km wide. Lake Ōhau (the smallest) is 17km long and Lake Pūkaki (the largest) is 30km long. The water in lakes Tekapō and Pūkaki is a bright milky turquoise colour due to rock 'flour' (rock ground up finely by glaciers) being suspended in the water column and refracting the light. The rivers above and below the lakes have intricate braided gravel beds. There are also now two human-made lakes in the Basin, Lake Benmore and Lake Ruataniwha.[4]

Large areas of glacial moraine in the Basin form undulating surfaces and these create a variety of different micro-climates. "These moraines are very extensive and are some of the most remarkable examples of glacial moraine landforms to be found anywhere."[5]

There are several different types of moraine in the Basin. The 'lateral moraines' stretch out in parallel lines and mark the edges of the different glaciers as they retreated. They were formed by the glaciers tearing up rock and soil along the edges of their path. Gravel and rocks which fell on top of the glaciers, and sank as the ice melted, have formed 'supraglacial moraines' with irregular humps and hollows on the surface. Kettleholes have formed where blocks of

ice within the sediment melted. These hollows support small lakes, tarns and wetlands. The melting of the ice has also left behind large isolated blocks of rock called 'erratics'. 'Terminal moraines' have formed at the end of the glaciers where the rocks and debris pushed forward by the ice have been left in large piles after the glacier's retreat. Tekapō village is situated on the terminal moraine of the Godley glacier that created Lake Tekapō.[6] Nearby Mount John is a roche mountonnée, showing a distinctive long sloping edge on the upside of the glacier and a shorter steeper edge on the downside.

A large area of moraine is located on the high plain between lakes Tekapō and Pūkaki which includes the New Zealand Defence Force land (formerly Braemar station), Balmoral and Irishman Creek. A second extensive area of moraine and outwash is located south of Lake Ōhau, (including Glenbrook, Ōhau Downs, Benmore and Ōmarama stations) and is generally smoother.[7]

Large outwash plains are located to the east of State Highway 8 (SH8) between Tekapō village and the southern end of Lake Pūkaki and include stations such as Maryburn, Sawdon and Grays Hills. They have been formed by rivers carrying gravel and sand from the moraine areas and depositing them over wide areas. The river flow has sorted the rock particles into even sizes, with the heavier stones dropping to the river bed earlier than the lighter silt. The edges of the stones have been smoothed due to abrasion during their passage in the flowing water. This means that the surface of the land on the outwash plains is much smoother than on the moraine. Where the rivers have cut through earlier sediment deposits, terraces have been created. The meltwater of the glaciers has also created channels and fans with intricate braided patterns visible on the surface of the plains.[8] The soils on the outwash plains comprise complex patterns of stony areas inter-dispersed with deeper accumulated soil.[9] There are also inland sand dunes formed from river sand.

The Mackenzie Basin is the only place in New Zealand where it is possible to see the entire intact glacial sequence from glaciers in the Southern Alps, through to moraines, outwash terraces and plains.

2.2 Evolution of landcover and indigenous species

The Mackenzie Basin supports a great variety of species, many of which are rare, due to significant climatic and landform differences across its expanse. To the west, and nearer to the Southern Alps, the climate is wetter and the soils are deeper and better able to hold water. Further to the east, the climate becomes drier and the soils formed on the glacial outwash and river gravels are shallow, stony and poor at retaining moisture.[10] "Dry climate and shallow stony soils together make the lower, south-eastern outwash plains and alluvial surfaces among New Zealand's most challenging and distinctive environments for plant growth."[11]

"The infertile, extreme environment has given rise to distinctive biota. It's like life on another planet really." *(Expert interviewee)*

The climate is extreme, featuring hot, dry summers and cold, snowy winters. Shallow soils are frequently frozen and then thawed during winter, breaking open the surface. Strong, warm and dry foehn winds are also a feature of the Basin's weather systems.[12] The winds dry out the soil and strip fine sediment from north and western areas, depositing it on the south and east facing slopes and toes.[13]

There are notable differences in the types of indigenous vegetation cover that occur across the expanse of the Basin. The wetter, deeper soils to the north-west support tall and short tussock grasslands, shrublands and wetlands. The "seasonally dry ephemeral wetlands in kettleholes are particularly biologically distinctive and unusual globally".[14] Fescue short tussock grasslands are more prevalent on the lower moraines. Climatic extremes in the eastern outwash areas have resulted in a distinctive desert-adapted biota establishing on the shallower, stonier and drier soils.[15] Plants have developed some novel features to adapt to the harsh climate in the Basin, for example many have high levels of dormancy and only grow for part of the year (such as appearing briefly in spring after germinating from a seed). Plants are frequently short in stature, leafless and grow into cushion, mat or spikey form.[16]

"Outwash surfaces (especially those south and east of SH8) support a distinctive, endemic, often cryptic, slow-growing, diminutive, sparse and exceptionally drought tolerant flora."[17]

The vegetative cover of the Basin today is so highly modified by human interaction, that it is difficult to know what the landscape might have looked like prior to human arrival. Botanists have attempted to describe the pre-human landscape through the analysis of fossil carbon and charcoal remnants. Two sites which have been investigated in detail are Duncan Stream, located at the southern end of the Ben Ōhau range to the west of Lake Pūkaki, and the Ben Dhu Scientific Reserve to the northwest of Ōmarama.[18]

At the wetter Lake Pūkaki site there is evidence that the ground was covered with mountain celery pine (*Phyllocladus alpinus*) until around 5,000 years ago, when increasing drought and several naturally-ignited fires reduced the species in favour of bog/mountain pine (*Halocarpus bidwillii*), speargrass (*Aciphylla*) and tussock grassland. At the drier Lake Ōhau site, the bog/mountain pine formed a complete scrub cover at the time of first Māori settlement, with fire then rapidly reducing the scrub to grassland.[19] This means that closed or tall forest was naturally absent from the lower slopes and valley floor of the Mackenzie Basin, with grasslands likely occupying much of the drier areas. Dry basins, such as

the Mackenzie Basin, are now thought to be the only significant areas of temperate grassland in pre-human New Zealand to feature a range of tussock species (including red tussock, snow tussock, silver tussock and fescue tussock) and grasses (including the now rare blue wheat grass).[20]

Overall, the unmodified landscape would likely have transitioned from beech forest on the western mountains, to thick forest-scrub on the higher slopes, to a mix of scrub and grasslands on the Basin floor, and transitioning to more open grasslands and less vegetative cover in the drier eastern areas. Although naturally-ignited fires did occur prior to human arrival, they were likely infrequent, patchy and small scale. The presence of charcoal deposits in the soil profile indicates that large scale fires, which caused significant environmental change, started sometime between 1150 and 1400 AD, likely coinciding with Māori settlement. Fire reduced the conifer scrub to remnant patches and encouraged the spread of tussock grassland intermixed with Spaniard grass (*Aciphylla*). Snow tussock moved down from above the tree line and matagouri was common, particularly in wetter areas.

Te Manahuna provided rich kai and other resources for Māori over many centuries. These were mainly gathered by whanau and hapū through seasonal harvesting. During May to August each year families would travel to Te Manahuna to harvest tuna, weka and other resources, including ducks, freshwater crayfish, vegetables and building materials. There are over 160 known sites in the area which were traditionally occupied for this purpose, often near lakes, lagoons, wetlands and streams. There is also a network of ancient trails (Ara Tawhito) throughout Te Manahuna that connected these settlements and resource gathering areas. These trails were the 'arteries' of economic and social relationships for mana whenua.[21]

Activities associated with subsequent European pastoral farming, including burning (as described below), reduced the prevalence of speargrass and increased short tussock grassland on the Basin floor.[22] The remnant tussock grasslands in the Basin are therefore not 'natural' in the sense of being present prior to human settlement, they are a result of fire and grazing activities. This is significant, because it means that they are ecologically unstable and can only be maintained as open tussock grassland (if that is the desired outcome) by ongoing human intervention. They are particularly vulnerable to the invasion of woody plants, as indicated by the scale of the wilding pine threat in the Basin.

"Being seral communities [at an intermediate stage in ecological succession], formed and maintained by fire and modified by grazing, they [tussock grasslands] are unstable. Those adjacent to shrubland and forest, exotic or indigenous, will always be vulnerable to invasion by woody plants. Most are open to fast-spreading weeds and mammalian pests. Ultimately, management designed to maintain them in their current condition, be that continuation of grazing, fire, or other means of woody plant and weed control ... will have to be undertaken on a large scale."[23]

Lake Ōhau

At least 81 plant species have been recorded on the Basin floor. The area provides habitat for several locally endemic species and is a stronghold for many nationally threatened ones.[24] The Basin also supports an impressive array of fauna, much of which has adapted to the harsh environment. This includes 446 species of native moth and 925 species of braided river bed invertebrates, 12 of which are endemic to the Basin. Many of the moths and butterflies are important pollinators for small herbs and native shrub species in the area. The Basin also supports native skinks and geckos, many threatened braided river and wetland bird species, and numerous species of freshwater fish. In particular, the braided river systems in the Basin provide key habitat for the nationally critical kāki/black stilt and black-billed gull, and the nationally vulnerable banded dotterel, black-fronted tern and wrybill.[25]

2.3 Mana whenua and Te Tiriti o Waitangi

Three papatipu rūnanga are mana whenua of Te Manahuna: Te Runanga o Arowhenua, Te Runanga o Waihao and Te Runanga o Moeraki. In 1848, the Crown purchased a large part of the South Island from mana whenua under 'The Kemp's Deed'. The boundaries of the purchase were not well defined and have always been contentious. At the time of the initial negotiations, the inland boundary of the purchase was along the eastern foothills of the Southern Alps,, with the land to the west remaining in mana whenua ownership due to the significance of the area as a food source. However, when Crown representatives sought to finalise the negotiations, they produced a map showing the boundary extending over to the West Coast. This was immediately disputed by mana whenua chiefs who refer to the High Country of Te Waipounamu as 'the hole in the middle', being the part which was not sold. The Crown transferred the enlarged area of Kemp's Deed to the New Zealand Company and later to the Otago and Canterbury provincial governments. Land was soon subdivided into pastoral farms, mana whenua were excluded, and their relationship with Te Manahuna changed forever.[26]

"Kai Tahi believed the landscapes, the vegetation that clothed it, the animals inhabiting it were directly connected to them through whakapapa from their earth mother and from the sea father. Tauiwi [non-Māori] on the other hand, saw the same landscapes as being in need of taming, working and civilising into farmscapes."[27]

A settlement of Te Tiriti o Waitangi/Treaty of Waitangi (Te Tiriti) breaches with the Crown was reached in 1998. This included an apology from the Crown acknowledging that it had acted "unconscionably and in repeated breach of the principles of the Treaty of Waitangi in its dealings with Ngāi Tahu and in the purchases of Ngāi Tahu land."[28]

It also included statutory acknowledgements, dual place names and nohoanga (traditional resting places). These acknowledge the particular cultural association that mana whenua has with areas within Te Manahuna including Aoraki/Mount Cook, which is a sacred ancestral mountain central to mana whenua creation stories, the Hakataramea River, Lake Ōhau, Lake Pūkaki, Lake Takapō (the correct Māori spelling for Tekapō), Te Ao Mārama (Lake Benmore) and Whakarukumoana (Lake MacGregor). Nohoanga have been given contemporary meaning through the establishment of temporary campsites near areas of cultural significance including the Ahuriri River, Lake Ōhau, Lake Pūkaki, Mahi Tikumu, the Ōhau River, Takamoana, Te Ao Mārama and Whakarukumoana. Any mana whenua can camp in these areas subject to certain conditions.[29]

Te Manahuna in its entirety is a significant ancestral landscape to mana whenua and there are specific culturally significant landscape features within the Basin. In particular, the visual catchments and visual shafts between the southern shores of the lakes and the mountains in the north are particularly important for maintaining relationships with those places.[30]

Many archaeological sites are recorded in the area including the remains of old cooking areas and ancient settlements, places where artefacts have been found, ancient rock art drawings, caves and rock shelters. These are located on ancient pathways and occupation sites. "These archaeological sites are tangible reminders of our ancient relationship, occupation and use of the Waitaki and Te Manahuna".[31] However, there has yet to be a comprehensive archaeological survey undertaken of the area.[32] Many culturally significant sites have already been lost as a result of hydro-electric development, including flooding of the land.[33]

The settlement of grievances under Te Tiriti does not obviate the Crown's obligations to mana whenua in Te Manahuna. The Courts have found Te Tiriti to be a living document that creates a relationship 'akin to partnership' between the Crown and Māori. This includes a duty to act reasonably, honourably and in good faith.[34] The Supreme Court has noted that giving effect to the principles of Te Tiriti, in the context of the Conservation Act, requires more than procedural steps. The Court found that "substantive outcomes for iwi may be necessary including, in some instances, requiring that concession applications by others be declined." In addition, the court notes that "enabling iwi or hapū to reconnect to their ancestral lands by taking up opportunities on the conservation estate (whether through concessions or otherwise) is one way that the Crown can give practical effect to Treaty principles."[35] This is particularly relevant to any future landscape management arrangements for Te Manahuna.

2.4 Early pastoral farming

The Basin was said to have been 'discovered' by James Mackenzie during the early 1850s and sheep were introduced soon after that time, possibly around 1857. The numbers of sheep rapidly increased to around 270,000 in 1895, after which numbers fell as the native vegetation was unable to sustain the high level of grazing.[36] Fire was an important part of early farming practices, with runs being regularly burnt to clear woody vegetation and promote new growth that was more palatable for stock. Following the fire, sheep grazed on the young shoots of the recovering tussocks.[37]

The first impact of these early fires, coupled with very intensive grazing pressure, was probably to convert a mosaic of shrub thickets and scrubby grasslands into open grasslands. The second effect was to reduce the stature and density of the grasslands, with a marked reduction in indigenous fine grasses which grew between the tussock plants. This opened up spaces for new species to invade. Tall tussock species (of the genus *Chionochloa*), which had dominated large areas of the Mackenzie Basin, were replaced by short tussocks often of the genus *Festuca* (fescue tussock).[38] This transformation was intentional because, except for new leaves and flowering shoots, tall tussocks were unpalatable to sheep.[39] "As the nutritional value and productivity of pastures declined, runholders repeatedly burnt their land, causing further soil loss and decline in fertility ...".[40] This process was accelerated by the introduction of cattle into the Basin. A 1976 review noted that "where cattle have been introduced in large numbers in recent years, more reduction of tall tussock has often been achieved than what resulted from sheep and fire in the previous 100 years."[41] Despite improved farm management practices, tall tussocks were still dwindling in favour of shorter species by the late 1980s.[42]

Rabbits were introduced to New Zealand during the 1860s to support recreational shooting and provide a food source. Released from their natural predators, the rabbit population rose dramatically during the 1870s and 80s and caused havoc on the dry Mackenzie Basin soils and vegetation, with the rabbit hordes stripping the pasture and uprooting tussocks. This was coupled with droughts and an economic depression during the 1880s, which resulted in severe land degradation and some runholders walking off the land.[43] Serious degradation of short tussock continued to occur when rabbit infestations were accompanied by overgrazing in times of financial stress, such as during the Great Depression (1929-34) and periods of drought.[44]

Topdressing became possible during the 1940s, with the fertiliser first being dispensed by trucks and later aeroplanes.[45] By the 1970s, topdressing and oversowing of legumes and sometimes grasses transformed the Mackenzie Basin vegetation into a mosaic of exotic grass-legume swards growing amongst short tussocks.[46]

A further transition of vegetation type, as a result of the degradation of the indigenous grasslands, was to low-growing, rosette-forming species which created a dense cover over the depleted soil. A native *Celmisia* species was observed in high latitude areas during the 1950s. This was followed by the spread of *Hieracium pilosella* (hawkweed) which is unpalatable to stock.[47]

The large-scale transformation of inter-tussock vegetation into a cover of hawkweed largely escaped scientific attention until the 1970s. The invasion process was investigated in 1989 when areas of tall snow and red tussocks in the Mackenzie Basin, that had been studied during the early 1960s, were resurveyed. This showed that degraded tussock areas were more susceptible to hawkweed invasion. There was also a marked reduction in the number of indigenous species in the former tall tussock grassland compared to the early 1960s, leading to the conclusion that "pastoral use of unimproved grasslands is not widely sustainable in the New Zealand high country".[48]

Once hawkweed has invaded degraded soils its presence may inhibit the recovery of other plant species. This is because hawkweed affects the chemistry and moisture content of the soil immediately under the plant but also extending to a 'halo' area of typically bare ground

Merino sheep

surrounding it.[49] In particular, hawkweed appears to outcompete native plants for nitrogen, making it difficult for the latter to re-establish.[50] However, hawkweed may also contribute to rehabilitating degraded soils, by enhancing organic matter and soil structure, and reducing the potential for erosion in heavily depleted areas. Hawkweed largely completed its invasion of the Basin floor between 1990 and 2000, and has stabilised at around 20 to 50 per cent of vegetation cover, depending on the particular landform and environment. Reductions (not increases) in bare soil occurred at the same time as this invasion.[51]

Despite efforts to improve management of pastoral agriculture in the Mackenzie Basin, the loss of indigenous flora has continued unabated. There is an inexorable trend towards increased dominance of exotic species and reductions in the diversity and abundance of natives. A study in the late 1990s across the South Island High Country (including the Mackenzie Basin) found a marked decrease in species richness particularly in rushes/sedges, ferns, grasses (excluding snow tussock which had increased, most probably due to reduced grazing pressure) and small and large herbs. The greatest decline was in small herbs, where more than a quarter of the species present a decade earlier had disappeared. Annual species suffered the greatest decline.[52]

The researchers attempted to identify the reasons for this loss by comparing the level of grazing and burning between the 142 sites studied. They found that the decline occurred irrespective of grazing pressure, with sites managed for conservation purposes (with no grazing) showing a similar decline to that in grazed areas. There was a similar lack of difference between sites that had been burnt and not burnt.[53] The explanation is not clear but it may be that early land management practices, including extensive burning by early Māori followed by high stocking levels and frequent burning by pastoral farmers, have driven fundamental ecological changes that continue to play out today.

Grazing pressure in the Mackenzie Basin has had the greatest impact on dry outwash ecosystems. These are extensively depleted compared to the moraine ecosystems which appear to be more robust and tend to have more intact indigenous cover.[54]

Key messages

- The Mackenzie Basin landscapes have been carved out by ice during three glacial periods. The Basin is now the only place in New Zealand where an entire intact glacial sequence can be seen.
- The Basin has extreme climatic conditions and provides many micro-climes which support a great variety of plant and animal species. The dry outwash areas, in particular, support very distinctive, endemic and threatened plant species.
- The remnant tussock grasslands in the Basin are a result of fire and grazing activities. They are ecologically unstable and particularly vulnerable to invasion by woody plants.
- Te Manahuna is a significant ancestral landscape for mana whenua due to a close association with it over many centuries. The 1998 Tiriti settlement acknowledges the relationship of Ngāi Tahu with Te Manahuna and includes statutory acknowledgements, dual place names and nohoanga (traditional resting places).
- Pastoral farming commenced in the Basin during the mid 1850s. Fire, grazing pressure and the introduction of rabbits replaced tall tussocks with short tussocks and resulted in severe soil degradation. Subsequent topdressing and oversowing increased the plant cover, but led to exotic grass and legume species replacing the indigenous inter-tussock communities.
- The invasion of hawkweed during the latter part of the 20th Century was associated with degradation of tussock areas.
- Grazing pressure has had the greatest impact on the dry outwash areas of the Basin which now have extensive areas of bare soil and depleted plant cover.

ENDNOTES

1 We note the correct Māori name is Takapō but have used the more commonly known version Tekapō in this report.
2 Relph, 2010, 23-24
3 Head, 2016, 13
4 Relph, 2010, 29
5 Relph, 2010, 32
6 Adapted from Relph, 2010, 32
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27 Russell, 2000, 73
28 Ngā Tahu Claims Settlement Act 1998, section 6
29 Waaka-Home, 2016, 16-17
30 Te Rūnanga o Arowhenua, Te Rūnanga o Waihao, Te Rūnanga o Ngā Tahu and Boffa Miskell Limited, 2008, executive summary
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33 Waaka-Home, 2016, 11
34 *New Zealand Maori Council* v *Attorney-General* [1987] 1 NZLR 641
35 *Ngāi Tai Ki Tāmaki Tribal Trust* v *Minister of Conservation* [2018] NZSC 122 at [52]
36 Connor and Vucetich, 1964, 325
37 O'Connor, 1982, 100
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46 O'Connor, 1976, 37
47 Duncan, Webster and Jensen, 2001, 35-36
48 Treskonova, 1991, 75
49 Boswell and Espie, 1998, 251
50 Scott, Saggar and McIntosh, 2001
51 Walker et al, 2016
52 Duncan, Webster and Jensen, 2001, 38
53 Duncan, Webster and Jensen, 2001, 43
54 Head, 2016, 28

Pastoral farming on the Basin floor

3 HISTORICAL LANDSCAPE PRESSURES

This chapter describes some of the key historical pressures that have impacted on Mackenzie Basin landscapes since European settlement including pastoral farming, hydro power development, the explosion in rabbit numbers and tenure review. Many of these pressures are still playing out today.

3.1 Dryland pastoral farming

As discussed in Chapter 2, pastoral farming has had a profound impact on the Mackenzie Basin landscape. Grazing over many decades has reduced tall and short tussock grassland to exotic-species dominated grassland, with an increase in low fertility grasses such as browntop (*Agrostis capillaris*) and sweet vernal (*Anthoxanthum odoratum*).[1] Widespread reduction of indigenous plant diversity has been documented for snow tussock and red tussock grasslands in the Mackenzie Basin between 1964 and 1989.[2]

Burning has also had a significant impact. The burning of tussock grassland removes the tussock canopy, as well as the leaf litter and indigenous plants growing between the tussock plants. During the recovery period, exotic pasture species frequently invade into the spaces between the tussock plants. When the area is grazed by stock, nutrients are removed from the system and tussock recovery is slower. If the burning cycle is repeated before the tussock has fully recovered, the condition of the grassland continues to decline with the further establishment of exotic species. Spring burning of snow tussock initially stimulates leaf growth and tiller production for the next 2-3 years but then depresses leaf growth rates for at least the following 14 years, due to the nutrients moving from the roots to the shoots.[3] Burning is no longer regularly used as a land management practice.

Grazing of short tussock grasslands in dry basins, such as the Mackenzie Basin, without fertiliser inputs, has been shown to result in a loss of all major plant nutrients. This means that grazing is not sustainable over the long term without the application of fertiliser. However, when fertiliser is applied, it acidifies the soil and reduces the cover and/or diversity of inter-tussock indigenous vegetation. The inter-tussock swards increasingly change to a mix of exotic grasses and legumes.[4] Fertiliser application through topdressing is often combined with the oversowing of seeds of exotic herb and grass species including browntop, which further increases their abundance and helps to change the composition of the community towards a dominance of exotic species.[5]

Fertiliser can also encourage the growth of woody species, such as matagouri, which may require herbicide or mechanical methods for removal, increasing soil and vegetation disturbance.[6] On the positive side, fertiliser application increases soil nutrient and carbon concentrations, increases soil microbial biomass and reduces the area of bare ground.[7]

Short tussocks themselves can be often be maintained under a fertilisation regime, so long as they are only lightly grazed. Light intensity pastoral farming, including some fertiliser application and oversowing to 'improve' the grasslands, generally maintains the dry, open grassland character of the Basin and therefore its outstanding natural landscape (ONL) values. However, as noted above, the practice is also associated with the loss of many indigenous plant species.[8]

Overall, this means that if the ecological values of the Mackenzie Basin grasslands are to be preserved, some

land will need to be retired from grazing (see Tekapō Scientific Reserve spotlight). Retaining a broad suite of indigenous plant species could be achieved by establishing a strong core of conservation land within the Basin. This would need to encompass intact ecological sequences extending from the mountains, across the moraines and over the dry outwash areas on the valley floor. Around this core, light pastoral grazing regimes with associated fertiliser application and oversowing, could serve to preserve the open brown landscape values over wider areas of the Basin. A large component of exotic species would remain, but this would result in a high level of 'naturalness' overall.

A spotlight on the Tekapō Scientific Reserve

The Tekapō Scientific Reserve comprises 1058ha of fescue tussock grassland and related communities immediately south of Lake Tekapō. The reserve covers a terminal moraine of the Tekapō glacier and an extensive outwash surface, which is cut down into a flight of terraces by the Tekapō River.[9] Although generally typical of such habitats in the Basin, the reserve is unique in one respect: it has one of the driest environments for kettleholes located within a moraine in New Zealand.[10]

The land within the reserve had been farmed since early European settlement and for many years it provided grazing for the Tekapō accommodation hotel. After WWI, the reserve was overrun with rabbits, and it was probably only lightly grazed during the 1920s. After 1927, the reserve area was farmed as part of Sawdon Station, with merino ewes grazing the moraine area during the autumn and winter and then moving onto the outwash areas over the summer. DOC took over management of the reserve land in 1987. In 1991 (29 years ago), all grazing ceased and the rabbits were poisoned. A rabbit proof fence was built around the reserve's perimeter in 1992.

The reserve has provided an excellent research site to investigate the impacts of grazing on indigenous vegetation in the Mackenzie Basin and recovery potential. An ecological survey of the reserve was undertaken in early 1993, shortly after grazing ceased. This found that, despite more than 100 years of grazing, there was still an impressive range of plants present on the site, with 139 vascular species identified. Just over a quarter (27 per cent) were recent arrivals. Prior to human settlement, the vegetation probably included tall tussocks on the moraine, short tussocks on the deeper outwash soils and a mix of sparse grassland and bare ground on the dry stony soils.[11] Pastoral farming had significantly altered the vegetation on these former tussock grasslands but it had less impact on the dry stony soils. "The high percentage of bare ground is a natural feature of these semi-arid grasslands and has almost certainly been continuously present since the post-glacial".[12]

The survey indicated that there had been impacts from long-term pastoral farming, with bare ground on up to 49 per cent of the moraine area and up to 89 per cent of the outwash low terrace. Infestation of hawkweed (*Hieracium*) was much higher on the moraine, where it comprised up to 47 per cent of the vegetative cover, but it was not present on the low terrace where bare soil dominated.[13]

Experiments undertaken at the reserve during 1993 indicated that native short tussocks could be re-established using direct drilling of seed, and that tall tussocks could be re-established through transplanting when accompanied by effective rabbit control.[14] A more recent study, undertaken in 2011, investigated vegetation recovery in the absence of stocking over the 18-year period since the 1993 survey. This found that the amount of exposed soil and bare rock had decreased, and the amount of indigenous vegetation cover had increased across all landform types. The presence of high levels of hawkweed did not prevent recovery, which was greater in the more productive areas where hawkweed predominated. The researchers concluded that releasing the taller growing palatable plants from grazing pressure enabled them to re-establish and, through light suppression, they were able to outcompete the unpalatable lower growing species such as hawkweed.[15]

The findings from this research indicate the importance of creating and maintaining 'control areas' which, through comparative study, can throw light on the impacts of human land use such as pastoral grazing. This kind of scientific study is likely to become more important if sustainable land management approaches are to be supported in the Mackenzie Basin.

3.2 Hydroelectric power development

The Mackenzie Basin is the location of New Zealand's largest network of hydroelectric power stations and therefore makes a substantial contribution to the country's renewable energy production. Much of the infrastructure was developed during the 1950s to 1980s. These works have had a significant impact on farming practices in the Mackenzie Basin, due to the loss of farmland on the Basin floor, greater availability of irrigation water (although this was not taken up until later) and the planting of pine species along the raised lake edges. The project also created the town of Twizel, which was originally a construction town, and was intended to be disestablished on the completion of the hydro construction works.

A lake control structure was built on Lake Pūkaki in 1950 and another completed on Lake Tekapō in 1954. A 25MW capacity generating station, drawing water from Lake Tekapō through a 1.6km tunnel, was commissioned in 1951 (Tekapō A). The improved control of lake water allowed

the capacity of the Waitaki generating station (which was constructed during the 1930s) to be increased to 105MW. Benmore was commissioned in 1965 with generating capacity of 540 MW. This created Lake Benmore which flooded more than 6,000ha of land in the Waitaki and Ahuriri valleys. It is the largest artificial lake in New Zealand covering 8,000ha and with a shoreline of 116km. Aviemore with a capacity of 220MW was commissioned in 1968, inundating a further 2,000ha of land.[16]

Further hydro capacity in the Basin was developed during the 1970s, with additional raising of lake levels and loss of farmland. A 27km long Tekapō-Pūkaki canal carried the outflow of Lake Tekapō from below the Tekapō power station to a station on the eastern shore of Lake Pūkaki (Tekapō B with capacity of 160MW). Tekapō B is now completely surrounded by water as a result of raising Lake Pūkaki. Also built at that time was a 60m high dam at Lake Pūkaki downstream from the earlier control structure. This raised the lake level by a further 37m and trebled its storage capacity to 280 million m^3. The surface area of Lake Pūkaki increased from 11,000 to 18,000ha and it extensively flooded the Tasman riverbed and adjacent flats and wetlands.[17]

The impounded water from Lake Pūkaki was channelled through a 13km canal to the Ōhau A power station, which has a generating capacity of 264MW. Another dam was constructed to create Lake Ruataniwha, from which water was channelled through a 11km canal to the Ōhau B power station (capacity 224 MW) and Ōhau C power station (capacity 200 MW), both on the south bank of the present Ōhau River. A major substation was built at Twizel in 1971 from which high capacity lines take the electricity to Christchurch.[18]

A spotlight on the effect of hydro works on pastoral farming in the Mackenzie Basin

As a result of constructing the high dam at Lake Pūkaki "a substantial number of runs would be affected, five homesteads submerged, and the village of Pūkaki and its hotel would also be inundated ... It was clear that whatever development was undertaken would have a much greater impact in the Mackenzie Country than any previous electric power project had had on its local area ... The most important questions were the effect of the project on the working and economics of pastoral runs, and the provision of water supply and irrigation. The existing major rivers, which provided both stock boundaries and water, would largely disappear as a result of the development."[19]

The hydro works significantly impacted some Mackenzie Basin stations. For example, on Braemar Station, the raising of Lake Pūkaki during the 1970s flooded the homestead, most of the farm buildings and 400ha of land. The Station effectively lost 25 per cent of its most productive land.[20] On Ferintosh, 1,200ha of productive farmland was lost when Lake Pūkaki was first raised during the 1950s and a further 400ha during the second raising which inundated the entire homestead area.[21]

Tasman Downs was one of the smaller stations in the Basin, of just 830ha, but 300ha of this was lost due to the raising of Lake Pūkaki. Haldon Station lost around 1,200ha of its best lambing country when Lake Benmore was created.[22] Ben Ōhau initially lost 800ha of fertile land through the development of hydro canals and subsequently a further 1,200ha. This also had the effect of dividing the property into two areas separated by the canal, making stock movement difficult (with one stock bridge being built).[23]

Runholders received little financial compensation for the loss of pastoral lease land but, as a way of offsetting some of the impacts, the government agreed to provide access to irrigation water in order to enable farm intensification on the remaining flats. This set the scene for the greening of the Mackenzie Basin as described in Chapter 4.

The construction of Twizel commenced in 1968, on land the government purchased from the Ruataniwha Station, and by the end of 1972 the town had an estimated population of 4,200. This peaked at 6,000 in 1977 (compared to just 1,137 in 2013). "For 15 years it served as the residential base, administration and construction headquarters for the largest hydro-electric undertaking in New Zealand's history".[24] The town was scheduled to be removed once the construction of the hydro works was completed, but at that stage the community fought to save it. Residents were keen to buy their houses. Eventually the government conceded, and in 1984 it gave the town, including 325 houses, 14 shops, a community complex and other amenities, along with a grant of $150,000 to the Mackenzie District Council. The council balloted the houses, raising significant funds, and Twizel remains the largest town in the Mackenzie Basin.[25]

Hydro canal

3.3 Rabbit plague

As described in Chapter 2, rabbits were introduced to New Zealand during early European settlement and quickly became a major pest. Between 1887 and 1891 a rabbit-proof fence was constructed from Aoraki/Mount Cook to Kurow, designed to prevent the rabbits moving north from Otago into Canterbury, however this only slowed the advance. During the 1890s, rabbits reached epidemic proportions in the Mackenzie Basin. Numerous ferrets, stoats and weasels were imported into New Zealand during the 1880s in an attempt to address the rabbit problem. However, they did little to control the rabbits and proved disastrous for the country's indigenous birds.[26] A commercial rabbit industry was established, with rabbit skins exported to England and the meat canned and frozen, but this also failed to make an impact on the burgeoning numbers.[27]

Many Acts were passed by Parliament in an attempt to control rabbits, the first being the Rabbit Nuisance Act 1867. In 1881, rabbit inspectors were established, later followed by rabbit boards. Under the Rabbit Nuisance Amendment Act 1947 landholders were charged rates to fund the rabbit control system with central government providing matching funds.

Payment was made to locally elected rabbit boards which employed staff to control the pest. A Rabbit Destruction Council was also established as a central advisory body with representatives from the farming community and government.[28]

This localised funding and administrative system, along with the development of the poison 1080 and a range of other poisoning methods, enabled the effective control of rabbits during the 1950s, 60s and 70s, although at considerable cost. During the 1980s, as part of a more market-led approach to agricultural policy and shift from rabbit control to management, the government progressively withdrew its financial contribution. The rabbit boards were disbanded in 1989 and their role was taken over by the newly formed regional councils.

Between 1989 and 1995 government, councils and landowners collectively spent $28 million nationwide on a Rabbit and Land Management Programme. The programme undertook large-scale 1080 poisoning with laced carrots. Although initially successful, after some years of wide-scale use, rabbits became shy of 1080 and would not take the baits. This led to experimentation with a new toxin called Pindone. It was found to kill rabbits effectively, but was more difficult to use than 1080, and resulted in some bird deaths. The Rabbit and Land Management Programme also assisted farmers to install rabbit-proof netting and provided funds to improve pasture through activities such as top dressing and oversowing. Although initially successful in knocking back rabbit numbers, after a series of dry seasons rabbit numbers started to increase again.[29] At the same time, the cost of rabbit control to landowners was becoming very high, and was uneconomic for some stations.

According to Brower, this programme had an unintended consequence of kickstarting tenure review. The government established the Rabbit and Land Management Task Force to investigate the rabbit problem. The Task Force concluded that intensification and diversification of land use would mitigate the rabbit problem in two ways: by changing the habitat to a more fertile productive landscape in which rabbits do not compete well; and by increasing the economic return on

Depleted soil with loss of vegetative cover

the land, and hence enabling runholders to spend more money on rabbit and pest control.[30]

At about this time, scientists in Australia began experimenting with rabbit haemorrhagic disease (known as RHD Variant 1 or RHDV1) which had first appeared in China in 1984. The virus escaped field trials and spread over the Australian mainland during 1995. A year later, a group of 10 regional councils applied for consent to release the disease in New Zealand, but were declined. In 1997, the disease was illegally introduced by some Central Otago farmers and it quickly took hold, knocking down rabbit numbers. There was no coordinated spread of the virus once it had entered the country, with farmers distributing it in different ways. Some farmers in the Mackenzie Basin collected the organs of rabbits that had died from the disease, minced them up in a kitchen blender, and coated baits with the material. They then distributed the baits over their farms in order to hasten the spread of the disease.

During the 1990s, rabbits virtually destroyed Maryburn Station. Owners Martin and Penny Murray spent around $256,000 a year on poison drops to control the rabbits but the animals still stripped the paddocks clean of growth until RHDV1 was illegally introduced in 1997.

The knock down of rabbits by RHDV1 was rapid and long-lasting and this enabled vegetation in the Basin to recover. Unfortunately, it also released wilding pines from rabbit grazing pressure, as described in Chapter 4. Farmers still celebrate 'RCD – Rabbit Commemoration Departure' day, when RHDV1 (commonly referred to as rabbit calicivirus disease or RCD) was introduced.

The effectiveness of the disease has gradually waned, with immunity starting to appear in rabbits during 2007. Investigations into the cause of the immunity discovered that a benign endemic virus (RCV-A1) was present in New Zealand and this temporarily protected rabbits from the RHDV1 strain.[31]

As rabbit numbers started to increase again, attention turned to other variants of the rabbit disease which might address resistance to RHDV1. Regulatory approval was obtained in February 2018 by a national consortium of pest management agencies, led by Environment Canterbury, to import and release RHDV1 K5 after it had been used in Australia a year earlier. This new Korean variant of the disease was thought to overcome the protection provided to rabbits by the endemic and benign RCV-A1. A major nationwide release of the K5 variant was undertaken during March and April 2018.

Disappointingly, the release has had little impact on rabbit numbers. A subsequent investigation revealed yet another variant of the disease in the rabbit population, known as RHDV2. This appears to have the effect of giving rabbits immunity to RHDV1, something that even the newly introduced K5 strain could not overcome. It is not known how the new variant entered New Zealand and whether it was intentionally or unintentionally introduced.

The overall result of all these disease variants being present in New Zealand is that RHDV1 is becoming less effective within the rabbit population and the K5 strain is disappearing. Rabbit control has reverted back to the earlier methods of using 1080-laced carrots, Pindone or shooting. Poisoning is expensive and there is a very vocal minority opposed to the use of 1080 for pest control. As rabbits prefer to live on dry soils and feed on nearby lusher areas, this is causing more of a problem on the dry outwash areas of the eastern Basin compared to the moister moraine areas (which are more prone to wilding pine invasion).

3.4 Tenure review

Tenure review stems back to the Land Act 1948 which set up the current arrangements for High Country pastoral leases. The development of the Act was driven by two related concerns. The first was the environmental degradation that was occurring as a result of farmers adopting a short-term view on how they managed the land, thought to be driven by the insecurity of leases. Secondly, soil conservationists were concerned about the protection of fragile High Country soils. As a result, pastoral leasehold tenure was made perpetually renewable (on a 33-year term) with any improvements belonging to the lessee. These terms were designed to encourage investment in pastoral farms and a longer-term approach to management.[32] In addition, restrictions were placed on stock numbers, something which had not been possible under previous leases.[33] Reflecting the concerns about soil degradation, the leases excluded any rights to the soil, or to undertake activities that might disturb the soil including burning, clearing vegetation, ploughing, sowing or cropping.[34] In the Mackenzie Basin, over half of the land was under pastoral lease when the Act came into force.[35]

Under the Land Act, the Commissioner of Crown Lands was the consenting authority for any changes to land use beyond extensive pastoralism. The considerable power vested in the Commissioner was designed to reduce political interference in decision-making and to operationalise core processes. Today, the Commissioner makes decisions on tenure review, discretionary consents and the management of pastoral leases.[36]

The introduction of this more certain land tenure regime for runholders was followed by two decades of pastoral improvement during the 1960s and 70s. As already mentioned, there were considerable developments in agricultural technology which supported this, including the availability of aerial oversowing and topdressing and improved pasture species. There were also catchment board 'run plans', which were developed for each station, to guide farm management and retire some of the most fragile land from grazing.[37] This was supplemented by a raft of government support schemes established during the later 1970s in order to increase production. The Land

Development Encouragement Loan Scheme provided cheap loans to develop unproductive land. There was also the Livestock Incentive Scheme, which encouraged farmers to carry more stock, regardless of quality, and the Supplementary Minimum Price Scheme, that guaranteed prices for produce when export values fell. One Mackenzie Basin runholder who took advantage of these support schemes was Jim Murray at Glenmore Station, who used the cheap money to cultivate more land and subsequently increase stock levels.[38] During this period, the government was effectively subsidising land intensification in the Mackenzie Basin and elsewhere around rural New Zealand.

These farm subsidies were removed in the mid 1980s, as part of the broader shift towards a stronger market-led approach to New Zealand's economic management. At the same time, there was growing awareness of the conservation, landscape and public recreation values of the High Country, which had previously been regarded by government as a resource for agricultural production. This coupled with a "changing political and economic climate means the context in which pastoral land is now managed has changed dramatically from when the current Land Act was enacted."[39]

The thinking behind tenure review, a process whereby pastoral leases were split into conservation land and freehold land, had its beginnings during this period. Brower notes that the development of the concept was supported by two separate strands of thought.[40] The first was the conclusion that restrictions on pastoral leases were causing severe under-development of the pastoral estate, which was supported by the 1982 government-initiated Clayton Commission of Inquiry. The Commission recommended largescale freeholding of pastoral land to allow diversification in order to support better pest control, productive farming and grassland health. This was followed by the government's Working Party on Sustainable Land Management which released a report in 1994 (the 'Martin Report'). This recommended reform of pastoral land legislation "with the object of freeholding all land not required by the Crown for the public interest". The Working Party argued that freeholding would allow farmers to use the land more 'sustainably'.[41]

"Aerial topdressing and seeding, aerial poisoning of rabbits, new fencing methods, correction of soil deficiencies and seed inoculation, improved pasture species and modern four wheel drive vehicles, to mention just a few, have completely changed the farming character of the High Country. Instead of being land only fit for wide range grazing as it was in 1948, it is now an area with considerable potential for increased production, subdivision and diversification."
(Clayton Commission of Inquiry)[42]

At the same time, a number of lessees had already reached agreement with the Crown to freehold parts of their land, with the balance being transferred to the conservation estate. The agreements were being reached under the Land Act, in an ad hoc manner, with the Act not specifically contemplating such arrangements.

