

Figure 26. View of a bridge crossing Lake Stream, Ashburton Lakes basin, off the upper Rakaia River, c. 1940–60. Photo: J.D. Pascoe, courtesy of the Alexander Turnbull Library, Wellington, New Zealand (reference number 45006 ¼).



rail about the ‘bossy’ Macaulay: ‘At the river, in the river, over the river, through the river, always the river; by day or by night, in summer heat or winter snows, year in and year out, always the river’ (Dick 1964: 52).

Even in the early 1960s, Betty Dick observed that high-country people ‘still must ride into their remote high country stations as their grandparents rode one hundred years ago’, and that:

‘...from the days of the first bullock waggons the roads have varied very little. It is well known that bullocks and horses would avoid soft swampy ground and quicksand patches by instinct—as is still the case with the horses we use in the river today—and the early bullock drivers always headed in long and reasonably straight lines for the mountains, sighting on the high peaks. So naturally with the advent of the traction engine the tracks would be firm and sure going.’

(Dick 1964: 67)

Work on the Main Trunk Railway extension between Parnassus and Picton had ceased during the economic depression under the Coalition Government but recommenced in 1936 under Labour (Sherrard 1966). The railheads stretched north to the Hundalee in 1939 and Oaro in 1943, and south to the Clarence River in October 1942 (Sherrard 1966). The South Island Main Trunk line from Invercargill to Picton was opened at Kaikoura Station in December 1945 (Sherrard 1966).

When the Crown took over Molesworth Station in 1938, G.J. Powell, who began duties as caretaker and overseer of rabbiting for the Department of Agriculture, had to supervise contractors working across hundreds of thousands of acres on horseback (McCaskill 1970). In 1940, the Department of Lands and Survey took over control of rabbits, and in 1942 M.M. (Bill) Chisholm became manager (McCaskill 1970). He placed his rabbiters in strategic positions, and at first serviced them regularly by pack team or horse wagon (McCaskill 1970). The trip to Tarndale and back took 4 days. In 1944, the station was at last motorised. Chisholm obtained a 2.5-ton truck with two-wheel drive (McCaskill 1970). He was now able to take fresh supplies more frequently—once a week—to rabbiters and stock men. The truck broke down periodically and Chisholm learned to fix it. The provision of this truck also made possible the building of the first cattle yards at Tarndale. These were to become the most important centre for cattle operations (McCaskill 1970). Willow posts were cut from the trees at Molesworth and manuka rails were cut and carted from the headwaters of the Avon River (McCaskill 1970).

Realising that his most pressing problem was getting the poison to the rabbits, Chisolm soon began to investigate the possibility of light aircraft. McCaskill described the first aerial drop of poison:

‘On 10 March 1944, in conjunction with the Marlborough Aero Club, he [Chisholm] organised the first aerial supply-drop of four tins of oats to Lake McCrae; this was followed in August by ten tons of carrots to the same area. The doors were taken off the Fox Moth and the oats, in forty pound bags tied loosely, were dropped one at a time from a height of forty feet. They were stacked by a man on the site and later packed to the camp. For the carrots, 200 parachutes ... were each loaded with thirty-five pounds and dropped from 400 feet into an area of about 100 yards across.’ (McCaskill 1970: 159)

Later, swags of stores for the men were also dropped, saving the long haul by packhorse over the Robinson Saddle (McCaskill 1970).

The same year, in October, a Marlborough Aero Club aircraft was first used in connection with the muster of cattle (McCaskill 1970). When it was discovered that more than 400 cattle were missing after the preliminary round up, Chisolm asked for urgent permission to find them by air. The stock were located and swiftly brought in (McCaskill 1970).

The advantages of flight to high-country station workers became increasingly apparent during the Second World War. For example, when the head shepherd at Bluff Station fell ill with pneumonia, his father rode through the night to Kekerengu, from where an urgent plea for assistance was sent to the Royal New Zealand Air Force (RNZAF) station at Woodbourne (Sherrard 1966). A few hours later, an aeroplane landed at the Bluff carrying a doctor who saved the man’s life (Sherrard 1966). Although the war interrupted the supply of phosphate and discouraged farmers from adopting more innovative methods, it encouraged the development of vastly improved aircraft (Brooking et al. 2002). Soil conservator Douglas Campbell worked with the RNZAF to adapt military planes for the role of dropping superphosphate from the air (Brooking et al. 2002).

In 1949, J.A. Chaffey, part-owner of Bluff Station, and L. Roberts, head shepherd, financed Aerial Work (Marlborough) Ltd (Sherrard 1966). A radio telephone was set up to enable Bluff homestead to keep in touch with Kekerengu, Blenheim and Molesworth Station, helping to speed the delivery of mail, freight and passengers (Sherrard 1966). Shearing expenses were reduced when a 600-m² pre-fabricated woolshed was flown in, saving a 9-day droving expedition to Kekerengu (Sherrard 1966). At Queenstown in 1948, F.J. (Popeye) Lucas, Chief Pilot of Southern Scenic Airtrips, carried out experimental sowing of grass seed at Moor Farm in the Clutha Valley, and at New Year in 1949, sowed 5000 acres (2025 ha) of the Winterslow Run at Methven, Canterbury, with 10 pounds per acre of cocksfoot and white clover (McCaskill 1973). His work would prove to be of vital significance to the future of soil conservation (McCaskill 1973). The development of an airstrip at Lilybank Station and the use of small aircraft would eventually enable Betty Dick to triumph over the Macaulay River (Dick 1964).

7.2.8 Effects of the Second World War

During the 1939-45 war, there was little labour available for management of high-country stations. Young, fit, single men who were relied on for mustering were the first to go into the army (McLeod 1980). For example, at Grasmere in Canterbury, David McLeod and his 'first class' musterer, Peter Newton, alone or with one other man mustered blocks that normally required five men (McLeod 1980):

'It took time and much walking and the skilful use of vantage points from which the scattered mobs of sheep could be spotted. Many a long run for the weary dogs was saved by the "Nelson huntaway"—a big rock prised out of a hillside and sent bounding and crashing down to start sheep moving 300 metres below.' (McLeod 1980: 24-25)

Newton remembered his old Mount White deer-shooting mate, Honey Richards, who was:

'...as tough as whipcord, and when it came to carrying skins, he did not know the meaning of the word quit. Eventually, he finished the winter with a bigger total than myself. No man ever had a better mate, and for such work during a hard winter, it would have been hard to find his equal. He was another of my mates to lose his life overseas ... the loss of such as he is in the nature of a calamity to our back country.' (Newton 1953: 137)

McLeod (1980) recalled that the proprietor of the Bealey Hotel, Reg Ferguson, a first class musterer, 'was always ready to leave his often empty bar and come and help us muster or tail lambs or snowrake sheep when winter whitened the Burnt Face and Bealey Spur', and:

'The petrol rationing, which starved the Bealey of its house guests and bar patrons, had its effect on the station also. Three days a week somebody had to go into Cass to collect the mail and bread; 8 kilometres each trip, which used up a good deal of our precious ration. In the trees at the back of the house I found the remains of an old gig, which was still quite sound although it must have lain

there for uncounted years. The wheels were rotten but I still had those which came off the old buckboard which Sealy Rutherford had made to fetch the mail in 1910—which shows what splendid craftsmen those old coach-builders were. I put the two together and made a smart and useful turnout pulled by my old white pony Betsy.’

(McLeod 1980: 33)

When Japan entered the war in 1941, the Government impressed all the trucks that might be of use to the army (Dick 1964). The station’s 2-ton Bedford (purchased in 1939) was requisitioned, and the cart became the station’s chief vehicle (Dick 1964).

Farmers were asked to collect scrap iron for munitions, and Betty Dick of Lilybank Station remembered the time that their waggon, ‘loaded to the hilt with scrap iron’, tipped into the Macaulay River:

‘No melting-down works ever saw that load of scrap iron, collected at great effort and much inconvenience for the country’s war work. But here and there in the old Macaulay evidence of that early morning river crossing can still be seen. For as each flood shifts the shingle it uncovers a little more of some part of an old-time implement or machine, to loom grotesquely against the background of the mountains.’

