Thatching the roof of Australia: landscape manipulation and history

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The conservation of the Main Range area in what is now the Kosciuszko National Park had its genesis, in large part, in the movement to protect the catchments arising in the NSW Alps. The interests of the NSW Soil Conservation Commission, the nature conservation movement and the Snowy Mountains Authority converged to drive the moves towards grazing restrictions, erosion control and rehabilitation, and national park gazettement over a thirty-year period.

The ways in which the history of this long process is recorded and interpreted to visitors to the park, and how the physical evidence of the process are conserved and interpreted, are issues of interest when considering the assessment and management of cultural heritage values of the Alps. The manipulation of the landscape to achieve stable catchments is a matter of fact—the manipulation of the history of that process to hide the role of the human hand in the creation of the current landscape is an ongoing threat.

Background

This paper, which concentrates on the Main Range within Kosciuszko National Park, is based on work undertaken for the Australian Heritage Commission to develop a nomination for the Snowy Mountains Scheme for the Register of the National Estate. The generosity of Roger Good in sharing his great knowledge and memory is gratefully acknowledged.

Snow lease paddock to protected catchment

Graziers were sending stock into the Snowy Mountains from at least the mid-1830s. Dr Gibson lost a stockman and cattle to a blizzard in the Kiandra area in 1834, and in 1839 T.A. Murray moved cattle from his Yarralumla property through the Brindabellas to the high plains around Coolamine. Summer grazing in the higher snow country became desirable from the mid-1860s, as stock number in the surrounding districts grew. By the mid-1880s the mountains could be described by one observer during a dry summer as 'overcrowded with sheep'. Cattle were increasingly taken into the mountains, able to be run on steeper country than the sheep, and it was mainly cattle that were responsible for the degradation of the Main Range. The grazing was not officially regulated until the passing of the 1889 Crown Lands (Amendment) Act, in which snow leases were established. By 1893 some 81,000 acres of country adjacent to Mount Kosciuszko was divided into 22 snow leases.

The Main Range land surface is commonly covered with loose soil and stones. The soil, thicker than in many other alpine environments, is derived from decomposed granitic rocks and is highly erodable. The elevated exposed location slows and limits plant growth, so that any disturbance of vegetation tends to take a very long time to recuperate. These factors, combined with the considerable slope of much of the land and the prevalence of summer rainfall delivered in heavy downpours, means that exposed soil is rapidly eroded. Once freed of its insulating blanket of vegetation, the soil is far more prone to frost-heave which in turn accelerates erosion. The freeze-thaw cycle also disturbs seedlings, making it very difficult for bare areas to revegetate naturally.

The impact of grazing on the environment of the Main Range was enormous, with stock grazing the native vegetation, trampling and causing drying and erosion of the moss beds and bogs, introducing exotic weeds, and through all this enabling the substantial loss of topsoil through erosion. By the 1940s the high country had large areas of grazed land marked by sheet erosion, and with deep erosion gullies marking the habitual routes of stock movement and of tracks cut by the stockmen's horses.

A number of converging interests combined to promote the conservation and landscape rehabilitation of the Main Range area. Myles Dunphy had been leading a campaign since the 1930s to have a 'Snowy-Indi National Park' created, based on the nature conservation and wilderness values of the area. Schemes to utilise the rivers of the regions for hydro-electric power generation and irrigation purposes went back to the nineteenth century, and were gathering strong support during the early 1940s. The creation of the Hume Weir and reservoir on the Murray River in 1936 led to the first direct moves to protect the upper catchments of the river through their reservation as state forests.

Utilisation of the upper Snowy River became a policy platform for the NSW Parliament opposition in 1941, and when William McKell became Premier later that year the protection of the Snowy Mountains catchments became a government priority. The head of the Soil Conservation Commission, E.S. (Sarn) Clayton, was instrumental in formalising the direction of this policy. Clayton took McKell and the Minister of Lands, J. M. Tully, for a two-week ride through the Snowy Plain area on the Gungarlin River, to stress to them the damage that would be done if a closer settlement proposal then being promoted should go ahead. Clayton argued for the cessation of grazing leases and the transfer of the area to a Board under the Department of Lands administration.