Topdressing

Government was keen to regularise this approach and standardise the tenure review process. It also wanted to exit its role as lessor, partly because the cost of managing the leases ($2.4 million in 1994) was greater than the rental revenue received (just $1 million). In addition, the condition of the land appeared to have recovered since the 1940s through improved agricultural practices, thereby reducing the need to retain it under more constraining leasehold terms.[43]

Some recreationists and conservationists were also keen to see land tenure reform. They were concerned about the lack of access to High Country pastoral lease land and the loss of indigenous species through the degradation of fragile areas. They wanted to see a portion of the leases converted to public reserves. This was partly in response to the 'Deer Wars' of the 1970s and 80s, during which runholders excluded deer hunters from their land due to the development of the lucrative live capture deer industry. Previously, hunters had been generally welcomed onto stations as they removed animals that were considered to be pests. In 1984, recreationists and conservationists formed an alliance known as the Public Lands Coalition which launched a campaign seeking to return land above 1,000m to full Crown ownership while allowing continued farming on low-altitude land.[44] Such an approach did not have universal support, with some opposed to the rather simplistic, binary split of pastoral leases.

A spotlight on Pūkaki Downs tenure review

Pūkaki Downs was one of the early stations in the Mackenzie Basin to go through tenure review, prior to the legislative change which made specific provision for it. The process was completed in 1999 and 3,900ha was freeholded. Subsequent to freeholding, part of the land was subdivided into lifestyle blocks on the edge of Lake Pūkaki. The property has a mature wilding conifer forest which is one of the major seed sources for wilding spread in the Basin. The forest has been accepted into the emissions trading scheme and the funds from carbon credits have helped pay for wilding control on the rest of the property, which amounts to around $400,000 a year.[45] The property also has an organic lavender farm and provides tourist accommodation.

The Crown Pastoral Land Act came into force in 1998 and, although not an amendment to the Land Act 1948, continued its general approach and must be read in conjunction with it. The primary objects of tenure review, as set out in section 24, included promoting "the management of reviewable land in a way that is ecologically sustainable" and enabling the protection of significant inherent values of reviewable land, by creating protective mechanisms, or preferably, by restoring the land to full Crown ownership and control. Subject to the first object (ecological sustainability), the purpose was to enable reviewable land "capable of economic use to be freed from the management constraints" resulting from the leasehold tenure. Subject to all these considerations, the purpose of tenure review was to make easier the securing of public access to and enjoyment of the land, and to freehold the land.

A spotlight on tenure review

Tenure review is the process by which the tenure of land owned by the Crown, but subject to a pastoral lease, is reviewed. It is a voluntary process, with the underlying objective of extinguishing the pastoral lease and granting the lessee freehold tenure and/or transferring full tenure to the Crown.

The tenure review process, in part, served to formalise ad hoc negotiations that were taking place between Crown pastoral lessees and the Crown during the 1990s. At that time, High Country pastoral farming was not faring well – the market price for wool had dropped and the pressure from rabbits was intensifying, meaning increased costs for pest control. Farmers were seeking greater flexibility to intensify their land and diversify their income.

This was enabled, on a case by case basis, by transferring part of the lease into freehold in exchange for the return of areas of significant natural values to Crown management. During this time 107,000ha of pastoral lease land was transferred to freehold, and 69,000ha was returned to Crown management.[46]

In 1998, this process was formalised under the Crown Pastoral Land Act. The Act clearly sets out the objects of tenure review in section 24, which are repeated below:[47]

"The objects of this Part are —

(a) to—

  (i) promote the management of reviewable land in a way that is ecologically sustainable:

  (ii) subject to subparagraph (i), enable reviewable land capable of economic use to be freed from the management constraints (direct and indirect) resulting from its tenure under reviewable instrument; and

(b) to enable the protection of the significant inherent values of reviewable land—

  (i) by the creation of protective mechanisms; or (preferably)

  (ii) by the restoration of the land concerned to full Crown ownership and control; and

(c) subject to paragraphs (a) and (b), to make easier—

  (i) the securing of public access to and enjoyment of reviewable land; and

  (ii) the freehold disposal of reviewable land."

The objects of Part 2 of the Act (addressing tenure review) reflect a clear legislative hierarchy which gives primacy to managing the land in an ecologically sustainable manner. This object is given more legislative importance than freeing the land from management constraints, which in turn is more important than the obligations in (b) and (c).

This results in a "trifecta of public good goals: first to remove management constraints over economically useful land *but* only if ecologically sustainable; second, to protect SIVs [significant inherent values], ideally through full Crown ownership; *and* third, to facilitate public rights of access and freehold disposal".[48] This indicates a preference for land containing significant inherent values to be returned to full Crown ownership, and for conservation covenants to be considered only as a subsidiary outcome.

The objects contained in section 24 are matters that must be taken into account when making decisions on tenure review under section 25, along with the "principles of the Treaty of Waitangi" and "if acting in relation to land used or intended to be used by the Crown for any particular purpose, that purpose".[49] Despite this clear statutory framework, the implementation of section 24 has tended to favour the secondary objects, by freeholding Crown pastoral lease land, while ignoring the primary objects of ensuring land is managed in an ecologically sustainable manner and in a way that protects significant inherent values.[50]

When the 1998 Act came into force, it was seen as a 'win-win'. Runholders would get freehold title to productive land, which would enable them to diversify their economic activities, recreational interests would get access to the High Country, and conservationists would get grazing removed from fragile high elevation land.[51] It was envisaged that, by 2008, no pastoral leases would remain.[52]

Ben Ōhau was the first station in the Mackenzie Basin to complete tenure review in 2001 after the passage of the Crown Pastoral Land Act. As part of the process, 1,484ha was transferred to DOC and 4,221ha was freeholded.

Early tenure review agreements employed an 'altitude model', where the high-elevation land became the basis of conservation parks, and the lower land (which was already more highly modified and had more productive value) was freeholded. It was expected that this freehold land would become more intensively farmed, except for any areas specifically protected by covenant.[53] The practical effect of tenure review was to remove the option of grazing high-altitude tussock grasslands. This meant that stock could no longer be seasonally moved onto the higher lands during the warmer months to let the lowlands recover. In this way, tenure review destroyed the 'balance' of some farms and drove further intensification of the Basin floor.[54]

Salmon farming (foreground) with dairy conversion (background) on the Basin floor

"On hot summer days we used to kick the sheep up onto the hills to save the flats. Now with tenure review that safety valve has gone. There is no stock further up and we need extreme development on the flats to pay the bills."

(Runholder interviewee)

Land Information New Zealand (LINZ) administers tenure review on behalf of the Commissioner of Crown Lands. In Canterbury, each individual station proposal was considered on its own merits and as a stand-alone proposition. Negotiations did not take into account the broader public purpose of developing a planned and cohesive system of High Country public conservation land.[55] In contrast, a more comprehensive approach was taken in Otago to tenure review across the leases on each range.

"I believe tenure review was an excellent mechanism for protecting the High Country, but it did not produce the desired outcomes for protecting ecological values because of the failure of LINZ, as the ultimate decision-maker, to understand the importance of natural values and view the potential outcomes on a regional basis, rather than on a property by property basis."[56]

It was not long before concerns were raised about outcomes from the tenure review process, especially in the Mackenzie Basin. The privatisation of 9km of the Lake Tekapō lakeshore, when the Richmond Station tenure review was finalised in 2006, proved controversial and in 2009 a 900ha section of the eastern fringe of the lake was

Shores of Lake Tekapō

subdivided into six sections.[57] At the 2006 New Zealand Ecological Society's annual conference, a group of ecologists from Landcare Research and DOC presented their findings that tenure review was privatising the most ecologically threatened areas and protecting areas which provided the least value for biodiversity. In other words, it was making conditions worse for threatened species rather than better.[58] In the Mackenzie Basin, this was because most of the threatened biota was not on the steep country (which was being protected) but on the Basin floor (which was being freeholded).

In some cases, there were few conservation gains at any altitude. Brower gives the example of six properties located on the Lindis Pass, an iconic entry and exit point to the Mackenzie Basin from Queenstown and Wanaka, with the Killermont, Longslip and Dalrachney Stations being on the Basin side of the pass. The six stations managed to freehold 99.8 per cent of their land (18,000ha) with only 33ha going to conservation. A covenant was placed over 2,877ha (15 per cent of the land) to prevent subdivision, but grazing could continue on the covenanted area, and irrigation remained a possibility.[59] There has been significant modification of large areas of Killermont station since tenure review was completed and, by May 2019, an application was lodged for a water permit which would enable irrigation, as well as three cubicle farming dairy sheds.

The outcomes of tenure review within the Mackenzie Basin were summarised by Hutchings and Logan in 2018. They reported that a total of 88,336ha, or one third of the Basin floor (totalling 269,000 ha), had been freeholded since 1998. Much of this land is below 1,000m and located close to roads, lakes and rivers.[60] On the positive side, Young (2012) concluded that tenure review, coupled with purchases by the Nature Heritage Fund totalling 25,901 ha, had contributed to a significant increase in conservation land in the Basin from around 140,000ha in the late 1990s to 260,000ha, albeit most of it located on the higher slopes. The Ahuriri (49,000 ha) and Ruataniwha (36,000 ha) conservation parks were established during the mid 2000s and have opened up recreational opportunities in the Basin. However, while

Lindis Pass

these conservation parks protect a number of valuable ecosystems (such as moraine wetlands) none protect significant dryland ecosystems. Only a small proportion of conservation land in the Basin is below 800m (ie on the Basin floor), but the amount did more than double, from around 11,500ha in 2012-13 to 24,000ha in 2019, as a result of tenure review.[61]

"... the outcomes of tenure review have been both legalistic and binary rather than landscape and ecosystem oriented. They are legalistic in the sense they seem to relate largely to the property in question and give little obvious consideration to concepts of landscape or related ecological connectivity. They are binary in the sense that much of the land is either retained in Crown ownership, or is freehold free of broad covenants. The difficulty is that so many of the small native plants are, as we have described, sparsely spread through in areas which are on the evidence before us, very important to the survival of (many) species but have been given no protection in large areas of freehold land."[62]

There has been much commentary on the extent to which tenure review has contributed to the 'greening' of the Basin. Young observes that not all of the greening that has occurred is due to tenure review. Irrigation and development on lands south of the Ōhau River (between Twizel and Ōmarama), which has occurred since the early 2000s (and is further discussed in Chapter 4), has largely been on land freeholded after WWI or WW2. He credits the permissive controls in the Waitaki District Plan for this development.

Young notes that a further two properties have been significantly modified due to the clearance of large wilding tree infestations and conversion to green pasture: Pūkaki Downs and Rhoborough Downs. He observes that, if management under the Land Act had been properly exercised (and the requirement that lessees keep their land free of weeds enforced), then the wilding tree problem would not have reached a stage where such fundamental land modification was required post tenure review.[63] The other five properties have some modification, but in Young's view, not above that to be expected when depleted tussock grasslands or semi-developed pasture lands are freeholded. Two of these near Twizel have also developed small areas of lifestyle block subdivisions and a third has land earmarked for subdivision.[64]

Brower et al tracked land use change in relation to five different land tenure categories in the Mackenzie Basin, freehold land in 2003, conservation land in 2003, new freehold land since 2003, leasehold land and new conservation land. Overall the study found that in less than 15 years (from 2003 to 2018) intensified land use in the Mackenzie Basin had more than doubled in extent. From 2014 to 2017 there were significant accelerations in intensification of the new freehold and current pastoral lease land. There was 9,000ha of intensification on pastoral leases and 16,000ha on new freehold land by 2017. This means that government decisions to either freehold or grant discretionary consents opened the door to two thirds of the 25,000ha of intensification between 2003 and 2017. Significantly, the intensification was not just due to freeholding, and the granting of irrigation consents by Environment Canterbury, but was also related to the granting of discretionary consents on pastoral leasehold land.[65] This indicates a significant government policy breakdown, whereby the administration of Crown pastoral leases was failing to protect inherent values and the Mackenzie Basin landscapes were being degraded.

In early 2019 government decided to end the tenure review process, although those runholders who have accepted a substantive proposal prior to legislative changes being made, will be allowed to complete the process.[66]

Key messages

- Current evidence indicates that grazing short tussock lands in the Mackenzie Basin may not be sustainable without fertiliser and that fertiliser supports a dominance of exotic species.
- The development of the upper Waitaki hydropower scheme fundamentally changed the Basin. Much of the productive land within the stations was flooded and this resulted in the remaining flat land being farmed more intensively. To help offset the effects of land loss, government promised access to irrigation water, thereby paving the way for greening in the Basin. In addition, thousands of pines were planted as part of beautification works, and these are now major seed sources for wilding pines.
- Rabbits invaded the Basin during the 1880s and quickly reached plague proportions. There have been many different government approaches to the rabbit problem over the past century, with varying levels of success, but numbers plunged after the illegal introduction of the RHDV1 virus. The rabbit population is now developing an immunity to this disease and recent efforts to introduce alternative strains have been ineffective. The costs of rabbit control are consequently likely to increase.
- Tenure review (in addition to land acquired by the Nature Heritage Fund) has significantly increased the amount of conservation land in the Mackenzie Basin, but has also freeholded much of the lowland areas where the most threatened biota is located.

ENDNOTES

1 Lloyd, 2008, 12
2 Treskonova, 1991
3 Lloyd, 2008, 6
4 Lloyd, 2008, 5
5 Head, 2016, 28
6 Head, 2016, 28
7 Lloyd, 2008, 5
8 *Federated Farmers* v *Mackenzie District Council* [2017] NZEnvC 53, [70]
9 Espie, 1997, 2-3
10 Espie, 1993, 8
11 Espie et al, 1984
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14 Espie, 1997
15 Walker et al, 2016
16 O'Connor, 1976, 73; Sheridan, 1995, 23
17 O'Connor, 1976, 73
18 O'Connor, 1976, 73
19 Martin, 1991, 195
20 Hobbs, 2015, 66
21 Hobbs, 2015, 117
22 Sheridan, 1995, 76
23 Hobbs, 2015, 136-139
24 Sheridan, 1995, 104
25 Sheridan, 1995, 108 and 178
26 Peden, undated
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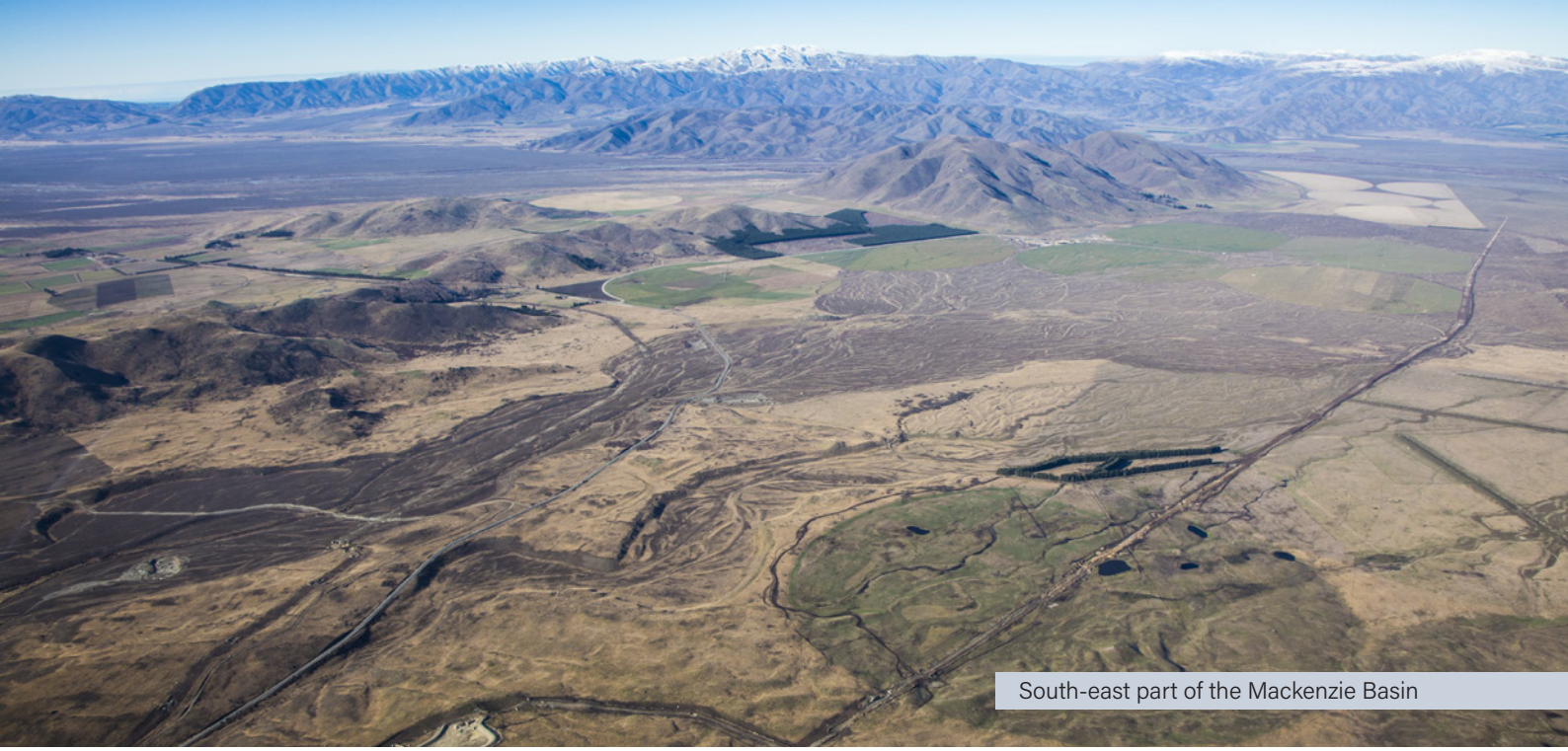
28 Peden, undated
29 Parliamentary Commissioner for the Environment, 2009, 63; Peden, undated
30 Brower, 2008, 33-34
31 https://www.landcareresearch.co.nz/science/plants-animals-fungi/animals/vertebrate-pests/biological-control-of-rabbits/faq
32 DTZ, 2008, 6
33 Committee of Inquiry into Crown Pastoral Leases and Leases in Perpetuity, 1982, 5
34 Hutchings and Logan, 2018a, 13
35 Brower et al, 2018, 47-48
36 LINZ, 2019a, 4
37 DTZ, 2008, 6
38 Philp, 2014, 188
39 DTZ, 2008, 6
40 Brower, 2008, 31
41 Brower, 2008, 31-32
42 Committee of Inquiry into Crown Pastoral Leases and Leases in Perpetuity, 1982, 12
43 LINZ, 2019a, 4
44 Brower, 2008, 32-33
45 Mitchell C, 2016
46 Parliamentary Commissioner for the Environment, 2009
47 Crown Pastoral Land Act 1998, s 24
48 Brower and Page, 2017
49 Crown Pastoral Land Act 1998, s 25(1)
50 Brower and Page, 2017
51 Brower, 2008, 33
52 LINZ, 2019a, 4
53 LINZ, 2019a, 4-5
54 Parliamentary Commissioner for the Environment, 2009, 59
55 Brower, 2008, 57
56 Young, 2019, 2
57 Bailey, 2008
58 Brower, 2008, 76
59 Brower, 2008, 114
60 Hutchings and Logan, 2018, 32
61 Young, 2019, 2
62 *Federated Farmers* v *Mackenzie District Council* [2017] NZEnvC 53, [419]
63 Young, 2019, 3
64 Young, 2019, 3
65 Brower et al, 2018, 48-49
66 LINZ, 2019, 18



South-east part of the Mackenzie Basin

4 CURRENT AND FUTURE LANDSCAPE PRESSURES

This chapter builds on the material in Chapter 3 to focus on current and future pressures on landscape values in the Mackenzie Basin. Many of the historical pressures are still playing out today, meaning that there is some overlap between the two chapters. This chapter starts with a review of the economics of High Country farming, examines the process of intensification of farming in the Basin, and then moves on to investigate the impact of wilding pines and other invasive species, tourism and finally climate change.

4.1 Economics of High Country farming

Pressures on the Mackenzie Basin's landscapes are underpinned by the economic drivers that impact land use decisions.[1] Overall, the data indicates that High Country farms have been increasingly profitable, at least prior to the Covid-19 pandemic. In terms of farm products, meat is comprising an increasing proportion of the value derived from sheep farming in New Zealand, as shown in Figure 4.1. Reflecting this trend, some High Country runholders are transitioning towards breeds of merino sheep that produce meat as well as wool, in order to diversify income streams.

A spotlight on merino meat

Some stations in the Mackenzie Basin are specialising in the production of merino lamb, branded as 'Silere Alpine Origin Merino', which is marketed to high-end restaurants and chefs. It is also being sold by the UK online retailer Ocado.[2] Merino meat has a lower fat content than crossbred lamb and is also high in omega 3. It is therefore a healthier option, whilst providing an attractive silky texture and mild flavour. The initiative is aimed at differentiating merino meat, in order to avoid the commodity sheep meat market, and to add value.

Dairy cows grazing on irrigated pasture

The data in Figure 4.1 does not differentiate between the prices received for different types of wool. Our interviews in the Mackenzie Basin indicate that fine merino wool (which is the predominant wool grown in the Basin) has been selling for high prices in recent years, at a time when the price for coarser wool has collapsed. This is corroborated by the Ministry for Primary Industries Situation and Outlook for Primary Industries 2019 report, which noted that fine wool export prices were at near-record levels of NZ$22 per kilogram, while coarse strong wool prices had remained at around NZ$4 per kilogram.[3]

"Merino farms are more profitable than dairy farms currently." *(Runholder interviewee)*

Several merino wool growers reported that they had long term contracts with producers of merino wool garments including Icebreaker, Patagonia and a Norwegian company called Devold. This provides growers some certainty into the future over price. We were told that Devold manufactures each producer's wool separately and that every garment identifies the property where the wool was grown. Two of the major buyers of fine wool in the Mackenzie Basin, Icebreaker and Patagonia, require suppliers to meet certain environmental standards. For example, the managers of Balmoral Station have formulated a 20-year environmental research plan in order to comply with these requirements. Although some growers have experimented with producing their own garments, this became too complex and uneconomic, as it is no longer possible to spin fine wool in New Zealand.

In terms of on-farm profitability, sheep and beef farms in High Country areas of the South Island (including the Mackenzie Basin) have been at least as profitable, and in most years substantially more profitable, than the average of sheep and beef farms on other classes of land over the last 10 years (see Figure 4.2). High Country farms have seen positive financial returns over the last 10 years, ranging from $11,211 in 2009-10 to $314,900 in 2018-19.

When considering the level of return, it is important to note that when the farming enterprise is intergenerational, properties typically need to support at least two families at any one time – the family that is actively farming the land and members of the former generation who may have spent much of their life running the farm but now need an income from the land to support their retirement.

Merino sheep

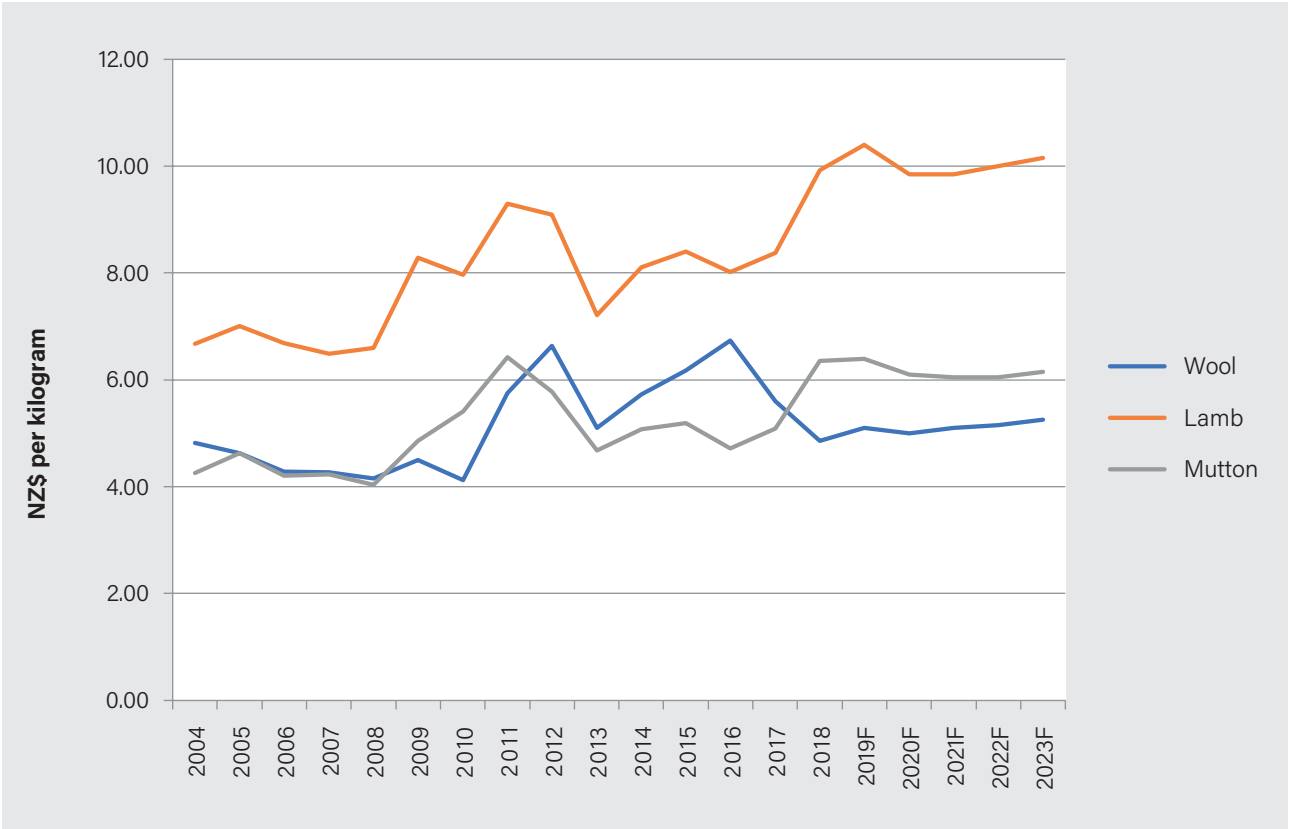


Figure 4.1: Sheep meat and wool prices in New Zealand 2004-2023
(Source: Ministry for Primary Industries, 2019, Economic Intelligence Unit; 'F' refers to forecast)

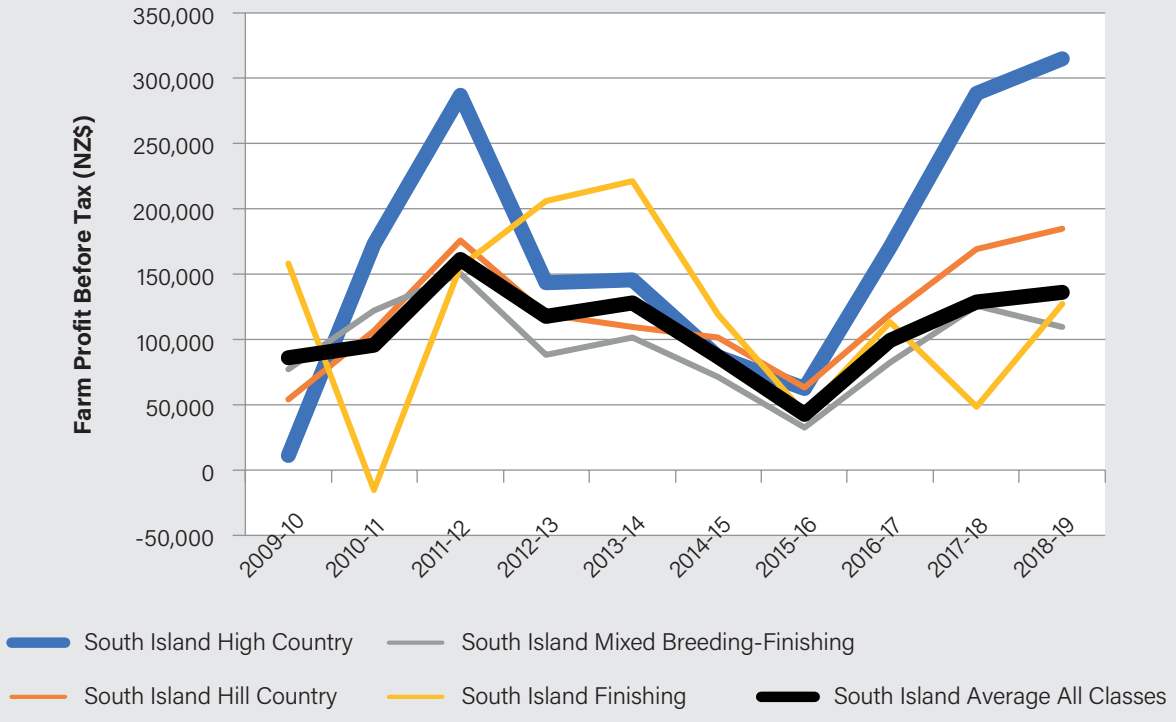


Figure 4.2: Farm profit before tax on different land classes in the South Island 2009-2019
(Source: Beef and Lamb New Zealand Sheep and Beef Farm Survey)

Average annual expenses per High Country farm are broken down by source in Figure 4.3. These data indicate that increases in overall expenses are driven by multiple costs, with the largest increases occurring in wages and fertiliser. The costs of pest and weed control have also increased over time. However, despite the anecdotal evidence that the management of pests and weeds represents a major cost to High Country farmers, when averaged out over multiple High Country properties it appears to constitute only a small proportion of overall farm expenses.

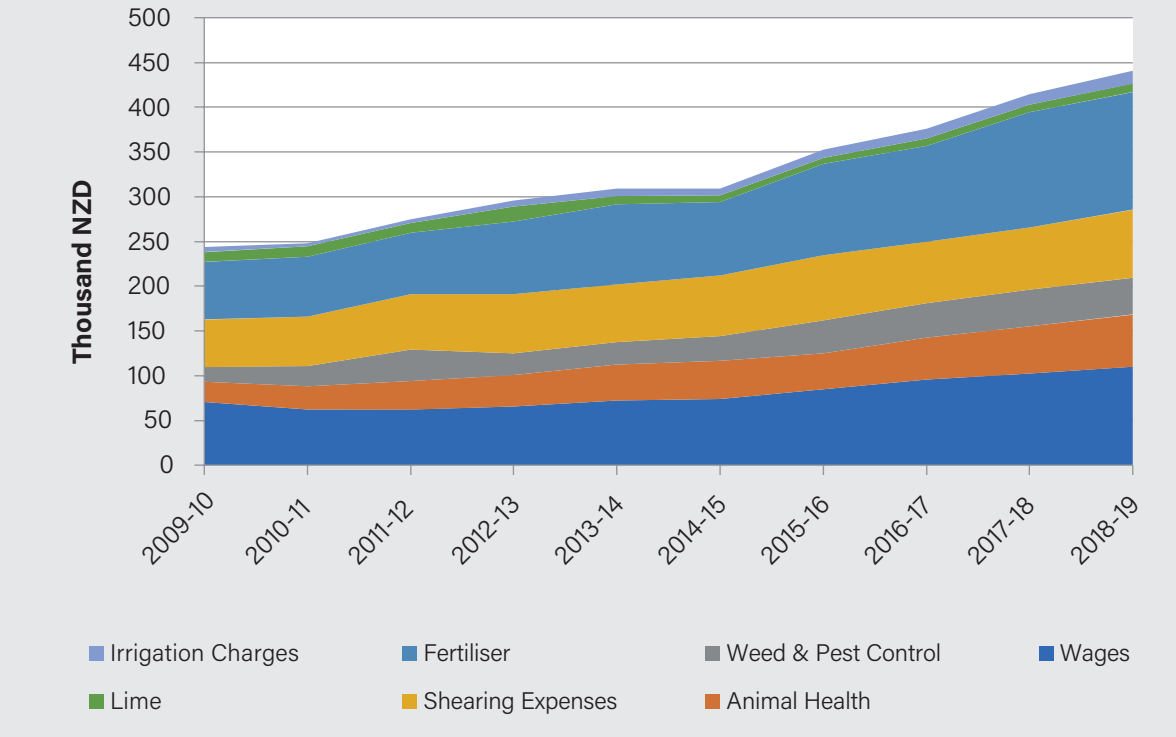


Figure 4.3: Breakdown of expenses on High Country farms in the South Island 2009-2019
(Source: Beef and Lamb New Zealand Sheep and Beef Farm Survey)

Relative to farms on other land classes, High Country farms have experienced the largest increases in revenue over the last 10 years, with a particular boost since 2014-15 (see Figure 4.4). Total gross farm revenue in 2018-19 was more than double that in 2009-10. Although costs have increased over the same period, it has been at a much lower rate. This indicates that High Country farms were doing much better financially than in the past. Such improved financial status may create opportunities for investment in landscape protection initiatives. Farming makes a substantial economic contribution to local communities with around $34.5 million likely being added to the Mackenzie District economy per annum.[4]

In general, it appears that pastoral farming in the High Country has remained profitable and viable largely because of increases in productivity (in addition to improved market prices). Since the 1980s, there has been a 25 per cent increase in lambing percentage and carcass weight, and a 50-gram-a-day increase in lamb growth rate. Lamb productivity per labour unit has increased by 35 per cent.[5]

The current profitability of High Country farms has been backed up by substantial increases in the total value of farm assets over the last nine years – driven primarily by increases in farm land value. According to Morris, sheep and beef farms in New Zealand comprise two businesses: the property business (where profits are made by changes in asset values), and the farming business (where profits are made through primary production).[6]

Historically, the property business has outperformed the farming business in many parts of the country. This also appears to have been the case on High Country farms in the South Island. Asset value has grown at a higher rate in the High Country than the average across all farm types. The total value of farm assets grew by 40 per cent in the High Country between 2009-10 and 2018-19 compared to only 32 per cent across all land classes (see Figure 4.5). The total asset value is now roughly 50 per cent higher on High Country farms.

This data suggests that the capital side of the High Country farming business has been highly profitable over the last decade, with the value of assets growing more than $4.5 million on average since 2009-10 – vastly more than the cumulative profits from farming over the same period. This creates the potential for considerable capital value to be released on the sale of the farm.

In the case of intergenerational farms the land asset value cannot easily be realised, as the farm is transferred between family members. High asset values can make succession planning more problematic, because it becomes more difficult for the family member taking over the farm to buy out his or her siblings. It also creates an incentive to intensify the farming operation so that the farm can be split into more than one economic unit in order to provide for multiple children. For example, at Maryburn Station, the proposal to put in four centre pivot irrigators (two of which were declined by Mackenzie District Council) was designed to create two economic farming units so that two sons could carry on farming the land independently of each other.

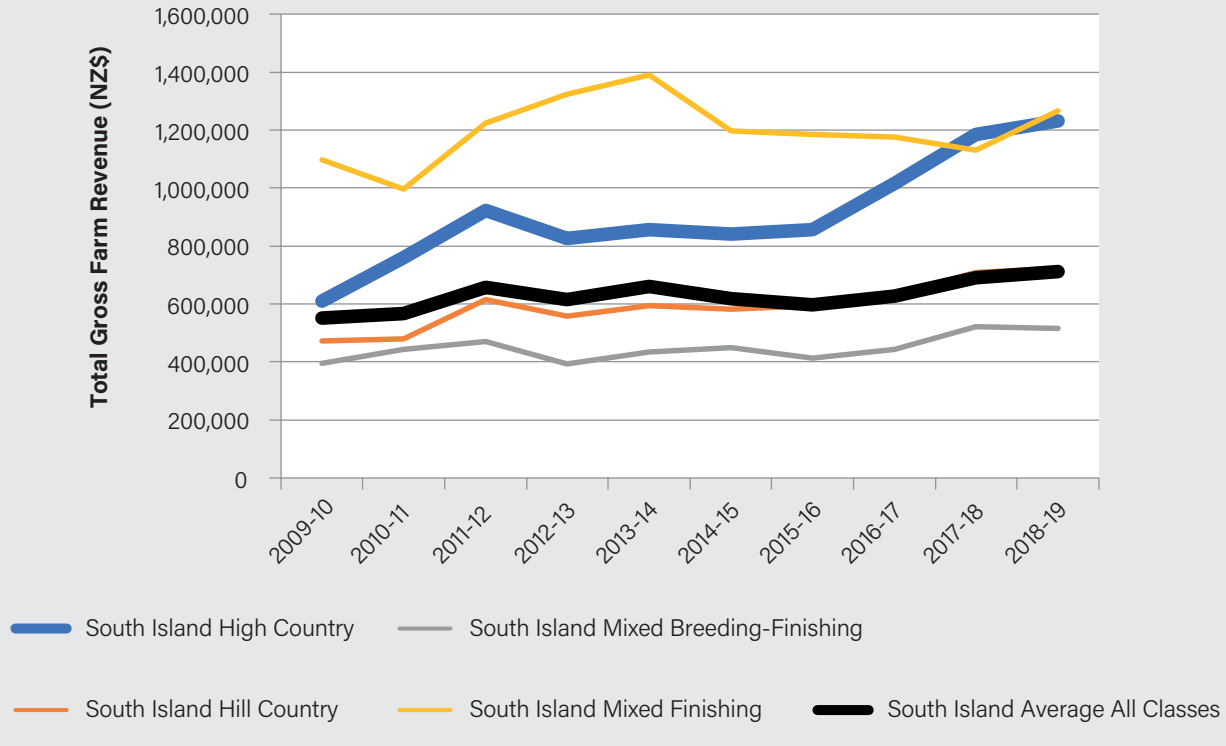


Figure 4.4: Total gross farm revenue on different land classes in the South Island 2009-2019
(Source: Beef and Lamb New Zealand Sheep and Beef Farm Survey)

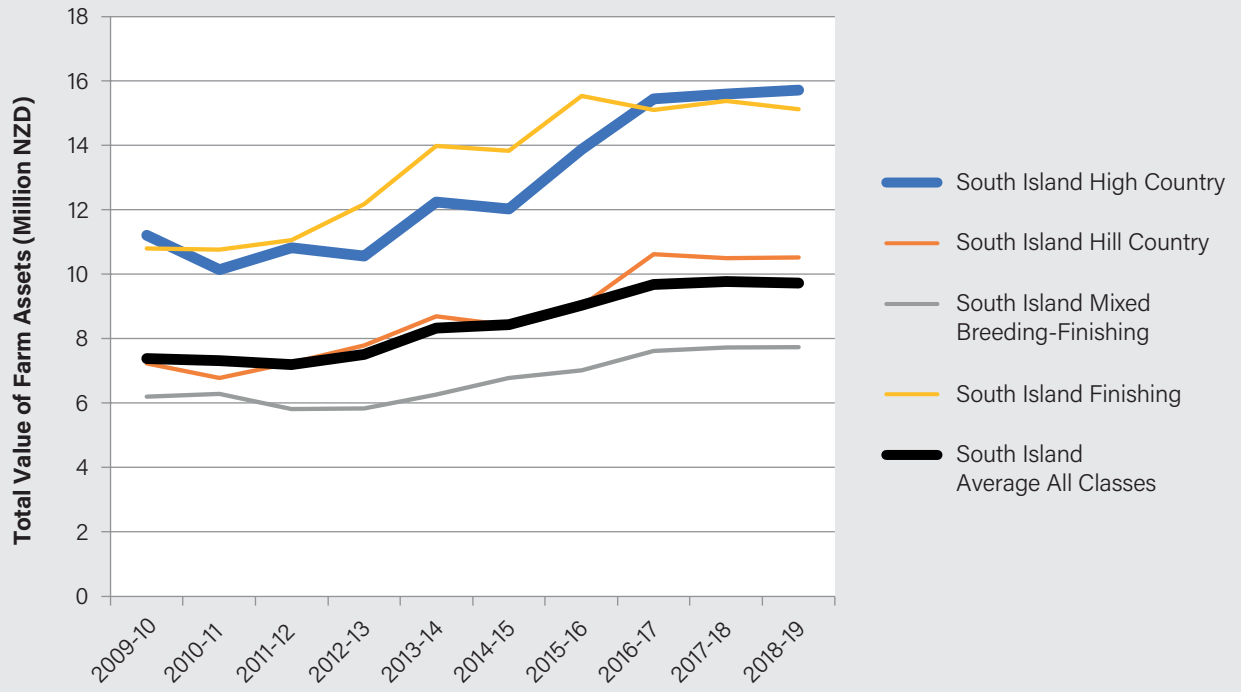


Figure 4.5: Total value of farm assets across different land classes in the South Island 2009-2019
(Source: Beef and Lamb New Zealand Sheep and Beef Farm Survey)

A spotlight on asset values

Sale prices of stations in the Mackenzie Basin provide additional insight into the capital value of the land. Recent sales include:

Rhoborough Downs Station (7,546 ha) which sold in 2011 for $3.2 million to the Wigley family; and after tenure review reduced the area to 4,495 ha, the freehold re-sold in 2014 for $8 million.

Guide Hill Station (3,550 ha) was sold to Hong Kong investor owned Blue Lake Investment in 2016 for $16.5 million.[7]

Mount Cook Station (2,600 ha) sold in 2017 for $4.8 million to the Gould's who previously owned Guide Hill Station.