(Dick 1964: 46)

McLeod shared with his neighbour Jim Milliken an old stationary baler driven by a tractor with a long belt that needed several men to work it. Seven men could produce about 500 bales of hay if they worked until nightfall (McLeod 1980). At Christmas 1941, Alwyn Warren, Dean of Christchurch Cathedral, volunteered to help with haymaking (McLeod 1980).

During the war, there were still wild cattle to be dealt with at Mount White Station (McLeod 1980). They had learnt to hide in the bushy gullies across the river at Lochinvar and had grown old and cunning in the art of dodging musterers. Although labour was in short supply, Jock McArthur accepted a contract to get the cattle out (McLeod 1980). Eventually, after much difficulty, he arrived at Mount White with about 70 head of good cattle (McLeod 1980). He had driven them all the way down the narrow 20-km track from ‘Nigger Hill’, and there was another 30-km drive from the sheep station to Cass to put them on the railway trucks to Addington sale yards (McLeod 1980).

A branch of the Home Guard called the ‘Guide Platoons’ was formed among the high-country men of both islands (McLeod 1980). The Platoons’ role in the event of a Japanese landing was to work from bases in the rugged mountains, guiding defending troops by known tracks, and serving as spies and saboteurs. There were 16 or 17 Platoons in the South Island, strategically placed in remote areas (McLeod 1980). Early in the war, high-country runholders were asked by the Government to bring in extra stores, at their own cost, so that in the event of a surprise attack on the coastline, the stations would be able to accommodate plenty of people from the cities (McLeod 1980). Needless to say, the runholders were sceptical as to how these people would get to their remote stations (McLeod 1980).

7.2.9 Soldier settlement

Fewer returned soldiers were placed on farms after the Second World War than after the First World War. At that earlier time, 373 were settled in Canterbury; by 1950, there were 231 on 157 030 acres (c.63 597 ha) (Scotter 1965). However, much more money was spent on establishing the men after the Second World War, and there were no failures (Scotter 1965). From 1945, land was still being purchased, usually in the same small areas that had caused problems in the 1920s, but it was bought at the controlled sales price and the returned soldiers were placed on farms as managers or labourers (Scotter 1965). Buildings were constructed, stock bought, improvements made and everything was in running order before the farms were handed over, usually to the manager, who had been given the promise of a lease (Scotter 1965). The successes of the Second World War soldier settlers were helped by a long period of rising prices (Scotter 1965).

Generally, however, there had been too much subdivision in the Canterbury high country, and some runs were amalgamated: Black Forest with Haldon; Jollie with Braemar; and Balmoral with Mount Cook in the Mackenzie Country (Scotter 1965). Tekapo, Rhoboro and McKenzie Peaks were divided among neighbouring stations (Scotter 1965). The twelve soldier settlement runs that had been made from the two original runs of the Lees Valley after the First World War were taken over by the Lands Department in the 1940s and amalgamated into seven runs (Scotter 1965).

7.2.10 Electricity

When Mona Anderson arrived at Mount Algidus Station shortly before the war, there was no electricity. She wrote that:

‘My first wash-day nearly killed me. I had been used to a washing machine and it took me all morning to get the copper boiling. By the time I had finished rubbing the clothes on a wash-board my fingers were skinned and blistered.’ (Anderson 1963: 29)

After the war, trucks took the place of horses and drays, a tractor was purchased, and lamps and candles gave way to electric light. ‘There was even a gadget on which you just turned a knob to talk to the people of the gorge’ (Anderson 1963: 97). Until 1947, at Grasmere Station oil lamps, candles and a primitive, highly dangerous petrol light had been used (McLeod 1980). That winter, as profits from sheep farming rose, the McLeods investigated possibilities of installing a hydroelectric power plant (McLeod 1980). Three possible sites were: the old water race that came out of Cass Creek and drove a water wheel for crutching at the woolshed; a steep and rocky little stream that came out of the gulch dividing Mount Misery from Mount Horrible; and the outlet from Lake Grasmere. The latter seemed likely to be the most stable and reliable (McLeod 1980). They decided that it was possible to divert the

Grasmere Stream across a piece of ground and that the fall into Sarah Stream would be about 3 m. A turbine that could work with 20–30 cusecs of water at such a low fall was required. Most private power schemes in the South Island used a Pelton Wheel (a high-speed machine using a small amount of water at very high pressure directed through a variable nozzle into little buckets) (McLeod 1980). This needs a small flow of water but a fall of more than 100 m. The Sarah Stream site required a low-pressure turbine. Two were found at Brookside on the Selwyn River/Waikirikiriri. The McLeods kept the smaller one and the larger of the two went to provide power for the Ensors at Double Hill in the Rakaia Gorge, where there was a bigger flow of water (McLeod 1980).

With the war recently over, materials were difficult to obtain (McLeod 1980). Ted Salvesen of Wooff and Salvesen, electrical engineers, built a 10 kW generator for Grasmere Station (McLeod 1980). The powerhouse, water race, concrete penstock and power line were constructed using a great deal of do-it-yourself ingenuity, and the system proved durable, lasting for nearly 30 years (McLeod 1980).

7.2.11 Manufacturing

C.W.F. (Bill) Hamilton, who bought Irishman Creek Station in the Mackenzie Country in 1921 (Whelan 1988), built a unique new workshop there in 1938, which was powered by a private hydroelectric plant (Whelan 1988). The workshop was used to manufacture bulldozers and other heavy machinery until the Second World War, when it was converted to making munitions (Whelan 1988). Parts for Bren Gun Carriers, rifles and machine guns were made as well as trench mortars. Seventeen staff were employed, and a small night shift worked during the busiest time (Whelan 1988).

7.2.12 Tourism

Although Hamilton Engineering Works was moved to Christchurch in 1945, the workshop eventually became a Mackenzie Country tourist attraction, with displays of photographs and some of Hamilton's inventions, such as the first jetboat and a model of an earth scoop (Whelan 1988).

From the 1920s, the Mackenzie Country and other high-country districts expanded their range of activities beyond sheep farming (Whelan 1990). The motorcar opened up previously inaccessible areas to visitors, and new technology meant that more New Zealanders had more leisure time. Rivers and lakes were used for fishing, boating and picnicking. Recreational shooting became increasingly popular in the mountains (Whelan 1990).

In the late 1930s, a series of huts made of local adzed timber were constructed on a track across the Southern Alps near Arthur's Pass—possibly the last in New Zealand to be built in this fashion (Historic Resources Directorate 1997).

7.2.13 Mining and quarrying

Mining and quarrying continued on some high-country stations. For example, coal had been discovered on the Mount Somers Run, Canterbury, in 1856; at first, this was used for fuel (Whelan 1990). Later, 'Tripps' mine became a commercial operation, supplying the Buxton Lime Kilns and towns such as Ashburton (Whelan 1990) (Fig. 27). It is the third-oldest and longest continuously worked mine in New Zealand (Whelan 1990).

Coal mining and lime quarrying brought the rail head to Mount Somers township on the upper Ashburton River in 1886 (Whelan 1990). Subsequently, tramways were constructed from the rail heads to the mines and quarries (Whelan 1990). The Mount Somers' runholder of the time, A.E. Peache, built the first part of the existing lime kilns in 1888 using Oamaru Stone (Whelan 1990). The lime was used to supply the Canterbury building trade and also for fertiliser (Whelan 1990). These Buxton lime kilns were closed in 1925, and in 1928 A.E. Vincent bought the lime works and quarry from the Peache Estate (Whelan 1990). Vincent invented a new method of processing lime by dehydrating it and built a concrete hopper in front of the old kilns (Whelan 1990). Between 1928 and 1963, around 18 people worked at the plant, which was then removed to Oamaru (Whelan 1990). In 1942, the Victory Lime Company began quarrying at the Caves on Mount Somers Station (Whelan 1990). There, open-cast quarrying removed the natural limestone caves that had given the area its name.

