

What drives environmental decisions in a contested, but loved, landscape?

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Abstract

This case reviews the policy settings contributing to the landscape changes in New Zealand's majestic Mackenzie Basin, and examines possible drivers of the environmental decisions creating the changes. The case creates a systematic way to examine decisions affecting environments and natural resources in other countries. It concludes that science, economics, party politics, public pressure, and the law each has a role. But none is as influential as we might expect. One thing seems clear in identifying environmental challenges to the Mackenzie: environmental decisions themselves seem the greatest threat and the strongest driver of landscape change.

Learning outcomes

Students will start a conversation about the various ways of navigating the relationship between people and nature in parks and protected areas. They will also start to think about discerning between the various drivers of and influences on environmental decisions – from science, to law, to economics, to party politics.

Introduction

What's so special about the Mackenzie?

The clear open skies, the tussock-strewn landscape, and the glacial memory locked into the surreal blue wonder of Lakes Tekapo and Pukaki have fired the imagination of South Island's artists for over a century. Ancient gods and Godley's ghost walk the tangled braids of the riverbeds. Craggy peaks lean over the lake, pointing to a distant memory which lives in the heart, nerves, and sinew of New Zealanders. This is a place filled with a silence so complete that it shocks the first time visitor. Upon arrival, newcomers often take a step back, for fear of being swallowed whole by the silent vastness of the Mackenzie.

New Zealanders who arrive amongst the gold-tipped hills might feel they are returning home to a place they have never been. There is something in the Mackenzie's light reminiscent of Narnia, Middle-Earth, and Erewhon, that resists

conveyance in language [1]. There is also something in the absence of light, when night falls and stars stretch on forever in deference to Dark Skies. The Dark Sky Preserve (yes, it really does bear this name) is the biggest starlight preservation area in the world [3]. Situated high above the lake is the Mount John Observatory, suspended in what Samuel Butler called ‘the ineffable quality of the air’, a place that holds the darkness sacred for the 14,000 (mostly overseas) tourists per year [2].

This Mackenzie welcomes New Zealanders and tourists alike. The Te Araroa Trail, which passes between the head of the lake and the Main Divide, stretches from the top of the North Island to the bottom of the South Island. More than 500 people walk the entire Te Araroa each summer. A glance down the lake reveals sheep, deer, and ski field industries. To the left of the lake, following the ridge after ridge of Two Thumb Range, is the path for trampers and hunters who trek from Snake Ridge to Stag Saddle to Mesopotamia Station. Here, they might fish for trout and hunt for deer or tahr (goat) before stumbling into Butler’s *Nowhere* by way of the Rangitātā River [1].

Case study examination

People and landscapes

The Mackenzie landscapes are lived, loved, and worked. Food and clothing come from sheep and deer, and high-end Merino wool clothing labels are branded exclusively on the mythic capital of the Mackenzie’s *Nowhere* [4]. Cliffs, peaks, waterways, and valleys all contribute to leisure and tourist industries, sometimes hand-in-hand; and generous hunting opportunities fill freezers with fresh meat to compliment those fine cuts farmed and shipped around the country. Deep-rooted tussock bunchgrasses sequester carbon, stabilize soil, host nitrogen-fixing microbiota, [5] and undammed rivers provide flood protection, native and sports-fish habitat, and clean water for drinking and swimming (should you wish to brave the icy-cold). Conversely, the restrained and managed waters of Lake Pukaki is transformed into electricity and irrigation for thirsty pasture.

Yet the Mackenzie is in trouble. The media call it a train-wreck, the indigenous *tāngata whenua* of the South Island (Maori Ngāi Tahu) call it a disaster, the Environment Court says it’s vulnerable, farmers feel forced to irrigate, and the

Minister of Conservation says it's in 'biodiversity crisis' [6-11]. A collection of environmental decisions is allowing the conversion of the South Island high country, a zone which still harbours around 40% of New Zealand's native species [23-28].