This economic analysis was undertaken prior to the Covid-19 pandemic which is having a severe economic impact on the world economy. It is unclear how this will affect international prices for High Country farm products including merino wool and meat, but it could serve to drive down returns from previous levels in the short to medium term.

4.2 Intensification of farming

As indicated in Chapter 3, the development of the hydro works in the upper Waitaki catchment set the scene for the initial greening of the Mackenzie Basin. The provision of water for irrigation stems back to 1966, when an interdepartmental committee was established to investigate the water needs of farmers in the area and report back to the Commissioner of Works. This led to the 1969 Order in Council, issued under the Public Works Act 1928, to grant water rights to the Minister of Electricity for the hydro scheme, making provision for close to 173 million m^3 of water for irrigation in the Basin.[8]

During the 1970s, several stations took early advantage of this water. In 1971, supported by a government subsidy, a border dyke (flood) irrigation system was installed at Maryburn Station with water sourced from the Maryburn Stream. Godley Peaks Station installed gravity-fed spray irrigation in 1972 enabling haymaking and the production of supplementary feed for stock.[9] In the same year, Glenmore station established a border and dyke irrigation system taking water from the Cass River, initially using a water consent from the station's hydro plant. When that consent expired three years later, the station obtained a 30-year consent from the Waitaki Catchment Commission to irrigate 4,000ha of land. This irrigation enabled the production of winter feed which increased wool weight, produced higher lambing percentages and better stock health.[10] In 1977, the Wolds Station also obtained an irrigation consent.[11]

In 1976, O'Connor was upbeat about the potential of irrigation to revolutionise sheep farming in the Mackenzie Basin, although at that stage he did not contemplate that dairy farming might be possible. He observed that dryland farmers had their ewes in August and attempted to finish their lambs for the freezing works before the onset of the summer drought. Farmers with irrigation could afford to lamb some weeks later, when the weather was warmer, as the lambs could be fattened while pastures were growing

over the summer. He noted that on the stony terrace soils, carrying capacity was generally more than trebled by irrigation. Irrigation also enabled diversification into beef cattle finishing.[12]

More than 40 years later, we were told by interviewees that a small amount of irrigation has the potential to double the profitability of Mackenzie Basin farms. This is through enabling the growth of winter feed during the dry summer months, which can be used to carry animals through their first winter, after which they are large enough go to the works. One farmer told us that, prior to irrigation, he was selling lambs for $60-$70 per head at the Tekapō sale and after irrigation he was getting $150 for the animals at the works as well as $60 of wool from a first shear, totalling $210 per head. In addition to enabling stock to be 'finished' on the land, irrigation enables more flexible farm management, and can take pressure off paddocks during dry periods.

If sensitively located away from major roads and viewing locations, small areas of irrigation on large properties could have a reasonably small impact on the landscape values of the Basin, whilst enabling the dryland part of the farm to be more sustainably managed. This was the thinking behind the Mackenzie Agreement described in Chapter 7 below.

"Irrigation has changed the way people farm and the robustness of the property. It is a better environment to farm in as you have options. In stressful dry summers you don't have to use some of the land. You can manage stocking rates by using more of the pivot areas."
(Runholder interviewee)

"400ha of irrigation is a really good balance on a 10,000ha property. It allows us to finish off all our stock on the property which has doubled our income." *(Runholder interviewee)*

Unfortunately, the sensitive location of irrigation did not always occur, and the development of pivot irrigators has largely been in the public eye. In particular, irrigation infrastructure has been densely clustered along the edges of SH8 between Ōmarama and Twizel, which is the main route through the Basin from Queenstown. In addition, water has been used to support large-scale dairy conversions, with large proportions of a property being irrigated. This is illustrated by the analysis in the 2013 Mackenzie Agreement that 7,500ha of irrigation was proposed for relatively small scale development on 29 large sheep and beef properties (averaging around 300ha per property), but that a greater amount – 9,600ha – was proposed for large scale, intensive livestock farming on just five properties (averaging around 1,900ha per property).[13]

The greening of the Basin gained impetus from the late 1990s onwards. It was supported by the development of new centre pivot irrigation technology which enabled much more efficient use of water. The use of pivots could double the area of land irrigated by border dykes using the same amount of water. The availability of the pivot technology coincided with an upturn in the economics of merino farming, thereby enabling runholders to invest in the new equipment. Its deployment was supported by freeholding of land under tenure review, although as described in Chapter 3, much of the early irrigated land in Waitaki District was freeholded prior to this and pastoral leasehold land has also been irrigated.

The Benmore Irrigation Company was established in the early 1990s totake further advantage of the water allocated to irrigation as part of the Upper Waitaki hydro works. This created the platform for large scale greening of the flats in the Waitaki District Council's portion of the Mackenzie Basin. The company was initially set up by three farmers who wanted to irrigate their land with water drawn from the Ōhau River. Consent was granted in 1999 but it took another six years before construction started. The scheme finally became operational in 2006. By that time, it had grown to providing water to irrigate around 4,000ha on six farms located on each side of SH8 between Lake Ruataniwha and the Ahuriri River (see Figure 4.6).

As well as increasing the productivity of existing sheep and beef farms, the irrigation scheme set the scene for the expansion of dairy farming into the Mackenzie Basin. In 2003, a dairy farm was established on 2,500ha of freehold land bordering SH8 near Twizel in the Waitaki District, which was formerly part of Glenbrook Station. At first, 370ha of land was ploughed and sown in grass, with irrigation water being pumped from a borrow pit to two centre pivot irrigators. The irrigated area was substantially expanded once water from the Benmore system was available in 2006. With 65 per cent of the shares in the Benmore Irrigation Scheme, the property now has 1,500ha of irrigation, and milks 4,000 cows through two milking sheds.[14]

This introduction of dairying into the Basin was followed by a proposal of a very different nature and scale. In 2009, consent was sought to farm 17,850 dairy cows on the neighbouring 8,555ha freeholded Ōhau Downs Station. The proposal was based around the concept of cubicle farming, where the cows would be housed indoors for nine months of the year in 20 wintering sheds (each holding up to 650 cows) and would be milked by robots. There were similar applications for cubicle farming at Killermont Station and Glen Eyrie Downs,[15] although these were of a smaller scale.

At Ōhau Downs the effluent from the 20 sheds was to be collected into large effluent ponds, holding some 77 million litres, with up to 1.7 million litres of effluent being discharged to pasture daily. Water take consents were sought for irrigation and discharge consents for the effluent disposal. Land use consents for the buildings were also sought and granted by the Waitaki District Council on a non-notified basis.

The applications were lodged separately rather than being bundled into a joint process so that all the effects of the project could be considered together. The Environment Minister at the time, Hon Dr Nick Smith, was reported as saying that the applicants were "gaming" the resource consent process. There was considerable public concern about the proposal which received 4,852 submissions.[16] While many of these related to animal welfare matters, there were also concerns about the impact on the Mackenzie Basin landscape: cubicle farming barns are typically in the order of 30m wide, 6-7m high and 125-150m long, thus creating significant intrusion into the open, vast and uncluttered landscape.

After the discharge consent was called in by the Minister, the applicant withdrew that application. And after legal challenge by EDS, the land use consents were squashed by the High Court in 2010. The development did not go ahead. However, the controversy it caused was the impetus for the establishment of the collaborative process that led to the Mackenzie Agreement described in Chapter 7. It was also a forerunner to the Simons Pass development, which was of a similar scale and used similar tactics, as described in Chapter 8.

By 2012 the Benmore Irrigation Scheme was irrigating eight farms,[17] all freehold, including three dairy farms, four sheep and beef farms and one seed producer.[18] They include the 3,668ha Glenbrook Station, which was freeholded in 1991, where 500ha of the station is currently irrigated supporting a mix of lamb and beef finishing and dairy grazing, as well as rotation cropping. On the 5,854ha Benmore Station, which was freeholded in 1967, 740ha of flat land along SH8 is now irrigated.

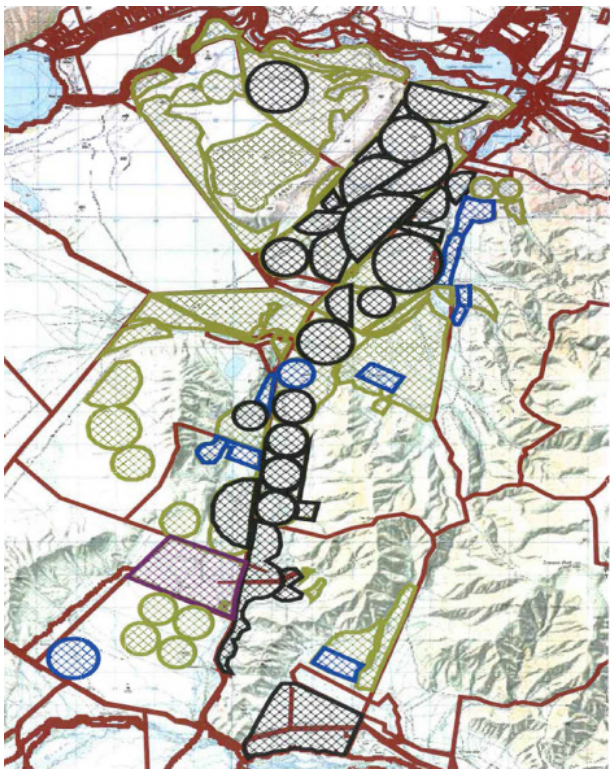
We were told that the clustering of irrigation infrastructure along SH8 occurred because this was where the most accessible paddocks were located. Although this also resulted in significant visual intrusion into the landscape, Environment Canterbury still granted the majority of applications. In addition, rules in the Waitaki District Plan enabled (and still enable) irrigation as a permitted activity in the rural scenic zone, which covers much of the Basin flats including those alongside SH8 (as more fully described in Chapter 5).

"No land use consent was required in the older days, just an ECan [Environment Canterbury] consent. As far as ECan was concerned it was dealing with farm land. It did not distinguish between farm land and High Country pastoral land. So, the irrigation happened in a strip along the road. This was the most accessible land when it snows so the stock is accessible most of the time." *(Expert Interviewee)*

"Pivots are so industrial in the way they work but they are the most efficient way to put water on. For every other reason they are awful. There are no trees. They have to remove all the trees for the pivots. I find them really confronting as a farmer. For growing grass they are brilliant but every other aspect is quite confronting. I feel the irrigation could have been done better and more discretely. If there had been wider margins from the roadsides there wouldn't be the confronting issue of it being in your face." *(Runholder interviewee)*

In 2015, the Benmore Irrigation Company applied to double the amount of land irrigated to 8,000ha. This was to be achieved by using the consented water more efficiently through the use of centre pivot spray irrigation on a number of properties. During a site visit, the Environment Canterbury Commissioners considering the application noted earthworks and the installation of irrigator pivots on several areas that were proposed for irrigation. One site was observed to be very green indicating that irrigation might have already been undertaken illegally.[19] The application was declined by the Commissioners in 2016.

Pivot irrigators along SH8



Black	Existing 3,989 ha irrigation under Benmore Irrigation Scheme
Green	Proposed 3,988 ha of new irrigation under Benmore Irrigation Scheme
Blue	Irrigation under other consents
Purple	Irrigation under the Benmore Irrigation Scheme and other consents

Figure 4.6 Benmore Irrigation Scheme
(Source: Duncan Cotterill, 2015)

Another irrigation scheme was developed in the Mackenzie Basin through the Mackenzie Irrigation Company. The Company was formed by a group of Basin runholders who unsuccessfully applied for water permits to take irrigation water from Lake Tekapō. The application was opposed in the High Court by Meridian Energy on the basis that all the available water had already been allocated (see Chapter 5). Following on from the court case, Meridian Energy entered into negotiations with the runholders and, in 2004, agreed that water would be provided for up to 60 farms with a total of 150 million m^3 per annum available for future irrigation. This potentially more than doubled the water that had already been consented for irrigation.

A 2004 assessment of the irrigation potential of this newly allocated water concluded that only 15 per cent of it was able to be immediately utilised due to only 3331ha of land being consented for irrigation. But a further 25,000ha could potentially be irrigated under the new allocation, assuming consents would be forthcoming. Brown and Harris concluded in their 2005 report to the Ministry for the Environment that: "Irrigation of an additional 25,000ha in the upper Waitaki would undoubtedly change the whole character of pastoral farming in the area environmentally, economically and socially".[20] Provision had been made for this water without such implications being considered. However, once water had been allocated to extensively irrigate farmland in the Basin, it was only a matter of time before it would be utilised, and the transformation heralded by Brown and Harris would occur.

The Mackenzie Irrigation Company was the vehicle through which water was accessed to irrigate and develop Simons Pass Station into a proposed large dairy hub for 15,000 cows, as described in Chapter 8. But it was not only Simons Pass Station that was getting water. As described in Chapter 5, during 2009 and 2010, 60 consents for new irrigation on 18,165ha of land in the Basin were lodged with Environment Canterbury, many of which were granted. As recently as 2016, Environment Canterbury granted 12 water permits for a total proposed irrigation area of around 13,000ha[21] and more consents are under consideration. Hutchings and Logan concluded in their 2018 report that "of 24,600ha reportedly consented for irrigation, 7,500 is currently irrigated."[22] This means that the scale of landscape change that has already been consented by Environment Canterbury, but is yet to take place, is three times that which is currently visible in the landscape. Hutchings and Logan also noted considerable difficulties in determining how much land had actually been consented for irrigation in the Basin, highlighting the lack of adequate tracking and monitoring by Environment Canterbury of the cumulative impacts of its consenting activities.

Irrigation negatively affects a range of landscape values in the Mackenzie Basin. The greening caused by the application of water to the land detracts from the large, open, brown landscape and its natural values. The large centre pivot infrastructure also intrudes into the largely natural (and unbuilt) landscape. In addition, irrigation fundamentally changes the flora and associated fauna of the area, eliminating indigenous species which have evolved to survive in a dry desert environment. As well as impacting the area directly irrigated, the practice can also create a moister environment in the surrounding area which can have flow on consequences. For example the nationally critical plant *Lepidium*, which has a stronghold in the Mackenzie Basin, is susceptible to white rust. White rust has already been found on Simons Pass Station and is likely to be spread through irrigation.[23]

"Pastoral farming may be generally appropriate to protect those ONL values, but we judge that pastoral intensification is often inappropriate, and that agricultural conversion is usually unsustainable in the Mackenzie Basin when sustainability is properly understood to include all components of the ONL's character. That comprehends both the threatened endemic flora, and the traditional pastoral farming practices embodied (or caricatured) in the "Mackenzie Country" image projected in advertisements."[24]

4.3 Wilding pines and other invasive species

As described by Young (2016), the cause of the wilding pine problem in the Mackenzie Basin stems back to an historical enthusiasm for planting trees in the area. For example, by the early 1920s around 60,000 trees had been planted at Mount Cook Station which is now one of the most significant seed sources in the Basin. In the early 1940s, concerns about erosion and soil conservation resulted in the formation of the Waitaki Catchment Commission, which planted 300,000 trees (including at Ben Ōhau) between 1947 and 1970. Special conditions were also attached to some of the pastoral licences which required the lessee to plant at least 0.4ha of trees each year in order to reduce soil erosion. The Department of Lands and Survey provided the trees and employed a person to assist lessees with planting.[25]

However, as Young vividly describes, the scale of these plantings pale into insignificance when compared with the 'scenic' and 'recreational' enhancements undertaken as part of the mid and upper Waitaki hydro scheme. A total of 2.4 million trees were planted between 1958 and 1983, focused around the shorelines of the newly created and artificially raised lakes and along the Tekapō and Pūkaki river systems. Around 20 per cent of the trees were conifers, with 38 different conifer species planted including *Pinus. contorta, P. sylvestris, P. nigra, P. mugo*, Larch and Douglas. In addition, some 250,000 trees were planted around Twizel as part of the same project and many of these were also conifers. *P. contorta* has a very high spread risk, *P. sylvestris, P. nigra, P. mugo* and Douglas fir have a high spread risk, and Larch a moderate spread risk.[26]

Planting was also undertaken at the Tekapō Soil Conservation Reserve (now the Lake Tekapō Regional Park) from 1957 to 1976 in order to stop sand drifting over the highway. A total of 385,000 trees were planted by a range of agencies including the Waitaki Catchment Commission, Ministry of Works and Development and the New Zealand Forest Service. The trees included *pinus contorta,* although this species has since been removed from the regional park to reduce wildling spread.[27]
The Mackenzie District Council currently has seven commercial forestry plantations within the Basin which were planted between 1950 and 2000. They all contain *P. contorta, P. nigra, Douglas Fir and larch.*[28]

A spotlight on forestry in the Mackenzie Basin

The Mackenzie Basin was once seen as having excellent potential for forestry purposes and a number of studies were undertaken into the implications of such a land use change.[29] O'Connor concluded in 1976, "Forestry is possible on thousands of hectares of the Waitaki both lowland and highland. Indeed, were grazing animals to be withdrawn and ploughs and fires controlled, it is conceivable that there would be sufficient natural regeneration from the existing plantations in the Mackenzie Country for the bulk of the Upper Waitaki below 1,000 metres to become a coniferous forest in a few hundred years."[30]

There is currently little forestry in the Basin (apart from wilding forests) but with the emissions trading scheme providing credits for forest plantings, and the government's billion trees programme supporting forestry expansion, exotic forestry may be a threat to landscape values in the future. We were told that it was possible to earn $400 per ha from carbon credits for forestry in the Basin compared to $20-$25 per hectare from domestic stock. One prediction of future commodity prices indicates that the price for logs is likely to start sharply increasing within a decade.[31] This means that economics may strongly favour forestry as a future land use in the Basin.

Lake Tekapō Regional Park

More recently, government allowed the inclusion of wilding conifer species such as *P. contorta* within the emissions trading scheme, a loophole which has since been closed. Two forests in the Mackenzie Basin have been accepted into the scheme, at Pūkaki Downs (1,251ha) and Mount Cook Station (1,700ha approx.) This has made addressing these large seed sources more complex, as removal of the trees creates a significant financial liability if replanting is not undertaken. If action had been taken to buy out the credits when the price was low, the issue could have possibly been resolved at a reasonable cost, but now the price of units has risen (to $25 a unit) and is likely to further increase.

These legacy plantings are the root cause of the spread of wildings today. Most were either supported, or directly undertaken, by central and local government. As the plantings have matured over the years, the scale of the seed source problem has increased significantly. And as already indicated, the knockdown of rabbits after the introduction of the RHDV1 in 1997 also likely contributed to the problem, as rabbits effectively kept wilding seedlings at bay in some areas.[32]

By 2015, wilding pines had established on over 129,000ha of land comprising some 20 per cent of the main Basin area.[33] This was despite around $2.2 million being spent each year on wilding control, of which around $1.36 million was contributed by landowners and lessees in cash or in kind. Most undertake some wilding control, as does DOC.

The Department's efforts to keep wildings under control was hampered by budget cuts, at a time when it was receiving considerably more land to manage under tenure review, and some of the land the Department received was in poor condition. For example, we were told that the land transferred to DOC as a result of the Wolds and Irishman Creek tenure reviews, was badly infested with wildings which created a huge liability for the Department. This likely occurred because after entering the tenure review process, which can take some years, there is little incentive for lessees to spend money on weed and pest control for land that will likely be transferred to DOC. Although under the Land Act pastoral lessees are required to keep their land free of weeds,[34] LINZ has not generally enforced this requirement, and some pastoral leases are now heavily infested with wildings, with Ferintosh being a notable example.

As well as resulting in the loss of landscape and biodiversity values, the negative impacts of wilding conifer spread include loss of primary production (when productive land is infested), reduced water for irrigation and hydro-generation, loss of recreation and tourism opportunities, loss of heritage and Māori cultural values and loss of High Country farming culture.[35] Currently, wilding conifers are probably the biggest risk to the landscape and biodiversity values of the Mackenzie Basin.

The risk of wilding pines does not affect all parts of the Basin equally. Wildings are not able to establish in areas where deer are grazed or where there is irrigation and cultivation, such as for crop or feed paddocks.[36] Mob stocking by sheep can remove seedlings when they are small but can have negative impacts on vegetative cover and "... many landholders mentioned that standard grazing has minimal impact on the level of regeneration."[37]

Methods to remove wildings include spraying by helicopter or mechanical removal through the use of chainsaws or heavy machinery. The costs of control have reduced as more economic methods have been developed. If the land is covered in mature wilding forest, discing and cultivation of the land after the removal of the trees often occurs as a way to prevent reinfestation. Pastoral intensification is seen as the cheapest and most effective wilding control method.[38] This serves to further embed the loss of ecological and landscape values caused by the spread of the wilding trees in the first place.

When wilding pines invade the land a symbiotic fungi in the roots of the trees (mycorrhizal) also invades the soil. The fungi affects the soil flora, making the area more invadable by trees in the future. This means that, as wildings appear on the surface of the land, there is an invisible transformation also going on within the soil. It is therefore particularly important that new invasions are responded to promptly before mycorrhizal becomes established.

Much wood from wildings has little economic use as it is generally not suitable for timber due to the lack of silviculture. This makes removal expensive, as the costs may not be recouped. In some cases, the value of the trees has paid for logging costs such as on the LINZ-managed land along the shores of Lake Pūkaki. Other potential uses of the wood from wilding removal include firewood and as a biofuel, with the feasibility of establishing a biofuel plant in the Mackenzie Basin currently under investigation.

The Mackenzie Wilding Conifer Strategy was completed in 2016 and sets out a strategic plan to address the wilding issue in the Basin. It identified five main seed sources which were the core of the problem and needed to be addressed. It estimated that an additional $28 million was needed over a 15-year period to remove all the wilding spread mapped in 2016, which was a doubling of current investment. The Strategy noted that front loading the investment saves considerable costs.[39] Fortunately, the cost of control has reduced significantly with the development of new technologies and sprays.

Subsequent to the release of the Strategy, the government provided $14.5 million of additional funding over three years as a contribution towards the Phase 1 implementation of the New Zealand Wilding Conifer Management Strategy 2015-30, which covers all of New Zealand. During the first two years of the programme (2016/17 and 2017/18), around $3.5 million of this additional funding was spent in the Mackenzie Basin itself, with a focus on the Tekapō and Ōhau areas. This was supplemented by funding raised by the Mackenzie Wilding Conifer Trust (which secured a further $245,000 from the Lotteries Environmental Fund, Transpower and LINZ), landowners and Environment Canterbury. In addition, the New Zealand Transport Authority agreed to remove

conifers along SH8 from Burkes Pass to Lake Pūkaki at an estimated cost of $300,000.[40]

The government money was expended a year early, so there was no investment in wilding control in the Mackenzie Basin during the 2018/19 year. Although good progress was made during Phase 1, the main seed sources near Lake Pūkaki as well as the Mackenzie District Council plantations and the Environment Canterbury Park at Tekapō are yet to be addressed. It is estimated that a further $382,000 will need to be spent in the Godley valley on maintenance until 2029/30 (removal being complete); $1.8 million in Tekapō East and $3 million in Ōhau to complete removal. Tekapō West will take a much larger $15 million to complete and Twizel township $12 million over this period. Initial removal at Pūkaki is estimated at $4 million.

These are large sums of money which so far have not been forthcoming.[41] Most areas dealt with in Phase 1 will also need ongoing control. With each year's delay, costs escalate by 15 to 33 per cent, so that a four-year delay in treating wilding infestation could see costs increase by 200 to 300 per cent. The future of wilding efforts in the Basin is therefore uncertain due to the lack of confirmed funding to fully implement the wilding control strategy.[42] However, with the planned government investment in job creation in the wake of the Covid-19 pandemic, wildling pine removal in the Basin may receive a much-needed financial boost.

There are many other weeds and pests that are causing problems in the Mackenzie Basin and require management. They include thar, russell lupins, silver birch and rowan. Wallabies, a more recent arrival, have started invading from south Canterbury.[43]

Haldon Station, which covers 22,000ha, spends $50-60,000 per year on rabbit control, $25-30,000 a year on wilding tree eradication, $20,000 per year on other woody weeds such as broom, gorse and willow and also money on possum, ferret and other mammalian pest control.[44]

4.4 Tourism

There appears to be substantial potential for tourism to help fund the management of the Mackenzie Basin's landscapes in the longer term. However, in the shorter term, the impact of Covid-19 has been devastating on the tourism industry. For example, Ngāi Tahu Tourism has announced it is closing all of its operations for the foreseeable future and could shed up to 300 jobs.[45] In addition, the Hermitage Hotel in the Aoraki/Mount Cook National Park has closed with staff being reduced from 176 to 22.[46]

New Zealand's border is closed to international travellers and this is likely to remain the case until after a vaccine for Covid-19 is available, if that can happen, in 12 to 18 months' time. Even with the border open, international tourism may take up to five years or more to recover, due to a likely global recession and fewer planes flying internationally. Prior to Covid-19, 60 per cent of the Mackenzie District's tourism was reliant on international visitors, so the area is particularly susceptible to the international tourism downturn.[47] Any short-term revival will need to be based on domestic tourism with a possibility that Australians will join the mix if a 'trans-Tasman travel bubble' is established.[48] As Australians made up 40 per cent of New Zealand's international visitors in 2019, a 'trans-Tasman bubble' if adopted, could be a significant contributor to the Basin's economy in the medium term.

Tourism can provide important opportunities to diversify rural income streams, and has the potential to increase the welfare of local communities to a greater extent than equivalent tourist spending in urban areas.[49] In many cases, services provided for tourists such as shops and digital and physical connectivity, provide additional benefits to local residents.[50] However, it is also worth noting that rural tourism is associated with drawbacks including low wages, infrastructure strain, labour shortages and in-migration. In aggregate, these influences have led to ambivalent responses from residents about the growth of tourism in rural areas.[51]

An analysis of tourism revenue in the Mackenzie District prior to Covid-19 shows that it exhibited similar growth to that in the country as a whole (see Figure 4.7).[52] Between 2009 and 2015, tourism spending grew roughly 40 per cent from $100 million to $140 million. The largest share of tourism spend in the Mackenzie District went to accommodation services, followed by retail sales of fuel and other automotive services, and food and beverages. There was a notable spike in spending on 'other passenger transport' (which likely refers to arranged bus tours) in 2013 – which, given the small size of the sample, may reflect the emergence and exit of a single large operator.

Church of the Good Shepherd

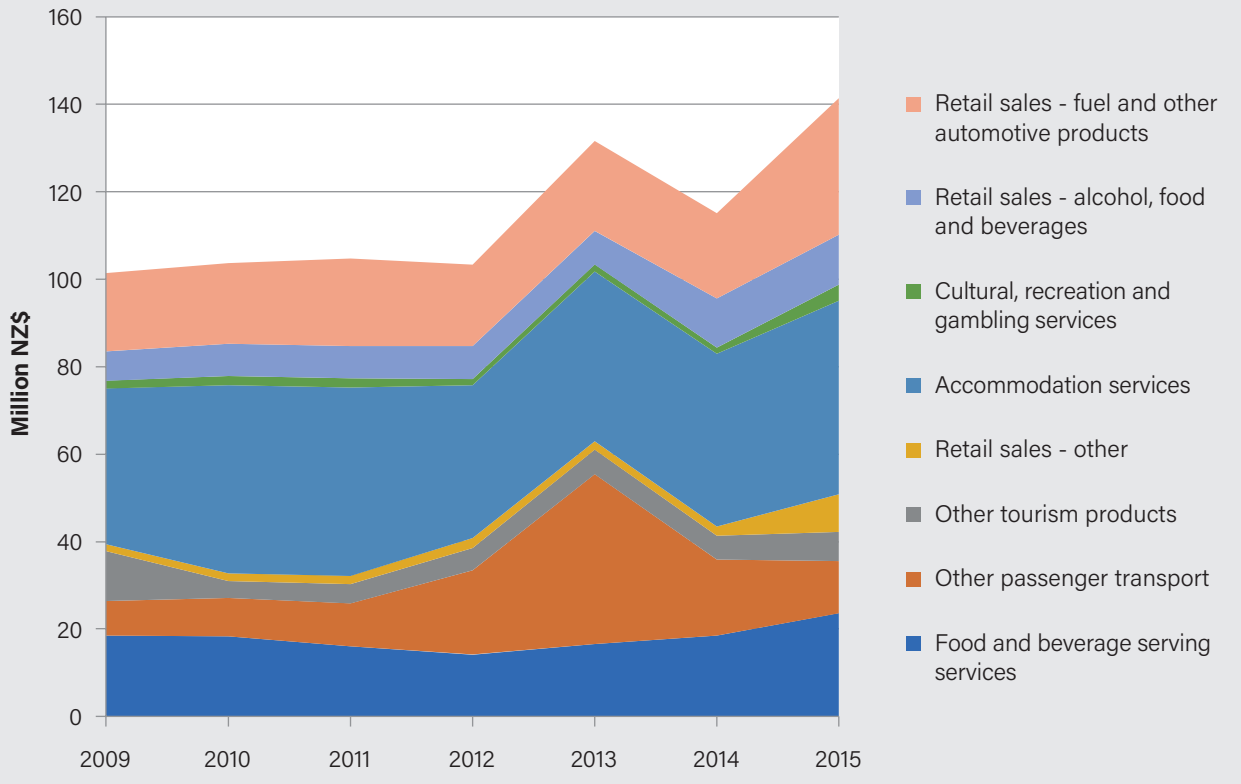


Figure 4.7: Tourism spending by product in Mackenzie District 2009-2015
(Source: Ministry for Business Innovation and Employment, regional tourism estimates)

In the period from 2001 to 2019, the number of guest nights spent by tourists in the Mackenzie District roughly doubled (from 50,000 per month to more than 100,000 per month as shown in Figure 4.8). This increase was proportional to the total tourism spend: both grew by roughly 25 per cent between 2009 and 2015, indicating that the spend per tourist has remained relatively constant over this time period. The growth in guest nights was caused primarily by increasing numbers of international guests.

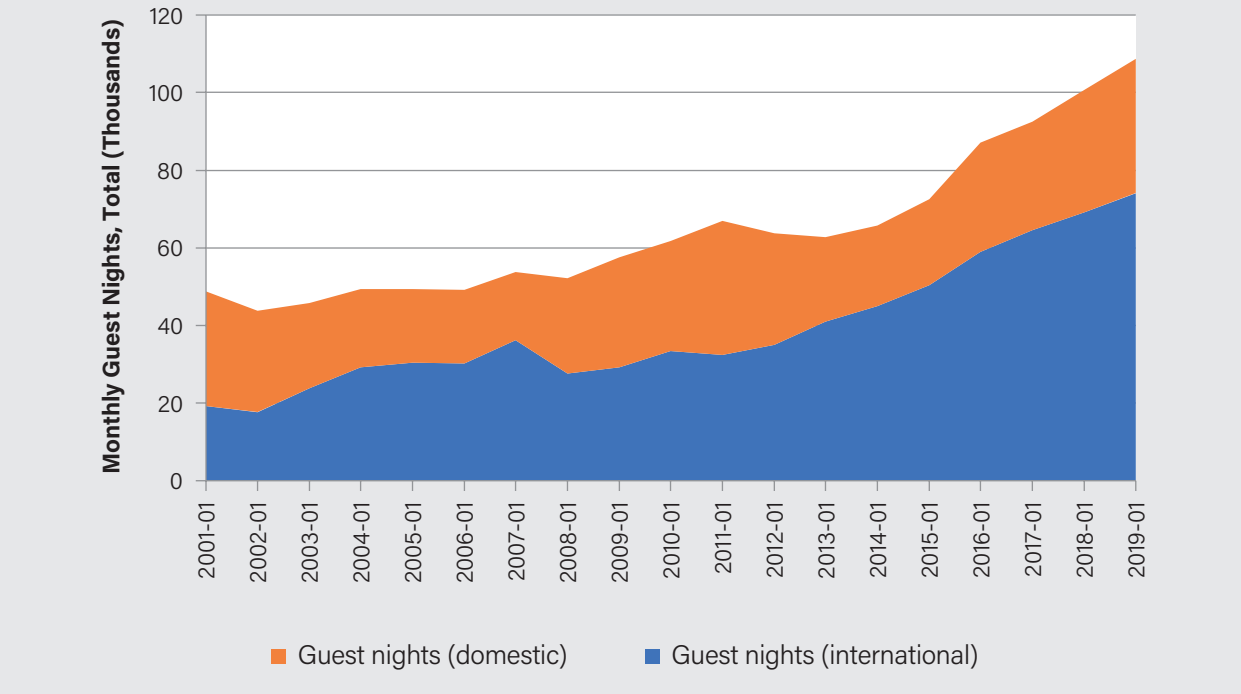


Figure 4.8: Number of guest nights booked in January for Mackenzie District 2001-2019
(Source: Figure.nz using data from Statistics New Zealand)

There are several recent developments which have supported the increase in tourism. In 2013, the Mackenzie Basin was awarded International Dark Sky Reserve status across the whole Basin, centred around the Mount John Observatory. It is reportedly one of only eight such reserves in the world.[53] This helped to generate demand for stargazing tours and supported a number of tourism operators.

The Alps 2 Ocean Cycle trail which extends more than 300km from Aoraki/Mount Cook to Ōamaru has been highly successful and has supported a number of tourism operations along its path. It has been described as "the greatest tourism opportunity the Waitaki district had seen."[54] Efforts were made to ensure that the trail went through local communities thereby creating a demand for accommodation. The trail has made a significant financial contribution to some properties in the Basin, including to the Ōhau Lodge which generated 20 per cent of its summer trade from the cyclists and Braemar station where cyclists provided around 25 per cent of accommodation guests.

A number of recreation and tourism developments in the Mackenzie Basin were noted by interviewees. For example, the owners of Mt John Station developed a nine-hole golf course on their land in 2016 and they have also established a horse trekking business. The owners of Glentanner Station, which adjoins the Aoraki/Mount Cook National Park, also operate helicopters and a café which reportedly make far more money collectively than the farming business. Four-wheel drive tours operate on Braemar Station where guides explain the geology of the area to tourists.[55] Lilybank Station historically ran outdoor training camps for teenagers, but was sold to foreign owners and converted into a hunting lodge when the market for trophy hunting grew. Many stations offer some tourist accommodation.

As the numbers of tourists increased in the Mackenzie Basin, so did local concerns about their impact. One hot topic amongst locals was the impact of freedom campers who leave waste behind in their camp sites. There was also a lack of infrastructure to cater for visitors. We were told that the Pines Freedom Camping Area on the edge of Lake Pūkaki served 250 campervans each night, accommodating around 400-500 people, with only four toilets provided. The agency response to this issue has largely focused on constructing more toilet blocks. Covid-19 may provide some breathing space to enable necessary tourism infrastructure to be put in place and the development of strategies to manage these pressures going forward.

"Putting in more toilets doesn't stop tourists coming. We need to make decisions collaboratively as to what kind of tourism we want, where we want it and how we control it? There is a lot of stargazing but not a lot of eco-tourism." *(Agency interviewee)*

Another challenge created by the growth in tourism in the Basin is the lack of affordable local accommodation for workers. Many privately-owned houses were rented out through AirBnB reducing their availability for residents. There is also a danger that the outstanding landscape values in the Basin that currently attract tourists, are further degraded by poorly planned or poorly managed tourism development.

Newly constructed toilet block on the shores of Lake Pūkaki

"There is concern in the townships that tourism is ripping the heart out of our communities due to AirBnBs. It means that communities don't support low income families, houses are not affordable, we are losing residents as they can't afford to live there, seasonal workers can't afford to live there and we have a transient population of tourists coming and going."

(Agency interviewee)

"In Tekapō we have 500 residents hosting 2,500 tourists in the town every night. The town is tourist dominated and it is hard to get workers housing. People who own the houses get the maximum dollar they can by renting them out for tourists." *(Agency interviewee)*

The Mackenzie District Council used to operate a Local Authority Trading Entity to focus on tourism development, but this was dis-established after six years in 2012. As part of the initiative, three information centres were established. One of these has since become the Council's service centre in Twizel and the other two centres have been taken over by other tourism operators. Waitaki District Council also operates a visitor centre in Ōmarama.

There is currently no tourism entity focused on the Mackenzie Basin and no tourism strategy for the area.

A Provincial Growth Fund grant of just over $710,000 has recently been provided for a feasibility study "to determine the best possible pathway towards a sustainable district" which will include management of the fast-growing tourism industry.[56] This provides the opportunity to develop a roadmap for how landscape and tourism can mutually support each other to the overall future benefit of the Mackenzie Basin. With the recent impacts of Covid-19 on the tourism industry, this project might need to be refocused.

Covid-19 has fundamentally changed the tourism industry in the Mackenzie Basin and throughout the country more generally. Government is currently developing a plan to restart tourism with an initial focus on promoting domestic tourism. It is possible that Government will also become a co-investor in key sectors of the tourism industry, as has happened in the past.

Change creates risk but also opportunity. A 'restarted' tourism industry in the Mackenzie Basin could develop stronger links with the landscapes, nature, Māori culture, story-telling and local communities in a meaningful way. More of the proceeds from tourism activity could be kept within the local economy and more could be used to support landscape management initiatives. Specific recommendations on how a stronger link could be built between the tourism industry and landscape protection more generally are set out in our *Tourism and Landscape Protection* case study.

Alps2Ocean cycleway

A spotlight on the conflict between agricultural intensification and tourism in the Mackenzie Basin

Some commentators have suggested that agricultural intensification may represent a trade-off with tourism growth in the Mackenzie Basin. For example, Thompson-Carr pointed out in 2012 that "it is ironic that a landscape with recognised cultural, national and international significance (including traditional, family owned merino farming and high country sheep stations) should lack planning protection from intrusive industrialisation of agricultural practises that now threaten to compromise the wilderness feeling of the Aoraki/Mount Cook region. Intensive agriculture will not only have severe environmental impacts but could also disrupt tourism and recreational activities if the region loses its naturalness and is unable to deliver the 100% Pure promise currently experienced within the existing golden and alpine landscapes."[57]

4.5 Climate change

Climate change will undoubtedly affect the Mackenzie Basin with consequential implications for land use. A study released by a team of researchers in 2017 investigated the likely implications of climate change for the upper Waitaki catchment, an area which broadly covers the Mackenzie Basin.[58] The research identified a number of likely impacts which we summarise below.

The climate of the Basin will likely become warmer, wetter and more variable. There is likely to be more rain overall (except in autumn), but this will be coupled with more dry days, more hot days, heavier rainfall, fewer cold nights and increased likelihood of water stress. In terms of water flows, these are likely to increase due to the predicted overall increase in rainfall. However decreasing snow generation could markedly change the seasonal patterns of flow. Inflows to lakes are likely to become higher in winter and lower during summer. This may benefit hydro electricity production, with national demand for electricity increasing in winter, but will have implications for the

Pūkaki Downs Station

seasonal management of water takes and demand for irrigation water over the dry summer months.

Pasture production is likely to increase overall, mostly in winter and spring, due to warmer temperatures and a longer growing season. However, there will likely be a decrease in growth during summer due to hotter, drier conditions. Greater variability in weather is also likely to increase farming risks and more irrigation may be sought in response. Climate change is not expected to have a direct impact on land use in the Basin, with commodity prices likely to have a much stronger effect. However, the potential range of wilding pines is likely to significantly increase, leading to further invasion of tussock grasslands.

Climate change will also likely negatively impact tourism with reduced snowfall impacting skifields and higher frequency of extreme events potentially damaging tourism infrastructure including huts and tracks. The need to mitigate greenhouse gas emissions will also impact farm practices and land management (see spotlight).

A spotlight on pastoral farming and reducing greenhouse gas emissions

Integrated farm management plans have the potential to support carbon zero farming through avoiding and mitigating emissions. Such plans map the current farm regime and then identify alternative land-use and management options to reduce or mitigate cliamte change effects. Greenhouse gas emissions that cannot be avoided are addressed through insetting (on-farm works) rather than offsetting. This method can improve the vegetation mosaic and naturalness in areas of pastoral intensification and help transition the pastoral regime towards carbon zero.[59] *He Waka Eke Noa*, the primary sector climate change commitment, includes rolling out integrated farm management plans to all farmers by 2025.[60]

4.6 Remaining landscape values

"Landscape is the distinctive character of an area. The distinctive character is a result of both the physical and the perceptual landscape – the land, what is on it, and how people relate to it; through their experience, their knowledge, the meanings and associations."[61]

As described in the preceding sections, there have been considerable pressures on the Mackenzie Basin landscapes over a very long period of time. Despite this, the Basin still retains very high natural landscape and ecological values. But this may not be the case in the future. The pressures have accelerated over the past decade, and the Basin is approaching a tipping point, where the remaining outstanding natural landscape values could be lost. This highlights the importance and urgency of effectively protecting the values that remain.

Key natural landscape attributes that have been identified include the Basin's 'aridness, semi-desert character, tussocks, naturalness, and openness'. As well as distinct vegetation patterns, the landscape reveals the underlying glacial landforms including "the subtle natural formative patterning evident, through varying substrate deposition and drainage patterns across the outwash", and these are crucial to the Basin's outstanding landscape values.[62]

In terms of ecological values, "the basin floor in the Mackenzie District supports the greatest area and variety of historically rare ecosystems of any part of New Zealand."[63] It "stands out nationally as one of the few remaining places that retain landscape scale connectivity of indigenous low-lying ecosystems."[64] It is also outstanding because the ecosystems remain

View from road to Lake Ōhau

largely undeveloped and intact with continuous sequences across different types of habitat. These elements have been largely lost on the western side of the basin (in Waitaki District) and in other parts of the South Island High Country.[65] In the view of notable landscape architect Di Lucas, it is "the unique floor character of moraine and outwash [that] needs careful landscape protection."[66]

"For the Basin, so little is left of the whole sequence that every bit is important now. Pretty much anything that hasn't been cultivated would now be significant."