Since 1861, mining in Otago has left distinctive physical remains on the landscape, such as shafts, water races, reservoirs, sluice faces and tailings. Quartz mining for gold began at Bendigo Station, Central Otago, in 1869 and continued through to 1937 (DOC 1997). Shafts were driven into the hillsides. Further down the Clutha River, at Bannockburn, collapsed coal-mining shafts pock the landscape (DOC 1997).

Figure 27. Lime kilns at Mount Somers, 1909. The tops of the bottle kilns are in the foreground. Lime was spread on fields to improve pasture quality. *Photo courtesy of Canterbury Museum (Bishop Collection; reference number CMNZ 12795).*



The findings of Rivers Commissions and Inquiries into pastoral and hill lands, forests and seas fisheries from 1900 revealed the first signs of a shift in attitudes and values towards the mining and quarrying industries (Hearn 2002). Rising concern about the damage inflicted on the environment by these industries appears to be inversely proportional to their declining monetary value (Hearn 2002). Geographer Terry Hearn wrote that:

‘Controls were only gradually introduced after the costs of unrestrained mining and dumping for water quality and flood control, and the extent of damage to infrastructure and wildlife habitats, became apparent, and only after the community began to realise that it would have to pay for the damage inflicted by companies concerned solely with their own profits. Even then, government attempts at control were intended to resolve conflicts among competing interests rather than to ensure wise resource use.’ (Hearn 2002: 98)

7.3 LAND TENURE

The Crown took over the Molesworth Station leases on 28 February 1938 when rabbits were yet again in crisis numbers and high-country farming, after 80 years of extensive grazing, promised to become uneconomic (McLeod 1980). David McLeod reflected that:

‘In that cataclysmic failure many of us saw the doom of other isolated runs. Where would musterers come from if these rugged training grounds were abandoned? We all had men who had cut their teeth and wrecked their boots on Molesworth’s broken shingle.’

(McLeod 1980: 19)

Strychnine had taken the place of guns, dogs and traplines for destroying rabbits, but some people believed that different methods and a more powerful policy, which did not rely on a high price for skins, was needed (McLeod 1980). Sheep prices were falling and numbers were down (McLeod 1980). Initial soil fertility had been exhausted and palatable species of grass had been replaced by those that were more tolerant of fire and grazing. Many farmers thought that wool production per head was lower as well, but this was difficult to prove (McLeod 1980).

7.3.1 The High Country Committee

The two key events of the 1940s were the formation of the High Country Committee and the emergence of the soil conservation movement as a force (Broad 1994). McLeod (1980: 20) wrote that ‘Only a real high country man could understand the peculiar problems of our country and there were none on any of the [land] boards’. He and other members of the Runholders’ Committee in 1940 met with Frank Langstone, Minister of Lands. Charlie Parker of Holbrook Station, near Tekapo, and also manager

of Rollesby, prepared a comparison of the rents and carrying capacities of the Mackenzie Country stations in 1896 and 1936:

‘It was a difficult calculation because subdivision had occurred, boundaries had changed and rabbits had spread, but the burden of his song was that rents varied from 7d per sheep to four shillings—in the case of Rollesby—and that the Lands Department had no touchstone by which it judged productivity, but demanded as much as it could get and made no allowances for snow or local conditions.’

(McLeod 1980:21-22)

After much discussion, Langstone agreed that he would accept the establishment of an advisory board consisting of high-country runholders with whom he and his department could discuss the problems of the area and the administration of the Lands Department (McLeod 1980). Thus, on 19 April 1940, the High Country Committee came into being, comprising representatives from each of the provincial land districts.

Membership of the first High Country Committee was as follows (McLeod 1980):

Southland: W.J.A. MacGregor, Mount Linton
Otago: John Mackenzie, Walter Peak, Queenstown
Willis Scaife, Glendhu, Wanaka
Arthur Munro, Omarama
Canterbury: C.A. Parker, Rollesby, Mackenzie
R.C. Todhunter, Blackford, Rakaia
D. McLeod, Grasmere, Waimakariri
Marlborough: A.J. Murray, Wharenui, Clarence

The Minister agreed to appoint one high-country man from names submitted by the High Country Committee to each Land Board as seats became vacant (Dominy 2001). Also in 1940, good husbandry clauses were introduced into the conditions of the leases, which limited the number of stock to be wintered on each run (Scotter 1965).

7.3.2 Kai Tahu

The Ngai Tahu Claim Settlement Act 1944 authorised a payment to Kai Tahu of £10,000 a year for 30 years in ‘final settlement’ of their claims concerning Kemp’s Purchase. The amount was based on the £354,000 recommended by the 1921 Royal Commission (Evison 1993). Under a further Act in 1946, the Ngai Tahu Maori Trust Board was authorised to administer the funds provided under the 1944 Act to improve Kai Tahu welfare, mainly through educational benefits (Evison 1993).

Meanwhile, the fragile mahika kai remnants continued to be vulnerable to high-country industry. Natural vegetation that had once soaked up rainwater in the high country of the Southern Alps had been cleared away by runholders, accelerating flooding and erosion, and damaging the natural habitats of birds and fish (Evison 1993). This factor, together with the introduction of predators, caused the decline of native birds, including the weka, in eastern districts (Evison 1993).

7.3.3 The soil conservation movement

The soil conservation movement originated in the United States, where dustbowls created through unsustainable use of the land generated public support for the idea of soil conservation in the 1930s (McCaskill 1973). In New Zealand, the findings of Vladimir Zotov of the Botany Division of the DSIR revealed that burning off, heavy grazing and rabbit infestation had caused serious soil erosion and aggradation of rivers in the South Island high country (Zotov 1938). L.W. McCaskill, a lecturer in agriculture at Christchurch Teachers' College, who had developed an interest in soil erosion and travelled to the United States to study conservation methods, strengthened the interest of the Canterbury Progress League in a vigorous legislative and practical programme of soil conservation (McCaskill 1973). The Progress League began to campaign energetically to educate the public and local bodies, and to put intense pressure on Bob Semple, Minister of Public Works, to take legislative action (McCaskill 1973). This was possibly the first time that people other than runholders and Government demanded a say in the way high-country lands were to be managed (Broad 1994). Although they met strong resistance from runholders, the campaigners won. In 1941, the Soil Conservation and Rivers Control Act was passed (Broad 1994).

A central Soil Conservation and Rivers Control Council was established and catchment districts, each under a Catchment Board, were to be constituted. The boards were to have the power to prohibit the lighting of fires, the destruction of vegetation or any change in the use of land, and to restrict the use of land for agricultural or pastoral purposes (McCaskill 1973). Runholders became concerned that members of catchment boards, who would be elected by city communities, would have extensive powers to govern their lands and lives. They worried that board members might not understand the 'harsh realities' of sheep farming in the high country (McLeod 1980). Meanwhile, according to McLeod, the authorities directed a campaign of propaganda at the 'unwise practices which they said had caused the dangerous state of depletion of our hill and mountain lands' (McLeod 1980: 40). He recalled that the New Zealand sheep farmer was depicted as 'an evil man, a deliberate despoiler of the land, and every slip and shingle slide and rocky outcrop was evidence of the havoc he had wrought' (McLeod 1980: 40). This led to 'a vociferous hostility towards the runholders and demands from the more outspoken critics for the complete closure of all mountain lands' (McLeod 1980: 40). Runholders were again reviled publicly, just as they had been during the Liberal era; although the reasons were different, this attack was similarly launched by urban dwellers.