McKell's immediate response was to instruct Clayton to use the forthcoming review of leases (in June 1943) to achieve a two-thirds reduction in the stocking rate in the high country and to decide a safe carrying capacity for each lease and permissive occupancy. A Bill for the creation of a State Park followed shortly afterwards. The park idea has been credited in part to the influence of the Director of Physical Education, Gordon Young, who saw it as an opportunity to create a protected playground comparable with Jasper National Park in Canada, but the genesis of the idea leads back to Myles Dunphy's campaign.
On introducing the Bill in 1944, Minister Tully emphasised three principles:

1. the permanent preservation of all water catchments in the Park;
2. the permanent reservation and development of the Park for recreation and the enjoyment of the people; and
3. the controlled use of the park for pastoral purposes, consistent with the first two principles.

From 1944 onwards the battle to remove grazing from the park was fought mainly from a catchment protection perspective, though strongly supported by the nature conservation objective. Ironically, the State Park Trust argued for the continuation of the high altitude snow leases in the face of mounting opposition, because lease fees was one of the few sources of revenue available to it through the Department of Lands.

Figure 1 Cattle movements 1954-1955

A key factor reinforcing the need for catchment protection and rehabilitation was the advent of the Snowy Mountains Scheme, and of the Snowy Mountains Authority which had the political clout and financial resources to implement its objectives. The long history of plans for hydro-electricity and irrigation water systems in the Snowys resonated in the context of planning for post-WWII reconstruction. The Commonwealth Government in 1946 directed officers of the Departments of Works and Housing and Post-War Reconstruction to investigate the proposal put forward by O.T. Olsen of the State Electricity Commission of Victoria. The recommendations of that investigation led to the setting up in late 1947 of the Commonwealth / States Technical Committee to pursue the proposals for utilising the waters of the Snowy and Murrumbidgee for power generation and irrigation. The key aspects of post-war reconstruction, of which the Snowy Scheme was to be a major component, were to include:

- the maintenance of full employment by judicious use of public works, of which the Snowy Scheme was to be the prime example;
- the promotion of economically viable agriculture (while placing 9000 ex-servicemen on the land), of which the Snowy-fed irrigation schemes were a part;
- bolstering manufacturing by tariff barriers, but also by facilitating the required infrastructure, such as a guaranteed power supply substantially augmented by the Snowy Scheme; and
- the use of immigration to stimulate overall development, targeting continental Europeans, many of whom went straight to the Snowy Scheme. 8

After much debate and political posturing by the states about the various options for the extent of the scheme, a plan was finally adopted by the Committee in November 1948, and the recommendations of its report were approved by the relevant Governments in July 1949. 9 The Commonwealth’s Snowy Mountains Hydro-Electric Power Act came into force on 7 July 1949, bringing into being the Snowy Mountains Hydro-Electric Authority (SMHEA). 10

William (later Sir William) Hudson and the other Commissioners of the new Authority were keenly aware of the risk to the Scheme from silting of its dams, and took action to reduce erosion from construction sites by cleaning them up after use. Sam Clayton worked closely with the Authority, and Hudson, to broaden their understanding of the erosion issue, and it was this prompting that led to Hudson’s strong support for the cessation of grazing in the high country. The two men combined in the campaign to stop renewal of leases in the high altitude areas (above 1370 m) in 1958. The SMHEA overcame the State Park Trust’s reluctance to forgo the revenue from snow leases by making up the cash shortfall, though in a clever twist it was agreed that the Authority’s contribution would be transferred from the State Park to the Soil Conservation Commission to do erosion control and rehabilitation work in the Park. 11

The success over the snow lease issue, however, was not the end of grazing – the State Park did not have the staff to patrol the park, and the ban was virtually ignored by many graziers. It was not until 1969 that grazing was finally made illegal within the Park, when the new National Parks and Wildlife Act, with stronger land management teeth, came into force, 12 and the last leases were not terminated until 1972.