(Expert interviewee)

KEY MESSAGES

- Pastoral farms in the Mackenzie Basin have been very profitable and much wealth has been created through capital gain. The impact of Covid-19 on the economics of High Country Farming is currently unclear but it may reduce profits over the short to medium term.
- A small amount of irrigation has the potential to more than double the profitability of stations due to the ability to grow winter feed during the dry summer months and finish off stock.
- The Benmore Irrigation Company was the vehicle through which the flats adjacent to SH8 in Waitaki District were irrigated and was the basis for the introduction of dairying into the Basin.
- A 2004 agreement between Meridian and the Mackenzie Irrigation Company facilitated a doubling of available irrigation water in the Mackenzie Basin and paved the way for the Simons Pass development proposal.
- Water has not been distributed evenly amongst properties, with large dairy conversions taking a disproportionate share of the available water.
- Irrigation negatively impacts a number of landscape values through the greening of the landscape, creating non-natural patterns, the introduction of infrastructure into the landscape and the elimination of indigenous drylands biota.
- The wilding pine problem in the Mackenzie Basin stems back to historical plantings, and especially those associated with the upper Waitaki hydro works. In 2016, the cost of addressing the problem was put at $28 million over 15 years, but only a small part this sum has been made available to date, leaving the main seed sources still to be addressed. More investment may be possible in the Mackenzie Basin as part of the Government's Covid-19 economic regeneration plan. Other pests are also problematic, and increasingly expensive to deal with, including the recent invasion of wallabies and resurgence of rabbits.
- Tourism has potential to contribute to the future protection of the Mackenzie Basin's landscape values but this linkage has yet to be made. Tourism is likely to be more domestically focused in the short to medium term as a result of Covid-19.
- Climate change will increase the variability of weather patterns and consequent farming risks, likely driving a demand for more irrigation. It will also increase the risk of wilding pines and negatively impact tourism.
- Despite the significant pressures on the Mackenzie Basin landscapes over more than a century, the area still retains very high natural landscape and ecological values. However, the extent of historical loss of those values means that the area is approaching a tipping point, making the protection of what is remaining even more critical.

Wildling pines on route to Aoraki/Mount Cook National Park

ENDNOTES

1 This section draws heavily on Gawith, 2019a
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3 Ministry for Primary Industries, 2019
4 Gawith, 2019,7
5 Morris, 2013
6 Morris, 2013
7 Williams, 2018b
8 Brown and Harris, 2005, 1
9 Hobbs, 2017, 112
10 Hobbs, 2017, 129
11 Murray, 2016
12 O'Connor, 1976, 69
13 Upper Waitaki Shared Vision Forum, 2013, 5
14 Rae, 2014
15 Brown, 2009, [8]
16 Booker, 2010
17 Rae, 2014
18 Deavoll, 2016
19 Tatham, 2016
20 Brown and Harris, 2005, 1
21 *Federated Farmers* v *Mackenzie District Council* [2017] NZEnvC 53 [106]
22 Hutchings and Logan, 2018a, 16
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24 *Federated Farmers* v *Mackenzie District Council* [2017] NZEnvC 53 [535]
25 Young, 2016, 8
26 Young, 2016, 33
27 Young, 2016, 8; Environment Canterbury, 2009
28 Young, 2016, 8
29 For example, see Butcher, 1997 and Morris, 1997
30 O'Connor, 1976, 72
31 Routledge et al, 2017, Figure 26
32 Young, 2016, 9-10
33 Young, 2016, 9
34 Land Act 1948, s 99(c)
35 Environment Canterbury, undated
36 Young, 2016, 9
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39 Young, 2019, 11-12
40 Environment Canterbury, undated
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43 Latham and Latham, 2016, 28
44 *Federated Farmers* v *Mackenzie District Council* [2017] NZEnvC 53, [69]
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52 This material is drawn from Gawith, 2019b
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56 Quinlivan, 2019
57 Thompson-Carr, 2012
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59 See examples at: https://www.integratedfarmplan.nz/
60 He Waka Eke Noa, 2019, 7
61 Lucas, 2017, 5
62 Lucas, 2017, 6
63 Walker, 2016, 7
64 Head, 2016, 8
65 Walker, 2016, 7
66 Lucas, 2017, 6

PART B: CURRENT MANAGEMENT RESPONSES

Pivot irrigation on glacial outwash

5 LANDSCAPE PROTECTION TOOLS UNDER THE RESOURCE MANAGEMENT ACT

This section reviews the tools available under the RMA to protect landscapes in the Mackenzie Basin. We review Part 2 of the Act (which provides the framework for decision-making), and then the application of national, regional and local instruments. We conclude with an evaluation of the current effectiveness of the deployment of RMA instruments in the Mackenzie Basin.

We note that the government has initiated a comprehensive review of the resource management system with an independent Resource Management Review Panel chaired by Hon Tony Randerson QC. The Panel is scheduled to report to the Minister for the Environment at the end of June 2020. Any future reforms may provide additional opportunities to improve the use of resource management tools to achieve landscape protection.

5.1 Part 2 of the RMA

The RMA is the main piece of legislation in New Zealand that sets out how the environment should be managed. It is underpinned by the principle of sustainable management, with section 5 stating the purpose of the Act as being to 'promote the sustainable management of natural and physical resources'.[1] Sections 6, 7 and 8 in Part 2 supplement this purpose by identifying matters that are of special significance for resource management. Matters of national importance are listed in section 6 and decision-makers are required to 'recognise and provide' for them. In contrast, decision-makers must only 'have particular regard to' the matters in section 7. Section 8 requires decision-makers to 'take into account' the principles of Te Tiriti.

The protection of ONLs is identified as a matter of national importance under section 6(b). Other relevant matters of national importance include the protection of significant indigenous vegetation (section 6(c)), the relationship of Māori and their culture with taonga (section 6(e)) and the protection of historic heritage (section 6(f)).

In order to provide for their protection, councils need to identify ONLs in regional and district planning documents. Although identified at regional or district scales, these are considered nationally important in terms of section 6(b).[2] The Mackenzie Basin was first identified as an ONL in the 1993 Canterbury Landscape Study, and this status was confirmed by the Environment Court in 2011.[3]

An ONL must be both natural (meaning a product of nature rather than built) and outstanding. The first criterion – naturalness – exists on a spectrum; a landscape can retain its naturalness despite some degree of human modification.[4] The Environment Court has defined the criteria of naturalness as including relatively unmodified and legible landforms, the presence of water and the presence of (usually native) vegetation. The landscape should remain uncluttered by structures and/or obvious human influence.[5] The second criterion is whether the landscape is outstanding. For a landscape to be outstanding, it must be 'conspicuous, eminent, remarkable or iconic' within the context of the area concerned (ie the district or the region).[6] Determining whether a landscape is natural and/or outstanding is context dependent.

As outlined in the Canterbury Regional Landscape Study (1993), the values and attributes for identifying a landscape as outstanding include:[7]

- Natural science factors (geological, topographical, ecological and dynamic components of the landscape)
- Aesthetic values, including memorability and naturalness
- Expressiveness (legibility)
- Transient values
- Whether the values are shared and recognised
- Value to tangata whenua
- Historical associations

These matters may be broadly grouped as biophysical (natural science factors), sensory (aesthetic, expressiveness and transient values) and associative (shared and recognised values, tangata whenua values and historic associations).

Under the RMA, ONLs must be protected from 'inappropriate' subdivision, use and development.[8] This is not an absolute protection and allows for the possibility of 'appropriate' development. Decisions on whether a particular development is inappropriate are to be made against the background of the landscape or feature that is to be preserved or protected.[9] Inappropriateness will depend on the surrounding environment and the ability of the landscape to absorb development without adversely affecting its natural qualities or identified attributes. This in turn depends on the characteristics of the area and the activity proposed.[10]

In the context of the Mackenzie Basin, activities to be protected against are those that degrade the values of the high drylands landscape including its vast and open dry-brown character. The Environment Court has determined that such activities can include pastoral intensification, the spread of wilding conifers, scattered subdivision and residential development.[11]

The RMA provides for a cascade of policy and planning documents which must give effect to Part 2 by providing direction on how and when use, development and protection of resources can occur. They also give substance to the RMA's purpose by identifying objectives, policies, rules and methods relating to land and resource use activities. The hierarchy is intended to move from the more general to the more specific, both in content and locality, with each level required to 'give effect to' (meaning implement) the level above it. These documents are addressed in turn below.[12]

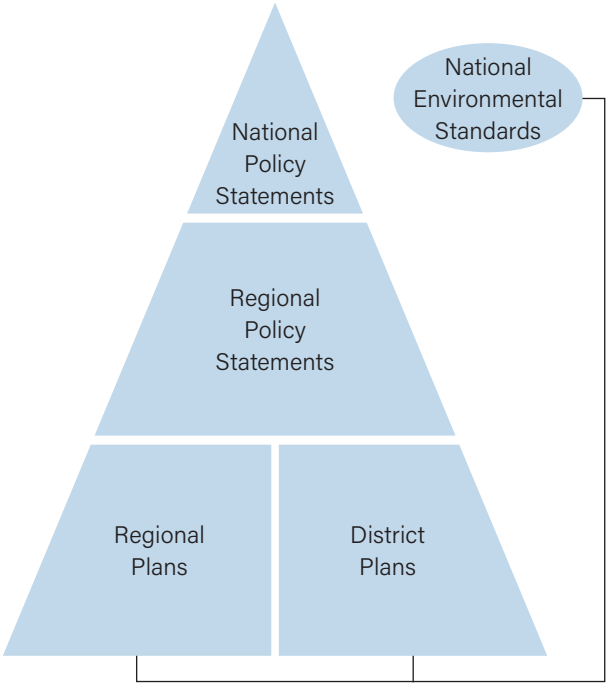

Figure 5.1: Hierarchy of RMA plans

View from Mount John looking south

5.2 National instruments

The RMA makes provision for the development of national policy statements to state objectives and policies for matters of national significance relevant to achieving the sustainable management purpose of the Act.[13] National environmental standards, which are effectively national rules, are also available to provide consistent methods or standards at the regional and district levels.

Although the protection of ONLs has been identified as a matter of national significance in the RMA, there remains no national policy direction on landscape matters specifically. The New Zealand Coastal Policy Statement does address landscapes but only within the coastal environment.

There are two national instruments that have a bearing on landscape protection matters in the Mackenzie Basin; the National Environmental Standard for Plantation Forestry (NESPF) and the National Policy Statement for Freshwater Management (NPSFM). Both these documents appear unhelpful in protecting Mackenzie Basin landscapes. They are also both currently being reviewed.

National Environmental Standard for Plantation Forestry

The NESPF came into effect in May 2018 and applies to any commercial forest greater than 1ha in size. It seeks to control environmental outcomes associated with plantation forestry activities nationally, while also increasing certainty and efficiency for foresters.[14] The NESPF prevails over the rules in a district or regional plan except where it specifically allows for more stringent plan rules. The NESPF does not allow for such plans to be more lenient than its standards.[15]

In the Mackenzie Basin, the district plan rules applying to forestry differ between the Mackenzie and Waitaki districts. In areas under the jurisdiction of Waitaki District Council, forestry is a discretionary activity (even within significant biodiversity areas, riparian areas and wetlands). The Mackenzie District Council has a more nuanced framework, with forestry being permitted (subject to controls) within 900m of homesteads, discretionary on land above 900m and within designated scenic areas, and non-complying in 'sites of natural significance'.[16] The rules in the two district plans have now been superseded by the NESPF.

The NESPF sets a permissive baseline for afforestation and replanting. This means that establishing plantation forestry trees on land where there is no existing plantation forestry is permitted and does not require resource consent. An exception to this has been carved out for ONLs. If the afforestation within an ONL is proposed for green, yellow or orange zoned land (as identified in the NESPF using the Erosion Susceptibility Classification system[17]) it is a restricted discretionary activity. This applies to the majority of the Mackenzie Basin valley floor. Matters of discretion include the level of wilding tree risk and the effects of forestry on the values of the ONL. As the extent of the Mackenzie Basin ONL, as identified in the Canterbury regional policy statement (RPS), is not fully identified and mapped in the Waitaki District Plan, afforestation could be permitted without the need for resource consent in these unmapped areas (which comprises 38,500ha of the regional ONL).

While there are stricter regulations for afforestation within ONLs, other activities associated with plantation forestry do not have the same controls. In the majority of the Mackenzie Basin, harvesting and replanting can occur as a permitted activity. Section 6 of the NESPF does allow for increased stringency in a district plan "if the rule recognises and provides for the protection of outstanding natural features and landscapes from inappropriate use and development".[18] However, neither the Mackenzie District Council nor the Waitaki District Council have increased stringency in their plans for these activities.

The NESPF also offers quite weak controls in respect of control against wilding pine invasion, which (as outlined in Chapter 4) is a major threat to the Mackenzie Basin landscape. The Wilding Tree Risk Calculator must be used by foresters when planting new forests or replanting forests with a new conifer species that has not previously been planted. Calculations are based on five indicators: species growth, species palatability (to stock), siting of the new planting, downwind land use and downwind vegetation cover. A requirement to obtain resource consent is only triggered when the calculator gives a rating of 12 ('high risk') or higher. Despite there being risks of wilding spread for 'relatively high risk' plantations, these are deemed a permitted activity. Replanting of the same species does not require a resource consent, regardless of what species was initially planted.[19] This is in contrast to the district plan rules that had previously prohibited the planting of some pine species to prevent further wilding pine spread.

National Policy Statement for Freshwater Management

The NPSFM which came into effect on 1 August 2014, and was amended in 2017, sets out the objectives and policies for freshwater management under the RMA. These seek to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. The framework recognises the integral role of Te Mana o te Wai in freshwater management: the holistic wellbeing of a freshwater body, and its connection with the broader environment. Regional councils must set water quality limits for all freshwater management units within their region to give effect to the objectives of the NPSFM. This must also establish methods to avoid over-allocation or degradation of water quality.

The NPSFM requires the life-supporting capacity of fresh water to be safeguarded and its overall quality within a freshwater management unit to be 'maintained' at its current level or 'improved' over time.[20] It sets limits so that there is a band within which the attribute will fall (eg total level of nitrogen per m^3). National limits are also set, creating a bottom line for the attribute. For nitrogen, the national attribute (and bottom line) to be managed is toxicity.[21] An attribute is maintained if it falls within

the same band, and is improved if it moves to a higher band. This creates a significant degree of flexibility while precluding significant degradation of water quality.[22]

Although there is a requirement to maintain or improve 'overall quality', as currently worded the NPSFM envisages an 'overs and unders' approach where regional councils may allow the degradation of some waterways to be compensated by an equivalent improvement in others. This approach has been challenged in the Environment Court and was found to be inappropriate and fraught with uncertainty.[23] The NPSFM is currently being reviewed, and there is an expectation that this uncertainty will be addressed in the 2020 revision.

The interaction between the NPSFM and the Canterbury Land and Water Plan is addressed further below.

Water Conservation Orders

Section 199(a) of the RMA provides for the permanent protection of 'outstanding amenity or intrinsic values' of individual water bodies through the mechanism of Water Conservation Orders. They are the highest level of protection that can be afforded to any water body, preserving its natural values for all freshwater fish, wildlife, outdoor recreationalists, and scientific and cultural purposes for generations to come. A Water Conservation Order identifies the characteristics of the waterbody to be protected and then puts in place restrictions to protect those values.[24] Restrictions may include controlling or prohibiting water use to preserve water quality and quantity. Water Conservation Orders prevail over RPSs and plans. Any rules or consents granted after the Order comes into force must not be inconsistent with its provisions.

Within the Mackenzie Basin, the Ahuriri River is protected by the National Water Conservation (Ahuriri River) Order 1990. The order describes the Ahuriri River and its tributaries as providing outstanding wildlife habitat, fisheries and angling features.[25] It requires the quantity of natural water in the waterbody to be retained in its natural state. The Order puts in place rules, including minimum flow rates and a prohibition on damming the waterbody, that affect how the waterbody is managed by Environment Canterbury.

Water Conservation Orders can be a very effective mechanism for establishing environmental bottom lines in respect of water quantity and quality. However, they are currently unable to control the effects of diffuse pollution arising from activities on land (eg forestry and dairy) on the river or lake. As such, there is a limited ability for Water Conservation Orders to protect the overall health of a waterbody.[26]

Ahuriri River

5.3 Regional instruments

The relevant regional instruments in the Mackenzie Basin are the Canterbury RPS, Waitaki Catchment Water Allocation Regional Plan (Allocation Plan) and the Canterbury Regional Land and Water Plan (Land and Water Plan).

Canterbury Regional Policy Statement

The RPS is the "heart of resource management in each region."[27] It provides an overview of resource management issues specific to the region and includes policies and methods to achieve the integrated management of those resources.[28] An RPS must give effect to higher order national documents (such as the NPSFM and the NESPF) and the purpose and principles of the RMA.

The first Canterbury RPS became operative in 1998 and outlined the resource management issues specific to Canterbury – one of the largest and most diverse regions of New Zealand. Chapter 8 of the Plan addressed matters of national significance such as landscape, wetlands, indigenous vegetation and heritage, including wāhi tapu and wāhi taonga sites. The objectives stated that there must be protection or enhancement of these four key matters. However, the policy framework provided little more guidance on how this might be achieved than what already existed under the RMA.[29]

The primary protection for Canterbury's distinctive landscapes was contained in Policy 3 that provided: "Natural features and landscapes that meet the relevant criteria in sub-chapter 20.4(1) should be protected from adverse effects of use, development ...".[30] Environment Canterbury had previously commissioned the 1993 Regional Landscape Study, that identified landscapes of regional significance in the Canterbury Region.[31] This was a landmark study that utilised land typing as a spatial basis for the analysis and developed assessment factors that still underpin best practice today. However, despite this, the study's regionally significant landscapes were not identified in the RPS. The findings were only included in a generalised way, as criteria listed in Subchapter 20.4, and the job of actually identifying ONLs was left to district councils.[32]

This policy framework was "not as effective as it could be" and was "not an efficient mechanism". It did not "provide any degree of certainty as to whether something is regionally significant" and left district councils to determine this on a case-by-case basis.[33] As a result, the protection of landscape was identified as a key strategic issue to be addressed in the second generation RPS.[34] Prior to the development of the new RPS, a comprehensive review of the 1993 Canterbury Regional Landscape Study was undertaken.

The Canterbury Regional Landscape Study Review was published in 2010. This focused on large scale landscape patterns that could be identified at a regional scale. It identified and mapped the entire Mackenzie Basin, its valley floors and surrounding ridgelines, as an ONL. The boundaries differed slightly from those in the 1993 Study, which focused on the Basin floor and had not included the ridgelines. The review also provided a basis for further detailed landscape studies, which were intended to identify those landscapes that were distinguishable at a local level and refine the specific boundaries of each landscape.[35]

The 2013 Canterbury RPS became operative on 15 January 2013. In line with the 2005 amendments to the RMA, it was required to include more express statements about how environmental issues should be managed to accord with the need for regional and district plans to 'give effect' to its provisions.[36] The RPS recognises that development can adversely affect the integrity of landscapes, and emphasises the need to protect ONLs at a regional level. It splits the protection of landscapes into two categories: ONLs that are protected under s 6(b), and other regionally important landscapes. Appendix 4 identifies Canterbury's ONLs at a regional scale by including a description of each landscape and its key values.[37] The Mackenzie Basin is included in Appendix 4 as a regional ONL. It is described as an area of "exceptional legibility, aesthetic, transient, shared and recognised, very high natural science and high tangata whenua and historic landscape values".[38]

Despite the existence of the Canterbury Regional Landscape Study Review, which had re-examined and mapped the boundaries of the Mackenzie Basin landscape, this was not taken up in the RPS. In fact, the RPS does not map any regionally significant landscapes. There is also no regional plan which directly addresses landscape issues.[39] Environment Canterbury has instead deferred the obligation to map and protect ONLs under the RMA to district councils.

The RPS does include assessment criteria in Policy 12.3.4(1) which are to be applied at a district level. These are drawn from the 1993 landscape study and are commonly referred to as the 'amended Pigeon Bay criteria'; which are widely regarded as best practice for the identification of ONLs.[40] The RPS also provides clear direction that district councils must set out objectives, policies and methods (including maps) to identify ONLs in district plans. Councils are also directed to engage with Ngāi Tahu as tangata whenua in order to identify the cultural significance associated with these landscapes.

Overall, the objectives and policies of the current Canterbury RPS provide little guidance on how to manage the region's ONLs and the task of determining what is 'inappropriate' in the Mackenzie Basin is left to two small district councils (Waitaki and Mackenzie). The RPS also defers the specific identification (and mapping) of these landscapes to these councils, which do not have nearly the same capacity and funding as Environment Canterbury. In our view, it is not appropriate to place sole responsibility for nationally significant landscapes on district councils, and such an approach is unlikely to result in effective protection.

A spotlight on the capacity of local authorities with responsibility for the Mackenzie Basin

Three local authorities have responsibilities for managing landscape impacts in the Mackenzie Basin: Environment Canterbury, Waitaki District Council and Mackenzie District Council. Despite having by far the largest capacity and resource, Environment Canterbury has decided not to map or provide rules to protect the Mackenzie Basin ONL but has left this task to the two small district councils. Of these, only the Mackenzie District Council (by far the smallest rateable local authority in the Basin) has fully mapped the ONL and put in place adequate provisions to protect it, albeit with the assistance of the Environment Court. The Mackenzie District Council has an extensive area to manage, but a low ratepayer base, due to large areas of non-rateable Crown land (pastoral lease and conservation land) within the district.

	Environment Canterbury	Waitaki District Council	Mackenzie District Council
Land area (km^2)	44,508	7,109	7,140
Population	539,436	20,826	4,300
Persons (per km^2)	12.1	2.9	0.6
Rates revenue	$97.6 million	$30.4 million	$8.8 million
Employees	574	139	38
Physical presence in Basin	None	None	Small service centre in Twizel

There are a number of other provisions in the Canterbury RPS, found in the chapters addressing land use, freshwater and ecosystems and biodiversity, which have the potential to impact landscape management. Notably the objectives and policies seek to:

- Recognise that development is important for social and economic wellbeing while ensuring development occurs in a way that maintains and enhances the quality of the natural environment.[41]
- Maintain or improve the overall quality of freshwater in the region.[42]
- Restore or enhance ecosystems and indigenous biodiversity and protect significant indigenous vegetation and habitats.[43]

Waitaki Catchment Water Allocation Regional Plan

The Resource Management (Waitaki Catchment) Amendment Act 2004 established the Waitaki Catchment Water Allocation Board and tasked it with creating a new regional water allocation plan for the Waitaki catchment. The Board was given the full powers of a regional council to do so. At that time, the Waitaki catchment was subject to numerous competing claims to water: for hydroelectricity, irrigation, recreational use and customary use by mana whenua. There was insufficient water to meet the demands of all these activities and an allocation framework for the catchment was urgently needed.

The Allocation Plan manages the taking, damming, diversion and use of water in the Waitaki catchment. It provides a catchment-wide approach to allocating water to different activities such as town water supplies, hydro-electricity, agriculture, industry and other activities. It recognises that by fairly allocating water to activities that require it, social, economic and cultural wellbeing is enhanced.[44]

Tekapō River

A spotlight on the allocation of water in the Mackenzie Basin

As indicated in Chapter 4, the development of water resources in the Upper Waitaki catchment for hydro-electricity created an opportunity to use water for irrigation purposes. A commitment to provide water for irrigation was set out in a 1969 Order in Council that granted water rights to the Minister of Electricity for the Upper Waitaki Scheme. The Order described the rights to divert, dam and discharge waters around lakes Tekapō, Pūkaki, Ōhau and into Lake Benmore. It also provided for the allocation of 172,687,430m^3 of water for irrigation.[45]

These rights expired in 1990 and the Electricity Corporation (which at the time owned the Waitaki Power scheme) applied for a replacement water right, which was granted by Environment Canterbury in 1991 for 21 years.[46] This subsequently became a deemed water permit under the RMA for a period of 35 years (expiring on 30 April 2025). The water permits were eventually transferred to Meridian Energy on 1 April 1999.

Notably, as part of this renewal, funding was provided for Project River Recovery which is designed to maintain and restore braided river and wetland habitat in the Mackenzie Basin. The funding supports a programme of intensive weed control, predator control, wetland construction and research and monitoring.[47]

In 2003, the Environment Court confirmed that despite the Order in Council being defunct, the water permits to take and use surface water from the seven lakes in the Waitaki Power Scheme applied on the same terms.[48]

In the same year, a consortium called the Aoraki Water Trust applied for an allocation of water from Lake Tekapō for irrigation purposes. The application was opposed by Meridian Energy (the current holder of the hydro power water rights). By this time, resource consents had already been granted to take 125 million m^3 of water for irrigation per year, representing around 70 per cent of the original water allocation (of 173 million m3).

The 2004 High Court decision *Aoraki Water Trust v Meridian Energy Ltd*[49] determined that all water in Lake Tekapō was fully allocated to Meridian Energy and other existing small users. This was by virtue of Meridian's water permit entitling it to take surface water at a rate of 130m^3 per second, which is higher than the mean natural flow rate of 82m^3 per second.

The High Court found that, as the resource was already fully allocated to Meridian Energy, the consent authority could not lawfully grant another water permit for the same resource unless specifically empowered under a statue. As a result, new water permits for the allocation of water from Lake Tekapō, as well as much of the Upper Waitaki Catchment, could not be granted unless Meridian Energy, as the existing consent holder, agreed to the derogation of its consent.

The High Court proceedings led, in December 2004, to an agreement being reached between Meridian Energy and the Mackenzie Irrigation Company (a company established in 2003 to represent the interests of farmers seeking to irrigate in the Upper Waitaki Catchment) to make water available for irrigation. The agreement specified that Meridian Energy would allow 150 million m^3 of water per annum to be taken from its hydro canals for the purpose of new irrigation; an amount thought sufficient to irrigate 25,000ha of farmland across the 60 properties involved. The Mackenzie Irrigation Company issues one share per hectare of irrigation, and Meridian Energy will only agree to a water consent if the applicant holds the requisite shares in the Company.[50]

At the time the agreement was reached, there were existing resource consents to take 125 million m^3 for irrigation, horticulture and stock water from above the Waitaki Dam. In determining the total amount of water to be allocated for agricultural and horticultural activities in the Allocation Plan, the Board took into account the agreement reached between Meridian Energy and the Mackenzie Irrigation Company, and determined that the figure of 150 million m^3 of water per annum was a realistic estimate for future irrigation in the Mackenzie Basin. The figure of 275 million m^3 of water allocated for present (125 million m^3) and future (150 million m^3) agricultural and horticultural activities in the Plan therefore gives effect to this agreement.

After reaching an agreement with Meridian Energy, shareholders in the Mackenzie Irrigation Company applied to Environment Canterbury for consents. The process of considering the consents is described in the 'Upper Waitaki water permits' spotlight below. In 2011, the Tekapō portion of the Upper Waitaki hydro scheme was sold to Genesis Energy, and the consents for the operation of this portion of the system were accordingly transferred.

The Allocation Plan provides an annual allocation of 275 million m^3 for the use of water for agricultural and horticultural activities in the Mackenzie Basin (the rationale for this quantity is described in the spotlight above).[51] Under the Plan, the take of water for this use is a discretionary activity, provided the conditions of the rules are met. Resource consent applications require an analysis of the beneficial and adverse effects of water use on the environment.[52]

The Plan recognises that intensification of land use, through the allocation of water, has the potential to increase adverse effects on water quality.[53] As a result, there was a requirement to consider water quality objectives in the (then operative) Natural Resources Regional Plan when determining consents for water allocation. The provisions contained in that plan were very

limited in terms of managing nutrient losses from farming, with these effects instead being addressed through conditions placed on discretionary consents. This means there was little consideration of water quality issues when water was allocated. The Natural Resources Regional Plan provisions were replaced by those in the Land and Water Plan when it became operative in 2015. These conditions are discussed further below.

A spotlight on the Canterbury Natural Resources Regional Plan

The Canterbury Natural Resources Regional Plan was notified in 2002 and initially focused on the management of air quality. Over the subsequent years, a number of additional chapters were introduced – including Variation 1 in 2004 that addressed land and water issues in the region. These provisions were made operative in June 2011.

In 2009, Environment Canterbury undertook a performance review of its planning documents which determined they could be "significantly improved in order to more effectively and efficiently manage Canterbury's natural resources, particularly in relation to water".[54] The Council acknowledged that a more integrated approach was required.

One of the criticisms of the Natural Resources Regional Plan was that it had separate objectives and policies for water quality and water quantity. There was also a general lack of implementation of land management policies that affect water quality.[55] The Land and Water Plan was intended to respond to these concerns. However, it also had weaknesses as discussed below.

The Allocation Plan also recognises a number of values that should be protected in the allocation of water. These include the importance of maintaining the mauri of the catchment, by meeting the spiritual and cultural needs of Ngāi Tahu, and of maintaining natural landscape and amenity characteristics. Landscape is included as a matter of consideration when setting environmental flow regimes, including water allocation limits (which are set by the Plan).[56] While the Allocation Plan must provide for an allocation for all major activities, when establishing allocation limits the relative environmental effects of the activity, including effects on landscape, must be considered.[57]

There are also additional protections for waterbodies identified as having high natural character, such as the tributaries of Lake Ōhau, Lake Pūkaki and Lake Tekapō. These are identified either because they are in unmodified parts of the catchment, or because they are home to important species and habitats. For these water bodies, consent authorities must ensure that there are no more than minor effects on the natural character and landscape values from any taking, damming or diverting of water.[58] Taking water from these waterbodies for the purposes of irrigation is discouraged.[59] Equivalent provisions for other landscapes are not included.

The Allocation Plan prevails over the Land and Water Plan for matters of water allocation.[60] However, if a resource consent is required, an assessment of the provisions in both Plans are considered together before a resource consent is granted. The Allocation Plan is now 13 years old and overdue for review. When the Plan is reviewed, it would make sense to incorporate its provisions into the Land and Water Plan so that regional water planning (at least) can be joined up.

Irishman Creek

A spotlight on the Upper Waitaki Water Permits

The Resource Management (Waitaki Catchment) Act deferred the determination of applications for resource consents for the take and use of water in the catchment until after the Allocation Plan became operative.[61] This applied across the entire Mackenzie Basin, within both the Mackenzie and Waitaki Districts. The statutory moratorium imposed by the Act resulted in a build-up of applications from people seeking to renew consents.

This process was also occurring while the Mackenzie District Plan Change 13, discussed further below, was progressing through the lengthy Environment Court process. Landowners were aware that the rules managing intensification and irrigation would become stricter within Mackenzie District and wanted to secure consent to irrigate their properties before that occurred. This led to an additional flurry of applications for new consents before the district plan rules became more stringent.

The overall result was that 104 applications for water permits and associated consents were lodged with Environment Canterbury. Sixty of these were applications for new irrigation in the Upper Waitaki Catchment, totalling an area of 18,165ha. All the applicants held shares in the Mackenzie Irrigation Company (as described in the spotlight above).

All the applications were heard together at a Commissioner hearing between 21 September 2009 and 30 April 2010. The Allocation Plan was the key planning instrument used in deciding whether to grant a resource consent for the take and use of water from the Waitaki Catchment.[62] In making their decisions, the Commissioners were required to consider a number of factors under the Plan provisions including:

- Efficiency of water use; and
- Effects of water use (including on water quality and landscape)

Efficiency of water use

The Allocation Plan has a clear emphasis on ensuring the efficient and effective use of water.[63] In determining whether a water permit is reasonable for irrigation, the applicant must meet the reasonable use test. Generally, this requires the irrigation system to have an application efficiency level of at least 80 per cent.[64] Many border-dyke irrigation systems could not meet this threshold and applicants were required to change to pivot irrigators, as this was a far more efficient use of water. However, the large pivot irrigation structures have a much larger landscape impact.[65] In this way, considerations of efficiency trumped landscape effects.

In making their decisions, the Commissioners focused on the efficient use of the land, comparing dryland farming against irrigated farming, and largely ignored the inefficiencies of the use of water itself. In an appeal on the Commissioners' property-specific decision the Environment Court, in *Glentanner Station Ltd v Canterbury Regional Council*, determined that "prima facie it appears inefficient to take water from the top of the Waitaki catchment for irrigation".[66]

This issue was discussed further in the Plan Change 13 proceedings on the Mackenzie District Plan. In its decision, the Environment Court concluded that the use of water for irrigation above the Waitaki Dam (ie in the Mackenzie Basin) was inefficient, as it extracts the water before it flows through the power stations and it therefore cannot be used for hydro-electricity. If left in the hydro-canals until it reaches the Lower Waitaki catchment, the water could be used to generate power, and then subsequently for irrigation in the lower Waitaki region where there is similar demand for irrigation water. In coming to this conclusion, the Court also undertook an analysis of the per ha profitability of irrigated land in the Mackenzie Basin as compared to below the Waitaki Dam. This analysis showed that there would be an additional $4,000 profit per ha if the water was used in the lower Waitaki (the figures were $17,500-$18,500/ha in the Mackenzie Basin and $21,500-22,500/ha in the lower Waitaki).[67]

Despite these inefficiencies, and as a result of the Commissioners only partially addressing this issue, a number of the consents to take water from above the Waitaki Dam were approved.

Water quality

The effects of granting the water permits on the trophic state of Lake Benmore was a major focus of the hearings. On the evidence presented, the Commissioners held that no significant net increase in nutrient load into the Ahuriri Arm of Lake Benmore should be allowed in order to keep it in an oligotrophic state. In the Haldon Arm, there was still sufficient assimilative capacity to increase the nutrient load and the Commissioners granted consents in this area, subject to mitigation conditions. Conditions included a requirement to model nutrient loss (using OVERSEER[68]) and implement Farm Environment Management Plans to manage nutrient loss.

Although the Haldon Arm had assimilative capacity in a water quality sense, this was not the case for landscape impacts. This area was (and largely still is) where most of the remaining high value dryland landscapes were located and covers most of the Mackenzie District part of the Basin floor (as shown in Fig 5.2). Therefore, this narrow lens on nutrient assimilation potential –coupled with a very weak focus on landscape effects – created the potential for further landscape degradation in the heart of the Mackenzie Basin.

Other effects - landscape and amenity effects

The Allocation Plan includes landscape effects as a matter to be considered in determining applications for the take and use of water. In addition, section 104 of the RMA requires the consideration of the 'actual and potential effects' on the environment of allowing the activity.[69] This provided a further basis on which to assess landscape effects. The two key landscape effects that were assessed by the Commissioners were the taking of water from the waterbodies, and the application of water to land (for example, greening from irrigation).

Although consents were primarily considered under the Allocation Plan, due to the inter-relationship with other resource management plans, the Commissioners also had regard to provisions in other relevant planning instruments.[70] At this time, irrigation was a permitted activity under both the Waitaki and Mackenzie District plans. This provided a permitted baseline for the activity. The existing environment and values were also assessed. By that time, the Mackenzie Basin landscape had already been fundamentally changed from its natural state: there were significant areas of irrigation present already (largely in the Waitaki portion of the Basin) and other areas were degraded by weeds and wilding pines.[71] Despite this, a group of submitters strongly argued that no further irrigation should occur in the Mackenzie Basin due to its ONL and associated values.

In light of these planning documents and the existing environment, the Commissioners had to determine whether any further irrigation in the Mackenzie Basin was justified. Their conclusion was that, although irrigation would invariably change the landscape through greening and the presence of structures, it did not necessarily follow that 'adverse effects' would result. This conclusion was reached on the basis that the significant features of the landscape were the mountainous ridgelines and that irrigation on the Basin floor (subject to appropriate mitigation measures) would be unlikely to significantly detract from the legibility or aesthetic appreciation of that landscape.

To mitigate any potential landscape effects, the Commissioners considered each proposal on its merits, and included substantial conditions on some proposals to take into account the location of irrigation, the nature of the activity, any cumulative effects and proposed mitigation measures. While these conditions went some way to address impacts on landscape values on a case-by-case basis, consent was still granted in most cases and development occurred.[72]

Canterbury Regional Land and Water Plan

The Land and Water Plan became partially operative in 2015. It replaced five chapters of the Natural Resources Regional Plan and created an integrated framework to address land and water in the region. The Land and Water Plan operates at two levels: region-wide and sub-regional. It has recently been updated by Plan Change 5 which modified and refined the nutrient management provisions in the region-wide section of the Plan and introduced Upper Waitaki specific sub-regional provisions.

The Plan sets out the objectives for managing land and freshwater resources in Canterbury and a policy framework to achieve those objectives. It seeks to recognise and safeguard the intrinsic values of water as essential to all life, while also recognising it is an enabler of social and economic wellbeing. The importance of water and land to Ngāi Tahu for customary uses is also highlighted and provided for.[73]

The Plan is required to give effect to the objectives in the NPSFM and accordingly sets out limits to maintain water quantity and quality. This is a particularly important in Canterbury, as the region contains over 65 per cent of all irrigated land in New Zealand (equating to about 500,000ha).[74] Irrigation and the use of nitrogen as a fertiliser allows for more intensified farming and higher stocking rates. However, as the main source of nitrogen in New Zealand's waterways is from farm animal urine, there is a direct correlation between stocking rates and the amount of nitrogen leached into waterways.[75]

Prior to Plan Change 5 becoming operative, the Land and Water Plan contained rules that applied across the whole region. In order to address areas that were at higher risk of not meeting water quality objectives, the region was divided into nutrient allocation zones. This enabled a tiered system of management, where a permitted status could be given to low risk areas and consent required for higher risk areas. Consenting requirements were based on nitrogen loss rates that were modelled using OVERSEER.

Polluted waterway downstream of dairy conversions

As shown in Figure 5.2, the Mackenzie Basin was largely zoned orange – meaning it was 'at risk' of not meeting the freshwater outcomes contained in the Land and Water Plan. Under the Plan, pastoral intensification was permitted for green, blue and orange zones provided the nitrogen loss calculation did not exceed 20kg/nitrogen per ha per year. In the red zone, which covered the western and already highly modified side of the Basin, farming activities were only permitted if they did not lead to an increase in nitrogen above the nitrogen baseline. Overall, these provisions provided for a large amount of nitrogen loss as a permitted activity, and in our view, was never an appropriate limit for the Mackenzie Basin or broader Waitaki catchment.

Fortunately, landowners in the Mackenzie Basin were either not aware of these lenient limits or they already held legacy consents from the Allocation Plan that imposed stricter conditions. As a result, there was no gold rush of new consent applications and the Land and Water Plan managed to hold the line in terms of water quality in the Mackenzie Basin.[76] However, it was clear that refinement of the nutrient management framework was required. This issue was addressed in Plan Change 5 which became operative in February 2019 and introduced a new approach to targeting consenting requirements for higher risk farming activities, based on permitted activity standards.[77]

Collectively the provisions in the Land and Water Plan now provide a comprehensive framework to address the effects of nutrient loss from farming activities by setting limits for nitrogen loss. Under Plan Change 5, the intensification of activities has been locked down and cannot exceed what is already permitted to happen on the land. Good Management Practice has been super-imposed on top of these requirements. There is no requirement to reduce nitrogen loss if the Good Management Practice loss rate is less than the baseline; but if such loss is above the baseline, reductions in line with Good Management Practice are required. As areas of the Mackenzie Basin are already over-allocated (as can be seen by its red-nutrient allocation zone) this is unlikely to be sufficient to achieve good freshwater quality outcomes.

The nutrient framework represents only one element of the approach taken in the Land and Water Plan. There is also a strong focus on the use of Farm Environment Plans and ensuring that the practices outlined in these are well implemented. The use of Farm Environment Plans and Good Management Practice is a live issue in the freshwater reform process and it seems likely that there will need to be changes to this process in regional plans to give effect to a reviewed NPSFM.

Farm Environment Plans provide an opportunity to address some of the cross-border jurisdictional issues that arise in the Mackenzie Basin. They allow for a property-specific management regime, which has utility in demonstrating how objectives (whether for the reduction in nutrients or other purposes) should be met over time. They bear some similarity to the joint management agreements proposed in the Mackenzie Agreement (discussed in Chapter 7), which were suggested as a tool to help meet biodiversity and landscape objectives on individual properties. Supported by clear environmental limits in the Land and Water Plan, and rigorous enforcement, Farm Environment Plans have the potential to generate positive change.