The Mackenzie's vast expanses of tussock grasslands are trading their grazing merino sheep for dairy cows, deer farms, irrigated sheep pasturage, and residential subdivision. This is leading to a greening of landscapes that have been brown for generations [12]. Residential subdivisions are proliferating around the townships of Tekapo and Twizel. Similar to the romanticised pastoral branding of Merino clothing such as Icebreaker, many of the land developers are using the land's worked history to brand their subdivisions [13-14]. In Tekapo, a modest parcel of land is part memory, part fairytale, and well beyond the income of most New Zealanders.

Environmental decisions and landscapes

Several policy settings are contributing to the changes in the Mackenzie:

- 1) South Island pastoral land reforms have privatised about 80,000 hectares of the Basin – shifting the land from Crown-owned land leased for extensive pastoral purposes into unfettered freehold [12,15];
- 2) The Commissioner of Crown Lands has granted many 'discretionary consents' to existing pastoral lease-holders to intensify land use while the land is under pastoral lease [12];
- 3) The Mackenzie and Waitaki District Councils have granted 'consents' to freehold land owners in the Basin to intensify land use;
- 4) Regulatory enforcement of land clearance and intensification is difficult in such a rugged landscape, resulting in un-consented pivot irrigators appearing from one day to the next [16].

Beyond the policy settings themselves, environmental decisions have many influences including: law, economics, science, party politics, media attention, and public pressure.

New Zealand's Land Act (1948) governed the 50% of the Mackenzie land that was under Crown pastoral lease until the early 2000s, when the Crown Pastoral Land Act (1998) (or CPLA) took over. Together, these two acts should influence how pastoral

lease land in the Mackenzie is divided up into public conservation land and freehold. The CPLA directs which land should be conserved and which should be freeholded; and the Land Act describes who holds which rights in a pastoral lease, and thus who should pay whom how much money when those rights are exchanged in land reform (#1 above) [15] [slides 7, 15-20]. By examining how the law plays out in the Mackenzie, we gain insight into the role of economics and science in environmental decisions.

Law, economics, and land reform decisions

We turn first to the role of law and economics. Here we examine land reform decisions, a particular subset of environmental decisions. The division of property rights in pastoral leases is set by legislation, and does not vary by lease. We can measure the Crown's interest in each lease (portion of the value of the land the Crown owns), with the following formula

$$\frac{[\text{Per hectare price paid by Crown to retire land from pastoralism}]}{([\text{Per hectare price paid by pastoralist to obtain freehold title}] + [\text{Per hectare price paid by Crown to retire land from pastoralism}]})}$$

If the law were driving the financial side of these environmental decisions, we would see evidence in graphs of the observed Crown's Interest [slides 20-30].

But the observed Crown's interest varies from 0% to near 100%, along a pattern resembling a demand curve for freehold land. This is effectively a bulk discount, meaning the more freehold land a farmer buys, the cheaper the price [28, 29].

A strict legal interpretation of property rights does not seem to be the primary driver of environmental decisions in land reform.

Law, science, and land reform decisions

Next, we turn to law and science. The CPLA also prescribes which land the Crown should keep for conservation, and which it can alienate as freehold if all the other priorities are met. The CPLA creates a 4-part hierarchy that relies on ecological assessment of values in flora, fauna, landscape, and recreation.

Spatial analysis shows that the Crown has accomplished its lowest priority goal (freeholding land) assiduously and successfully, while achieving its top 2 goals (maintaining ecologically sustainable landscapes and protecting significant ecological values) half-heartedly and sporadically. [12] [slides 38-42]

A strict interpretation of ecological advice and legal imperatives does not seem to be the primary driver either.

Party politics and land reform decisions

One might expect party politics to play a role in environmental decisions, especially in New Zealand's Mixed Member Proportional (MMP) electoral system where coalition agreements amongst parties drive many policy decisions. Indeed, land itself is political. Right leaning parties might prefer a less-is-more approach to public land, favouring a market-based approach that alienates public land and channels it into private hands to avoid government interference in land markets. Left leaning governments might prefer decisions that conserve more land.