Afforestation was suggested, in the Waimakariri Basin in particular because of the threat of flood waters from the river to Christchurch (McLeod 1980). The campaign provoked a backlash from the farmers (McLeod 1980). McLeod contended that:

'The Act was heavily weighted in favour of flood control, and its administration through the Ministry of Works resulted in an engineering approach to the problems, but the powers it contained and delegated

to catchments boards were alarming to those who owned or leased land in the river catchments, and the threat to the high-country runholders was very real.' (McLeod 1980: 40)

He also considered that one of the main causes of anxiety was that the Act did not provide compensation to a landholder when an order of the board compelled him to change his land use, for instance by forcing him to change his breed of sheep (McLeod 1980). Fortunately for the runholders, the war delayed the formation of any catchment boards until 1944 (McLeod 1980). Nelson, North Canterbury and South Canterbury were established that year, followed by Southland in 1945, Otago in 1948 and Marlborough in 1956 (McCaskill 1973).

David McLeod replaced R.C. Todhunter as Chair of the High Country Committee in June 1944 (McLeod 1980). Later the same year, the upper Waimakariri Basin was inspected by the new North Canterbury Catchment Board. The occupiers of the six runs with homesteads behind Porters Pass met with the members to 'try to justify their stewardship of this vital river catchment' (McLeod 1980: 43). The low-lying city of Christchurch with its huge property value was threatened by any outbreak of the river from its existing course. The Catchment Board was concerned about the practices of burning and grazing. McLeod recalled:

'On the face of it the record was not good. Forested slopes on the Craigieburn Range, in the Esk Valley, and at Cora Lynn, had been fired to produce extra grazing, as a host of blackened stumps bore witness. Dense patches of snow grass had been burnt in high summer by some exasperated musterer after vainly trying to find sheep amongst it—like my own man Arthur Booth the first season I was at Grasmere. Regular burning to get a "green bite" had bared the sunny faces until the creeping shingle pushed down by the elements and the persistent feet of sheep began to obliterate the tussock, which alone could hold the soil in position. In addition to these ill treatments the virgin fertility of the land had led the early runholders to graze the maximum number of sheep which their country could support and, in order to do so they hunted as many as possible of their active merinos out on to the high and sparsely vegetated tops during the hot dry summer period in order to save their winter grazing. In this they were not much more guilty than their overlords of the Lands and Survey Department who placed no restriction on the number of sheep which could be grazed and made no attempt to prevent a runholder who wished to sell from crowding a ridiculous number of sheep on his lease in order to get the best price for the property.' (McLeod 1980: 43-44)

In the event, the runholders were relieved to find little hostility among board members, who included George Jobberns, Chairman of the Soil Conservation Committee; Lance McCaskill, a knowledgeable alpine botanist; R.M.D. (Peter) Johnson, a runholder who controlled a huge section of the Torlesse Range; and Tom Preston, Commissioner of Crown Lands (McLeod 1980).

The High Country Committee had several meetings with the combined North and South Canterbury boards, and gradually a mutually satisfactory

policy evolved. The boards decided on a policy of issuing permits to burn where it could be shown to be necessary, and resolved to set up a series of trials in different areas in an attempt to establish the facts about the vegetation before pursuing any particular policy (McLeod 1980). The trials consisted of fenced plots and line transects from which regular readings were taken to indicate whether the vegetation was increasing or decreasing (McLeod 1980).

The runholders still felt in need of some protection, however—the authority of the boards was enormous—and after a struggle, a concession was made (McLeod 1980). The principle of grants and subsidies to compensate for the loss of grazing on eroded lands was accepted.

Another pressing problem was how to make ends meet with the very low wool prices fixed by the ‘commandeer’ (McLeod 1980). The top price received for Grasmere wool during the first 3 years of the war was only 15 pence a pound, and the average price 11 pence (McLeod 1980). With the assistance of the Canterbury Sheepowners’ Union, a deal was reached in secret to have a larger share of the total funds allocated to the high-country runholders (McLeod 1980). At Grasmere, the change resulted in a rise of about twopence a pound, adding £500 or £600 to the station’s income (McLeod 1980).

After the war, the High Country Committee approached the Government because its members believed that the price of fine wools was still at an uneconomic level (McLeod 1980). The Wool Board had recently been formed (McLeod 1980). A meeting was held in August 1945 with the North and South Canterbury Catchment Boards ‘at which they agreed that pastoral occupation of the high country was still desirable and that it was in the interests of soil conservation that it should be profitable’ (McLeod 1980: 104). The committee obtained an interview in Wellington with C.F. (Jerry) Skinner, Minister of Lands, and Ben Roberts, Minister of Agriculture (McLeod 1980). The deputation consisted of Bill Machin, representing the catchment boards, Noel Jamieson, Chairman of the Wool Board, Harry Wardell, a high-country runholder and member of the Wool Board, and David McLeod. Before they could get an answer from their submissions, the British Government called a conference in London to discuss the disposal of a great stockpile of wool that had accumulated under the wartime commandeering and subsequent marketing systems (McLeod 1980). McLeod wrote:

‘Australia, New Zealand and South Africa had sent delegations—ours led by Walter Nash—and until this issue was resolved it was obvious that we could not hope for any adjustment to the price of our fine wools, and that all our energies must be directed towards improving the administration of our lands and making satisfactory arrangements with the all-powerful catchment boards.’ (McLeod 1980: 105)

At the same time, a move developed to amalgamate the farmers’ organisations throughout the country (McLeod 1980). The main organisations were the Sheepowners’ Federation (the ‘squatters’), to which the majority of the South Island high-country landholders belonged, and the Farmers’ Union (the ‘cockies’); there was mutual antipathy between these. Because a

united farming front was urgently needed, leaders from both organisations sank their differences to form the Federated Farmers of New Zealand in 1946 (McLeod 1980). Its formation gave the High Country Advisory Committee the opportunity to put itself on a sound basis (McLeod 1980). The South Island High Country Committee of Federated Farmers was established as the advisory body to the Minister of Lands, with elected officials from each high-country region sitting on the High Country Committee (Dominy 2001). The committee still retains its original right and purpose, which is to act as an advisory body to the Minister of Lands on matters concerning the South Island high country (McLeod 1980).

7.3.4 The Royal Commission on sheep farming

The Federation accepted responsibility for the ‘reasonable’ expenses of the South Island High Country Committee and the North Island hill-country farmers formed a similar organisation (McLeod 1980). Those in the north who, like the high-country farmers, farmed less productive country, had also suffered from the fixed prices for meat and wool during the war and as a consequence of the Government’s stabilisation policy (McLeod 1980). A demand arose for the appointment of a Royal Commission to examine the condition of farming throughout both islands, with special attention to the poorer hill country (McLeod 1980). A commission had already been proposed in 1939 but the idea was abandoned when war broke out (McLeod 1980).

The Royal Commission on the Sheep Farming Industry was appointed in August 1947 and included Willis Scaife, sheep farmer of Wanaka, who was a member of the original South Island High Country Committee (McLeod 1980). Others were R.H. White, sheepfarmer of Otane; Richard Eddy, MLC; L.C. Gardiner, sheepfarmer of Waiiau; W.F. Metcalfe, sheep farmer of Te Araroa; and H.W. Youren, sheep farmer of Napier (White et al. 1948). McLeod, Harry Wardell, Arthur Munro, Charlie Parker and others had many meetings and long hours of work preparing the high-country case (McLeod 1980).

The introduction of the Rabbit Nuisance Amendment Act 1947 finally led to the loss of any commercial incentive to destroy rabbits or to let them breed for skins or meat (Grey 1994). Long rabbit fences, such as that from Tasman Glacier to Hakataramea, had not worked; ferrets killed birds and ate eggs in preference to rabbits; and strychnine and carrots were effective only for a while (Scotter 1965). Rabbiting had become a business—in 1948, skins were valued at £10 per hundred. The new act set up a Rabbit Destruction Council as well as Rabbit Boards with rating powers. Rabbit skins were progressively devalued by instituting a levy of 10% (this gradually increased, until by 1956 the sale and export of skins and carcasses was prohibited) (Scotter 1965; McCaskill 1973). It was hoped that new poisons, soon to be spread by aeroplane, would make the ‘killer’ policy effective (McCaskill 1973).