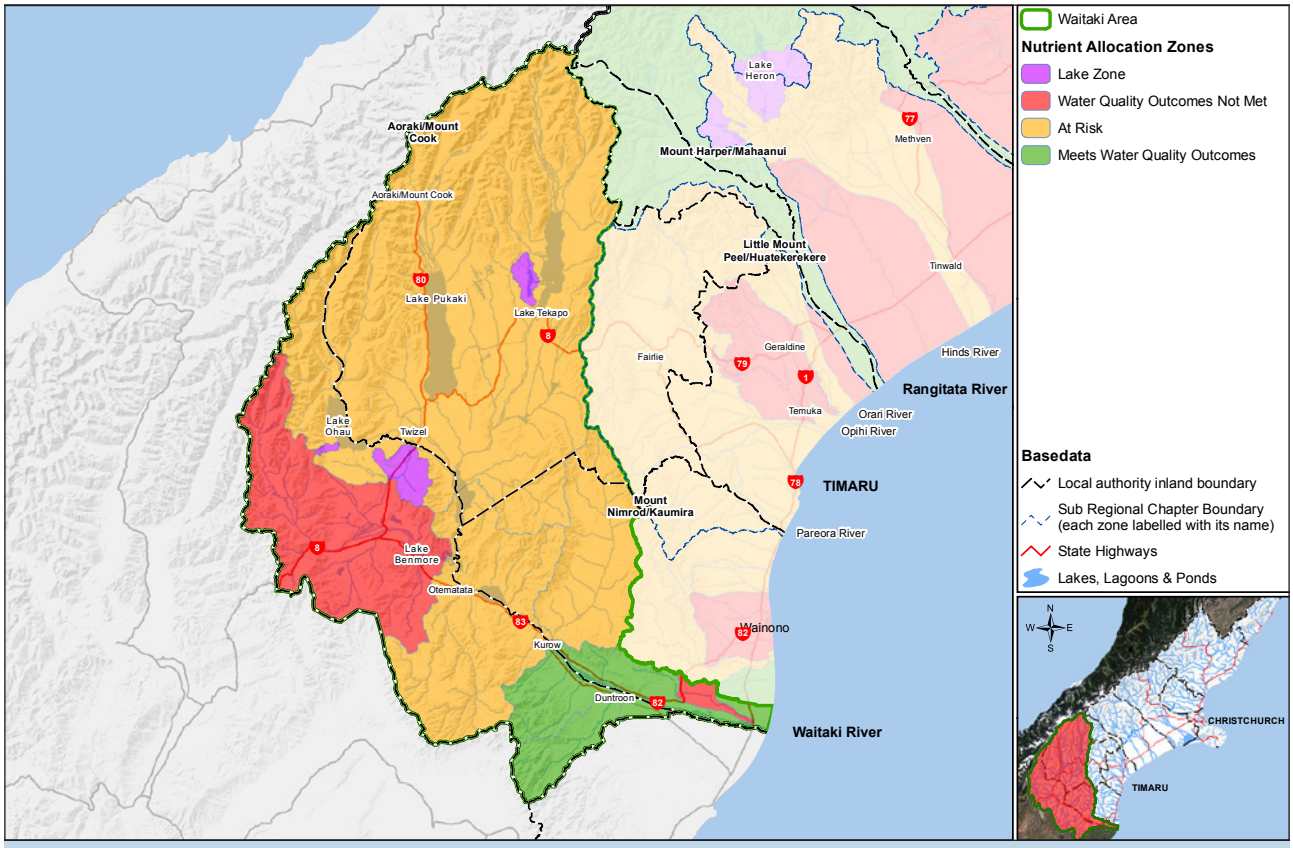

Figure 5.2: Nutrient allocation zones in the Waitaki area

One of the biggest failings of the Land and Water Plan, however, is that it does not consider the policy direction on irrigation contained in the district plans. The availability of water has been a key driver of landscape change in the Mackenzie Basin and, at present, water consents may be granted under the Land and Water Plan on the basis of nutrient allocation only. This implies that irrigation is possible, despite the potential impact of irrigation on landscape and biodiversity values, matters which have been left to the district plans to manage. In the Mackenzie Basin, the associated land-use consent would be non-complying and also non-complying for the areas mapped as an ONL in the Waitaki District. This creates a significant misalignment between policy directions set out in the various plans that could be perceived as misleading.[78]

A spotlight on the Killermont Station water permit application

In May 2019 Killermont Station, in the Waitaki portion of the Mackenzie Basin, applied for a water permit for the purposes of irrigation. This application is currently being processed by Environment Canterbury.[79] Whilst it is within the regional ONL, the property is located within the Rural Scenic Zone in the Waitaki District Plan. If the water permit is granted by Environment Canterbury, irrigation will be enabled as a permitted activity under the district plan.

This application, as well as others also under consideration,[80] demonstrate that the issues with managing the landscape impacts of irrigation in the Mackenzie Basin are ongoing, and there needs to be better alignment between planning documents to protect against the adverse effects that will inevitably result.

Lake Benmore dam

5.4 District instruments

In order to carry out their functions under the RMA, it is mandatory for each territorial authority to prepare a district plan. District plans are the main mechanism used to manage the effects of land use activities and they must specify objectives, policies, rules and methods to address resource management issues in each district. This includes setting out activity categories and assessment criteria for activities, creating zoning overlays and zone standards, scheduling sites of significance and including specific rules relating to subdivision and vegetation clearance.[81]

The Mackenzie Basin spans two districts: Waitaki District and Mackenzie District. The alignment of these two councils, in addition to their alignment with regional and national bodies, has been significantly scrutinised in recent years. In our view, the lack of alignment in planning documents and policies has been a key driver of land use change and degradation in the Mackenzie Basin. This is particularly evident in the level of irrigation permitted in Waitaki District compared to Mackenzie District.

Mackenzie District Plan

The Mackenzie District Plan is the primary instrument through which the above functions are carried out in the northern part of the Basin. The Plan became operative on 24 May 2004; however, it has been subsequently changed through nineteen plan changes. The most notable (and controversial) of these was Plan Change 13, which related to the Mackenzie Basin Subzone and its designation as an ONL. The Subzone includes virtually all of the Mackenzie Basin that lies within the Mackenzie District with the main exceptions being the Twizel and Tekapō townships. This is the starting point for analysing the history of how well the Mackenzie Basin landscapes have been protected by the Mackenzie District Plan.

Plan Change 13

Plan Change 13 was initially informed by findings of a 2007 report undertaken by landscape architect Graeme Densem which assessed the landscape character of the Mackenzie Basin.[82] This study identified the effects that subdivision and residential housing were having on the rural landscape and sought to ensure the District Plan appropriately protected against these. The study recommended that the entire Mackenzie Basin be identified as an 'outstanding working landscape', recognising that while the landscape was undoubtedly outstanding, it had also been substantially modified by human activity. Densem recommended that the duties of stewardship should be balanced with the protection of the culture of High Country farming.

This recommendation was not taken up by the Council. Instead, and in accordance with the RPS, Plan Change 13 identified the Mackenzie Basin as an ONL requiring protection under section 6(b) of the RMA. The plan change was notified in 2007 and had the primary purpose of "providing greater protection of the landscape values of the Mackenzie Basin from inappropriate subdivision, use and development". However, the focus was narrower

than this indicated, as it primarily sought to control rural-residential subdivision pressure and the appearance of built development.[83] Although the issue of greening from irrigation and land use change was mentioned, no provisions were included to address these matters.

At the time Plan Change 13 was notified, the District Plan rules in relation to subdivision and built development were very permissive. Buildings were generally permitted (meaning no resource consent was required), provided they met setback standards and were not located in delineated 'scenic viewing areas', 'lakeside protection areas', 'sites of natural significance' or on land higher than 900 metres above sea level. If they could not meet these standards, buildings became a restricted discretionary activity. Subdivision was a controlled activity, but there was no minimum allotment size in the Rural Zone. These rules were lenient because in 2004, when the District Plan was developed, the scale of demand for built development in rural areas was not anticipated. However, with the freeholding of Crown pastoral lease land and an increase in demand for retirement or second homes, the pressure for development had increased significantly.[84] For example, in the five years prior to Plan Change 13, 120 subdivision lots were created at Manuka Terrace, which is situated between Lake Ōhau and the Ōhau Canal.

The combination of permissive rules for subdivision and buildings, in addition to pressures for rural growth, meant that a lot of *ad hoc* development was occurring in the Mackenzie Basin. The operative rule framework provided for this development without any requirement to assess the effects on the landscape (through a resource consent). It was evident that a more refined policy framework was required to address the landscape effects of development in the Mackenzie Basin.

A spotlight on planning overlays in the Mackenzie District Plan

The Mackenzie District Plan includes a number of planning overlays that seek to provide an additional layer of protection over high value landscapes. These include:

- *Lakeside Protection Areas*: that reflect the visual sensitivity of the landscapes around the major lakes in the Mackenzie District.
- *Scenic Viewing Areas*: that have been identified for the views that can be obtained from these sites and which characterise the High Country landscape of the Mackenzie Basin.
- *Scenic Grasslands*: that recognises indigenous biodiversity in addition to contributing to views of the High Country landscape.

These overlay delineations apply throughout the Mackenzie District, and can provide additional protection in areas not subject to the stricter regulations within the Mackenzie Basin Subzone ONL designation.

Lake Ōhau Alpine Village

Plan Change 13 split the existing Objective 3, which addressed the protection of landscape values, into two separate objectives. Objective 3A was designed to manage ONLs by applying a more stringent management framework, while Objective 3B would continue to apply to general and amenity landscapes. A new suite of policies was included under each objective to provide for this. Policy 3A provided for the "recognition of the Mackenzie Basin as an outstanding natural landscape and establishing a Mackenzie Basin Subzone to protect the basin from inappropriate subdivision, use and development".[85]

The proposed policies and rules significantly reduced landowners' ability to subdivide their properties in the Mackenzie Basin Subzone. In the Subzone area, farm accessory buildings were permitted within existing building nodes, but non-farm buildings required a resource consent. Buildings outside of identified building nodes were a non-complying activity. This had the effect of constraining development to existing nodes – allowing for the vast majority of the landscape to remain uncluttered by buildings and development.[86] In respect of controlling further subdivision, a minimum lot size of 200ha was proposed to control development density and restrict the incursion of non-farming built development into rural areas.

Plan Change 13 was met with significant opposition from landowners – 43 out of 53 submitters opposed the Plan Change.[87] There was concern that property rights were being eroded, and although many did not want to undertake large-scale subdivision or development, they also did not want to lose the ability to do so. The Council appointed Commissioners to hear submissions on these issues and a report was prepared. This made a number of key recommendations and ultimately resulted in a much more permissive planning regime than was initially proposed by Council.

The Commissioners recommended that Plan Change 13, as publicly notified, should not proceed. The concept of the entire Mackenzie Basin being identified and mapped as an ONL was rejected.[88] Instead, they sought to provide recognition for the Mackenzie Basin as having a "distinctive and highly valued landscape *containing (sic) outstanding natural landscapes*".[89] They considered the entire Basin should not be classified as an ONL and a strict regime across the whole area was not appropriate. Instead different zones (and rules) were proposed to address variability in the landscape, including a regime for the areas that qualified, in their view, as an ONL.

Although the Commissioners provided support for the concept of Farm Based Areas (previously 'nodes') they considered that the proposed framework was too restrictive. A more lenient framework was recommended, allowing for any building to be constructed within a Farm Base Area as a permitted activity. They noted that matters related to intensive farming were out of scope and that the Commissioners were unable to comment on these.

The Council adopted the Commissioner's recommendations, and in December 2009 publicly notified their decision on Plan Change 13. This spurred the beginning of a series of Environment and High Court appeals which lasted almost a decade. The involvement of the Courts turned Plan Change 13 into a much wider document, with a focus not only on built development and subdivision, but also on pastoral intensification. Effectively, Plan Change 13 became a plan change written by the Environment Court, not by the Mackenzie District Council.

Farm buildings on Basin floor

A brief history of the legislative history of Plan Change 13	
Date	**Decision**
24 May 2004	Mackenzie District Plan became operative
19 December 2009	Plan Change 13 publicly notified by Mackenzie District Council. "The Primary purpose of this Plan Change is to provide greater protection of the landscape values of the Mackenzie Basin from inappropriate subdivision, development and use ..."
12 December 2011	Environment Court – first (interim) decision *High Country Rosehip Orchards and others v Mackenzie District Council* [2011] NZEnvC 387. The Environment Court proposed changes to PC13 objectives, suggested changes to policies, and issued directions under section 293 RMA, as well as making a final finding that the entire Mackenzie Basin is an ONL at [484].
27 April 2012	Environment Court – second decision (procedural decision addressing the Utility Rules) *Mount Gerald Station and others v Mackenzie District Council* [2012] NZEnvC 78.
19 March 2013	High Court appeal *Federated Farmers v Mackenzie District Council* [2013] NZHC 518. Federated Farmers appealed the first Environment Court decision on the grounds that the proposed amendments were out of scope. The High Court held that as the Environment Court decision was interim, except the final finding re ONL status, the appeal was premature and there was no case to be heard.
9 May 2013	Environment Court – third (procedural decision addressing whether the s 274 waivers should be granted, along with other discrete issues) *The Wolds Station and others v Mackenzie District Council* [2013] NZEnvC 99.
27 June 2013	Environment Court – fourth decision (procedural decision adjourning the s 274 applications until after the s 293 process had been resolved). *Federated Farmers and others v Mackenzie District Council* [2013] NZEnvC 140.
25 July 2013	Environment Court – fifth decision (procedural decision on the issue of the Ōhau River-Rural-Residential Zone). *Mackenzie Properties Limited v Mackenzie District Council* [2013] NZEnvC 164.
1 November 2013	Environment Court – sixth decision (procedural decision on the Court's powers under s 293 to make the orders proposed in the first interim decision). *Mackenzie Properties Limited v Mackenzie District Council* [2013] NZEnvC 164.
5 November 2013	Environment Court – seventh decision (procedural decision on the Court's powers under s 293). *Federated Farmers v Mackenzie District Council* [2013] NZEnvC 258. The Environment Court determined that it had jurisdiction to make changes to Plan Change 13 under section 293 of the RMA. Pastoral intensification was deemed to be within scope (as it aligned with the broader purpose of Plan Change 13). Wilding pines were deemed to be out of scope.
23 December 2013	Environment Court – eighth decision (re Landscape objectives). *Federated Farmers v Mackenzie District Council* [2013] NZEnvC 304.
23 October 2014	High Court appeal *Federated Farmers v Mackenzie District Council* [2014] NZHC 2616. Federated Farmers appealed the 6th, 7th and 8th Environment Court decisions on questions relating to the scope of the Environment Court's jurisdiction under section 293 of the RMA.
4 December 2014	Environment Court – ninth (procedural) decision *Federated Farmers v Mackenzie District Council* [2014] NZEnvC 246. The Environment Court directed which matters should be covered by the Council pursuant to its section 293 direction including: recognition of Mackenzie Basin's distinctive characteristics; views from roads; enabling pastoral farming; farm buildings; landscape aspects of subdivision; and pastoral intensification.

14 November 2015	Section 293 version of Plan Change 13 notified (PC13(293V)). A proposed package of amended objectives, policies and rules were publicly notified. Relevant amendments include: ▪ A new definition of "pastoral intensification" that included subdivisional fencing, cultivation, irrigation, topdressing and oversowing, and/or direct drilling. ▪ A new set of rules relating to pastoral intensification generally: this definition allowed pastoral intensification as a permitted activity within an area that had been granted consent by Environment Canterbury by 14/11/15.
13 April 2017	Environment Court – eleventh decision *Federated Farmers v Mackenzie District Council* [2017] NZEnvC 53. This amended Plan Change13 (PC13(11DV)) by changing the definition of "pastoral intensification" (reverting it back to its pre-notification definition) and including a new definition for "agricultural conversion". The decision also changed the status of pastoral intensification under Rule 15A 1.2(b) from permitted to controlled.
16 June 2017	Plan Change 13 (PV) lodged with the Court Registrar – this version of the plan change included all changes directed by the Environment Court in the eleventh decision (PC13(11VD)).
7 September 2017	Environment Court – twelfth decision *Federated Farmers v Mackenzie District Council* [2017] NZEnvC 148. The Environment Court approved PC13(PV) subject to minor amendments.
22 December 2017	Environment Court – *Re Mackenzie District Council* [2017] NZEnvC 216. The Court determined that PC13(293V) had legal effect from 15/11/15. Rules in PC13(11DV) must be treated as operative from 13/04/17.

In the first Environment Court decision, Judge Jackson confirmed that the Mackenzie Basin is "the epitome of a large landscape which can meaningfully be perceived as a whole".[90] The judge then went through a thorough analysis of whether the Mackenzie Basin was sufficiently natural and outstanding to warrant protection under section 6(b) of the RMA. The Court determined that the whole Mackenzie Basin,[91] despite any modifications to its endemic naturalness, is a "quintessential" ONL.[92] To provide for its protection, the Court required the landscape to be mapped in the District Plan.

The Environment Court also addressed the fact that, although the Council had identified a number of threats to the landscape, it failed to address these in the Plan Change. These issues included intensive (irrigated) farming and the spread of wilding conifers, as well as the potential for large scale farm buildings.[93] A further suite of provisions was required to address these issues. Exercising its powers under section 293 of the RMA, the Environment Court directed that the Mackenzie District Council prepare a new set of objectives, policies and rules to address the issues facing the Basin. This suite of policies, the section 293 version of Plan Change 13, was publicly notified on 14 November 2015.[94]

There was a considerable delay between the first Environment Court decision (in December 2011) and the notification of the section 293 version of Plan Change 13 (in November 2015). During this period, there was a gold rush of development, with landowners intensifying their properties under the old, permissive district plan rules.[95]

Under the operative plan, irrigation was a permitted activity provided a water permit for irrigation had been granted by Environment Canterbury. Despite the Environment Court's confirmation that the Mackenzie Basin was an ONL, until the District Plan provisions were changed, the Mackenzie District Council had no option but to permit development that would further degrade the landscape.[96]

Following a number of procedural decisions, the Environment Court in its 11th Decision confirmed the section 293 version of Plan Change 13, subject to amendments. This version was confirmed by the Environment Court in its 12th and final decision. Plan Change 13 finally became operative on 13 April 2017, more than 12 years after it was first notified.

Plan Change 13 significantly strengthened the planning framework for the Mackenzie Basin Subzone. It resulted in much greater protection of the landscape values of the Mackenzie Basin from inappropriate subdivision, development and use. In addition to controls on subdivision and built development, Plan Change 13 also provided more effective control over pastoral intensification and agricultural conversion (which had previously been a permitted activity). It split the activities associated with intensive farming into two definitions:[97]

- *Pastoral Intensification*: subdivisional fencing and/or topdressing and oversowing.
- *Agricultural Conversion*: direct drilling or cultivation (by ploughing, discing or otherwise) and irrigation.

Neither pastoral intensification nor agricultural conversion can now occur within the Mackenzie Basin Subzone as a permitted activity. If a water permit had been granted[98] for the purpose of irrigation prior to 14 November 2015 these activities are now controlled, subject to compliance with the listed standards. This controlled activity status was included as a matter of fairness, to recognise that some landowners had already gone through a drawn-out consenting process at considerable expense. As a controlled activity, consent must be granted but conditions to address visibility, mitigation and any impacts on at-risk plant species can be imposed.

Pastoral intensification and agricultural conversion that was not already subject to a water permit at the relevant date is a discretionary activity. Consent for a discretionary activity can either be granted or refused. However, in determining the application, the consent authority must have regard to the actual and potential effects on the environment and provisions in relevant planning instruments.[99] It is important to note that the Mackenzie Basin is identified as an ONL, and the effects of agricultural conversion and pastoral intensification have been identified as causing adverse effects on this landscape. The District Plan provisions provide a clear focus on protecting and enhancing that landscape.[100] It is recognised that in many areas "development beyond pastoral activities is either generally inappropriate or should be avoided".[101] As such, it would be highly unlikely that a discretionary consent for intensive farming would be granted under the operative Plan.

Within sites of natural significance (of which there are 56 within the Mackenzie Basin) pastoral intensification and/or agricultural conversion is non-complying. As the adverse effects on the environment would undoubtedly be more than minor, and the activity would likely be contrary to the objectives and policies of the plan,[102] it is now unlikely that a consent could be granted for this activity.

Plan Change 13 largely retains what was proposed by the Commissioners in regard to built development and subdivision in the Mackenzie Basin Subzone. It is a permitted activity to construct buildings within the Farm Base Area, subject to controls, but for all other buildings a resource consent must be obtained. While the indigenous vegetation clearance rules were strengthened through Plan Change 13, they are now subject to a more recent proposed plan change – which seeks to create a stand-alone biodiversity chapter in the District Plan (Plan Change 18).

Proposed Plan Change 18

Proposed Plan Change 18 addresses indigenous biodiversity and seeks to give effect to the principle of 'no net loss' in the Canterbury RPS. The plan change seeks to safeguard indigenous biodiversity and ecosystem functioning through the protection and enhancement of significant indigenous vegetation and habitats, riparian margins and the maintenance of natural biological and physical processes.[103] Under the plan change, development may only occur in a manner that provides for no net loss of indigenous biodiversity in areas that have been identified as significant.[104]

Proposed Plan Change 18 introduces new, more stringent rules for the clearance of indigenous vegetation. Generally, this is a restricted discretionary activity, unless permitted for a limited number of activities. If the clearance is within a Site of Natural Significance, it becomes non-complying.[105] The Proposed Plan Change also introduces the requirement for a Farm Biodiversity Plan to identify significant ecological areas and ensure there is no net loss of biodiversity on a property-scale. It is noted that these can be included as an additional section to the Farm Environment Plans required under the Land and Water Plan.[106]

The indigenous vegetation clearance rules contained in Proposed Plan Change 18 have immediate legal effect.[107] As they are much more stringent than the operative rules, which allow for indigenous vegetation clearance below a certain threshold in sites of natural significance and riparian areas, this should prevent another 'gold rush' of activity before the Plan Change becomes operative.

The provisions in the Mackenzie District Plan now provide a robust framework for addressing the effects of land use on the Mackenzie Basin landscape. In the Subzone, very little additional intensified farming development can occur – and consents for new irrigation will be extremely difficult to obtain. The indigenous vegetation clearance rules in Plan Change 18 are far more advanced than in the Waitaki District Plan and provide significant protection.

Although it has been a protracted and costly experience, due to the recourse to the Environment Court, the Mackenzie District Plan now both recognises and protects the importance of the Mackenzie Basin landscape. It is likely that the next challenge will be effectively managing non-farm built development with the development of other industries such as tourism.

Waitaki District Plan

Waitaki District is a diverse area which stretches from beaches on the eastern coast of the South Island right up into the Southern Alps. This includes a portion of the Mackenzie Basin to the south of Twizel, the Ahuriri catchment and part of the Ōhau catchment. The District Plan seeks to ensure the sustainable management of natural resources in the district – and uses zoning overlays to account for the variability in landscapes throughout the area. In the Waitaki District, the Mackenzie Basin floor is largely covered by the rural scenic zone, while the hills are overlaid with an ONL designation.

The Waitaki District Plan was partially approved by the Waitaki District Council on 12 July 2004, and following a number of plan changes, became fully operative in 2010. Two of these plan changes relevant to the current landscape protections in the District Plan are discussed briefly: Plan Change 8 (indigenous vegetation clearance) and Variation 2 (landscape).

Plan Change 8 was notified in 2005 and proposed a new general indigenous clearance rule – Rule 4.4.8. This proposed a requirement to obtain a resource consent to

clear indigenous vegetation, but carved out an exception for former Crown pastoral lease land that had been transferred to the lessee as freehold. This tenure-exception was based on a similar provision that was included in the Central Otago District Plan on the basis that "the tenure review process provides an alternative statutory means to identify and address on a site specific basis the values which are the subject of this rule".[108] It was assumed that the overall landscape and ecological values associated with indigenous vegetation clearance would have been considered through the tenure review process, and would have been adequately protected, either through transfer to Crown ownership or covenanting.

The inclusion of Rule 4.4.8 in the Waitaki District Plan was successfully challenged by the Royal Forest and Bird Society in the Environment Court.[109] The Court held that the tenure review exception did not control the effects of the use and development of land, and did not fulfil the Council's purpose of maintaining indigenous biodiversity (as required under section 31(1)(b) of the RMA). The outcomes of tenure review are focused on land ownership, not land use activities, and therefore did not achieve the plan's objectives.

As a result of the Court challenge, the tenure-exemption was removed from the Proposed Plan Change in 2012.

Indigenous vegetation clearance for a purpose other than maintenance remains controlled across all tenures and must be avoided in riparian areas and in significant biodiversity areas.

Variation 2 to the Waitaki District Plan was informed by a landscape assessment undertaken by Graeme Densem in 2005. Compared to the 2007 Mackenzie Basin landscape study, which identified the Mackenzie District portion of the Basin as one landscape, this study resulted in a number of different zones. For the purpose of the District Plan, the existing rural zone was split into two categories: rural general and rural scenic. The rural scenic zone included additional protection and covered all landscapes that had some amenity value under section 7(c) of the RMA. Overlaid on this was the ONL – which included the most stringent protections. At the time this study was conducted, almost all the corridor between Ōmarama and Twizel was identified as an ONL. However, while the plan change was being progressed, a number of developments occurred, degrading dryland and landscape values of the area.[110]

One of the major risks to the protection of the Mackenzie Basin's ONL in the Waitaki District is the misalignment between what is identified as 'outstanding' in the Canterbury RPS and the corresponding area mapped in the Waitaki District Plan. There is 38,500ha of the

Farming on Basin floor within Waitaki District

Mackenzie Basin ONL (as identified in the Canterbury RPS) that is not identified in the Waitaki District Plan.[111] This misalignment, that predominately excludes the gentle terrain of the Basin floor,[112] has serious implications for how the land is managed and protected.

In the Waitaki District Plan, designation as an ONL creates a much stronger rule framework than a rural scenic zoning. The District Plan requires that the 'overall landscape qualities of the Rural Scenic Zone are retained'[113] but also that 'ongoing landuse change may occur' and irrigation 'could well expand further in the Basin'.[114] This clearly illustrates that further intensification is provided for in the Waitaki-portion of the Mackenzie Basin.

In the rural scenic zone farming activities, including the use of irrigation, is permitted. This means, provided that the activity complies with the Site Development Standards (which include controls on setbacks and vegetation clearance), resource consent is not required.[115] This applies to 38,500ha of land that is classified ONL in the RPS, but which is not classified in this way in the District Plan. The area within the narrowly defined ONL in the Waitaki District Plan is afforded greater protection, and the use of irrigation is non-complying, meaning that consent can still be granted but is likely to be difficult to obtain.[116]

Although it addresses the impacts of irrigation on ONLs, the Waitaki District Plan does not include a framework to address the impacts of other forms of pastoral intensification. This means that considerable land use change can occur through cultivation, oversowing and topdressing as permitted activities in ONLs.[117] These activities have the potential to adversely affect the landscape in a similar manner to irrigation – by greening and also by replacing indigenous vegetation with exotic species.

Much like the Mackenzie District, the Waitaki portion of the Mackenzie Basin is characterised as an ONL because of the openness and vastness of the landscape, the tussock grasslands and the lack of development. The effect of pastoral intensification, through cultivation and sowing of pasture or crops, results in the "division of the brown High Country landscape, loss of natural diversity [and] different livestock patterns".[118] Therefore, while irrigation is not permitted in the area defined as ONL, farming activities can still adversely affect the landscape values that section 6(b) is seeking to protect.

The controls on subdivision are also comparatively weaker in the Waitaki District than those in the Mackenzie District. Subdivision is a discretionary activity within the mapped ONL, with a minimum allotment size of 100ha. However, in the 38,500ha of the ONL that is not so mapped, the minimum allotment size is reduced to 20ha. Although the location of the building platform is a matter over which the Council can exercise control, there is no other direction in the District Plan as to where subdivision can and cannot occur.[119] This may lead to a further breaking up of the Mackenzie Basin landscape through subdivision and development, resulting in degradation of the sense of openness, naturalness and landform continuity.[120] Rural development needs to be tightly regulated in order to protect against this.[121]

The Waitaki District Plan also does not adequately protect the unique biodiversity associated with the landscape. Sites identified and listed as 'areas of significant indigenous vegetation and habitat of significant fauna' are afforded additional protection, on the basis that they are areas of ecological and environmental sensitivity, as are sites above 900m in altitude or within 20m of a lake or wetland. In these areas, activities such as the clearance of indigenous vegetation (other than for maintenance), construction of buildings, earthworks and forestry are prohibited. However, only two discrete areas have been so identified in the Waitaki District portion of the Mackenzie Basin.[122] In other areas, indigenous vegetation clearance is controlled by limiting the amount of clearance that can occur over a five-year period (for example, there can be no more than 5,000m^2 of clearance of indigenous vegetation except where it is carried out to maintain an area of improved pasture.[123]

There are also a number of other areas in the Mackenzie Basin that have been identified as Areas of Conservation Merit listed in Appendix C(1) of the Waitaki District Plan. However, these do not have any additional protection[124] meaning that their ecological values can be lost through incompatible land use activities. An example is the Twizel-Ōmarama Grassland which was identified as an Area of Conservation Merit in the District Plan and was an area with nationally significant ecological values.[125] The subsequent irrigation of this grassland has resulted in a substantial loss of its native vegetation and the destruction of its significant ecological values. This highlights the fact that irrigation is not only a threat to the natural landscape values of the Mackenzie Basin, but also its biodiversity values.

The Waitaki District Plan, as it currently stands, does not provide for the protection of the Mackenzie Basin ONL and associated biodiversity from inappropriate subdivision, use and development and it therefore is not giving effect to the Canterbury RPS as required under section 75(3) of the RMA. It is also contrary to section 6(b) of the RMA which requires protection of ONLs from inappropriate use and development. These deficiencies have enabled significant land use change in the District.

In 2014, the Waitaki District Council resolved to update its District Plan. Some preliminary work has been undertaken to assist in this process, including the commissioning of a landscape assessment by Graeme Densem (who was involved in the historic mapping process). This landscape assessment is not publicly available but seeks to address, and hopefully rectify, some of the misalignment in the extent to which the Mackenzie Basin ONL is mapped in the District Plan.

Progress in developing a proposed new plan has been very slow. It took five years to reach the stage of releasing a discussion document (Waitaki 2030) which was made available to the public in June 2019. This outlines the issues that will be addressed in the revised plan. The

Council proposes the inclusion of a rule framework to protect the district's ONLs from inappropriate subdivision, use and development. However, the inclusion of stricter controls on pastoral intensification is not mentioned. Given the public focus on the Mackenzie Basin during the last decade (following Plan Change 13), the Council's responsibilities for part of the Basin and the evident need to better protect its landscape values, this is somewhat surprising and very concerning.

The deficiencies highlighted above have been recognised by the Mackenzie Basin Agency Alignment Programme, and agencies are now working together to support Waitaki District Council in the process of preparing its district plan, and hopefully to remedy some of the issues raised.

5.5 Monitoring and enforcement

The proper implementation of the RMA, and the planning instruments beneath it, depends on effective compliance, monitoring and enforcement of resource consents. If no monitoring is conducted, or is conducted infrequently, there is poor ability to detect non-compliance and enforcement is unlikely to occur.[126] We found that there is little monitoring of compliance with the rules, the state of ecological health or the extent of landscape change.

The challenge of monitoring is exacerbated by the limited presence of the relevant statutory agencies within the Mackenzie Basin. Of the five agencies involved in the Agency Alignment Programme, only the Mackenzie District Council and DOC have a presence in the Basin. In the case of the Mackenzie District Council, this takes the form of a small service centre, with the Council's main administrative centre being located outside the Basin in Fairlie. Waitaki District Council seeks to manage the Basin from Ōamaru and Environment Canterbury from Christchurch and Timaru. Waitaki District Council has only one compliance officer to undertake monitoring and enforcement of all matters administered by the Council (including that required under the RMA and the suite of other legislation the Council administers) for the whole district.[127] As such, it is not surprising that non-compliance can occur without consequence.

KEY MESSAGES

- ONLs and significant indigenous vegetation and habitats must be protected as a matter of national importance under the RMA.
- There is no national instrument under the RMA that addresses landscape matters outside the coastal environment. Other national instruments may have unintended negative consequences for landscape such as the NESPF and NPSFW.
- The Canterbury RPS describes, but does not map, the Mackenzie Basin ONL or provide a policy framework for its protection.
- There is currently no regional plan that directly addresses landscape or indigenous biodiversity issues.
- Water planning for the Basin is fragmented with water quantity addressed in a separate document to water quality. Neither adequately recognise the cumulative landscape and biodiversity implications of irrigation for the Mackenzie Basin.
- Since 2017, the Mackenzie District Plan has provided robust protection of the Mackenzie Basin ONL, but this is only the result of recourse to the Environment Court. Prior to this, irrigation was a permitted activity within the ONL, and much intensification occurred under these earlier rules.
- The Waitaki District Plan does not recognise 38,500ha of the Mackenzie Basin ONL (predominately on the Basin floor) and it remains unprotected with irrigation, cultivation, oversowing and topdressing classified as permitted activities.
- The current monitoring and enforcement system is weak, meaning that there is no certainty that existing rules will be adhered to.

Pivot irrigation on glacial moraine

ENDNOTES

1 Resource Management Act 1991, s 5(1)

2 *Man O'War Station Limited v Auckland Council* [2017] NZCA 24 at [93]

3 *High Country Rosehip Orchards Ltd v Mackenzie District Council* [2011] NZEnvC 387

4 *Long Bay-Okura Great Park Society Inc v North Shore CC* (NZEnvC A078/08, 16 July 2008)

5 *High Country Rosehip Orchards Ltd v Mackenzie District Council* [2011] NZEnvC 387

6 *Wakatipu Environmental Society Inc v Queenstown Lakes District Council* [2000] NZRMA 59 (EnvC)

7 *Wakatipu Environmental Society Inc v Queenstown Lakes District Council* [2000] NZRMA 59 (EnvC)

8 Resource Management Act 1991, s 6 (b)

9 *Environmental Defence Society v New Zealand King Salmon Company Ltd* [2014] NZSC 38

10 http://www.environmentguide.org.nz/rma/principles/section-6-matters-of-national-importance/

11 *High Country Rosehip Orchards Ltd v Mackenzie District Council* [2011] NZEnvC 387, [116]

12 In *Environmental Defence Society v New Zealand King Salmon*, the Supreme Court determined that "give effect" is a strongly worded directive, meaning to implement.

13 Resource Management Act 1991, s 45(1)

14 https://www.mfe.govt.nz/land/land-acts-and-regulations/national-environmental-standards-plantation-forestry/about-standards

15 Wright et al, 2019

16 Boffa Miskell, 2019, 44

17 The NESPF uses the Erosion Susceptibility Classification to identify the erosion risk of land as a basis for determining the activity status of plantation forestry activities. Green (low) and yellow (moderate) land is less likely to erode and plantation forestry activities are generally permitted. Orange (high risk) and red (very high risk) land is more likely to erode and generally a resource consent is required.

18 Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017, s 6(2)(a)

19 Paul, 2015

20 National Policy Statement for Freshwater Management 2014, Objective A2

21 National Policy Statement for Freshwater Management 2014, Appendix 2

22 Parliamentary Commissioner for the Environment, 2014

23 *Ngāti Kahungunu Iwi Inc v Hawke's Bay Regional Council* [2015] NZEnvC 50

24 Resource Management Act 1991, Part 9

25 The National Water Conservation (Ahuriri River) Order 1990

26 Palmer, 2013

27 *North Shore CC v Auckland RC (PT A70/94)*

28 Canterbury Regional Council, 2006a

29 Canterbury Regional Council, 2007, 37

30 Canterbury Regional Policy Statement 1998, Chapter 8, Objective 2 and Policy 3

31 Lucas Associates et al, 1993

32 Canterbury Regional Council, 2006b

33 Canterbury Regional Council, 2007, 31

34 Canterbury Regional Council, 2007, 4

35 Boffa Miskell, 2010

36 Resource Management Amendment Act 2005

37 Canterbury Regional Policy Statement 2013, Objective 12.2

38 Canterbury Regional Policy Statement 2013, Appendix 4

39 Canterbury Regional Policy Statement 2013, Policy 12.3.1 (Method 2)

40 *Wakatipu Environmental Society Inc v Queenstown Lakes DC* [2000] NZRMA 59 (EnvC)

41 Canterbury Regional Policy Statement 2013, Issue 5.1.1, Objective 5.2.1

42 Canterbury Regional Policy Statement 2013, Objective 7.2.3

43 Canterbury Regional Policy Statement 2013, Policy 9.2.2 and 9.2.3

44 Canterbury Regional Policy Statement 2013, Objective 2

45 Brown and Harris, 2005

46 *Aoraki Water Trust v Meridian Energy Ltd [2005] 2 NZLR 268*

47 https://www.doc.govt.nz/our-work/project-river-recovery/

48 *Re An Application by Meridian Energy Ltd* (C 125/03, Judge Jon Jackson)

49 *Aoraki Water Trust v Meridian Energy Ltd* [2005] 2 NZLR 268

50 McKnight, 2013

51 Waitaki Catchment Water Allocation Regional Plan 2006, Table 5

52 Waitaki Catchment Water Allocation Regional Plan 2006, Objective 3

53 Waitaki Catchment Water Allocation Regional Plan 2006, Policy 13 and Explanation

54 Environment Canterbury, 2012, 5

55 Environment Canterbury, 2012, 6

56 Waitaki Catchment Water Allocation Regional Plan 2006, Policy 4

57 Waitaki Catchment Water Allocation Regional Plan 2006, Policy 12(f)

58 Boffa Miskell, 2019, 73; Waitaki Catchment Water Allocation Regional Plan 2006, Policy 32

59 Waitaki Catchment Water Allocation Regional Plan 2006, Policy 31

60 Canterbury Land and Water Regional Plan 2006, Section 15B.2.1

61 Resource Management (Waitaki Catchment) Act 2004, s 3(c)

62 Rodgers et al, 2011

63 Waitaki Catchment Water Allocation Regional Plan 2006, Policies 15 - 20

64 Waitaki Catchment Water Allocation Regional Plan, Schedule 2

65 For example Environment Canterbury consent: CRC070406 Report and Decision

66 *Glentanner Station Ltd v Canterbury Regional Council* [2014] NZEnvC 147, [19]

67 *Federated Farmers v Mackenzie District Council* [2017] NZEnvC 53, [513]

68 OVERSEER is an agricultural management tool used to model farm nutrient flows.

69 Resource Management Act 1991, s 104(1)(a)

70 Resource Management Act 1991, s 104(1)(a); Rodgers et al, 2011, [13.42]

71 Rodgers et al, 2011

72 Informant interview

73 Section 3

74 https://www.irrigationnz.co.nz/KnowledgeResources/Category?Action=View&Category_id=76

75 Parliamentary Commissioner for the Environment, 2013

76 Informant interview

77 The Decisions Version of Plan Change 5 (notified on 24 June 2017) was initially subject to 8 High Court appeals, all of which have been resolved by a joint memorandum.

78 Boffa Miskell, 2019, 123

79 Environment Canterbury consent: CRC195068

80 Environment Canterbury consent: CRC203027 to use water from the Benmore Irrigation Company for the irrigation of up to 125ha

81 Player, 2007

82 Densem, 2007

83 Mackenzie District Council, Proposed Plan Change 13 (December, 2007)

84 Mackenzie District Council, Proposed Plan Change 13 Section 32 Report

85 Mackenzie District Council, Proposed Plan Change 13 (December, 2007), Policy 3A

86 Densem, 2007

87 Harte, 2008

88 Harte, 2008, 6

89 Collins et al, 2009

90 *High Country Rosehip Orchards and others v Mackenzie District Council* [2011] NZEnvC 387, [90]

91 Excluding the Twizel and Tekapo townships, the Twizel Character Area and the Dobson River Catchment

92 *High Country Rosehip Orchards and others v Mackenzie District Council* [2011] NZEnvC 387, [105]

93 *High Country Rosehip Orchards and others v Mackenzie District Council* [2011] NZEnvC 387, [116]

94 The rules in the notified Section 293 version of Plan Change 13 were confirmed to have immediate legal effect in *Re Mackenzie District Council* [2017] NZEnvC 216

95 Informant interview

96 Raeburn, 2016, [27]

97 Mackenzie District Plan 2004, Section 3

98 Mackenzie District Council recently sought declarations as to the meaning of "granted" for the purpose of this Rule. The Environment Court held that a consent which had been granted by the Regional Council but which was subject to an appeal in the Environment Court was not "granted" for the purpose of the Rule. This decision is subject to an appeal in the High Court.