Decisions reviewed in this case betray the ideals of both the right and the left, by alienating land and losing money at the same time in move that appears as a reverse 'Robin Hood'. Further, this policy has persisted through successive governments of both right-leaning and left-leaning persuasions. And finally, returning to the observed values of the Crown's interest described above, if we separate the observations by left vs right leaning governments of the day, there is no significant difference between the values of centre-left governments' red dots vs the centre-right governments' blue dots [slides 54-55].

Thus, there is no discernible difference between the ways the right vs left-leaning governments have made decisions in the high country. Thus party politics does not seem the primary driver.

Public pressure and land reform decisions

Media attention ebbs and flows. Coverage has been high since an Environment Court decision of April 2017 called for a stop to land reform. In 2018, there have been at least 3 separate newspaper editorials calling for an inquiry and a stop to the land

reform policy [24, 25, 29]. On a cold July, in the depths of winter, Greenpeace staged a protest against dairy expansion on Crown land in the Mackenzie [31].

In sum, environmental decisions have many drivers in the Mackenzie. Science, economics, party politics, public pressure, and the law each has a role. But none is as influential as we might expect. One thing seems clear in identifying environmental threats to the Mackenzie: successive government decisions appear to be the greatest threat and the strongest driver of landscape change.

In the words of the old Pogo cartoon: ‘We have met the enemy, and he is us.’

Conclusion and a proposed solution

In October 2017, New Zealand elected a new Labour-Green-NZ First coalition government after 9 years of centre-right coalition governments. With this change, and for the first time since the early 1990s (when pastoral land reforms began), the Minister of Lands and the Minister of Conservation are the same person: the Hon Eugenie Sage, a member of the Green Party, who is taking a keen interest in the Mackenzie Basin [17]. One policy proposal for the Mackenzie is for a ‘drylands park’ of some form [18].

The Mackenzie drylands park idea raises new questions about retiring the land. Parks come in many forms, sizes, and with a multitude of descriptions, whether natural, or semi-natural, entirely modified and shaped by human hands, for recreation, conservation, protection, or a combination of all the above [19]. The US ‘Yellowstone model’ of a National Park is only one model, albeit prominent. Given this diversity, people can therefore interact with parks in many ways [20]. Governments (or states) may acquire, hold, co-govern, and dispose of parklands, designating their uses to the public, or might leave a seemingly untouched piece of nature as a wild place in which management is thought to be invisible. A proposed drylands park for the Mackenzie might exclude pastoral agriculture, or it might not. A Mackenzie park might even celebrate its culture of pastoralism [22].

Conversations, media statements, policy proposals, and reviews from numerous angles are ongoing. Hence, despite a strong ecological and economic case for the immediate review of land use in the Mackenzie, what happens next remains unknown.

The weekly news stories suggest it's now or never for the Mackenzie. A drylands park in some form seems likely, whether or not it includes grazing. If you were Minister of Conservation, what would you do?

CASE STUDY QUESTIONS

- 1) How do the various influences on environmental decisions play out in contested and well-loved landscapes?
- 2) Is the best way to protect a landscape to exclude the human hand of work? What do we mean by protection? By conservation?
- 3) What role should people play in a 21st century park or protected area in places like the Mackenzie?
- 4) Should the envisioned drylands park allow grazing? In what form?
- 5) If we allow grazing, how should we structure the permits? Who should decide who gets a permit, and using what criteria?
- 6) Should the envisioned park allow commercial tourism? In what form? With what types of permits to whom?
- 7) With these permit structures, how do you foresee the relationship between people and park playing out for people? For the land itself?
- 8) Should we protect the working aspects of landscapes in the Mackenzie and beyond?

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Competing Interests

The author has no competing interests to declare. She is a Section Editor at Case Studies in the Environment and she was not involved in the peer-review of the article.

Supporting Information

Slides S1. Mackenzie slide case. Ppt.

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