7.3.5 The Land Act 1948

McLeod was absorbed in the preparation of the high-country farmers' case to be presented to the Royal Commission on the Sheep Farming Industry (McLeod 1980). He and others in the lobby group were determined to indict the administration of the Lands Department and to make their evidence as powerful and as well documented as possible (McLeod 1980). McLeod presented the local case to the Royal Commission on Sheep Farming at Christchurch and the submissions were well received on several points. McLeod and Wardell presented Canterbury's case in Wellington, and afterwards the Commission left on its tour of the North Island. During this tour, Jerry Skinner, Minister of Lands, made the shock announcement that a new Land Act was to supersede the Land Act 1924 (McLeod 1980).

The Royal Commission published interim reports in April and June 1948. Dominated by sheep farmers, its advice was firmly practical and designed to give immediate support to the industry (White et al. 1948). Because sheep farms were situated in the high country, on land of low natural fertility, the commissioners wanted cheap lime and fertiliser to be readily available, and warned that post-war increases in prices had 'resulted in the diminished manuring of marginal country, which can only lead to a rapid pasture deterioration. Such deterioration should be viewed as a national disaster to-day' (White et al. 1948: 9). They recommended the reintroduction of a subsidy for superphosphate, the reduction of the high cost of transporting fertiliser to backcountry farmers on marginal land, and the establishment of a special Snow Losses Reserve Account for high-country farmers prone to insecurity and losses arising from snow risks (White et al. 1948).

A reserve account for snow losses was set up, and the South Island High Country Committee chalked this up as a victory (McLeod 1980). The law, passed as part of a finance bill, provided that a farmer in country liable to severe snowstorms might put into a Snow Loss Reserve such part of his income as he thought fit and draw it out to supplement his income after a loss (McLeod 1980).

The Director-General of Lands, David Greig, had been alarmed by the high-country runholders' strong criticism of his department, and McLeod considered that the Land Act 1948, for which Greig must have been largely responsible, 'was a wise and far-reaching piece of legislation designed to make fundamental changes in the whole approach to pastoral land administration, and to take into consideration the emergence of soil conservation as a factor in the Lands Department responsibility' (McLeod 1980: 129). The health of tussock grasslands was at a low point, and public concern for soil conservation shaped the Crown's reluctance to allow for the permanent alienation of the high country; even fertile lowlands were threatened by high-country erosion (Dominy 2001: 237).

The Land Act 1948 did not allow for the freeholding of high-country land. Instead, it provided the security of tenure necessary to encourage improvement with perpetually renewable 33-year leases. High rents and insecurity of tenure had been encouraging overstocking (Scotter 1965). The rights of the Crown were protected and the Lands Department was able to make changes that benefited the entire area (Scotter 1965).

Journalist Harry Broad wrote that 'By 1948, concerns about soil erosion were so strong that it was felt the high country was too fragile, and was a special case requiring government to retain ownership of the land' (Broad 1994: 65), and that 'growing concerns over the state of the land led to the deal in the 1948 Land Act, whereby in return for accepting the need for soil conservation, runholders were given perpetual tenure' (Broad 1994: 44). The act was complemented by a raft of new management practices, and the high country was to enjoy 40 years of relative prosperity (Broad 1994).

The 1948 Land Act replaced pastoral licences with leases that gave:

- Perpetual right of renewal for terms of 33 years (although rent could be reviewed every 11 years)
- Exclusive occupation and quiet enjoyment of leases, with lessees having the right to control access under trespass law
- Exclusive rights of pasturage over the land within the lease area, with a stock limitation applying
- Ownership of structural and development improvements, including buildings, fences and pasture improvements, such as fertility, vegetation, and pasture quality and quantity (with lessees free to sell this interest subject to the approval of the Commissioner of Crown Lands)
- A fixed basis for rental, rental being fixed by statute to a percentage of the value of land exclusive of improvements, and therefore not being a market rental

Lessees had no right to the soil or to use the land for any purpose other than for grazing, and were obliged to ensure that the land was free from wild animals, to keep waterways free from weeds and to clear the land of all noxious weeds.

The Crown had rights to ownership of the land exclusive of improvements and the rights to control land uses (Anon. 1959). Examples of land uses include:

- Changes to stock limitation
- Burning of tussock, scrub, fern or grass
- Cultivation, cropping and grassing
- The clearing of bush or scrub
- Afforestation
- Non-farming commercial activities, including recreation and tourism

The Land Act 1948 repealed 78 other acts or parts of acts. Its aim was to give the Crown lessee maximum rights, working on the principle that a secure tenure is the basis of farming progress (McLintock 1966). The Land

Settlement Board was reconstituted and private farmer members added. It became the chief executive arm of the Department of Lands and Survey with power to delegate to departmental officers and to Land Settlement Committees in each of the 12 land districts (McLintock 1966). High-country runholders were the only permanent leaseholders who were not given the right to freehold. The 33-year renewable lease was established as the standard tenure for Crown leases (McLintock 1966). Farm land was to be disposed of by ballot at fixed values under three options: renewable lease, deferred payments or cash (McLintock 1966).

A special branch of the Lands Department was created, with a Chief Pastoral Lands Officer and provision for four district Pastoral Lands Officers who had access through their chief to the Lands Settlement Board in Wellington. This system of administration was headed by an ex-high-country manager, Ted Relph, 'whose dedication and determination made him a powerful advocate on our behalf' (McLeod 1980: 130). However, 'The system was rather less popular with the Commissioners of Crown Lands, who had previously had sole authority in their districts, because they now had in their offices men who were directly responsible to someone else, and ultimately to a higher body' (McLeod 1980: 130). Relph set rents as low as possible to encourage runholders to adhere to stock limitations for the purpose of soil conservation (McLeod 1980).

Although the Land Act 1948 did not give the right of freehold to South Island high-country lessees, it still gave them a secure tenure. Since the South Island high country encompassed most of the eastern watershed of the South Island and much of that land was prone to erosion, the Government decided that it was in the national interest to keep control over the use made of it (McLeod 1980). Rents on pastoral land were based on stock carrying capacities and a clause in each lease limited the number of stock allowed to be carried. As leases expired under former Land Acts, they were to be renewed under the Land Act 1948 (McLeod 1980). Figure 28 shows the South Island Crown pastoral leases that were still extant in 2002.

The final report of the Sheep Industry Commission, published in July 1949, reinforced the views and interest of runholders. The commissioners did not regard erosion as a matter of national consequence to the sheep industry, nor did they see any justification for the scaremongering that had roused public opinion (McCaskill 1973: 226). They contended that if their recommendations were followed, erosion would not accelerate throughout New Zealand (McCaskill 1973: 226). They attacked the Soil Council vociferously and recommended that Catchment Boards be abolished (McCaskill 1973).

In subsequent years, the South Island High Country Committee operated with a heightened sense of urgency because the emergence of an urban-based economic elite and the movement of the agricultural sector to the periphery diminished both the influence and prosperity of runholders (Dominy 2001). Conservation, environmental and recreational interest groups such as acclimatisation societies, the Royal Forest and Bird Protection Society (1984), and Federated Mountain Clubs (1983)