99 Resource Management Act 1991, s 104(1)

100 Mackenzie District Plan 2004, Rural Objective 3B

101 Mackenzie District Plan 2004, Policy 3B1

102 Resource Management Act 1991, s 104D

103 Mackenzie District Plan 2004, Proposed Plan Change 18 (as publicly notified) Section 19, Objective 1

104 Mackenzie District Plan 2004, Proposed Plan Change 18 (as publicly notified) Policy 3

105 Mackenzie District Plan 2004, Proposed Plan Change 18 (as publicly notified) Rules 1.1–1.3

106 Mackenzie District Plan 2004, Proposed Plan Change 18 (as publicly notified) Appendix Y

107 *Re Mackenzie District Council* [2017] NZEnvC 202

108 Player, 2007, 12

109 *Royal Forest and Bird Protection Society of New Zealand Inc v Waitaki District Council* [2012] NZEnvC 252

110 Informant interview

111 Boffa Miskell, 2019

112 As can be observed in Waitaki District Plan maps

113 Waitaki District Plan 2004, Objective 16.8.2

114 Waitaki District Plan 2004, 16.8.5 Explanation and Reasons

115 Waitaki District Plan 2004, Rule 4.3.1(4)

116 Waitaki District Plan 2004, Rule 4.3.4(6)

117 Waitaki District Plan 2004, Rule 4.3.1(4) – by way of not being excluded from the rule; Boffa Miskell, 2019

118 Densem, 2016, 25

119 Waitaki District Plan 2004, Rule 14.3.3(13)(a)

120 Public Notice of Proposed Change 13 (Rural Zone – Mackenzie Basin) to the Mackenzie District Plan, December 2009

121 *High Country Rosehip Orchards and others v Mackenzie District Council* [2011] NZEnvC 387, [135]

122 Waitaki District Plan 2004 Appendix C: Black Jacks Island and an area of Lake Dumbell; Boffa Miskell, 2019, 19

123 Waitaki District Plan 2004, Rule 4.4.8

124 Waitaki District Plan 2004, Appendix C(1)

125 Head, 2016, 26

126 The Catalyst Group, 2018

127 Informant interview

Mount Hay Station

6 OTHER STATUTORY LANDSCAPE PROTECTION TOOLS

While the RMA is the key piece of legislation for land and water management in the Mackenzie Basin, there are a number of other statutes that apply to particular properties and sites. These include the Land Act 1948, Crown Pastoral Land Act 1998, Reserves Act 1977 and the Conservation Act 1987.

Balmoral Station

A spotlight on land legislation

The Land Act 1948 is the consolidation of a number of amendments and revisions to previous Land Acts that have existed in New Zealand since 1877. It defines the different categories of Crown land (including Crown pastoral land) and sets out principles for their management. Despite the enactment of the Crown Pastoral Land Act in 1998, the Land Act continues to apply, although many of its sections have been repealed.

The Crown Pastoral Land Act, although not an amendment to the Land Act, must be read in conjunction with it. This Act deals specifically with management of Crown-owned pastoral land and its disposition, including the discretionary consent process and tenure review. The Act also has the effect of preventing any further creation or reclassification of Crown pastoral leases, by repealing sections 66 and 51(1)(d) of the Land Act.[1]

As discussed further in Chapter 9, the Crown Pastoral Land Act is currently under review.

6.1 Crown pastoral lease discretionary consents

Both the Land Act and the Crown Pastoral Land Act play a significant role in the management of land in the Mackenzie Basin. As described in Chapter 2, after the Crown acquired the tussock grasslands of the South Island High Country (including the Mackenzie Basin) from Ngāi Tahu in a disputed land transaction, pastoral runs were leased to farmers on a short-term basis from the mid-1800s onwards.

Over the succeeding century serious land degradation occurred, and the government eventually concluded that insecurity of tenure resulted in a short-term view of land management which was leading to the degradation: "if the farmer has not security of tenure he will not be a good farmer and will not work to a long term plan".[2] As described in Chapter 3, perpetually renewable Crown pastoral leases were created under the Land Act 1948 as a mechanism to provide long term security of tenure, and incentivise the farmer to look after the land.

Pastoral leases recognise the natural capital of the land and, in order to protect this, restrict the activities that can be undertaken by lessees. Lessees are granted a right to pasturage (pastoral farming) only. This includes the grazing of animals such as sheep and cattle on the land. Activities that disturb the soil – such as burning vegetation, increasing stock numbers (beyond the limit determined by the Land Settlement Board and specified in the lease)[3] or the cultivation of the soil – require permission from the Commissioner of Crown Lands. This process is referred to as the discretionary consent process.

It is important to recognise that pastoral leases are distinct from other farming leases (pastoral-agricultural leases, now repealed) which were far less restrictive and provided for the intensification of the land. Due to their environmental sensitivity, it was always intended that land would be farmed in a lighter manner on pastoral leases.[4]

View from Mount John

A spotlight on the administration of Crown pastoral land under the Land Act 1948

Prior to the enactment of the Crown Pastoral Land Act, Crown land was managed under the Land Act. In the early days, the Land Settlement Board was the decision-making body of the Lands and Survey Department and was supported by Land Settlement Committees (each headed by a Commissioner of Crown Lands) in each district.

Land Settlement Committees were responsible for determining applications for discretionary consents (eg for consents for burning, increasing stock numbers or undertaking development). The Land Settlement Board carried out early reclassification of land prior to a formal tenure review process, and developed policy to recognise the value of Crown pastoral leases – including their landscape and conservation values. Activities sought to be undertaken would be assessed against these policies, which were formulated to reflect changing public perceptions, and each decision was determined by a panel of Land Settlement Committee commissioners.

In 1987 the system was restructured. The Lands and Survey Department was split into the Department of Lands and Survey Information, the Department of Lands, the Department of Conservation and Landcorp (a state-owned enterprise that assumed the commercial farming and property activities of the former Lands and Survey Department). This restructure was part of a fundamental shift that centralised the property system in New Zealand, removing the role for district land registrars. District Commissioners and Land Settlement Committees were also disestablished at this time.

In 1990, the Department of Lands merged into the Department of Lands and Survey Information and a single Commissioner of Crown Lands[5] was created to exercise powers formerly undertaken by the district Land Settlement Committees. The Commissioner continued to be guided by the earlier Land Settlement Board policies.

In 1994, a number of these policies were found to be ultra vires on the basis that the Land Act only covered the protection of soil and water values,[6] and the consideration of conservation values went further than this,[7] particularly in relation to the issue of burning permits. This issue, along with a number of other concerns with the ad hoc tenure review system under the Land Act, prompted the reform of the tenure review system that resulted in the enactment of the Crown Pastoral Land Act 1998.

In 1996, the Department of Lands and Survey Information was renamed Land Information New Zealand and the functions restructured into a Crown Property Management Group (operational) and Office of the Chief Crown Property Officer (regulatory).

The Crown Pastoral Land Act, which was promulgated in 1998, set out a different system for managing discretionary consents. These are administered by the Commissioner of Crown Lands, as described further below. This system has not delivered good ecological sustainability or natural capital outcomes for the Mackenzie Basin.[8] Although the responsibility for greening the Basin is often sheeted home to the freeholding of land through the tenure review process (and weak District Plans as described in Chapter 5), a lot of intensification has been permitted on pastoral lease land through the granting of discretionary consents. As described in Chapter 3, from 2003 –2018, 9,000ha of intensification was enabled on pastoral lease land in the Mackenzie Basin through the discretionary consent system, compared to 16,000ha that occurred on newly freeholded land. These figures illustrate that Crown decisions about the management of pastoral leases have also played a considerable role in facilitating the amount agricultural conversion that has occurred in the Basin.[9]

The failings of the discretionary consent process start with the wording of the Crown Pastoral Land Act. In making a decision about whether to grant a discretionary consent, the Commissioner is required to take into account two potentially conflicting purposes, neither of which contain clear outcomes or environmental bottom lines that must be given effect to:[10]

1. The desirability of protecting the inherent values of the land concerned, in particular the inherent values of indigenous plants and animals, and natural ecosystems and landscapes; and
2. The desirability of making it easier to use the land concerned for farming purposes.

Unlike the tenure review objects (discussed in Chapter 3), which give primacy to the protection of natural values, no hierarchy is included to guide the assessment of discretionary consents. On the face of the legislation alone, the two purposes are given equal weighting.

In addition, section 18 of the Crown Pastoral Land Act only requires that the Commissioner 'take into account' rather than 'give effect to' the two purposes of the Act, enabling a broad degree of discretion. If the two considerations are in direct conflict, which is often the case, the Commissioner must exercise his or her judgment as to which takes priority, and how to mitigate any adverse effects. There is a legal requirement under section 18(1) for the Commissioner to 'consult' the Director General of Conservation, but no additional policy guidance as to how the two statutory purposes should be weighted and applied exists.

This lack of legislative priority, combined with a lack of policy guidance, resulted in the majority of consents applied for being granted, albeit with conditions attached.[11] At large, the legislation has been misunderstood – there was a presumption that for every consent application a balance between the two purposes of the Act had to be achieved. We were told by an informant that this was in part due to a misunderstanding of the advice provided by DOC. Often this advice would state that the consent should be declined as there were not only inherent values,

but significant inherent values, present on the land. However, this would be qualified by a list of conditions to be applied if the Commissioner decided to grant the consent. This was interpreted by LINZ as enabling consent to be granted, subject to the conditions.[12]

This misunderstanding was occurring at a time when there was an overly formal relationship between LINZ and DOC that did not facilitate open discussion about the outcomes and specifics of each consent. This has been somewhat remedied by the more recent 'One Crown' process for Crown pastoral leases and the freer exchange of information between DOC and LINZ.[13] This alignment is particularly strong at present, as one Minister currently holds both the Land Information and Conservation portfolios; being Minister Eugenie Sage.

Another failing of the discretionary consents process was, and still is, its narrow focus. The Commissioner views applications for intensification activities at a site or property-scale rather than a landscape-scale. Consents are considered in isolation, and the statutory purposes balanced only within the area described in the application. This has resulted in the fragmentation of contiguous ecosystems and landscapes in the Mackenzie Basin.

A more holistic approach would consider ecological, landscape and connectivity issues at a broader scale, and approve or decline discretionary consents within that context. This approach would enable the Commissioner to consider the cumulative effects of previous decisions to determine suitability of the application, rather than only considering site or property-specific effects.

Discretionary consents have also been granted by the Commissioner despite the possibility that obtaining consents under the RMA would be unlikely (an example of this is Simons Pass Station, which is discussed in Chapter 8). There is a disconnect between processes under the Crown Pastoral Land Act and the RMA. This has been described by Hutchings and Logan as a "failure of public policy".[14] Agencies have policies that pull in different directions. They have failed to adopt a joined-up approach and this has created a confusing, and at times misleading, consenting framework.

Grays Hills Station

The Agency Alignment Programme for the Mackenzie Basin (described in Chapter 7) is a step in the right direction to help address this, as is the review of the Crown Pastoral Land Act described in Chapter 9.

Monitoring and compliance

Problems with poor ecological and landscape outcomes from the discretionary consents process have been exacerbated by landowners undertaking activities either without consent, or in breach of consent conditions. This has been able to occur as LINZ has largely failed to monitor pastoral lease activities in order to check for compliance with consent conditions, or the Act more generally. An article published by *Newsroom* in August 2019 reported that not a single inspection to specifically check compliance with discretionary consents was undertaken by LINZ between July 2015 and June 2018. Outside of this three-year period, the number of specific compliance inspections remains minimal. Overall, LINZ had adopted a 'soft touch' in managing Crown land in the Mackenzie Basin.[15]

In addition, the tools available to the Commissioner on behalf of the Crown to enforce lease conditions are limited. The Commissioner can sue the lessee under general property law, declare the lease forfeited under the Land Act, or write a stern letter of warning.[16] There is no pathway of escalation, or the ability to efficiently address small breaches, such as through issuing an enforcement order or the like. Often, for small breaches, the consequences of taking the lessee to court are too serious and the action goes unenforced. Over time, this builds a culture of illegal activity whereby lessees do not bother applying for consents, as they know that operating illegally without them will not have repercussions.[17]

The current Government is addressing these issues already and LINZ is now taking a more hands-on role in managing High Country pastoral leases. Over the past two years there has been an increase in general property checks (which can include compliance checks) and an increase in warning letters issued to lessees. There has also been a substantial decrease in the number of discretionary consents applied for and granted, although the reasons for this decline are not known.[18]

6.2 Covenants as a protective mechanism

Covenants can be used as a voluntary mechanism to protect areas of land in private ownership. They are legally binding agreements between two or more parties to protect the covenanted land according to terms in the covenant agreement (which will set out the values to be preserved and how to preserve them). In New Zealand, there are a number of different types of covenants that can be used, with the main ones summarised in Figure 6.1. While the Reserves Act 1977 and the Conservation Act 1987 have different statutory purposes, the similarity in how they are applied in the Mackenzie Basin warrants them being grouped together for the purpose of this report.

	Conservation Covenant	QEII Open Space Covenant	Ngā Whenua a Rāhui Kawenata
Legislation	Reserves Act 1977 (s77) OR Conservation Act 1987 (s27)	Queen Elizabeth the Second National Trust Act 1977	Reserves Act 1977 (s77A)
Purpose	To preserve the natural environment, landscape, amenity, wildlife or historical value of covenanted land	To covenant open space on private land for cultural, archaeological, landscape and biodiversity purposes	The protection of historical, cultural, spiritual and ecological values on private Māori-owned land
Duration	Generally, covenants are granted in perpetuity (but under the Reserves Act they can also be for a specified period of time)	Most covenants are granted in perpetuity but some may be registered for a limited period of time	Granted in perpetuity with terms and conditions reviewable every 25 years
Administration	DOC, local authorities or another body approved by the Minister (currently this is only the Banks Peninsula Conservation Trust)	QEII National Trust	The Ngā Whenua Rāhui team, DOC
Monitoring and enforcement	Monitored either by DOC or local authorities. Many councils have specific monitoring schemes, with various requirements and there is not a nationwide monitoring programme. Costs associated with covenanting private land also vary depending on the contribution made by the council (in some cases this is nothing). Under the Reserves Act, once the conservation covenant is in place the enforcement provisions in Part 5 of the Reserves Act apply to the covenanted area as if it were a reserve. This is why covenants under the Reserves Act are largely preferred to those created under the Conservation Act.	Conditions on covenanted land include things such as maintaining fences, pest and weed control and vegetation clearance. Monitoring occurs bi-annually, but compliance action is rare, even for egregious non-compliance.[19] Instead, the Trust prefers to work with the landowners to inform them and share information about how to remedy the situation. Funding for the management of covenanted land is generally a mix between private funding and central government contributions. However, it is mostly funded by central government (through the Vote Conservation budget).	The Ngā Whenua Rāhui scheme is the only model that generally applies to multiple landholdings with multiple owners (instead of individual privately owned properties). A key feature of the Ngā Whenua Rāhui model is the ability for the landowner to retain rangatiratanga (ownership and control) over their land.[20] The landowning entity is paid a one-off consideration for undertaking the protection in perpetuity. Ngā Whenua Rāhui is the only covenanting model where the landowners are provided with a payment other than to secure the physical protection (eg toward fencing costs). DOC contributes to the funding of on-going operational costs, pest control and monitoring.

Figure 6.1 Main types of land covenants

In the Mackenzie Basin, the most frequently used covenants are conservation covenants granted under the Reserves Act, in addition to a small number of Queen Elizabeth the Second (QEII) Open Space covenants and sustainable management covenants under the Crown Pastoral Land Act (see spotlight below)

Conservation covenants under tenure review

Section 80 of the Crown Pastoral Land Act enables the Commissioner to put in place protective mechanisms when designating land to be disposed of in tenure review. This includes the creation of conservation covenants under the Reserves Act or sustainable management covenants under the Crown Pastoral Land Act (see spotlight).

A spotlight on sustainable management covenants

The Crown Pastoral Land Act includes provision for the Commissioner of Crown Lands to create a sustainable management covenant over land being freeholded.[21] An example of this was the sustainable management covenant placed over part of Maryburn Station following tenure review.

The purpose of a sustainable management covenant is to better achieve ecologically sustainable management of the land by the "minimization of soil erosion through the improvement of vegetation cover and maintenance thereafter, and by any other means of reducing the exposure of soil to erosion".[22] These covenants therefore assume or encourage pastoral intensification in the form of oversowing or drilling and top-dressing, to increase pastoral ground cover and prevent soil blowing away. In order to ensure the land is being managed in accordance with the sustainable management purpose, the landowner must also undertake regular monitoring and reporting of vegetation coverage.

While such covenants may assist with reducing soil erosion, the exotic species introduced typically destroy the ecological values of the area by out-competing native species.[23] This can serve to degrade the of ecological and landscape values in the Mackenzie Basin.

For many years, government preferred to retain land containing significant inherent values in Crown ownership. However, this changed in 2009 when the then-National Government amended the strategic direction for Crown pastoral land. Officials were directed to consider the option of covenants (either time limited or permanent) to protect against inappropriate development on land freeholded through tenure review.[24] This was on the basis that the RMA and associated district plans could not be relied on to ensure ecologically sustainable management of the land once freeholded.[25] Time-limited covenants were designed to provide short-term protection from a narrow range of effects and enable sufficient time for district plans to be amended to appropriately consider land formerly held in pastoral leases (and avoid the issues raised with tenure-based exceptions as discussed earlier in relation to the Waitaki District Plan). For example, a 1,754ha covenant at Irishman Creek precluded only subdivision and plantation forestry (while providing exceptions to all the protective constraints of the covenant, such as grazing and cultivation) and was for a limited term of 15 years.[26]

The increase in covenant use was also partly spurred by the view that the Crown had already acquired too much conservation land, and cuts to DOC's budget meant there was not enough money to manage more conservation land. This, in addition to the 2000 report of the Ministerial Advisory Committee on Biodiversity and Private Land which stated that private landowners should be trusted to care for biodiversity and natural heritage, prompted an increased reliance on conservation covenants.[27]

As at December 2017, 14 per cent of land freeholded through the tenure review process around the country was covered in a covenant of some description.[28] However, the figure in the Mackenzie Basin is much smaller and sits at around 5 per cent.

Covenants have resulted in variable protection of land in the Mackenzie Basin (see spotlight). In some places, such as Glentanner Station, they have been less than rigorous in protecting significant inherent values. However others, such as at Ōmarama Station, show promise as an effective tool. To date, the issues with covenants applied on the freeholding of pastoral lease land have largely been due to their scarcity, the conditions imposed, the lack of clear objectives and the lack of monitoring and enforcement – rather than the mechanism itself.[29]

To allow for effective monitoring and compliance, conditions need to be detailed and comprehensive, and the agency responsible needs to be be well-resourced to monitor them.[30] Earlier covenants had a requirement for DOC to monitor the land and enforce compliance with covenant conditions. However, interviewees indicated that this was a 'weak area' for the Department, resulting from a lack of capacity.[31] While DOC has more capacity to undertake monitoring and compliance in the Mackenzie Basin than the district councils, the Department still only has 1-2 warrant officers for each district, who are responsible for addressing not only compliance with covenants but also tourism concessions and grazing permits.

To respond to the issue of limited DOC monitoring capacity, later covenant conditions required only that the initial monitoring be conducted by DOC and the responsibility was then passed onto the landowner, with a requirement to report the results to DOC. This model has been used successfully at Ōmarama Station, which is discussed further in the spotlight below.

As the use of covenants to protect private or Crown pastoral land will likely continue, following the end of tenure review, the issue of monitoring should be addressed. Another solution would be to charge back the costs of DOC monitoring to the landowner. This would enable more oversight by DOC, which has the benefit of independence, without the Department incurring the associated costs.

A spotlight on conservation covenants in the Mackenzie Basin

A comparison of the covenanting arrangements at Ōmarama and Glentanner stations serves to illustrate the variety in approach which has been applied to the use of covenants in the Mackenzie Basin as part of tenure review.

Ōmarama Station

Ōmarama Station completed tenure review in 2014 following a 12-year negotiation process. The result was that 8,610ha became freehold title, with over 4,000ha of this subject to covenants – either existing QEII covenants or conservation covenants designated as a result of tenure review. Only 171ha of the lease was returned to the Crown as a scientific reserve, part of which has been designated to promote the regeneration of native longfin eel populations.

The conservation covenants cover approximately 2,678ha of the property and are made up of three different covenant areas, each with different values to be protected. These values include, for example, the protection of a number of rare and threatened flora and fauna species, high altitude tall tussockland, diverse vegetation communities and the contribution the land makes to the Canterbury High Country landscape.

As part of the covenant agreement, the landowner is responsible for eradicating and/or controlling all pests and weeds on the land. There are also a number of conditions attached to the covenant that identify activities which the landowner must not carry out without prior written approval. These include the grazing of stock, removal of vegetation, cultivation, burning, chemical spraying, over-sowing and top-dressing or "any other activity which may have an adverse effect on the Values".[32]

A small number of exceptions to these prohibitions are included in Schedule 2, including that a light stocking rate of 0.15 stock units/ha per annum is permitted (subject to variation in accordance with the monitoring programme) and written permission to topdress is provided (meaning the activity may be undertaken).

Notably, the covenant contains extensive monitoring requirements in Schedule 3. This monitoring is intended to be used as a management tool, enabling well-informed decisions to be made about the land, including managing the impact of grazing on indigneous plant populations. Baseline information about these populations must be established and re-monitoring is required at five-yearly intervals. Photo-point monitoring is used across 100 sites and permanent plot monitoring is undertaken on sites where grazing impacts on the indigenous vegetation is likely to be most pronounced.

This monitoring programme was designed by DOC. Initial monitoring was the joint responsibility of the landowner and DOC, and the owner is responsible for the costs of re-monitoring. If this shows that the management practices (including grazing) are having a detrimental impact on the values, or are resulting in deterioration of the ecological condition of the area, the Minister retains the right to take any necessary steps to ensure protection – including restricting stock access.

Glentanner Station

Following tenure review in 2013, a conservation covenant was imposed over 1,783ha of land at Glentanner (in five covenant areas). The covenant requires the landowner manage the land to preserve the values, which vary depending on the area, but all include preserving the inherent landscape values associated with the land's linkage to Aoraki/Mount Cook National Park.

The covenant precludes, among other things, livestock grazing, removal of vegetation, planting of new vegetation, burning, blanket chemical spraying, earthworks and soil disturbance. However, these obligations remain subject to the 'Special Conditions' in Schedule 2 of the covenant.

These Special Conditions carve out a number of exceptions. The covenant expressly permits the current owner (but not subsequent owners) to burn and spray areas of matagouri and manuka in most covenanted areas. Similarly, the obligation precluding the grazing of livestock 'does not apply'.[33] Following tenure review the exception has been relied on to clear vegetation using herbicide.[34] Unlike the covenant in place at Ōmarama Station, extensive monitoring is not required at Glentanner Station.

Glentanner Station

Conservation covenants have arguably been used to undermine the Crown Pastoral Land Act's intention to restore areas of a lease containing significant inherent values to full Crown ownership as part of the tenure review process. This is due to conservation covenants being used as a negotiation tool to freehold more land than would otherwise be the case. An example is the tenure review of Ōmarama Station where extensive covenants were used and the large majority of land was freeholded (see spotlight).

In the context of tenure review, for the remaining properties completing this process, there is also the issue of public access. Crown pastoral lessees enjoy the right of quiet enjoyment of their lease – meaning they are able to restrict access by the public to the property. During tenure review the process of securing public access, either by reverting the lands to full Crown ownership, or to existing conservation land, is often a prominent discussion.[35]

Covenants on privately owned land do not often provide for public access, whereas land that is included in the conservation estate usually does. Freeholding land under covenant, rather than transferring it to Crown ownership, therefore results in less public access to the High Country.

Some argue that the protections afforded under a covenant should already be provided by the Crown Pastoral Land Act discretionary consent process and that they therefore constitute an additional and unnecessary layer of protection.[36] However, as indicated above, the current statutory provisions under which the discretionary consent process operates provide no certainty of protection for ecological and landscape values and, until this situation changes, covenants can usefully provide an additional protective layer.

A further unintended consequence of using covenants in the Mackenzie Basin arises as a result of Environment Canterbury's method of calculating nutrient discharges. Nutrient discharge allowances are calculated on the basis of the area of the farm. As such, there is a perverse incentive for farmers to freehold as much of the farm as possible, even if subject to conservation covenants, to increase their associated discharge allowance. This will enable greater intensification on the areas of the farm not subject to the covenant.[37] This is another example of misaligned policies.

Queen Elizabeth the Second National Trust Act 1977

The QEII National Trust is an independent charitable trust established by statute to promote the protection, preservation and enhancement of open space. The Trust works with individual landowners to protect sites of natural and cultural significance on their property and has played a major role in protecting New Zealand's biodiversity. To date, the Trust has protected over 130,000ha of private land throughout New Zealand (this figure increases to approximately 180,000ha when covenants on Crown land are included). This land is regularly monitored to ensure conditions, such as ensuring the area is properly fenced and prohibiting the planting of exotic species, are being complied with. The protections offered by QEII covenants are legally robust, and have been successfully defended in the courts against development or material alteration of the protected area.[38]

A spotlight on the Ōmarama Station QEII covenant

QEII covenants cover over 2,500ha of land at Ōmarama Station, including the high uplands of Mount St Cuthbert and a unique High Country bog wetland. Similar to the conservation covenant on the Station, the QEII covenant allows for managed grazing, with ewes grazing the land at Mount St Cuthbert for about six weeks in late summer. The covenant was put in place before the property went through tenure review.

QEII covenants are a useful part of the landscape protection toolbox to protect areas of high value landscape and biodiversity on private land in the Mackenzie Basin. However, there are a number of issues that should be addressed if they are to be used on Crown pastoral land.

Ferintosh Station

The legal arrangements for Crown pastoral leasehold land are materially different to the normal arrangement between a landowner and the QEII National Trust. On Crown pastoral land, the decision to enter into a covenant with the Trust rests with the Crown, as landowner, and not the lessee. Therefore, in order to place a QEII covenant on leasehold land, there needs to be three parties subject to the contract: the Trust, the Commissioner of Crown Lands (as representative of the Crown) and the lessee. This adds a layer of complexity to the process and means that such covenants have only been used infrequently in this context. To date there have been only 18 QEII covenants granted over Crown pastoral lease land (in Canterbury, Otago and Southland) covering 57,474ha, with the vast majority of this area being the Mahu Whenua covenant.[39]

Despite having the mandate to operate at a landscape scale, QEII covenants have tended to focus on discrete areas of native vegetation or wetlands (the average covenant in the South Island is 80ha). Mahu Whenua (see spotlight below) does, however, provide an example of the Trust operating at a landscape scale.[40] Some have argued that protecting whole swathes of pastoral lease under a QEII covenant would be ultra vires to the Crown Pastoral Land Act, on the basis that the lease was created for the purpose of pastoral farming. This is not correct. While covenants must be consistent with the purpose of the Crown Pastoral Land Act, including the desirability of protecting the land's inherent values and the desirability of making the land easier to farm, the Commissioner is able to agree to an open space covenant that precludes stock (such as at the Mahu Whenua covenant). This is as a result of section 22 of the Queen Elizabeth the Second National Trust Act which expressly contemplates both the lessee and the Commissioner being able to enter into a covenant on Crown pastoral land. Accordingly, there is potential for the QEII National Trust to establish further open space covenants, with destocked management plans, on pastoral land in the Mackenzie Basin.

A spotlight on the Mahu Whenua QEII Covenant

The Mahu Whenua covenant provides an example of how QEII covenants can be used to protect natural values at a landscape-scale. The covenant covers 92 per cent of four Crown pastoral leases (Mount Soho, Glencoe, Coronet Peak and Motatapu Stations), and forms a contiguous protected area of 53,000ha (see Figure 6.2). It is New Zealand's largest covenant on Crown-owned pastoral lease land.

The covenant seeks to protect the High Country landscape and its indigenous vegetation: high alpine and montane grasslands, cushion fields, wetlands, and forest and shrubland remnants.[41] It also grants permanent public access over a number of sites – including the popular Motatapu Tramping Trail. Providing for public access in the High Country is a live issue with tenure review ending and this could be one way, along with the use of other conservation covenants, to provide public access whilst still ensuring the land is protected.

The Mahu Whenua covenant also provides an example of a Crown pastoral lease that is destocked, which could be used as a precedent for this approach in the future.

Grays Hills Station

6.3 Concessions

It is worth briefly mentioning the role of concessions in enabling business opportunities on public conservation land. Under the Conservation Act, any commercial activity operating on public conservation land must obtain a lease, license, permit or easement (collectively termed a 'concession') to undertake the activity. These concessions can enable the private use of Crown land for economic purposes, so long as the significant inherent values of the land are protected. Concessions can contain provisions to allow for recreational or tourism opportunities (such as guiding, commercial hunting, walking tours or flights) or the grazing of stock (referred to as grazing permits).[42]

In the Mackenzie Basin, there has been strong pressure for the issue of concessions in some areas, with for example, over 50 businesses operating within the Aoraki/Mount Cook National Park.[43]

A spotlight on the Glentanner Station concession

Following tenure review, 9,190ha on the Ben Ōhau Range was transferred to the Crown conservation estate subject to a concession in favour of Glentanner Park (Mt Cook) Limited.[44] There are two concession activities listed:

Tourism concessions – including guided walks, mountain biking, heli-skiing and scenic snow landings; and

Commercial filming and photography concessions – the use of the land for the purposes of commercial filming and photography.

These activities are subject to various conditions contained in the Concession Document including that (without prior written consent) the concessionaire will not interfere with, damage, or endanger the natural features, indigenous plants and animals or historic resources on the land; the concessionaire cannot bring any plants or animals onto the land; and no over-sowing, topdressing or burning can occur. In undertaking tourism activities, the concessionaire is requested to recognise and provide for Ngāi Tahu values and should consult with the relevant Papatipu Rūnanga if they wish to use Ngāi Tahu cultural information.

Concessions are granted within the framework of the Conservation Act which states that: "This Act shall so be interpreted and administered as to give effect to the principles of the Treaty of Waitangi." In 2018, the Supreme Court issued a decision on the grant of concessions in the context of the Treaty provision in the *Ngāi Tai Ki Tāmaki* case.[45] The case concerned the grant of concessions on Rangitoto and Motutapu islands to the Fullers Group and Motutapu Island Restoration Trust. These grants were challenged by the Ngāi Tai Ki Tāmaki Tribal Trust, which argued that no concessions should be granted to other operators in order to preserve the Trust's opportunities to develop tourism services on the islands.

As indicated in Chapter 2, the Court noted that section 4 requires more than procedural steps and that "substantive outcomes for iwi may be necessary including, in some instances, requiring that concession applications by others be declined."[46] DOC is still working through the implications of the decision and expiring concessions are currently being rolled over for short terms while a new approach to concessions is developed. The review of conservation strategies and plans has also been put on hold, including the development of a new management plan for the Aoraki/Mount Cook National Park.[47]

The use of concessions, their potential to contribute to landscape protection, and the need for reform in this area is described in more detail in our *Tourism and Landscape Protection case study.*

KEY MESSAGES

- There are two conflicting purposes for discretionary consenting under the Crown Pastoral Land Act with no policy guidance on how they should be applied.
- Discretionary consenting has adopted a narrow focus, based on the individual property concerned, rather than adopting a landscape-scale perspective.
- There has been a poor connection between discretionary consenting under the Crown Pastoral Land Act and resource consenting under the RMA.
- Monitoring of the conditions of discretionary consents, or of the legal obligations on pastoral lessees in the Act itself, has been almost non-existent.
- The statutory enforcement tools available to LINZ are inadequate and not fit for purpose.
- There are several types of covenants which can be used to protect landscape and ecological values on private or leasehold land. In practice, they are often applied to small areas, but they could potentially be deployed at a landscape scale.
- To be effective, covenants needs to be carefully designed so that they adequately protect the natural values of the area and can be backed up by an effective compliance, monitoring and enforcement regime.

Aoraki/Mount Cook National Park

ENDNOTES

1 Barton, 2006
2 McFarlane, 2011, 39
3 For example: the Simons Pass lease had a stocking rate of 3,500 sheep. A discretionary consent was granted by the Commissioner of Crown Lands in 2013 to increase this to 50,540 stock units (which specified a maximum of 7,581 dairy cows (which sit between 6 – 8 stock units) and up to 1,434 sheep (1 stock unit)
4 Parliamentary Commissioner for the Environment, 2009, 15
5 The Commissioner of Crown Lands has the same meaning as the Land Settlement Board, Land Act 1948 s 2
6 Cabinet, 1994, 4
7 McFarlane, 2011, 45
8 LINZ, 2019a
9 Brower et al, 2018
10 Crown Pastoral Land Act 1998, s 18
11 Informant interview
12 Informant interview
13 Hutchings and Logan, 2018, 28
14 Hutchings and Logan, 2018, 21
15 Williams, 2019
16 Barton, 2006
17 Informant interview
18 Williams, 2019
19 Brown et al, 2015, 66 - 67
20 Snoyink, 2017
21 Crown Pastoral Land Act 1998, ss 40 and 97
22 LINZ Substantive Proposal on Maryburn Station Tenure Review, Appendix 6
23 Brower, 2019; Informant interviews
24 Cabinet Minute, 2009
25 Cabinet Minute, 2009, [87]
26 LINZ Substantive Proposal on Irishman Creek Tenure Review, 75 and 81
27 Parliamentary Commissioner for the Environment, 2009, 66
28 Brower and Page, 2017
29 Brower and Page, 2017
30 Parliamentary Commissioner for the Environment, 2009
31 Informant interview
32 LINZ Substantive Proposal on Omarama Station Tenure Review, Appendices Part 2, 26
33 LINZ Substantive Proposal on Glentanner Station Tenure Review, 103
34 Brower, 2019
35 Hutchings and Logan, 2018b, 58
36 Informant Interview
37 *Federated Farmers v Mackenzie District Council* [2017] NZEnvC 53, [548]
38 *Green Growth No 2. Ltd v Queen Elizabeth the Second National QEII Trust* [2018] NZSC 75
39 Hutchings and Logan, 2018b
40 Parliamentary Commissioner for the Environment, 2009
41 https://qeiinationaltrust.org.nz/places/central-otago-mahu-whenua/
42 Parliamentary Commissioner for the Environment, 2009, 67
43 https://www.doc.govt.nz/parks-and-recreation/places-to-go/canterbury/places/aoraki-mount-cook-national-park/?tab-id=commercial-operators
44 LINZ Substantive Proposal on Glentanner Station Tenure Review, Appendix 4
45 *Ngāi Tai Ki Tāmak Tribal Trust* v *Minister of Conservation* [2018] NZSC 122
46 *Ngāi Tai Ki Tāmaki Tribal Trust* v *Minister of Conservation* [2018] NZSC 122 at [52]
47 https://www.rnz.co.nz/news/national/381726/doc-delays-review-of-national-parks-after-talks-with-iwi

Lake Tekapō

7 NON-STATUTORY APPROACHES

There are currently a range of non-statutory initiatives in the Mackenzie Basin and in this chapter we review four of them with particular relevance to landscape protection: the Mackenzie Agreement and Drylands Area proposal, Acquisition by the Nature Heritage Fund, the Te Manahuna Aoraki Project and the Mackenzie Basin Agency Alignment Programme.

7.1 Mackenzie Agreement and Drylands Area

In the wake of the controversy over the cubicle dairy proposals in the Mackenzie Basin (as described in chapter 4) in November 2010, EDS convened a Mackenzie Country Symposium in Twizel which attracted close to 200 people. In attendance was the then Minister for the Environment, the Hon Dr Nick Smith, and representatives from local government, farmers, environmental NGOs, tourism operators and other stakeholders. This paved the way for the establishment of the Upper Waitaki Shared Vision Forum, which collaboratively charted out a future for the Basin.

The collaborative process ran for sixteen months and involved 26 interested parties. In 2013, it culminated in the Mackenzie Agreement. Signatories to the Agreement included the Mackenzie Federated Farmers, Otago High Country Federated Farmers, Royal Forest and Bird Protection Society, EDS, the New Zealand Institute of Landscape Architects High Country Landscape Group, Fish and Game New Zealand, Tourism Waitaki, existing irrigators, the Mackenzie Irrigation Company and the Mackenzie Guardians. Notably, mana whenua had been unable to join the collaborative process and therefore were not signatories to the Agreement. Nor were government agencies participants or parties to the Agreement.

Mackenzie Country Symposium field trip

The Mackenzie Agreement identified a joint vision for the area (see spotlight) as well as four reasons for the Mackenzie Basin being "one of New Zealand's most distinctive and well-known areas":[1]

- *The heritage of pastoralism*: it provides a living sense of connection to the roots of New Zealand as a farming nation due to the unbroken continuity of pastoral settlement over 150 years.
- *Iconic landscape and environment*: it is an extensive inter-montane basin, ringed with mountains and studded with beautiful lakes, and with seasonal climatic extremes. It is unique in its size and naturalness, detailed expression of glacial landforms and in its biodiversity. "It presents the last major opportunity for conservation of dry tussock grassland ecosystems and landscapes."
- *Electricity generation*: the Upper Waitaki power scheme was an early triumph of New Zealand hydro-engineering and it remains of central importance to New Zealand's electricity system, providing most of the country's storage capacity.
- *Tourism*: the Basin is one of New Zealand's most visited tourism and recreation destinations due partly to the Aoraki/Mount Cook National Park and partly due to the lakes and many other natural, scenic and recreational attractions.

A spotlight on the joint vision for the Mackenzie Country

The Mackenzie Agreement sets out a joint vision for the Mackenzie Basin: "We see the future of the Mackenzie Country in these terms:

- A land use pattern which includes a mix of irrigated and dryland agriculture, tourism-related development, and land actively managed for biodiversity and landscape purposes, with integration of these wherever practical;
- A balanced and prosperous local community;
- New Zealand's recognition of the Mackenzie Country as an iconic area, accompanied by an enhanced and tangible sense of shared responsibility for restoring and maintaining its natural assets."[2]

The Agreement refers to low profitability in the meat and wool businesses and wide recognition of the need for change. Given the more recent upturn in the economics of High Country farming, as described in Chapter 4, this may no longer be the case. Opportunities proposed in the Agreement to increase profitability were to use relatively small areas of irrigation to enhance the viability of large pastoral properties, thereby extending existing practice. In addition, developing large scale proposals for intensive irrigated livestock farming, mainly dairying, was proposed for five sites.[3]

The Agreement outlines some potential positives from small scale irrigation on existing sheep and beef properties (but notably not for dairy). Small scale irrigation can increase revenue and decrease risk on properties, help fund rabbit and wilding control and fencing of sensitive habitats, stock can be removed from sensitive vegetation during drought, and stock on irrigated pastures don't graze the dryland pastures as hard as they are well fed.[4]

The Agreement acknowledges the importance of tourism and identifies two strategies; first to encourage tourists to stay longer by broadening the range of attractions and ensuring international visitors are aware of them when planning their trip; and secondly, to build and market world-class facilities and services targeted at higher-paying tourists. It notes the developing linkages between agriculture and tourism, with a growing number of farm stays and farm-related tourism activities, and also the dependence of tourism on the natural environment, diversity, distinctive landscapes and fresh, clear waters. The Agreement identifies a range of areas which could be showcased to tourists including the pastoral farming heritage, Māori heritage, heritage of early tourism dating back to 1879 and the heritage of hydro-electric engineering. It raises the need to protect solitude and canvasses the issue of whether it is possible to generate funding for environmental conservation from the tourism sector.[5]

The Agreement identifies two conservation-related objectives. The first is ecosystem recovery, which is to achieve restoration of representative examples of the full range of whole ecosystems that were characteristic of past times – including small inter-tussock plant species and non-tussock ecosystems. It notes that this will require a series of actively managed conservation areas (similar to the Lake Tekapō Scientific Reserve) which remove livestock, exclude cultivation and topdressing, and undertake the ongoing removal of wilding pines and rabbits. These areas could be acquired by purchase, exchange or tenure review, as well as by management agreements and covenants on titles.[6]

The second stated conservation objective is tussock protection – to protect, enhance and restore (where possible) healthy tussock cover to maintain the distinctive aspect of the Mackenzie Basin's landscapes and pastoral heritage, retain healthy soil and waters and preserve options for future generations. The Agreement explains that on better soils, over sowing and/or topdressing can enhance healthy tussock cover (and displace *Hieracium*), at least in the short term, as well as reduce soil loss, but notes that inter-tussock biodiversity is reduced. This means that such areas will be of less value for biodiversity. Some tussock protection is possible on better soils which are lightly grazed, so may also enable a financial return to runholder. However, the Agreement acknowledges that there may be limits to grazing if tussock vegetation is not to decline over a longer period. It was envisaged that long term management agreements

and covenants should be negotiated with landowners to achieve tussock protection.[7]

The 2013 Agreement focuses on the Basin floor below 800 metres and covers 269,222ha of land (see Figure 7.1). It envisages the establishment of a large contiguous, mixed tenure Mackenzie 'Dryland Area' of 100,000ha (37 per cent of the Basin floor area) to protect the area's natural and heritage values within a broad pastoral landscape. In addition, it envisages further pastoral intensification in the form of intensified dryland farming practices or irrigation in discrete and suitable locations totalling approximately 26,000ha (10 per cent).[8] It was estimated that this would drive $100 million a year in additional export production and $400 million in increased land value.[9]

Figure 7.1: Spatial area covered by the Mackenzie Agreement *(Source: Upper Waitaki Shared Vision Forum)*

In 2017, the Environment Court examined the irrigation figures in the Agreement against the development that had already occurred over the subsequent four years. The Court concluded, on the balance of probabilities, that the Agreement contemplated 17,100ha of further irrigation (with the larger figure of 26,000ha also including dryland farming intensification) and noted that this figure had already been exceeded, with consents for the irrigation of 18,196ha of land having been granted since the figures in the Agreement were compiled. The Court concluded "If that area were in fact to be irrigated, it appears to us that the *Mackenzie Agreement* would be meaningless."[10]

It was not until February 2016 that the Mackenzie Country Trust was formed to help implement the outcomes of the collaborative process. The Agreement set out the vision for the Trust, which is to generate revenue and in-kind support from private and public sources to foster long-term, active management of landscapes for biodiversity and landscape protection purposes. It is to do this in a way that is supportive of viable public and private land management and community prosperity, and that simplifies processes and reduces conflict.[11]

It was envisaged that the Trust would negotiate with landholders to achieve native biodiversity and tussock grassland protection objectives. It would then register agreements, by way of covenants or joint management agreements, on land titles and make contributory payments to landowners. The Trust could also foster trade-offs such as more development rights in exchange for conservation and undertake communication, research and monitoring. The Trust was to give the Mackenzie Country a high profile nationally and internationally. It was to develop mechanisms to encourage tourists coming to the Basin to contribute to its protection. It could also assume broader roles, such as developing certification or branding for produce coming from sustainably managed areas and undertaking biosecurity functions. There was to be a focus on a 'learning by doing' approach.[12]

The Agreement sets out in more detail the novel idea of voluntary joint management agreements. These could cover all or part of a property. They would set out landscape and biodiversity conservation objectives, and (in some cases) recreation objectives, and would describe how the land would be managed in order to achieve these purposes, while ensuring ongoing viability of the property. This could be through agreed land use intensification or tourism development, agreed payments from the Trust, or a combination of methods.