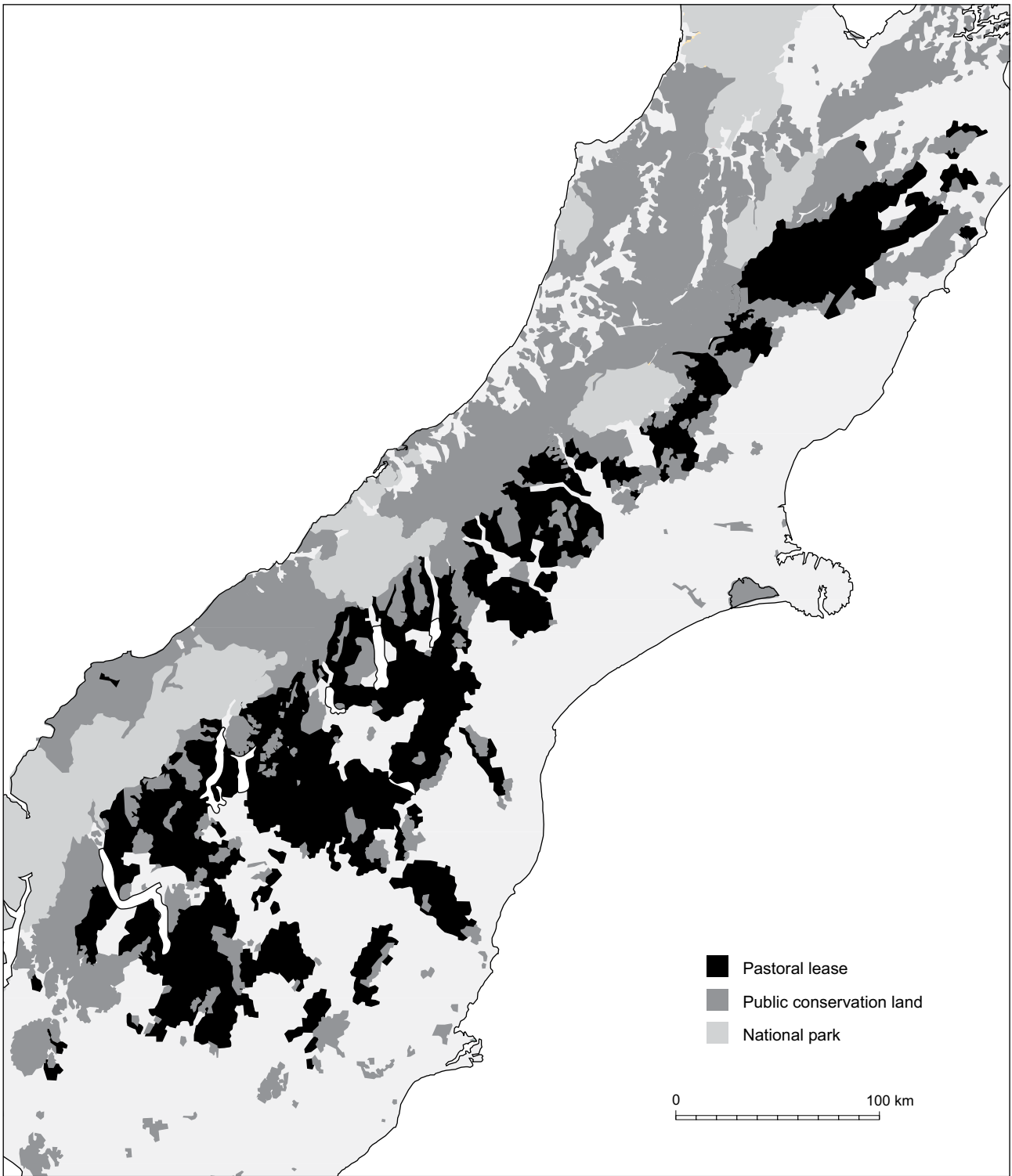


Figure 28. Map of South Island pastoral lease areas c. 2002, based on a Land Information New Zealand map.

actively asserted their interest in public mountain lands (Dominy 2001). Globally, with mountain ecology and sustainable development under scrutiny, tensions between cultural-heritage conservation and natural-area management dominated struggles over high-country protected lands (Dominy 2001).

Broad (1994) stated that the amendment to the Treaty of Waitangi Act in 1985 allowing Maori to lodge claims back to 1840, and their subsequent largely successful claims restored Kai Tahu as major players in the high country. He argued that the emergence of new stakeholders with a different vision for the land, and the re-emergence of Maori as a force shattered the comfortable complacency of the previous administration system. Increasingly, the cultural supremacy of pastoralism is being challenged not only by these new stakeholders, but also by change from within the runholders' ranks, from those who wish to explore alternatives to finewool farming (Broad 1994).

7.4 SUMMARY

7.4.1 General historical features

- Extensive areas of depleted and eroded high country resulted from decades of burning off, overstocking, grazing and depredation by rabbits
- The spread of introduced weeds continued unabated
- Noxious animals infested the high country and denuded the land: wild cattle, deer, pigs, goats and Canadian geese
- Wilding trees intruded into the landscape
- Sheep numbers declined
- Rabbit skins were marketed domestically and overseas
- Parts of some high-country stations were regrassed
- The Crown resumed control of Molesworth, Tarndale, Dillon and St Helens Runs because they had become ecologically and economically disastrous
- The Crown took remedial action to exterminate rabbits and other pests, and to control burning off, stocking and grazing on these stations
- The stations taken back by the Crown were restocked with cattle
- The High Country Committee was formed in 1940
- The soil conservation movement became a force in the 1940s and the Soil Conservation and Rivers Control Act 1941 was passed
- There was a shortage of manpower during the Second World War
- 'Killer' rabbit boards were established
- High-country stations were increasingly mechanised, e.g. motor lorries began to replace packhorses
- The rural population declined partly because of increased mechanisation

- The number of merino sheep declined in the high country, while that of Romney sheep rose throughout New Zealand
- The price of wool was controlled during the Second World War
- Heavy machinery and wartime armaments were manufactured at Irishman Creek Station in the Mackenzie Country
- Guide Platoons were formed in the high country as part of the Home Guard during the war
- The Ngai Tahu Claim Settlement Act 1944 authorised payment to Kai Tahu as compensation for Kemp's Purchase
- Catchment boards were established in 1944 to control flooding
- The price of wool escalated in the post-war period
- A period of prosperity ensued for the high country
- There was much post-war construction of station buildings, fences and hydroelectric plants
- Soldier settlements were established
- Mustering continued along traditional routes
- Light aircraft began to be used for dropping rabbit poison, to assist with mustering and for emergencies
- A radio telephone network began to emerge
- Other formerly subdivided runs that had proved to be uneconomic were amalgamated
- Coal mining, gold mining and lime quarrying continued on some stations
- Transport became increasingly streamlined: roads, railways and air services expanded, new bridges were built, and more private motorcars and other motorised vehicles appeared on the road
- An increasing number of tourists visited the high country
- The Royal Commission on the Sheep Farming Industry was appointed in 1947 and provided interim reports in 1948
- The Rabbit Destruction Amendment Act 1947 was passed
- The Land Act 1948 was passed giving security of tenure to runholders, taking into consideration soil conservation as a factor, and introducing new land management practices

7.4.2 Key physical resources

- Depleted and eroded high-country land
- Exotic weeds
- Noxious animals
- Wilding trees
- Experimental plots for testing grass seed and the effects of burning
- Regrassed high-country areas
- Native grasses, which reappeared after the rehabilitation of some high-country stations
- Rabbit-pelt presses
- Cattle yards and fences
- Mustering routes: tracks and huts
- Cattle- and sheep-droving tracks
- Stationary hay balers
- Heavy machinery and armaments manufacturing site at Irishman Creek Station
- Drays and other horse-drawn vehicles reconstructed for use during the Second World War
- Tracks and huts used during the Second World War by the Guide Platoons
- Motorcars and lorries, jeeps, limespreaders, and light aircraft
- Post-war station buildings and fences
- Hydroelectric plants: powerhouses, water races, penstocks and power lines
- Coal mines, lime works and quarries: concrete hoppers, mine shafts, water races, reservoirs, sluice faces, tailings and tramways
- Tourist huts, hotels, tracks and boats
- Flood control systems
- Forests planted to prevent soil erosion

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9. References

- Acland, L.G.D. 1975: The early Canterbury runs. Whitcoulls Publishers, Christchurch.
- Andersen, J.C. 1916: Jubilee history of South Canterbury. Whitcombe & Tombs, Auckland.
- Anderson, A. 1985: When all the moa-ovens grew cold. Nine centuries of changing fortune for the southern Maori. Otago Heritage Books, Dunedin.
- Anderson, A. 1993: Ellison, Thomas Rangiwahia 1866-1868?-1904. Pp. 131-132 in Orange, C. (Ed.): Dictionary of New Zealand biography, Vol. 2. Bridget Williams Books, Wellington.
- Anderson, A. 2002: A fragile plenty: pre-European Maori and the New Zealand environment. Pp. 19-34 in Pawson, E.; Brooking, T. (Eds): Environmental histories of New Zealand. Oxford University Press, Melbourne.
- Anderson, A.; Ritchie, N. 1981: Excavations at the Dart Bridge site, upper Wakatipu region: a preliminary report. *New Zealand Archaeological Association Newsletter* 24: 6-9.
- Anderson, A.; Ritchie, N. 1986: Pavements, pounamu and ti: the Dart Bridge site in western Otago, New Zealand. *New Zealand Journal of Archaeology* 8: 115-141.
- Anderson, M. 1963: A river rules my life. A.H. & A.W. Reed, Wellington.
- Anon. 1959: Land Act 1948. Pp. 5-156 in: Reprint of the statutes of New Zealand. 1908-1957. Vol. 7. Government Printer, Wellington.
- Atkinson, J.D. 1976: DSIR's first fifty years. Department of Scientific and Industrial Research, Wellington.
- Barker, Lady 1956: Station life in New Zealand. Whitcombe and Tombs Ltd, Christchurch.
- Beaglehole, J.C. 1967: The journals of Captain Cook. Part 1. Cambridge University Press, Cambridge.

- Beattie, H. 1947: Early runholding in Otago. Otago Daily Times & Witness Newspapers, Dunedin.
- Brailsford, B. 1984: Greenstone trails. The Maori search for pounamu. Reed, Wellington.
- Bristow, P. 1998: A brief history of gold dredging at the Earncleugh Tailings Historic Reserve. Department of Conservation (unpublished report).
- Broad, H. 1994: The changing role of government in the management of its high country lands. Unpublished research paper (Public Policy 501). Victoria University of Wellington, Wellington.
- Brooking, T. 1996: Lands for the people? The Highland clearances and the colonisation of New Zealand. A biography of John McKenzie. University of Otago Press, Dunedin.
- Brooking, T.; Hodge, R.; Wood, V. 2002: The grasslands revolution reconsidered. Pp. 169-182 in Pawson, E.; Brooking, T. (Eds): Environmental histories of New Zealand. Oxford University Press, Melbourne.
- Buchanan, J. 1868 (reissued 1975): Sketch of the botany of Otago. *Transactions of the New Zealand Institute 1*: 181-212.
- Burdon, R.M. 1938: High country. Whitcombe and Tombs Ltd, Christchurch.
- Butler, S. 1987: Erewhon. Viking, Victoria.
- Cant, G.; Kirkpatrick, R. (Eds) 2001: Rural Canterbury. Daphne Brassell Associates and Lincoln University Press, Wellington.
- Cockayne, A.H. 1910: The natural pastures of New Zealand. *New Zealand Journal of Agriculture 1*: 7-17.
- Condliffe, J.B. 1959: New Zealand in the making. Allen & Unwin, London.
- Cumberland, K.B. 1944: Soil erosion in New Zealand. Soil Conservation and Rivers Control Council, Wellington.
- Dacker, B. 1994: Te mamae me te aroha. The pain and the love. A history of Kai Tahu Whanui in Otago, 1844-1994. University of Otago Press, Dunedin.
- Dick, B. 1964: High country family. A.H. & A.W. Reed, Wellington.
- DOC (Department of Conservation) 1997: Aerial archaeology: Central Otago goldfields. *DOC Science Poster No. 6*. Department of Conservation, Wellington.
- DOC (Department of Conservation) 1999: Molesworth. Nelson/Marlborough Conservancy Brochure, Department of Conservation.
- DOC (Department of Conservation) 2005: Molesworth Farm Park. Nelson/Marlborough Conservancy, Department of Conservation.
- Dominy, M.D. 2001: Calling the station home. Place and identity in New Zealand's high country. Rowman & Littlefield Publishers, Maryland, USA.
- Duncan, J.S. 1962: The land for the people: land settlement and rural population movements, 1886-1906. Pp. 170-190 in McCaskill, M. (Ed.): Land and livelihood. Geographical essays in honour of George Jobberns. New Zealand Geographical Society, Christchurch.
- Evison, H.C. 1993: Te Wai Pounamu. The Greenstone Island. A history of the southern Maori during the European colonization of New Zealand. Aoraki Press, Christchurch.
- Flanagan, F.W.; Haszard, H.D.M.; Stevenson, J. 1910: Report on the Canterbury Pastoral runs. *Appendices to the Journals of the House of Representatives 1 C-12*: 3-9.
- Gardner, W.J. 1956: The Amuri. A county history. Amuri County Council, Culverden.
- Gardner, W.J. 1990: William Robinson. Pp. 370-371 in Oliver, W.H. (Ed.): The dictionary of New Zealand biography. Vol. 1. Allen & Unwin, Wellington.
- Gardner, W.J. 1992: A pastoral kingdom divided. Cheviot, 1889-94. Bridget Williams Books, Wellington.

- Grey, A.H. 1994: Aotearoa and New Zealand. A historical geography. Canterbury University Press, Christchurch.
- Guthrie-Smith, H. 1936: Sorrows and joys of a New Zealand naturalist. A.H. & A.W. Reed, Wellington.
- Hall, B. 1985: Land for the landless. Settlement of the Otekaike Estate in North Otago 1908. *New Zealand Journal of History* 19(1): 38-60.
- Hamel, J. 2001: The archaeology of Otago. Department of Conservation, Wellington. 226 p.
- Hankin, C. 1990: Barker, Mary Anne 1830-1832?-1911. Pp. 15-16 in Oliver, W.H. (Ed.): Dictionary of New Zealand biography. Vol. I. Allen & Unwin, Wellington.
- Hargreaves, R.P. 1965: Farm fences in pioneer New Zealand. *New Zealand Geographer* 21(2): 144-155.
- Hargreaves, R.P. 1966: Speed the plough. An historical geography of New Zealand farming before the introduction of refrigeration. Unpublished PhD thesis, University of Otago, Dunedin.
- Hatch, E. 1992: Respectable lives. Social standing in rural New Zealand. University of California Press, Berkeley.
- Haythornthwaite, D.W.R. 1982: The sociology of landholding on the former Cheviot Hills Estate 1893-1980. Unpublished MA thesis, University of Canterbury, Christchurch.
- Hearn, T.J. 1971: South Canterbury. Some aspects of the historical geography of agriculture 1851-1901. Unpublished MA thesis, University of Otago, Dunedin.
- Hearn, T.J. 1981: Land, water and gold in Central Otago, 1861-1921: some aspects of resource use policy and conflict. Unpublished PhD thesis, University of Otago, Dunedin.
- Hearn, T. 2002: Mining the quarry. Pp. 84-99 in Pawson, E.; Brooking, T. (Eds): Environmental histories of New Zealand. Oxford University Press, Melbourne.
- Hensley, G.C. 1971: Canterbury, 1853-7: the superintendency of J.E. Fitzgerald. Pp. 3-74 in Gardner, W.J. (Ed.): A history of Canterbury. Vol. II. Whitcombe & Tombs, Wellington.
- Historic Resources Directorate 1997: Historic huts. A heritage identification study. Department of Conservation, Wellington.
- Holland, P.; O'Connor, K.; Wearing, A. 2002: Remaking the grasslands of the open country. Pp. 69-83 in Pawson, E.; Brooking, T. (Eds): Environmental histories of New Zealand. Oxford University Press, Melbourne.
- Holm, J. 1992: Nothing but grass and wind. The Rutherfords of Canterbury. Hazard Press, Christchurch.
- Jacomb, C. 2000: Bullock wagons and settlement patterns in a New Zealand pastoral landscape. *Australasian Historical Archaeology* 18: 47-62.
- Jacomb, C. 2002: Understanding our pastoral past. *NZ Historic places, February 2002*: 33-34.
- Jones, E. 1933: Autobiography of an early settler in New Zealand. Coulls, Somerville, Wilkie, Wellington.
- Jourdain, W.R. 1925: Land legislation and settlement in New Zealand. Department of Lands and Survey, Wellington.
- Mackay, A. 1881: Native Commissioner, to the Under-Secretary, Native Department, 6 May 1881. *Appendices to the Journals of the House of Representatives II G8*: 16-17.
- Mackay, A. 1888: Report on the Middle Island Native Land Question, 5 May 1887. *Appendices to the Journals of the House of Representatives II G1*: 8.
- Mackay, A. 1891: Report by Mr. Commissioner Mackay relating to Middle Island Native Claims. *Appendices to the Journals of the House of Representatives II G7*: 1-7.