There were to be two types of joint management agreements. The first was to provide for land protection only. This would require the approval of the Trust and involve only permitted activities under the RMA. The second would include both land development and protection which may trigger RMA consent requirements. But it was envisaged that provision under special legislation (which would need to be promulgated) would require decision-makers to have particular regard to the agreement between the Trust and landowner. This was in order to facilitate smoother processing of the applications and provide an additional incentive for landowners to agree to the protection measures.

Joint management agreements were to be long term and binding, with registration on the land title, but with some flexibility to take into account a 'learning by doing' approach. Emphasis was placed on monitoring, reporting and regular reviewing of what was being achieved. There was to be an ability to negotiate changes to reflect what had been learnt through the process, and provision for formal review once every generation (25 years). Anyone would be able to seek enforcement action from the Environment Court if joint management agreement obligations were not being met. If, after a period of time and best endeavours, clear objectives could not be achieved, land would revert to ordinary private land.

"JMAs [joint management agreements] were kind of like a covenant. They were about places where you could have light grazing and some form of farming, where you managed it for conservation values. There are places where grazing is a good tool, especially with all the wilding trees around the place." *(Expert interviewee)*

The Agreement recommends the use of special legislation and special funding to implement the proposals – in the form of the Mackenzie Country Trust Empowering Bill. This would also require the Trust to prepare, using a collaborative process, a biodiversity and landscape strategic plan. The plan would set out the Trust's objectives and priorities and describe how it would apply funds to achieve them. However, it was not to contain maps of land identified as being of conservation value.[13]

The Government contributed $200,000 to the Trust's operating budget and this was supplemented by a one-off contribution from Blue Lake Investments of $200,000. However, no legislation was enacted as envisaged in the Agreement and no additional funding was provided by the Government to implement the Agreement. Further, several parties declined to be involved in the Trust, including the Royal Forest and Bird Protection Society, Mackenzie Guardians and New Zealand Institute of Landscape Architects High Country Landscape Group, on the basis that the Trust did not have the necessary government support to enable the Agreement to be implemented.

In their 2018 study, which included interviews with 43 expert-informants from a range of sectors involved in the Mackenzie Basin, Hutchings and Logan reported that "Almost without exception, officers and officials, farmers and persons with an interest in the future of the Mackenzie Basin were aligned in support of the Vision described in the Mackenzie Agreement. In their view, success would be reaching agreement about how that Vision may be implemented."[14]

A lot has happened since the Agreement was signed. Numerous water permits have been granted in excess of the additional amount of irrigation contemplated by the Agreement. Plan Change 13 is now operative, and this has largely stopped further intensification in the Mackenzie District part of the Basin. The economics of pastoral farming has improved. Prior to Covid-19, tourism had increased significantly, creating additional opportunities for runholders to diversify income streams. This has all made the idea of joint management agreements a moot point. Whether leasehold or freehold, runholders are now unable to intensify as a result of District Plan provisions, so why would the Trust pay them not to do so? Although generally supporting the intent behind the Mackenzie Agreement, the runholders we interviewed did not support the concept of joint management agreements or government payments to modify land management under this changed context.

In 2019, the Trust put forward the concept of "New Zealand's first voluntary heritage area protecting and celebrating the natural, cultural, pastoral, recreation and electricity generation values in the iconic Mackenzie Basin." The heritage area seeks to "enhance public conservation land by building natural and cultural linkages in a fragmented landscape through the goodwill of the community ...".[15] The Trust proposes to undertake community engagement to design models for landscape protection, approach landowners to become participants in the Mackenzie Heritage Area, and lay the groundwork for a lasting legacy. Several of the people we interviewed commented positively on the collaborative process that led up to the Mackenzie Agreement, and indicated that they saw a current need for a similar forum where people from the various sectors could come together and exchange views. The Trust could usefully convene such a forum.

The concept of a Mackenzie Drylands Area, as referenced in the Agreement, was first mooted in 2000 by then DOC ecologist Dr Nick Head. The concept was devised in order to raise the profile and potential protection of the threatened dryland ecosystems and habitats present in the Mackenzie Basin. At that time, no other opportunities remained in New Zealand to protect similar ecosystems of national importance along contiguous ecological sequences. Within this concept lies the fundamental goal of landscape scale protection and ecological connectivity.[16] The idea has recently received the support of the Minister of Conservation, Hon Eugenie Sage.[17] However, it is still unclear how the Mackenzie Drylands Area will be configured and whether it will only include government-owned land or also encompass pastoral leasehold and privately-owned freehold land. DOC has been working with its Treaty partner to further develop the concept and has adopted the name Tu Te Takiwhanoa Drylands.

7.2 Acquisition by the Nature Heritage Fund

The Nature Heritage Fund is a contestable Ministerial fund controlled by the Minister of Conservation. It was originally established in 1990 to achieve the objectives of the Indigenous Forest Policy. This vision was expanded in 1998 and now enables the protection of all indigenous terrestrial ecosystems that are locally or nationally important, and that represent the full range of natural diversity originally present in the landscape.

The Fund receives an annual allocation of funds from the Government (and the Vote Conservation budget) which it uses to help meet the cost of protecting areas of high ecological value. In the early 2000s up to $10 million was allocated annually. However, this subsequently declined by about 80 per cent, with a low of $2 million being allocated in 2016.

This funding enables the protection of important landscapes either through direct acquisition (in full or as a contribution towards purchase by other agencies) or to assist with the costs of covenanting. In its first 25 years, the National Heritage Fund protected 341,881ha of

conservation land across 750 sites. Of this, 88 per cent was through direct purchase.[18]

The four criteria outlined in the national strategy of the Fund, prepared in 1994 by Mike Harding, help determine the relative merits of individual protection proposals, and are intended to ensure that its acquisitions are valuable from a conservation perspective. These criteria remain the same: representativeness (how representative or rare the area is in terms of its natural values); sustainability (how sustainable the area will be over time); landscape integrity (the extent to which the area contributes to the original integrity of landscape); and amenity and utility (the extent to which the area contributes to the enjoyment and welfare of the people).[19]

In determining the extent of an area to be protected, the Fund seeks to protect ecosystems across a full altitudinal system, including rare indigenous vegetation and the ecological processes that link it together. This is important, not only to retain functioning ecological processes, but also for the amenity and aesthetic value of the landscape to be protected. This is particularly relevant for areas such as the Mackenzie Basin, where lowland ecosystems (such as valley floor grasslands and wetlands) are grossly under-represented on conservation land.

Acquisition by the Fund of the highly valued leasehold land in the Mackenzie Basin (particularly on the valley floors) would enable land with high landscape and conservation value to be returned to the Crown and is an option that should be encouraged going forward. As the Fund operates on a 'willing-buyer willing-seller' basis it is able to negotiate directly with the lessee – reaching outcomes that are beneficial to both parties. One example of this is the purchase of Clent Hills Station in the Lake Heron Basin by the Nature Heritage Fund and three farmers. The 12,181ha Station was largely undeveloped and had very high conservation values. The remaining land (approximately 2,000ha), which was developed farmland, was purchased by a consortium of neighbouring farmers who sought to increase the viability of the three adjoining farms.

This purchase, in addition to the adjoining Hakatere Station which was also purchased by the Fund, was amalgamated with other conservation areas to form the 68,000ha Hakatere Conservation Park – an area of high landscape and ecological value.

A spotlight on Birchwood and the Ahuriri Conservation Park

In 2003, LINZ approached the Nature Heritage Fund about the possibility of a joint purchase of the Birchwood Crown pastoral lease. Birchwood Station included most of the Upper Ahuriri Valley and included a complete High Country valley system: the mountainous peaks, largely unmodified valley floors and the braided Ahuriri River with extensive river terraces and wetlands. It is an area of outstanding natural landscape and conservation value. Despite there being some conservation areas already existing on the lease, public access was restricted as the lessee controlled the only road accessing these.

The Fund's negotiations to purchase the lease concluded successfully in 2004. In 2005, the Ahuriri Conservation Park was established by amalgamating what was previously Birchwood Station with other conservation land in the area. The Conservation Park, which is publicly accessible, includes the complete altitudinal vegetation sequences in both the Ahuriri and Dingleburn valleys. The unmodified wetlands and braided river systems provide important habitat for wildlife.[20]

Ahuriri Conservation Park

7.3 Te Manahuna Aoraki Project

The Te Manahuna Aoraki Project is a large-scale conservation project which was launched in November 2018. It covers 310,000ha of land in the upper Mackenzie Basin including the Aoraki/Mount Cook National Park, High Country stations and defence land which was formerly part of Braemar Station (see Figure 7.2). The project is focusing on preserving the habitats of 23 threatened species. The upper Mackenzie Basin was identified as a defendable site against predators due to the natural boundaries of the southern Alps, the Two Thumb Range, lakes Tekapō and Pūkaki and the canals. We were told it is probably the best defendable site in New Zealand, in terms of scale.

The project was initiated by the NEXT Foundation as part of its environmental portfolio. NEXT initially formed a partnership with DOC, Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki. Other funders subsequently came on board including the Aotearoa Foundation, Jasmine Social Investments, Global Wildlife Conservation and Predator Free 2050 Limited. The project is also supported by the affected High Country runholders who are providing access to their land.

The institutional structure of the project is innovative and draws on business models. A dedicated charitable company with a restorative purpose (Te Manahuna Aoraki Limited) has been established to manage the project funding and deliver the work. The board of the company consists of three people, one from the NEXT Foundation, one from mana whenua, and an Independent Chair who is Dr Jan Wright. The board has set out a strategic plan for the project and has also appointed a CEO who reports back to the directors.

It is not legally possible for DOC to be a member of a company board, so the Department acts as a senior liaison officer, and there is an agreement between DOC and the company that sets out DOC's decision-making rights. If DOC undertakes work for the company, it is reimbursed for the cost, meaning that the project is not drawing resources out of DOC's other programmes.

Establishing a charitable company, that is independent from the Crown, has made the project more attractive to potential funders. The company has been funded by the NEXT Foundation, DOC and other supporters, with DOC committing $1.5 million over three years and the other contributors providing $3 million over the same period, totalling $4.5 million. After three years, a decision will be made on whether to continue the investment. At that point, much greater sums of money will be required to knock down the predators, possibly around $60 million.

Much of the project, in its early stages, is about research and experimentation. There is a portfolio of 'no regrets' projects, that are considered worthwhile in their own right, but also serve to test the viability of the larger concept. The focus is very much on predator and weed control rather than landscape protection per se. For example, the amount of predator control for the kāki/black stilt has been doubled, achieving 80 per cent coverage of its habitat in the Mackenzie Basin. Other projects are focused on better understanding pest behaviour at high altitudes.

Although it is still early days, as the project was only launched in November 2018, the runholders we interviewed were very positive about the experience of being involved in the initiative. They appreciated its down to earth approach and the ability to network with other runholders involved in the project. This indicates that such a partnership approach might have wider application in the Basin.

"What are we asking of property owners? In a fundamental sense we want access to their farms and High Country stations to do the work and kill pests. We want them to align their farming practice to the concept of a restored upper Mackenzie Basin. Farmers see the chance to demonstrate you can have a working landscape that provides returns for farming and the environment, as well as brand value and where working landscape conservation and mixed farming operate side by side."

(Agency Interviewee)

"We are part of Te Manahuna Aoraki. It feels like a special club. It's a very positive thing to be involved in. It doesn't involve a huge amount. It involves us working with people and providing access for weed and pest control. We help with logistical support and information as we know where our pests are. It's not threatening. There are no negatives to being involved." *(Runholder interviewee)*

"Te Manahuna is brilliant. They come into our home and share, have a meal and talk about stuff. They are actually there to listen and we are there to listen. It's good for farmers to network as everyone gets busy doing their stuff. There were some farmers there I hadn't seen for nine months. They've got good people and money. They've got a business-like attitude. If something is not working they won't carry on with it." *(Runholder interviewee)*

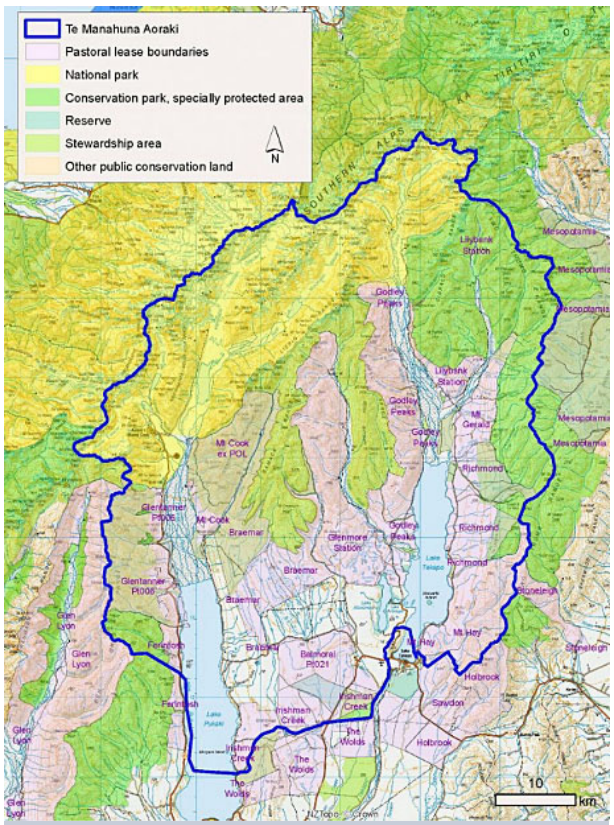

Figure 7.2: Spatial area covered by the Te Manahuna Aoraki Project *(Source: DOC)*

7.4 Mackenzie Basin Agency Alignment Programme

The Mackenzie Basin Agency Alignment Programme is an alliance established in 2017 between the five agencies with statutory responsibilities within the Mackenzie Basin: DOC, LINZ, Environment Canterbury, Waitaki District Council and Mackenzie District Council. It is designed to improve the way the agencies work together to achieve "enhanced environmental outcomes for the Mackenzie Basin."[21] It is the first initiative of its kind in New Zealand.

Together the agencies commissioned Henley Hutchings to produce a report on opportunities for agency alignment which was completed in January 2018 and included 25 recommendations.[22] Progress has been made on implementing some of these including regular meetings between staff of the various agencies, the development of a shared digital set of maps, working together on predator control, and ensuring there are joint hearings where this is appropriate.[23] The agencies subsequently commissioned Boffa Miskell to undertake a review of current RMA planning provisions in the Basin.[24] In addition, a dedicated website has been established (www.mackenziebasin.govt.nz).

EDS field trip

The alignment programme represents an acknowledgment by the agencies of past failings and a fresh and welcome commitment to adopt a more joined-up approach to the Basin's management in order to ensure more integrated and positive outcomes.

KEY MESSAGES

- The Mackenzie Agreement set out a collective vision for the future of the Mackenzie Basin which still has broad support within the community. Mana whenua were not involved in the process and were therefore not a signatory to the Agreement.
- Events may have overtaken some of the details of the Agreement, and in particular the concept of joint management agreements.
- The Mackenzie Country Trust provides a useful vehicle for bringing the community together to work towards a joint future for the Mackenzie Basin as articulated in the Agreement.
- The idea of a Mackenzie Drylands Area also has considerable support, although it is unclear how it might be configured and whether it will include only government-owned land or also pastoral leasehold and potentially privately owned land. DOC is currently working with its Treaty Partner to further flesh out the concept.
- Acquisition by the Nature Heritage Fund has protected highly valuable ecosystems in the Mackenzie Basin and provides an opportunity to protect high value Crown pastoral lease and private land going forward.
- The Te Manahuna Aoraki Project is relatively new but has already gained strong support from runholders. Its innovative approach, which applies private-sector thinking to large conservation challenges, has considerable merit and may have wider application in the Basin.
- The Mackenzie Basin Agency Alignment Programme is also relatively new, but it has already made considerable progress in increasing alignment between the five agencies involved. It provides an excellent platform for strengthening and better aligning the statutory policy and planning framework for the Mackenzie Basin as described in Chapter 9.

ENDNOTES

1 Upper Waitaki Shared Vision Forum, 2013, 4
2 Upper Waitaki Shared Vision Forum, 2013, 4
3 Upper Waitaki Shared Vision Forum, 2013, 5
4 Upper Waitaki Shared Vision Forum, 2013, 5
5 Upper Waitaki Shared Vision Forum, 2013, 7-8
6 Upper Waitaki Shared Vision Forum, 2013, 11
7 Upper Waitaki Shared Vision Forum, 2013, 11
8 Hutchings and Logan, 2018, 18
9 Upper Waitaki Shared Vision Forum, 2013, 22
10 *Federated Farmers v Mackenzie District Council* [2017] NZEnvC 53, [107]
11 Upper Waitaki Shared Vision Forum, 2013, 14
12 Upper Waitaki Shared Vision Forum, 2013, 15-17
13 Upper Waitaki Shared Vision Forum, 2013, 19
14 Hutchings and Logan, 2018, 10
15 Mackenzie Country Trust, undated, pamphlet
16 DOC, undated, 1
17 Littelwood, 2019
18 Hutching, 2016
19 Nature Heritage Fund, 2004, 6
20 Nature Heritage Fund, 2016, 47
21 https://mackenziebasin.govt.nz/about/
22 Hutchings and Logan, 2018
23 https://mackenziebasin.govt.nz/about/
24 Boffa Miskell, 2019

Simons Pass Station

8 EFFECTIVENESS OF CURRENT MANAGEMENT APPROACHES

It is undeniable that there have been very strong economic forces pushing towards the loss of landscape and ecological values in the Mackenzie Basin. The flooding of lowland areas as a result of the upper Waitaki hydro works initially reduced the area of productive land available to runholders. Tenure review then changed the management of much of the steep slopes, concentrating farming activity on the remaining land on the Basin floor. The climatic conditions of the Basin mean that a small amount of irrigation can make a significant economic impact for pastoral runs, doubling or even tripling revenues.

The upturn in the profitability of High Country stations, due to increased prices for fine wool as well as lamb, has also meant that runholders now have the funds to support investment in pastoral intensification, irrigation infrastructure and/or other opportunities. More than a decade ago, the dairy boom drew the interest of well-heeled investors to the relatively cheap, well-drained land in the Mackenzie Basin. There was also the prospect of subdividing freeholded stations into multiple economic units, thereby generating considerable financial gain.

The significant pest and weed issues in the Basin have also supported farm intensification. Rabbit and wilding control is a costly annual expense for dryland farmers and both do not survive well on land cultivated for crops or pasture.

These economic drivers towards intensification have been coupled with technological advances in irrigation equipment and a substantial amount of readily available (and free) water for irrigation as a result of generous provision made initially by government, and substantially increased by Meridian Energy.

So how well has the resource management system fared, in the face of these pressures, in protecting the unique and nationally important values of the Mackenzie Basin? This chapter brings together the findings of our analysis in Chapters 5, 6 and 7. But first we undertake a detailed examination of how the system broke down under pressures for the intensification of Simons Pass Station.

8.1 Simons Pass Station case study

Simons Pass Station, incorporating both the previous Simons Hill Station (freehold) and Simons Pass Station (Crown pastoral lease), is a 9,700ha property at the southern end of Lake Pūkaki that holds a number of consents for large scale dairy farming (of between 5,000 and 15,000 dairy cows). If all the consents in progress are granted, this will be the largest dairy farm in Australasia (although initially intended as 15 separate dairy farms).[1] As such, Simons Pass is often referred to as the exemplar of concern for the protection of ecological and landscape values in the Mackenzie Basin.[2]

What has occurred at Simons Pass Station demonstrates a serious breakdown of the statutory management framework in the Mackenzie Basin. The roughly 80 consents needed to operate a viable dairy farm on the station were applied for over a period of 13 years – and are ongoing to this date. These consents were required from a number of different agencies: discretionary consents from the Commissioner of Crown Lands, water permits from Environment Canterbury and land use consents/certificates of compliance from Mackenzie District Council.[3]

To complicate matters further, there have been a number of different legal entities involved in obtaining

these consents – the leaseholder, as well as a several associated companies: Simons Pass Station Limited, Mary Range Farming Limited, Pukaki Irrigation Company Limited and Pukaki Irrigation Infrastructure Limited. The bulk of these consents were granted between 2012 and 2017, although some span back to 2006. We describe the process that led to the consenting of each element of the development below.

Construction of the pipeline to take water from the Tekapō canal

A pipeline from below the Tekapō-Pūkaki hydro canal that crosses over five High Country stations (Maryburn, the Wolds, Irishmans Creek, Glentanner, Simons Pass and Simons Hill) is an integral component in the conversion of Simons Pass Station, and without it, irrigation to the extent planned would not be possible.

On 20 September 2011, the Commissioner of Crown Lands granted Pukaki Irrigation Company and a related limited partnership (Pukaki Irrigation Infrastructure) a legally binding easement to run a 7.8km underground pipeline from the Tekapō Stilling Basin through Irishman Creek, The Wolds, Simons Pass and Maryburn Stations. The areas of Simons Hill Station and Glentanner Station that the pipeline passes over are all freehold and as such no government easement was required. The easement granted over the properties was to convey water sufficient to irrigate approximately 5,200ha of farmland over the five properties involved.

This easement over Crown pastoral land was granted by the Commissioner of Crown Lands under section 60(1) of the Land Act and this occurred outside of the tenure review process (as a discretionary consent). The details of this easement were subject to on-site negotiation between the applicant, its consultants and LINZ staff. There were no written details recorded about the size of the pipeline, trench or easement dimensions and no detailed assessment of effects.[4] As such, DOC later found it very difficult to enforce potential non-compliance with the easement conditions.

Pukaki Irrigation Company always intended that the pipeline would convey water to all five properties; however discretionary consents were applied for in a staged manner. The majority of the pipeline, over Irishmans Creek, The Wolds and Maryburn Station, was granted an easement in 2011 when the properties were pastoral leases, despite the fact that the works intruded into areas identified as having significant inherent values.

"The easement is required to convey water across Crown pastoral land for the purposes of the applicant's rural irrigation scheme, which will provide water for the irrigation of approximately 5,200 hectares of farm land in the vicinity. The effects on inherent values of the land concerned and the ability of the lessee to continue to utilise the land for farming purposes is considered to be low, and able to be sufficiently mitigated."[5]

Simons Pass Station dairy node

The easement at Simons Pass Station (the last property requiring discretionary consent) was granted a number of years later. In 2012, the initial application for the Simons Pass easement was declined. The company challenged this outcome, and in December 2016 reapplied for the easement, which was eventually secured on 13 April 2017. The resulting easement included the unhelpful restoration condition that the surface of the land be restored following construction and that any vegetation removed be replaced with an appropriate (exotic) pasture species.[6] These easement agreements were included in the tenure review proposals for each of the properties.[7]

The Simons Pass easement was granted despite strong opposition from DOC which raised concerns about construction of the pipeline. These concerns were reiterated a number of times (including in the DOC Submission of Views dated: 17 May 2011, 18 July 2016 and 24 January 2017). The concerns were premised on the large amount of inherent and significant inherent values present on the property. These included particularly distinctive and important landforms and ecosystems such as: nationally significant geomorphological features; highly significant landscape values; naturally rare, threatened and critically under protected ecosystems; and habitats for rare and threatened species of national priority. DOC was concerned that anticipated on-site effects would destroy these values – with cultivation destroying habitat and ecosystems, and the landscape attributes of coherence, intactness and legibility likely to be severely diminished.[8] However, these concerns still came second best to the 'desirability of making it easier to use the land concerned for farming' and the application was granted.[9]

Pukaki Irrigation Company subsequently applied to Environment Canterbury for resource consent to construct the pipeline and undertake the associated earthworks (a resource consent to "disturb the beds of waterways to erect a structure under the bed of a river"). The main application (relating to Irishmans Creek, Maryburn and The Wolds) was lodged on 25 November 2015 and consent was granted on 3 February 2016.[10] The land use consent for construction on the Simons Pass (and Simons Hill) portion of the pipeline was subsequently granted in April 2016.

These two applications also included the Pukaki Irrigation Company's application for a certificate of compliance under the Mackenzie District Plan. As the proposed water conveyance was classed as a "utility" under the provisions of the Plan, it was a permitted activity and no resource consent was required. This was in part due to the wide definition of utilities included in the Plan which was those facilities, structures and works necessary for "the storage, treatment and conveyance of water and sewage".[11] This definition does not require that the structure be for a network operator or public use, and was how all irrigation pipes in the district were enabled. In addition, resource consent under the operative Plan provisions was only required if the activity passed through a 'Site of Natural Significance' or 'Scenic Viewing Area' – neither of which applied. This meant that the Mackenzie District Council was legally obliged to grant Pukaki Irrigation Company the certificates of compliance for the easement, and construction began in early 2018.

A spotlight on pipeline construction over conservation land

The Pukaki Irrigation Company pipeline was controversial, not only because of the damage caused to Crown pastoral lease and freehold land, but also because it crossed over a portion of public conservation land at both Irishman Creek and The Wolds. This was possible as a result of an easement that was granted across these two stations, by the Commissioner of Crown Lands, prior to the properties completing tenure review. The easement over The Wolds, for example, was granted in 2011 – five years prior to the substantive tenure review proposal being signed in October 2016. At this time, the proposed conservation land had not been handed over to DOC, so the department was not notified of the easement when it was granted. However, DOC would have been made aware of the easement when the property went through tenure review.[12]

The deed of easement required Pukaki Irrigation Company Limited to give prior written notice to the landowner (in this case DOC) before undertaking works on the land covered by the easement. In late 2017, Monadelphus – the company undertaking construction of the pipeline – requested permission to enter The Wolds Station for the purpose of constructing the Pukaki Irrigation Scheme pipeline. In the letter requesting permission, the project engineer informed DOC that work would commence in April-May of 2018 and that the pipeline would be passing over land that would soon be reassigned into DOC ownership. This correspondence was never passed to the correct contact at the DOC District Office, and as such DOC never responded.[13] As a result, the construction company did not send an equivalent email to inform DOC of the work that would soon occur at Irishman Creek.

Had DOC responded to the notice, it could have undertaken a proper assessment of the damage that would likely result from construction, for instance on protected wildlife under the Wildlife Act 1953, and may have been able to put in place measures to mitigate this damage.

Figure 8.1 Pipeline construction on public conservation land at Irishman Creek (and also a glimpse of the extent of wilding pine infestation on land that was passed over to DOC under tenure review)[14]

Irrigation consents

In addition to the consents that specifically relate to the construction of the pipeline, Simons Pass also holds a number of other consents for various land use activities, including irrigation.

Discretionary consents

Since 2006, Simons Pass Station has been granted a number of discretionary consents under the Crown Pastoral Land Act covering a range of farming activities. On 5 December 2013, for example, the Commissioner of Crown Lands granted five discretionary consents to Simons Pass Station. These included consents to undertake scrub clearance, oversowing and topdressing, soil disturbance activities, cultivation activities and a personal stock exemption.[15] Surprisingly, these consents were issued for development within areas already identified as having significant inherent values. These consents represent only a few of the discretionary consents held by Simons Pass Station.

As required under the Act, the Commissioner of Crown Lands must consult with DOC on every application. In providing its advice, DOC commonly concluded that it was desirable to protect the inherent values on property, and that adverse effects would result if the applications were granted (this advice was included for the five consents described above, as well as others). But it is evident that this advice was ignored.

In addition to having a number of inherent values, Simons Pass Station is described as being "the only property in the Mackenzie Basin to straddle a complete sequence of terminus moraines and outwash gravels. Especially notable is the relatively intact ecological sequences that span these moraine and outwash landforms. Irrigation and cultivation proposed as part of the consent application will have major adverse effects on these values."[16] Despite this clear direction from DOC, and the comprehensive analysis of values to be protected, consent was still granted. An excerpt of the Commissioner's 'Reasons for Decision' is included below.

"The Commissioner has determined the benefits arising from the request in terms of improving the desirability of the property for farming purposes and taking into consideration the advice received from the DGC [Director-General of Conservation] concerning areas possessing inherent values and the opportunity to protect these values that the [oversowing and topdressing] are justified from a farming perspective, but should not occur in those parts of the property where inherent natural values have been identified as needing protection.

There is potential for adverse effects on inherent values however the effects are considered to be outweighed by the benefit to farming in those areas identified as being approved." [17]

Regional Council consents

In addition to the resource consents described above, relating to the construction of the Pukaki Irrigation Pipeline, Environment Canterbury has granted a number of other consents relating to the take and use of water and disposal of effluent at Simons Pass Station. More than twenty consents have been issued (and are either active or inactive) to both Simons Pass Station and the Pukaki Irrigation Company.

Of particular importance are the resource consents for the take and use of water for irrigation. A number of these applications were lodged at the same time as the Allocation Plan was being developed, and accordingly were subject to the 'call in' process described in Chapter

Pipeline construction on Simons Pass Station

5. Following the Commissioners' decision in 2012, Environment Canterbury granted consent to Simons Pass Station to irrigate up to 4,800 ha of crop pasture using surface water from the Pūkaki Canal (CRC062687) and Tekapō Stilling Basin (CRC082311).[18]

These consents were appealed by the Royal Forest and Bird Society, Mackenzie Guardians, Meridian Energy and Genesis Energy as well as Simons Pass Station itself. Notably, despite its statutory advocacy role, DOC was not involved in the proceedings. The result was a "torturous"[19] two-year mediation process that ended in a settlement agreement between Simons Pass Station, Mackenzie Guardians, the Royal Forest and Bird Protection Society and Environment Canterbury.

Resource consent CRC176720 was eventually granted by the Environment Court on 27 October 2016, subject to 99 conditions (these conditions covered rate of take, nutrient loading and water quality outcomes, landscape management and dryland ecosystems recovery among other things). This consent permits up to 4,500ha of spray irrigation per irrigation season and replaced CRC082311, which had originally been granted by the Commissioners in 2012. The consent must not be used concurrently with any other consent for the take and use of surface water held by Simons Pass Station (for example, CRC062867 which provides for 2,500ha of irrigation from the Pūkaki canal).

The settlement agreement between the Royal Forest and Bird Society, Mackenzie Guardians and Simons Pass Station resulted in the creation of a 2,554ha Dryland Recovery Area on Simons Pass Station where no irrigation can occur and stock must be excluded.[20] This area is to be managed to promote and achieve the recovery of indigenous dryland ecosystems, and as a condition of the consent $100,000 per annum must be contributed by Simons Pass Station Limited for the control of weeds and pests. These consent conditions have been described by the Chair of the Mackenzie Basin Alignment Programme as being "probably the most onerous sets of conditions for a farm of this type anywhere in New Zealand".[21]

District Council consents

Simons Pass Station holds a number of consents and certificates of compliance permitting land use activities such as the erection of pivot irrigators, pastoral intensification and agricultural conversion (including oversowing and topdressing), vegetation clearance, fencing, construction of farm buildings and tracks and the construction of dwellings.

These consents have been applied for over the last 13 years, with the first district consents being lodged in 2006.[22] Over the period of July 2006 to December 2017, 53 applications for resource consent were applied for at Simons Pass Station – many of which were granted.[23]

As described in Chapter 5, prior to Plan Change 13, the Mackenzie District Plan contained very lenient rules. Pastoral intensification, irrigation and other land use activities that had adverse effects on the landscape values of the Mackenzie Basin were enabled as permitted activities. As such, over the years preceding Plan Change 13, a number of certificates of compliance were granted for activities that would now require consent (including placement of irrigators and pastoral intensification).

However, Simons Pass Station is still missing a number of consents that are crucial to enabling the dairy conversion. At present, Simons Pass Station is still largely a sheep and beef farm, with approximately 1,300 beef cattle and calves, 7,000 sheep and 840 dairy cows. Simons Pass Station has consent to irrigate at Mary Range (which was previously irrigated by a border dyke system) and to use two other pivots located near a new milking shed.[24] The ability to irrigate 4,500ha of farmland (the majority of the Station) is tied up in High Court proceedings, as described below.

A spotlight on High Court proceedings on the meaning of 'granted'

Under Plan Change 13, pastoral intensification and/or agricultural conversion is a controlled activity only if a water permit has been granted by Environment Canterbury prior to 14 November 2015.[25] If not, the activity is discretionary, meaning consent can be refused.[26]

At the relevant date, Simons Pass Station had been 'granted' a water permit by Environment Canterbury; however it was subject to appeal in the Environment Court and was not ultimately granted until October 2016.

Mackenzie District Council sought declarations in February 2019 to clarify whether Simons Pass Station's consents for pastoral intensification should be processed as a discretionary activity consent. This was on the basis that, on 14 November 2015, the water permit was still subject to appeal and could not be implemented. In its decision, the Environment Court agreed with this interpretation, and granted the declarations sought by the Council.[27]

This decision has subsequently been appealed to the High Court by Simons Pass Station. The outcome of this proceeding will largely determine whether Mackenzie District Council will grant the land use consent to undertake pastoral intensification and agricultural conversion, which would enable the water permit (for 4,500ha of irrigation) to be exercised.

This analysis as to how the substantial Simons Pass dairy conversion project (the largest in Australasia) was consented within an ONL, on land with significant inherent values, and on "the only property in the Mackenzie Basin to straddle a complete sequence of terminus moraines and outwash gravels" is a salutary lesson. None of the RMA planning documents served to adequately protect the ONL values of the Mackenzie Basin and neither did the provisions of the Crown Pastoral Land Act. The statutory advocacy role of DOC under the Conservation Act, which could have provided a check and balance on the process, was not exercised. This highlights the overall weakness of the current system, a matter which we explore in more depth in the sections below.

8.2 Management under the Resource Management Act

We will turn first to the RMA, which is the legislation tasked with protecting ONLs and significant indigenous vegetation on behalf of the New Zealand public.

Although the protection of ONLs (and significant indigenous vegetation) is a matter of national importance under the RMA, there has been a vacuum of policy at a national level to achieve these aims. There is currently no national policy statement to address the protection of landscapes or indigenous biodiversity outside the coastal environment. The national documents that do exist are not helpful in this respect. The NESPF could lead to afforestation being a permitted activity in much of the Waitaki District portion of the Mackenzie Basin because it has not been identified as an ONL in the district plan. It could also lead to the planting of species that are relatively high risk for wilding spread. The reference to maintaining or improving 'overall' water quality in the NPSFM provides little certainty and the prescribed water quality limits are generous (ie toxicity for nitrogen). These problems should hopefully be remedied as a result of the Government's current freshwater reform programme.

Things do not improve greatly at the regional level. The first Canterbury RPS, which became operative in 1998, did not identify ONLs despite the information being readily available in the 1993 Canterbury Regional Landscape Study. The second generation RPS, which became operative 15 years later in 2013, goes only slightly further. It identifies the Mackenzie Basin as an ONL, but does not map the ONL area or set out how it is to be protected, providing little more guidance than the RMA itself. This is despite the mapping and other information again being readily available in the 2010 Canterbury Regional Landscape Study Review.

When it comes to regional planning documents, there is a gaping hole for landscape and biodiversity protection, with these matters largely being left to the two (much smaller and less well-resourced) district councils. Regional plans have addressed water matters, but in a fragmented manner. There are two separate regional plans, one for water allocation and a second for water quality, with different policies and objectives. These contain little recognition of the associated landscape and biodiversity aspects.

In terms of water allocation, the Allocation Plan (which was prepared by the Waitaki Catchment Water Allocation Board in place of the regional council) allocated an additional 150 million m^3 per year for irrigation in the Mackenzie Basin, more than doubling the existing consented take of 125 million m^3, without adequately considering the landscape or biodiversity implications. The Allocation Plan is now 13 years old and is yet to be reviewed.

The Commissioners who subsequently granted irrigation consents for the use of much of this additional water concluded that, although irrigation would invariably change the landscape through greening and the presence of structures, adverse effects would not necessarily result, and irrigation on the Basin floor (subject to appropriate mitigation measures) would be unlikely to significantly detract from the legibility or aesthetic appreciation of the landscape. With respect to the Simons Pass development, this conclusion was never tested in the Environment Court as the parties settled. But given the Court's findings in the Plan Change 13 proceedings, it seems unlikely that it would have stood up to judicial scrutiny had it been challenged. However, it should be noted that not all water permits were granted. A number of consents were declined, or were granted subject to stringent conditions.

This serves to highlight the 'hit and miss' manner in which such matters reach the courts. It is often dependent on there being a community group or environmental NGO (such as in the Simons Pass appeal) with the willingness and resources to launch proceedings. With the notably poor funding of such groups, whose members are also prone to burn out, the active involvement of such community watchdogs is not a given.

As late as 2016, Environment Canterbury was still granting numerous water consents in the Basin, revealing to the Environment Court in the Plan Change 13 proceedings that it had granted consent for a total proposed irrigation area of around 13,000ha over the past 12 months.

The Land and Water Plan, partially operative in 2015, addresses water quality. It initially permitted a large amount of nitrogen discharge into the waterways of the Mackenzie Basin, until February 2019, when Plan Change 5 put in stronger controls. Collectively the provisions of the Land and Water Plan now provide a comprehensive framework to address the effects of nutrient loss from farming, and the intensification of activities cannot exceed the level already permitted on the land. In addition, Good Management Practices are now required.

At the time when much of the greening occurred in the Basin, both the Waitaki and Mackenzie District Plans provided for irrigation as a permitted activity. This is still the case in much of the Waitaki District. Matters were only tightened up in the Mackenzie District when the Environment Court was asked to consider Plan Change 13 on appeal, and turned a document designed to manage

rural subdivision and built development into a landscape protection tool addressing farming intensification. As a result of the protracted proceedings (over 13 years) there has been, since 2017, robust protection of the ONL values in the Mackenzie District. However, by that time, much development had been already consented or approved as a compliant activity, including at Simons Pass as described above.

The Waitaki District Plan does not identify the full Mackenzie Basin ONL, as specified in the Canterbury RPS, leaving 38,500ha of the ONL (predominately on the Basin floor) virtually unprotected. In this area irrigation, cultivation, oversowing and topdressing are permitted activities. Biodiversity is also poorly protected. It is evident that the plan does not comply with the RPS or section 6 of the RMA. The Council's review process for the plan has been exceedingly slow, taking five years from inception to the production of a discussion document.

There is also little compliance and enforcement effort in the Mackenzie Basin, to ensure that the rules that are in place are being complied with.

Another issue of concern is the failure to bundle consents. It is good resource management practice for one application (with accompanying assessment of environmental effects) to be prepared which covers all the resource consents required for a single development – however this is not mandatory. Applicants are entitled to apply for resource consents separately – preventing consideration of the effects of the whole proposal.[28] The lack of bundling at Simons Pass Station resulted in a huge number of individual applications for consents being lodged (upwards of 80 consents) – with the result that consent authorities were not apprised of the overall size and extent of the proposal. Bundling of regional and district consents would allow decision makers to look at the whole proposal and should be required. As recognised by Hutchings and Logan in their 2018 report, this issue can also be addressed by joint hearings. This approach would address the concern that water permits granted by Environment Canterbury are not adequately addressing the ecological and landscape effects of proposals.[29]

So how is it that the policy and planning documents have done such a poor job of implementing the matters of national importance clearly set out in the RMA? We think the answer is the lack of independent oversight. Put simply, the councils were left to get on with the job, and they dropped the ball. And there was no-one checking on their performance and intervening when things went awry.

Glacial moraine and outwash sequence

8.3 Application of other statutory tools

To date, the Crown Pastoral Land Act has not successfully protected the natural capital values of pastoral leases. Instead of confining the use of leasehold land to permitted pastoral farming, significant pastoral intensification and development has been enabled – both through the tenure review process and discretionary consenting.

Discretionary consenting under the Act has been hampered by conflicting statutory purposes, which enables environmental matters to be trumped by farming considerations. There is a lack of policy guidance on how these conflicting purposes should be applied, and no bigger picture in frame, with each application only considered in the context of the property, area or site concerned. Until recently, most applications for pastoral intensification were granted, including those enabling the Simons Pass development. There has also been little monitoring and compliance effort to make sure the rules are adhered to and this has been hampered by poor statutory enforcement tools.

The government's proposed reform of the Crown Pastoral Land Act provides an opportunity to strengthen this process and enable the discretionary consents process to become a robust landscape protection tool for Crown pastoral land. Getting this right is important, as granting a discretionary consent is often the first step in enabling land use change in the Mackenzie Basin.

Covenants have been used effectively to protect natural values, but often over relatively small areas. The QEII National Trust has a good monitoring system to keep an eye on its covenants, but DOC has historically lacked the capacity to monitor the conservation covenants that have been created as part of tenure review. Tenure review, itself, has resulted in freeholding land that is then only constrained by the rules under the RMA, and as described above, these have been notably deficient.

8.4 Non-statutory approaches

Non–statutory approaches are showing some promise in the Mackenzie Basin as a means of bringing the key parties together to achieve broader outcomes. The

Pivot irrigation on glacial moraine

Mackenzie Agreement was widely supported but the lack of legislation and funding to support its implementation resulted in delay, meaning that events have overtaken some of its more specific provisions, including those focused on the potential for payments being made to landowners through joint management agreements. In addition, mana whenua were not a participant in the Forum and therefore were not a signatory to the Agreement. There is still wide support for the overall vision for the Basin and the establishment of a Mackenzie Drylands Area in some form. The Mackenzie Country Trust provides a valuable entity that can work with runholders and others to help achieve that vision.

The Te Manahuna Aoraki Project is relatively recent but has already managed to form a partnership with mana whenua, obtain significant funding and receive strong support from runholders. It is currently focused on pest control rather than landscape protection more broadly. However, it provides a promising model that may have wider application.

The Mackenzie Basin Agency Alignment Programme has effectively brought the five key agencies together to coordinate their activities in the Basin. This is a very positive move. Current activities provide a good basis on which to increase the ambition of the programme. For example, Hutchings and Logan recommended in their report that these agencies work together in a joined-up manner to better integrate the provisions in RMA plans. As described above, the policies that currently underlie the issues faced in the Mackenzie Basin are pulling in different directions, and "this is a failure of public policy".[30] Misalignments in the statutory planning instruments need to be addressed and rectified as a matter of urgency, particularly the very weak provisions in the Waitaki District Plan.

KEY MESSAGES

- The Simons Pass dairy intensification project starkly illustrates how the resource management system has failed to protect the landscape values of the Mackenzie Basin.
- Although there is a strong requirement to protect ONLs and significant indigenous vegetation in the RMA, and ample case law on these provisions, there has been no national policy to back this up.
- Apart from the Mackenzie District Plan, which since 2017 has included robust provisions to protect the Mackenzie Basin ONL from pastoral intensification, the applicable RMA policy and planning documents are notably weak in this respect.
- There is a lack of effective checks and balances on council performance in meeting the requirements of section 6 of the RMA.
- The discretionary consenting regime under the Crown Pastoral Land Act needs to be strengthened, and this will likely require legislative change.
- Compliance, monitoring and enforcement of both discretionary consents and RMA consents have either been weak or non-existent.
- There are emerging, innovative, non-statutory models in the Basin which are promising and are serving to bring agencies, mana whenua, landowners and other stakeholders together to achieve better outcomes for the Basin.

Maryburn Station

ENDNOTES

1 Official Information Act 1982 release: 18-E-0118, Emails 3, 112

2 Hutchings and Logan, 2018a, 30

3 https://www.linz.govt.nz/news/2018-08/simons-pass-%E2%80%93-what%E2%80%99s-story

4 Official Information Act 1982 release: 18-E-0118 PDF 1, 19 'DOC internal report: Report on application for a right of way to convey water by Pukaki Irrigation Company Ltd (Joy Comrie, 11 May 2011)'

5 Environment Canterbury consent: CRC163932, Pukaki Irrigation Company Limited Certificate of Compliance & Resource Consent Application, Appendix D

6 LINZ Preliminary Proposal on Simons Pass Station Tenure Review, Appendix 4, clause 5.2.1

7 For example: LINZ Substantive Proposal on Irishmans Creek Station Tenure Review, 57

8 Official Information Act 1982 release: 18-E-0118 PDF 1, 109 "Submission of views on application for easement for irrigation by Pukaki on Simons Pass Station (24 January 2017)"

9 Crown Pastoral Land Act 1998, s 18(2)(b)

10 Environment Canterbury consent: CRC163932

11 Mackenzie District Plan 2004, Definition of 'Utility'

12 Official Information Act 1982 release: 18-E-0118, Emails 3

13 Official Information Act 1982 release: 18-E-0118, Emails 2 at 28.

14 Williams, 2018a

15 Official Information Act 1982 release: 18-E-0118 PDF 1 (documents 17 – 21), 59- 73

16 Official Information Act 1982 release: 18-E-0118 PDF 1, 45 "DOC Submission of Views on Application to Modify the Stock Exemption and Undertake Cultivation, Soil Disturbance, Tree Felling, Tracking, OSTD and Scrub Clearance Activities on Simons Pass Station (8 August 2012)"

17 Official Information Act 1982 release: Di Lucas 07102015, 6 "Notice to Lessee of Decision of Commissioner of Crown Lands – Consent to undertake Oversowing and Topdressing Activities (5 December 2013)"

18 Rodgers et al, 2012

19 "Tortuous" was the term used by Judge Borthwick when signing off the Simons Pass Station water permits

20 Environment Canterbury consent: CRC176720, condition 83

21 https://www.ecan.govt.nz/get-involved/news-and-events/2018/simons-pass-consents-lead-to-stricter-environmental-controls-in-the-mackenzie/

22 https://www.linz.govt.nz/news/2018-08/simons-pass-%E2%80%93-what%E2%80%99s-story

23 Analysis of consents held by Simons Pass Station (Official Information Act release)

24 https://mackenziebasin.govt.nz/consents/

25 Being the date the Section 293 version of PC13 was notified

26 Mackenzie District Plan 2004, Rule 15A.2.1 and Rule 15A.3.1

27 *Re Mackenzie District Council* [2019] NZEnvC 56

28 The RMA Quality Planning Resource, 2017

29 Hutchings and Logan, 2018a, 40

30 Hutchings and Logan, 2018a, 21

PART C: FUTURE MANAGEMENT RESPONSES

Looking towards Glenmore Station and Lake Tekapō

9 POTENTIAL FUTURE APPROACHES

It is readily apparent from the previous analysis that current tools are not being well deployed to protect the landscape and ecological values of the Mackenzie Basin. In this chapter, we propose a series of actions that could be taken to help remedy this situation. We have grouped them into two categories: first, those which fill current gaps in the management framework which could be undertaken in the short term, and secondly, those which strengthen the policy and planning framework and may take longer to implement. We provide a summary table which sets out the remedies proposed, how they might be implemented, who would be responsible for them, and when they could be deployed. We conclude the chapter with proposals for a new approach to landscape management that would provide more certain and enduring protection for the Mackenzie Basin for future generations.

Since the research was undertaken for this case study, the country has been hit by the Covid-19 pandemic and this has significantly changed the context in which any changes would be implemented. Some of the key implications of Covid-19 of relevance to this study are:

- The country will experience an economic downturn with multiple business failures and significant increase in joblessness.
- Local government budgets are likely to be stretched under an economic downturn. There will be greater need for efficiency at this level which may prompt local government reform.
- Central government will take a much greater role in the economy. Government is planning to fund large 'shovel ready' infrastructure projects to boost the economy after the lock down, as well as to provide specific assistance to various industry sectors.
- It is not clear what the impact will be on the economics of pastoral farming in the Mackenzie Basin. Although the export food sector in New Zealand has been one of the least affected by the pandemic it is uncertain what the impact will be on prices for a high-end product, such as merino wool.
- The tourism industry has been one of the most affected by the lockdown, and with the Mackenzie Basin's heavy reliance on international tourists, the industry is likely to take longer to recover than other sectors. This seems likely to impact the profitability of some pastoral farms that also rely on tourism income.

9.1 Filling the Gaps

There are some urgent gaps in the landscape management framework that need to be filled. These include compliance, monitoring and enforcement of existing rules, updating provisions of the Waitaki District Plan, and the policy framework around Crown Pastoral Land Act discretionary consenting.

Compliance, monitoring and enforcement

There is no certainty that the current rules that apply in the Mackenzie Basin are being complied with. We were told of instances where rules or consent conditions have been breached but no consequences followed. They involved activities such as wetland removal, spraying, cultivation, oversowing, topdressing and irrigation. This problem is perhaps exemplified by what the Commissioners found when they undertook a site inspection of the properties involved in the Benmore Irrigation scheme. Activities for which consent was sought, such as earthworks, installation of pivot irrigations and application of water to the land, appeared to have already commenced on some properties.

As described in Part B, past compliance effort in the Basin has been minimal, although it has increased since the establishment of the Mackenzie Alignment Agency programme in early 2018. Such effort is made more difficult by the fact that several of the key agencies (Waitaki District Council, Environment Canterbury and LINZ) have no physical presence in the Basin.

We therefore recommend that a dedicated cross-agency Mackenzie Basin compliance, monitoring and enforcement unit be established in Twizel as an expansion of the newly established Mackenzie Basin Alignment Programme. The unit would undertake compliance, monitoring and enforcement activities on behalf of the five agencies (DOC, LINZ, Environment Canterbury, Waitaki District Council and Mackenzie District Council). It could include staff members from these agencies and mana whenua. The matters that the unit should address include compliance with:

- Provisions of the Crown Pastoral Land Act
- Provisions of the Waitaki District Plan
- Provisions of the Mackenzie District Plan
- Provisions of the Allocation Plan
- Provisions of the Land and Water Plan
- Conditions of resource consents
- Conditions of discretionary consents
- Conditions of covenants

Establishing a joint compliance effort would provide a mechanism to improve compliance levels in a cost-effective manner whilst sharing the cost burden across the five agencies. Using existing resources more effectively is likely to be of increasing importance given the impact of Covid-19 on budgets. The cross-agency unit could subsequently be expanded to undertake other joint agency tasks as suggested below.

There are some arguments against the establishment of a joint compliance agency, on the basis that the agencies have different statutory functions and should therefore act independently. However, given the current low level of enforcement capacity in the Mackenzie Basin, we consider a joint compliance agency would make the best use of available resources to carry out this work.[1] Instead of a compliance officer from each agency visiting the site, resulting in multiple visits for the landowner, it is more efficient to have one person with delegated responsibilities from all the agencies undertake a single site visit. This should also enable more frequent compliance checks.

Waitaki District Plan

The current provisions of the Waitaki District Plan do not adequately protect the landscape and ecological values of the Mackenzie Basin. They also do not give effect to the Canterbury RPS. This was highlighted in the Boffa Miskell review of current planning provisions.[2] The Waitaki District Council is in the process of undertaking a plan review, but due to the low level of resourcing, progress has been very slow. A discussion document was released in 2019 (after the review process had been underway for five years) and the Council has indicated that it will release a Proposed District Plan in late 2020.

It is important that the gaps in the Waitaki District Plan are addressed more urgently. This could be achieved by publicly notifying revised rules as soon as possible and giving them immediate legal effect while they go through

Wildling pines on Pūkaki Downs Station

the Schedule 1 process. The Minister for the Environment could call in the proposed plan provisions as a matter of national significance under the RMA to provide a more expeditious processing track. Fortunately, the Mackenzie Basin Agency Alignment Programme is aware of the need to progress the district plan, and is supporting Waitaki District Council in achieving this. Once drafted, the new provisions could be notified promptly, ahead of the other provisions of the Proposed District Plan, with submissions on both documents subsequently being heard together (and once revised RPS provisions have been notified as described below).

Discretionary consenting

As described in Chapter 6, the provisions of the Crown Pastoral Land Act provide two competing considerations when the Commissioner of Crown Lands makes decisions on discretionary consents. These are protecting the inherent values of the land and making it easier to use the land for farming purposes. This sits in contrast to the statutory objectives for tenure review, which give primacy to the protection of natural values. There is currently no policy guidance as to how these two statutory purposes should be weighted and applied when conflict exists. In the case of Simons Pass Station, the farming purpose was given primacy over protecting inherent values.

We recommend that LINZ develop policy guidance on how these two statutory purposes should be applied in decision-making as soon as possible. The guidance should make it clear that the protection of inherent values of the land concerned takes priority over making it easier to use the land for farming purposes where a conflict exists between the two.

9.2 Strengthening the law, policy and planning framework

Review of the Crown Pastoral Land Act

Discretionary consenting is a potentially powerful tool to help ensure better ecological and landscape outcomes in the Mackenzie Basin. This is because lessee rights are largely confined to using the land for low-intensity pastoral farming and consent for most other activities is required. In our view, the Commissioner of Crown Lands should be taking a more active role in protecting significant inherent values on pastoral leasehold land (including the inherent values of indigenous plants and animals, and natural ecosystems and landscapes as referred to in section 18), rather than essentially deferring responsibility to councils under the RMA. The legislative basis for the discretionary consent process needs to be strengthened in order to achieve this with any certainty. It must be noted that, as the majority of the Waitaki-portion of the Mackenzie Basin has already undergone tenure review, this approach will only really have utility in the Mackenzie District portion of the Basin.[3]

The current Government's proposed reform of the Crown Pastoral Land Act provides an excellent opportunity to improve the effectiveness of discretionary consents as a landscape protection tool. The review recognises that the High Country has undergone significant change and there is now a better understanding of how to protect indigenous biodiversity and assess land use decisions (and their cumulative impacts) in a more holistic manner.[4]

In our view, the framework for assessing discretionary consents should include an explicit hierarchy, putting in place clear environmental bottom lines. Crown pastoral leases should be managed to ensure that the natural capital of Crown pastoral land is maintained and enhanced. This includes ensuring that landscape, ecological and scientific inherent values and ecosystems services are safeguarded as a priority. Only if this can be achieved should the land be managed for any other purpose.

It is also critical that the system becomes more transparent, to prevent 'information asymmetry' and to ensure the Commissioner is accountable for his or her decisions. Discretionary consents should be publicly notified unless they fit within a limited range of exceptions (including that the activity does not adversely affect inherent values) and a statement of reasons should be issued whenever a consent is granted or declined. The expert opinions, including those from DOC, should be mandatory considerations in deciding whether to grant a consent and consents should not be granted if they are contrary to this advice. This advice should include the cumulative effects of decisions across multiple leases as well as any other relevant information.

This hierarchy of outcomes, which needs to be redrafted with carefully defined terms, should continue the obligations on lessees to remove pests and weeds from the land. This has always been a condition on Crown pastoral leases but has not been well enforced – as is demonstrated by the bad infestation of wilding pines on some leasehold properties in the Mackenzie Basin, as well as on land transferred to DOC as part of tenure review. Due to the current size of this problem, a partnership approach between Government agencies and property owners should be adopted to address the infestation in the first instance. Once the wildling pine infestation risk is manageable, subsequent maintenance can then be left to the lessee or landowner, as proposed by Te Manahuna Consulting in the Mackenzie Wilding Conifer Management Strategy.[5]

As mentioned above, the discretionary consent process needs to be better linked with RMA plans. In addition to the protective provisions in the Crown Pastoral Land Act, the Commissioner should also be required to take into account the relevant provisions of RMA plans, and in particular, the effects of the activity on the values identified and sought to be protected by the plans.[6] This should include any amendments to the RMA that result from the current reforms.

As the RMA and Crown Pastoral Land Act have different statutory purposes, bundling consents lodged under each Act would require careful consideration. One possibility could be that applications to undertake activities on Crown pastoral land be lodged with a single overarching management agency for the Mackenzie

Basin, as suggested below. This agency would contact the authorities involved, who would retain responsibility for determining the relevant applications, but the decision would be considered as a cohesive whole by the overarching agency. This would enhance alignment of consents and would likely be more cost effective and efficient for the lessee.

The legislative reform process provides further opportunity to put in place more effective enforcement provisions to ensure the inherent values of Crown pastoral land are protected. A range of enforcement mechanisms and penalties should be included, thereby providing a pathway of escalation for compliance officers. Currently there is no ability for these issues to be referred to the Environment Court and providing for this would further enhance the accountability of the system.[7]

As the current review is primarily focused on the cessation of tenure review and the discretionary consent process it is also recommended that a broader review of the Crown pastoral land system is undertaken. A holistic review of the management of the system under the Crown Pastoral Land Act (and associated Land Act) would enable other weaknesses to be identified and resolved. It would also enable greater recognition of mana whenua interests in the High Country.

The 2019 national budget allocated an extra $3.1 million (over four years) to LINZ's operational budget. The Minister of Conservation and Land Information announced that this funding will enable LINZ to take a more active role in managing Crown pastoral land. As a consequence of this, LINZ undertook to inspect each pastoral lease at least once every two years.[8] If this funding is maintained post Covid-19, it should help to improve understanding of both the scale of land use change and the prevalence of non-compliance.

Strengthened iwi planning

The Waitangi Tribunal and others have emphasised the importance of iwi planning, with the Tribunal noting in 2011 that iwi resource management plans are "the lynchpin of a Treaty-compliant RMA system." These documents "set out the iwi's general resource management priorities in respect of taonga and resources within their rohe." The plans can also identify control and partnership opportunities through the transfer of powers and joint management arrangements under Sections 33 and 36B of the RMA, as well as heritage protection authority opportunities.[9] The recent Kāhui Wai Māori report on freshwater management supports this approach, concluding that "Iwi Management/Kaitiakitanga Plans must be resourced and highly valued in informing the various aspects of the water care and resource management system, including planning and monitoring."[10]

Professor Hirini Matunga has described the important 'other' planning tradition that iwi management plans have created since the early 1990s as representing "perhaps the most significant Māori development in environmental planning in the last 20 years as articulations of tribal thought".[11] Provision is made in the RMA for councils to 'take into account' iwi planning documents when preparing or changing RPS' and regional and district plans.[12] The 2019 Waitaki Iwi Management Plan provides a strong foundation and guidance for the process of strengthening RMA policy statements and plans as suggested below. Resourcing and support could be provided for implementation of the Waitaki Iwi Management Plan by the Mackenzie Basin Agency Alignment Group.

Strengthen Canterbury Regional Policy Statement

The Canterbury Regional Policy Statement has significant deficiencies when it comes to protecting the natural values of the Mackenzie Basin. These include:

- Although the Mackenzie Basin is identified as an ONL in Schedule 4, the boundaries are not mapped.
- Lack of clarity as to how the regional-scale landscape values of the Mackenzie Basin are to be protected and what activities are inappropriate.
- Lack of identification and mapping of areas of significant indigenous vegetation and significant habitats of indigenous fauna in the Mackenzie Basin.
- Lack of policy linkages between water use and management and the protection of landscape and ecological values in the Basin.

A key purpose of the RPS under the RMA is to achieve integrated management of the resources of the region. This includes taking a holistic and comprehensive approach, identifying and addressing the underlying causes of issues, and being strategic and putting in place mechanisms to achieve long-term outcomes. It should also take into account the interconnections between different elements of the environment and be adaptive and interactive.[13]

We think there is a strong case for developing a new sub-regional chapter of the Canterbury RPS for the Mackenzie Basin. This would enable the development of a robust integrative framework for the management of the area, including integration between landscape, ecology and water issues which are particularly closely interlinked across the Basin.

The incorporation of sub-regional chapters has been recognised as a way in which integration across separate domain-based chapters of a RPS (such as fresh water, ecosystems and biodiversity, landscape and historic heritage) can be effectively achieved. Mapping is an important tool to incorporate into such a sub-regional chapter in order to enable the strategic direction of the RPS to be clearly articulated. Maps provide a greater degree of certainty, particularly for key issues such as the location of outstanding natural landscapes and significant natural areas and where key objectives are sought to be achieved.[14]

"The chapters can address more detailed objectives and policies within the framework of region-wide provisions ... they need not cover the entire region but could focus on spatial areas where there are significant regional issues to resolve. Such an approach enables the RPS to be 'grounded' in the different physical characteristics of sub-regional areas."[15]

A sub-regional chapter for the Mackenzie Basin should set out clearly what is sought to be achieved, and where and how it will be achieved, with measurable outcomes identified which can be monitored and reported on. Maps should be included to identify areas where values will be strongly protected and other areas where greater development might be permissible.

In terms of timing, as regional and district plans need to give effect to the RPS, it would be useful to have the new RPS provisions in place prior to the review of the Waitaki District Plan (and regional plans). However, this is likely to unduly delay the urgent need to plug the current gaps in the Waitaki District Plan as described above. We therefore suggest that revised provisions of the Waitaki District Plan applicable to the Mackenzie Basin be notified first (and be given legal effect), and then the new sub-chapter of the RPS be notified prior to the district plan submission being heard, which would then enable the new RPS provisions to be considered. Any consequential changes to regional plans arising from the new RPS sub-chapter could then be notified and heard at the same time.

We consider that a sub-regional chapter in the Canterbury RPS would be a more effective approach to providing a protective and strategic framework for management of the Mackenzie Basin than a national policy statement, which is somewhat removed from the regional level. However, a regionally focused national policy statement would remain an option if Environment Canterbury failed to develop appropriate provisions in the Canterbury RPS or if the Government wished to more actively intervene to help resolve the many inadequacies of the present planning regimes. A potential benefit of the national policy statement option would be that it could be quicker, as the process does not include appeal rights. However, it may have less community buy-in.

Strengthening regional planning

As described in Part B, the regional planning documents which apply to the Mackenzie Basin are inadequate for several reasons:

- They do not adequately address regional landscape or biodiversity protection.
- Water management is split between two different documents.
- The Allocation Plan is now 13 years old and is overdue for review.

We therefore recommend the Land and Water Plan be reviewed and that an integrated document be produced which addresses water, landscape and biodiversity matters in an integrated manner. This would mean, for example, that the plan would not provide for the inappropriate issue of water or discharge rights in areas where irrigation would threaten landscape or biodiversity values. In this way, the plan would be brought into alignment with the Mackenzie District Plan provisions. Currently the plans are driving in different directions which causes confusion and wasted expenditure and places

Tekapō River

undue pressure on the district councils. This occurs, for example, when a runholder goes to the considerable expense of obtaining a water right from Environment Canterbury, only to have the land use consent declined by Mackenzie District Council.

If a review of the entire plan is considered to be unachievable in the short term, then a new Mackenzie Basin chapter could be notified which addresses these matters in an integrated manner on a sub-regional basis, and which would mirror the new RPS sub-chapter suggested above. We note that under the Government's proposed new freshwater planning process, changes to regional planning documents to give effect to the NPSFW will be required, and so any changes required for freshwater could be incorporated into a broader plan change that addressed the other gaps noted above.

Re-targeting concessions

The *Ngāi Tai Ki Tāmaki* Supreme Court decision has prompted a pause and time of reflection for DOC on how it should manage the concession system more generally. The legal framework within which concession decisions are made is now somewhat outdated, with its focus on avoiding negative effects rather than on generating positive outcomes. The impacts of Covid-19 on the tourism industry has created some breathing space. This is an opportune time to review the concessions system from first principles in order to design a system that better reflects Treaty obligations, generates a substantive income flow for DOC, provides better flexibility and business opportunities for the tourism industry, and generates positive outcomes for biodiversity and landscapes more generally.

In the context of the Mackenzie Basin, this could support a greater involvement of mana whenua in tourism operations on conservation land when the industry recovers. A tender-based model could be used to award concession agreements to other tourism operators on the basis of their contribution to positive biodiversity and landscape outcomes for the Basin.

The other potential use of concessions in the Mackenzie Basin is for stock grazing on conservation land. Grazing permits could be used to authorise light grazing on conservation land where that was considered an appropriate management regime. Such permits could enable the former leasee to continue farming the land, in an environmentally sustainable manner, after ownership had been transferred to DOC. The permits could stipulate conditions such as restricting stock numbers and removing weeds and pests.

Better use of other tools

We discussed in Chapter 6 the use of covenants as a protective mechanism in the Mackenzie Basin. We consider covenants to be a useful tool as they create a legally binding agreement between the landowner and the covenanting agency (and on Crown pastoral land, the lessee). Land must be managed in a manner that preserves the values included in the covenant agreement.

While there are some challenges with the use of covenants, they can provide a high degree of protection. Many of the concerns regarding covenant use do not stem from the mechanism itself but rather its implementation. In order to effectively protect landscape values on private land, covenants should include detailed conditions for management and there should be regular monitoring to ensure compliance with these conditions.

Another overarching concern with the use of covenants as a landscape protection tool is their site-specific nature. Covenants focus on the property-scale and as such may be unsuitable for achieving broad landscape-scale sustainability. However, there are options to address this. An integrated management plan could be developed to guide priority areas for covenants to be used. A condition could also be included in all covenants requiring landowners to submit information into a common information portal which

Mount John observatory

could be used to track the contribution of covenants to achieving broader landscape goals.

Another tool that could have applicability, but has yet to be deployed in the Basin, is the declaration of 'protected private land' under section 76 of the Reserves Act which can apply to private or leasehold land. The effect of the declaration is that DOC rangers can assist the owner in managing the land for conservation purposes.

Reserves Act 1977, Section 76, Declaration of protected private land

(1) The owner of any private land or the lessee of any Crown land may at any time apply to the Minister for his or her land or any part thereof to be declared to be protected private land under and subject to the terms of any agreement entered into between the owner or lessee and the Minister.

(2) The Minister, if satisfied that the land possesses such qualities of natural, scientific, scenic, historic, cultural, archaeological, geological, or other interest that its protection is desirable in the public interest, or that rare species of indigenous flora or fauna are on the land, and the preservation of such flora and fauna is in the public interest, and that the land is sufficiently fenced or is otherwise protected from damage by stock, may, by notice in the *Gazette*, declare the land to be protected private land for nature, scenic, historic, or scientific purposes, having regard to the provisions of sections 18 to 21 relating to the classification of historic, scenic, nature, and scientific reserves, and may in like manner revoke any such declaration.

[Emphasis added]

9.3 Establishing an integrated agency management body

We see merit in building on the Mackenzie Basin Agency Alignment Programme, and the development of a dedicated multi-agency compliance team as recommended above, to develop a dedicated management body for the Mackenzie Basin. This would have core staff based in the Basin (potentially at Twizel) and could include mana whenua. It could undertake a range of tasks including those delegated from the various agencies under section 34A(2) of the RMA, which include functions, powers and duties under the Act excluding approving a policy, plan or resource consent. This could include:

- Receiving and processing resource consent applications lodged with Environment Canterbury, Waitaki District Council and Mackenzie District Council including writing the planner's report;
- Receiving and processing applications for discretionary consents on behalf of LINZ including writing a decision report;
- Developing and processing policy and plan changes;
- Developing and implementing a tourism strategy for the Basin;
- Undertaking monitoring, including state of the environment, plan effectiveness and consent compliance;
- Undertaking compliance and enforcement activities;
- Implementing other programmes within the Basin including wilding control, pest control and restoration efforts; and
- Future-casting, to identify emerging issues early so that agencies can respond in a timely manner.

Lake Alexandrina

What	How	Who	When
Strengthen compliance effort in the Mackenzie Basin	Establish a multi-agency and mana whenua compliance, monitoring and enforcement unit in Twizel	LINZ, DOC, Environment Canterbury, Waitaki District Council, Mackenzie District Council and mana whenua	Mid 2020
Address gaps in the Waitaki District Plan provisions applying to the Mackenzie Basin	Notify revised provisions for the Mackenzie Basin part of the proposed Waitaki District Plan and give them immediate legal effect	Mackenzie Basin Agency Alignment Group to support Waitaki District Council policy/planning capability	Mid 2020
Address conflicting purposes for discretionary consenting under the Crown Pastoral Land Act	Develop operational policy to clarify that protection of inherent values is to take precedence over making it easier to use land for farming when applying section 18 of the Crown Pastoral Land Act	LINZ	Mid 2020
Address weaknesses in Crown Pastoral Land Act	Review the Crown Pastoral Land Act and make legislative amendments to clarify the hierarchy of purposes, provide a more robust decision-making process, and a greater range of enforcement tools	LINZ	Late 2020
Strengthen mana whenua planning	Provide resourcing and support for the implementation of the Waitaki Iwi Management Plan	Mackenzie Basin Agency Alignment Group	On request
Strengthen the Canterbury RPS policy framework	Develop and notify a new sub-regional chapter of the Canterbury RPS for the Mackenzie Basin	Environment Canterbury	Late 2020
Integrate and strengthen regional planning	Develop and notify a revised Land and Water Plan (or a new Mackenzie Basin chapter) which addresses water, landscape and biodiversity matters in an integrated manner	Environment Canterbury	Early 2021
Refocus concessions	Develop a concessions policy for the Mackenzie Basin that supports the broader landscape and ecological objectives for the area	DOC	Late 2020
Strengthen agency management	Establish a Mackenzie Basin Agency Team located within the Basin to undertake delegated tasks	LINZ, DOC, Environment Canterbury, Waitaki District Council, Mackenzie District Council and mana whenua	Early 2021

Figure 9.1 Summary of measures to better use existing tools

9.4 Adopting a new approach

The preceding sections have described how current mechanisms and tools could be better deployed to protect the Mackenzie Basin landscapes. However, there is no certainty that this will happen in the long-term. We have highlighted in this report how the current system can readily break down, particularly when there is little political appetite to make or enforce rules for landscape protection, and a similar situation could well develop in the future. In addition, rules can be effective at stopping bad things happening but cannot generally make good things happen, and the Mackenzie Basin landscapes need active management if their values are to be protected.

We have, therefore, started exploring ideas for a new model of landscape protection that could apply in the Basin and potentially more broadly throughout New Zealand. We have drawn on past experience in New Zealand and overseas approaches, while recognising the unique characteristics of this country and its founding document (Te Tiriti). We emphasise that these are our preliminary thoughts only and they will be further explored in our *Protected Landscape Synthesis Report* which will be released later in 2020.

An investigation of international landscape protection approaches, which will be described in the Synthesis Report, indicates that successful models have three key elements: first, a core of highly protected land (such as conservation land, regional park land or land acquired by the Nature Heritage Fund); secondly, protective regulation for the surrounding living and working landscape (which is largely privately owned); and thirdly a partnership approach with landowners to support and encourage sustainable land management. The latter can be achieved through the use of measures such as education, research and provision of funding and expertise. A fourth key element of a model for New Zealand is the role of mana whenua as a Treaty Partner.

Core of highly protected land

A Mackenzie Drylands Protected Area could form the core area of a wider Mackenzie Heritage Landscape, to ensure protection of threatened drylands ecosystems across their full ecological sequence. In order to achieve this, the land will either need to be completely retired from grazing, or only subject to light grazing. As a first step, publicly-owned land (such as land managed by DOC, LINZ, the New Zealand Defence Force, Environment Canterbury and the district councils) could be brought together under common management objectives and jointly rebranded as the Mackenzie Drylands Protected Area. More focused effort and greater investment could be applied to on the ground activities such as weed and pest control. It could form the core of the Tu Te Takiwhanoa Drylands concept being developed by DOC with its Treaty partner.

Over time, this area could be supplemented with additional land acquired (for example by the Nature Heritage Fund) because of its high ecological or landscape values; or land obtained by swapping existing high altitude conservation areas for private or pastoral leasehold land on the Basin floor that has high ecological values.

The Mackenzie Drylands Protected Area could proceed independently and ahead of the Heritage Landscape protective mechanism proposed below. It could be managed jointly by DOC and its Treaty partner. It would not only protect the landscape and ecology of the area, but also tell its historical and cultural story and provide visitors with immersive experiences and information about the values of the Basin.

Protective regulation for the surrounding living and working landscape

Designation of areas of high landscape value in New Zealand as 'Heritage Landscapes' under the RMA or the Conservation Act through the use of a new 'Heritage Landscape Order' mechanism would create a stronger protective purpose over private and leasehold land. In the case of the Mackenzie Basin, it could take the form of a Mackenzie Basin Heritage Landscape Order. In developing our thinking, we have taken inspiration from Water Conservation Orders, which have provided water bodies with a high level of legal protection under the RMA. There are also other alternatives. There is the possibility of enacting bespoke legislation for the Mackenzie Basin (analogous to the Waitakere Ranges Heritage Act 2008 or Hauraki Gulf Marine Park Act 2000), generic legislation (such as a Heritage Landscape Act) or a hybrid process to achieve the outcomes sought.

Tekapō Village

A Mackenzie Basin Heritage Landscape could cover both public and private land which would be managed in a manner that was sympathetic to the landscape, cultural and ecological values present. Under this approach, the management structure for the Mackenzie Basin would not change, but a protective purpose and supportive measures would be placed over the existing framework. As such, councils would retain the same functions in managing the area as currently, but would need to demonstrate compliance with the overarching purpose in the Order when granting consents for activities within the Mackenzie Basin Heritage Landscape Area. This would provide a clear intent for protection, and if not complied with, the consent could be overturned in the courts.

In addition to its protective purpose, a Mackenzie Basin Heritage Landscape designation could be used to support the development of a collective brand for the area. This brand could assist with marketing strategic tourism opportunities and could also create a quality mark for products produced in the area. Similar to how tourists are attracted to the 'Great Walks' on DOC conservation land, they could also be attracted to the network of 'Heritage Landscapes' around New Zealand, where they could be assured of having high quality experiences of New Zealand's outstanding natural and cultural landscapes. This could all help to support a recovery of the tourism industry in the Basin after the effects of Covid-19.

Supportive measures

Providing for a range of supportive measures is important to encourage positive action on private and pastoral lease land within the wider Mackenzie Heritage Landscape Area. As already described, there is much positive action happening in the Mackenzie Basin. For example, DOC is working in Treaty Partnership on the protected area with mana whenua and in collaboration with the Mackenzie Country Trust; the Mackenzie Wilding Trust is working alongside Environment Canterbury and DOC to manage the wilding pine infestation; and Te Manahuna Aoraki is focused on pest control in the upper Basin.

A single agency, a Mackenzie (Heritage Landscape) Community Trust, could be tasked with coordinating existing approaches and building on them within a stronger strategic direction for the area. It could also convene regular meetings of a Mackenzie Basin Heritage Landscape Forum which would include representatives from mana whenua, district and regional councils, central government as well as landowners, businesses and residents in the area. The Forum would be a place to voice common concerns, share information, test new approaches and come up with a coordinated plan of action. It could build on the collaborative process that led up to the Mackenzie Agreement.

The Community Trust could also coordinate research into sustainable farming models for the area. The Mackenzie Basin has a rich history of Māori utilisation and pastoral farming. In order to retain a vibrant pastoral farming landscape, while protecting its high landscape and ecological values, ongoing research is required into how these imperatives can align. Mātauranga Māori could be drawn on as well as emerging knowledge from trials on pastoral farms, as well as from DOC's work in the Tekapō Scientific Reserve and from ecological monitoring programmes. In the future, data from the Te Manahuna Aoraki project could also inform management of land within the Basin.

The Trust should include representatives of mana whenua and all stakeholders with an interest in the area. It is not intended that a Heritage Landscape Community Trust would necessarily replace any existing organisation; the work done by a multitude of groups in a Heritage Landscape should continue to grow and be celebrated. An existing body (such as the Mackenzie Country Trust) could be expanded to perform the role of a Heritage Landscape Community Trust if that was considered the best option.

Funding

Landscapes require funding so they can be managed adequately; and we propose that Heritage Landscapes should receive dedicated funding from central government due to the broader national interest in protecting the country's outstanding landscape areas. In addition, Heritage Landscapes could obtain priority for access to other government funding programmes or initiatives. This could include sources such as the provincial growth fund, Covid-19 economic reconstruction funding and government science and innovation funding.

Oversight and enforcement

As has been highlighted throughout this report, compliance and enforcement is an important component of the protection of landscapes. We consider that an independent, oversight body responsible for ensuring compliance with the Heritage Landscape Order is needed for Heritage Landscapes. We are still exploring what this oversight body would look like. One option could be to expand the ambit of the Parliamentary Commissioner for the Environment to include a role for the oversight of Heritage Landscapes.

On-station tourist accommodation

KEY MESSAGES

- There is much that can be achieved by better deploying the tools which are currently available to protect the Mackenzie Basin landscapes and biodiversity.
- A joint-agency compliance, monitoring and enforcement unit should be established in Twizel to strengthen compliance effort in the Basin.
- The evident gaps in the Waitaki District Plan should be addressed as soon as possible.
- Operational policy should be developed to clarify the application of conflicting purposes in discretionary consenting under the Crown Pastoral Land Act.
- Weaknesses in the Crown Pastoral Land Act should be addressed through legislative reform.
- A sub-chapter for the Mackenzie Basin should be developed for the Canterbury RPS.
- A new integrated Land and Water Plan should be developed to address landscape, biodiversity and water in an integrated manner, or alternatively a new chapter of the plan should be developed for the Mackenzie Basin.
- A more focused concessions policy should be developed that actively supports landscape protection in the Mackenzie Basin.
- Better use should be made of other tools including conservation covenants.
- A Mackenzie Basin Agency Team should be established in Twizel to undertake delegated tasks from the five agencies in an integrated manner.
- A Mackenzie Drylands Protected Area should be established in the Basin, comprising largely publicly-owned land, to provide a core of highly protected land within the broader landscape. A co-governance management entity could be established to manage this area.
- A Mackenzie Basin Heritage Landscape could be created through new provisions for Heritage Landscape Orders inserted into the RMA or Conservation Act. This would create a long-term protective layer over all the Basin's landscapes including private and pastoral lease land.
- A Heritage Landscape Trust could coordinate and support activities in the Mackenzie Basin Heritage Landscape, regularly convene a Heritage Landscape Forum and seek funding from government sources (where priority should be given to designated Heritage Landscapes).
- An oversight body, such as the Parliamentary Commissioner for the Environment, could ensure that management of the Mackenzie Basin Heritage Landscape by councils under the RMA complies with the requirements in the Heritage Landscape Order.

Lindis Pass

ENDNOTES

1 Brown, 2017, 90
2 Boffa Miskell, 2019
3 Hutchings and Logan, 2018a, 32
4 Parliamentary Commissioner for the Environment, 2009, 13
5 Young, 2016
6 Hutchings and Logan, 2018a, 24
7 Environmental Defence Society and Forest & Bird, 2019
8 Williams, 2019
9 Waitangi Tribunal, 2011, 116-117
10 Kāhui Wai Māori, 2019, 10
11 Matunga, 2000, 45
12 Resource Management Act 1991, s61(2A), 66(2A) and 74(2A)
13 Peart R and P Reaburn, 2011, 20
14 Peart R and P Reaburn, 2011, 36
15 Peart R and P Reaburn, 2011, 30-31

Lake Ōhau

10 CONCLUSIONS

This Mackenzie Basin case study on landscape protection has thrown a useful spotlight on the pressures that are impacting New Zealand's outstanding natural landscapes and the management challenges these create. It has also highlighted deficiencies in the current system when it comes to the protection of landscape and ecological values.

What is evident from the case study is that many of the current landscape pressures on the Mackenzie Basin stem from historical events: the loss of land by mana whenua in 1848, the introduction of rabbits during the 1860s, the extensive planting of pine species particularly during the 1950s to 70s, and the flooding of productive land for electricity generation and provision for irrigation water during the 1960s. There have also been unintended consequences from government policy settings, including tenure review and the effective delegation of landscape and biodiversity protection on Crown pastoral lease land to the Commissioner of Crown Lands. There has been a history of agency neglect, or at least inadequate performance, and more recently, significant pressures for agricultural intensification.

Although the current regulatory framework could have worked to protect landscape values in face of these pressures, it failed through want of quality, joined-up implementation. After all, the RMA does provide that the protection of outstanding natural landscapes is a matter of national importance that is to be addressed. But when agencies failed to implement this statutory direction, there was no effective oversight to ensure those failures were rectified.

Today, a number of positive initiatives are underway in the Basin to address this situation, and there is political will to turn things around. Agencies have engaged experts to review their performance and have to a large extent 'owned' the criticisms and put in place some remedial measures; however a lack of enforcement continues. Unfortunately, there has already been significant loss of landscape and ecological values in the intervening period, and there is a future lag in the system where a significant amount of land intensification which has been permitted is yet to occur.

We have produced a set of recommendations that detail how current tools could be better deployed and we think the actions set out would make a real difference. We stress that the deployment we have described needs to happen urgently and quickly. However, we are not convinced that this will provide sufficient certainty in the long term, particularly if political interest and will wanes. We have therefore also suggested that a new model for landscape protection be developed and applied to the Mackenzie Basin. This model will be further developed and refined in our *Protected Landscape Synthesis Report* which will be released later in 2020.

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Mackenzie Basin is the only place in New Zealand where the entire intact glacial sequence from existing glaciers in the Southern Alps, through to moraines, outwash terraces and plains can be seen. There have been considerable pressures on these landscapes over a long period of time including from pastoral farming, rabbits, hydro power generation, wildling pines, irrigation and dairy conversions. The Basin is fast approaching a tipping point, where the remaining outstanding natural and cultural landscape values could be lost.

Many of the current pressures on the Mackenzie Basin stem from historical events and the unintended consequences of successive government policy settings. Although the current regulatory framework could have protected landscape values in the Basin, it has failed, through want of quality and joined-up policy implementation and effective oversight of agency performance.

There are a number of positive initiatives underway in the Basin to help address this situation, and political will to turn things around. Our recommendations specify how current tools could be better deployed to provide the landscape protection that is sorely needed. We have also proposed a new model for landscape protection that we consider is needed to ensure that the Mackenzie Basin's unique and extraordinary natural and cultural landscapes are cherished and protected for future generations.

EDS
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