- Mahoney, P.J. 1991: Graded pack tracks: an unappreciated resource. *The Australian Journal of Historical Archaeology* 9: 76-78.
- Mark, A.; Lee, W.; Patrick, B.; Cree, A.; Darby, J.; Spencer, H. 2003: Tussock grasslands and associated mountain lands. Pp. 191-236 in Darby, J.; Fordyce, R.E.; Mark, A.; Probert, K.; Townsend, C. (Eds): *The natural history of southern New Zealand*. University of Otago Press, Dunedin.
- McAloon, J. 2002: *No idle rich. The wealthy in Canterbury and Otago 1840-1914*. University of Otago Press, Dunedin.
- McCaskill, L.W. 1970: *Molesworth*. A.H. & A.W. Reed, Wellington.
- McCaskill, L.W. 1973: *Hold this land. A history of soil conservation in New Zealand*. A.H. & A.W. Reed, Wellington.
- McDonald, J.D.N. 1945: *A brief survey of land policy in New Zealand from 1876 to 1900*. Unpublished MA thesis, University of Auckland, Auckland.
- McDowall, R.M. 1994: *Gamekeepers for the nation. The story of New Zealand's acclimatisation societies 1861-1990*. Canterbury University Press, Christchurch.
- McIntyre, R. 2002: *The canoes of Kupe. A history of Martinborough district*. Victoria University Press, Wellington.
- McIntyre, R. 2005: *Whose high country?* Unpublished paper given at the Stout Research Centre for New Zealand Studies, Victoria University of Wellington.
- McIntyre, W.D. (Ed.) 1980: *The journal of Henry Sewell 1853-7. Vol. II*. Whitcoulls Publishers, Christchurch.
- McKinnon, M. (Ed.) 1997: *New Zealand historical atlas*. David Bateman, Auckland.
- McLeod, D. 1980: *Down from the tussock ranges*. Whitcoulls Publishers, Christchurch.
- McLintock, A.H. (Ed.) 1966: *An encyclopaedia of New Zealand. Vol. II*. R.E. Owen, Government Printers, Wellington.
- McLintock, A.H. 1975: *The history of Otago*. Capper Press, Christchurch.
- Mikaere, B. 1998: *Te Maiharoa and the promised land*. Reed Books, Auckland.
- Money, C.L. 1972: *Knocking about in New Zealand*. Capper Press, Christchurch.
- Newton, P. 1953: *Wayleggo*. Reed, Wellington.
- Nightingale, T. 1992: *White collars and gumboots. A history of the Ministry of Agriculture and Fisheries 1892-1992*. Dunmore Press, Palmerston North.
- Olssen, E. 1984: *A history of Otago*. John McIndoe, Dunedin.
- Pawson, E. 2001: *Transforming the environment*. Pp. 121-139 in Cant, G.; Kirkpatrick, R. (Eds): *Rural Canterbury*. Daphne Brassell Associates, Wellington.
- Pawson, E. 2002: *The meanings of mountains*. Pp. 136-150 in Pawson, E.; Brooking, T. (Eds): *Environmental histories of New Zealand*. Oxford University Press, Melbourne.
- Pawson, E.; Brooking, T. (Eds): *Environmental histories of New Zealand*. Oxford University Press, Melbourne.
- Peden, R.L. 2002: *Sheep farming practice in colonial Canterbury 1843 to 1882*. Unpublished MA thesis, University of Canterbury, Christchurch.
- Pinney, R. 1981: *Early northern Otago runs*. Collins, Auckland.
- Pohio, H. 1868: *Extracts of minutes of a sitting of the Native Land Court held at Christchurch and Dunedin in April and May 1868*. MA 67 9. General file of correspondence. National Archives.
- Roche, M. 1994: *Land and water. Water and soil conservation and central government in New Zealand 1941-1988*. Department of Internal Affairs, Wellington.
- Sadd, R.T.; Buckhurst, W.B.; Cockayne, L.; Jardine, D.; McInnes, A.; Murray, A.J.; Scott, R.; Todd, C. 1920: *Report of the commission appointed to inquire into and report upon*

- southern pastoral lands. *Appendices to the Journals of the House of Representatives II C15*: 1-24.
- Salmon, J.H.M. 1963: A history of gold-mining in New Zealand. Government Printer, Wellington.
- Scotter, W.H. 1965: A history of Canterbury. Vol. III. Whitcombe & Tombs, Christchurch.
- Scotter, W.H. 1971: Canterbury, 1857-68: the superintendencies of W.S. Moorhouse (1857-63; 1866-8) and Samuel Bealey (1863-6). Pp. 77-246 in Gardner, W.J. (Ed.): A history of Canterbury. Vol. II. Whitcombe & Tombs, Wellington.
- Sherrard, J.M. 1966: Kaikoura. A history of the district. Kaikoura County Council, Kaikoura.
- Smith, T.H.; Nairn, F.E. 1881: Report of the Commission on Middle Island Native Land Purchases. *Appendices to the Journals of the House of Representatives II G6*: 1-6.
- Sorrenson, M.P.K. 1990: Mantell, Walter Baldock Durrant 1820-1895. Pp. 267-268 in Oliver, W.H. (Ed.): Dictionary of New Zealand biography. Vol. I. Allen & Unwin, Wellington.
- Taiaroa, H.K. 1874: Taiaroa, Hori Kerei to Sir, Mr McClean, Otago, 30 January 1874. MA 67 9. General file of correspondence. National Archives.
- Tainui, W. 1878: Tainui, Wereta, and others to the Premier and Minister for Native Affairs, Arahuri, 21 June 1878. MA 67 9. General file of correspondence. National Archives.
- Tau, T.M. 2000: Ngai Tahu and the Canterbury landscape—a broad context. Pp. 41-59 in Cookson, J.; Dunstall, G. (Eds): Southern capital. Christchurch. Canterbury University Press, Christchurch.
- Thornton, G.G. 1986: The New Zealand heritage of farm buildings. Reed Methuen, Auckland.
- Wearing, A.E. 1998: Plants, people and landscapes: changes in and prospects for the vegetation of Central Otago and Upper Waitaki Drylands. Unpublished PhD thesis, University of Otago, Dunedin.
- Whelan, C.D. 1988: Inventory of historic and archaeological sites in the Mackenzie ecological region. Department of Conservation.
- Whelan, C.D. 1989: The development of community in the Mackenzie Basin. 1850-1950. Unpublished MA thesis, University of Canterbury, Christchurch.
- Whelan, C.D. 1990: Inventory of historic and archaeological sites in the Oturoto (Heron) ecological region. Department of Conservation.
- White, R.H.; Eddy, R.; Gardiner, L.C.; Metcalfe, W.F.; Scaife, W.A.; Youren, H.W. 1948: Royal Commission to inquire into and report upon the sheep-farming industry in New Zealand. *Appendices to the Journals of the House of Representatives V H46*: 1-12.
- Wigley, H. 1979: The Mount Cook way. The first fifty years of the Mount Cook Company. Collins, Auckland.
- Worthy, T.H.; Holdaway, R.N. 2002: The lost world of the moa. Prehistoric life of New Zealand. Indiana University Press, Bloomington.
- Zotov, V.D. 1938: Survey of the tussock-grasslands of the South Island, New Zealand: preliminary report. *New Zealand Journal of Science and Technology 4A*: 212A-244A.