Erosion control and revegetation

The history of rehabilitation and revegetation of the high country has been one of trial and error. 13 Work by the Soil Conservation Commission (SCC) started in a small way in 1959, and increased considerably by 1962, funded by the SMHEA contribution to the State Park coffers, which were transferred to the SCC programs. Initial surveys found that some 5560 hectares of minor to severe sheet erosion occurred along the Main Range between Dead Horse Gap and the
Schlink Pass Road, the worst areas being between Mt Kosciusko and Mt Twynam.\textsuperscript{14}

Initial attempts utilised standard soil-conservation solutions developed for agricultural lands, involving contour banks and drains, rock-paved drains, and the sowing of European exotic grasses and clovers. The rehabilitated area was fertilised, and mulched with sterilised hay, which was held down with galvanised wire netting pegged into place. The first area worked on, and most affected by this technique, was around Carruthers Peak, where evidence of the approach can still be seen on many slopes. It was found that the high fertiliser rate inhibited the growth of native species adapted to low-nutrient levels, and actually caused native species to die back from the revegetation areas. The mulch, if applied too early in the season, insulated the soil and prevented its warming, inhibiting germination of seed, and the high humidity in the mulch contributed to fungal growth which attacked native seed. It was later found that another problem with the method was the release into the soil of zinc from the galvanised wire netting, causing zinc toxicity in soils with normally a very low level of the element.\textsuperscript{15} Early experiments on the slopes of Mt Carruthers also investigated the potential of tree propagation. A plot of \textit{Pinus mugo} was planted, stunted specimens of which survived for 30 years before their removal.

By the late 1960s it was recognised that the use of exotic species was not a viable long-term solution in the high country, neither practically nor philosophically. Native plant propagation trials started in 1967, and between 1969 and 1972 some 500,000 peat pots of montia (\textit{Neopaxia} spp) were over-planted on stabilised areas. It was then found that direct planting of small amounts of sod was just as successful as planting propagated stock, and later still that seeded mulch also worked.

Improved techniques were introduced as the soil conservation and revegetation work moved slowly north along the Main Range in the period between 1959 and 1973. The overall area needing such work extended from Mt Kosciusko to the Bulls Peak area 35 km to the north, and 10 km east to the Ramshead and Perisher Ranges. New methods of holding down the mulch were tried, including black steel mesh, paper netting, plastic polymers, biodegradable nylon netting and water soluble anionic bitumen. The latter proved to be the best solution, consolidating the mulch long enough for the enclosed seed to germinate and become established, then breaking down over two or three years. The use of rock drains and dams in eroded water courses was replaced where feasible with jute mesh and sod-laying.\textsuperscript{16}

The Carruthers Peak area was revisited late in the program, and some areas of wire mesh were removed, and native species overplanted. Most exotics have now disappeared and been replaced by natives, though some white clover and exotic fescues survive, and Caucasian clover has become a pest species.\textsuperscript{17}

The mark of successful soil conservation and revegetation work is that it is not noticed, and this is generally the case with the high country rehabilitation works. Apart from rock-work in erosion gullies (most of which is now buried by siltation), most rehabilitation work is invisible to the casual observer. However, the evidence is still there to be seen in the landscape if the right information is provided to the observer. In a number of areas, but on Carruthers Peak in particular, can be found areas with decaying wire and later fabric netting, revegetated contour drainage banks, some stone lined, still visible on the slopes, and the many steel stakes used as monitoring reference points.

These features are clearly seen, for example, from the Main Range track above Blue Lake and across Carruthers Peak. The landscape has been stabilised, but, as Roger Good points out:

\begin{quote}
...it will be many years before the full diversity of native species is to be found in each rehabilitated vegetation community. In a number of sites, such as the erosion feldmark areas, stable feldmark-like communities have replaced tall alpine herbfield communities. Thus these changes have led to the creation of a mosaic of vegetation communities somewhat different to the pre-grazing communities. While a stable native vegetation does exist in the restored fen and bog communities it will be decades before these bogs and fens recover their functional capacity in terms of groundwater storage and slow release of water to the streams and rivers.\textsuperscript{18}
\end{quote}

Good also points out that maintenance of the rehabilitation work, necessary for the long-term recovery of the alpine areas, has lapsed over the last five to ten years, leading to decline in the native vegetation cover, and the start of active erosion in a few locations.

Acknowledging the history of conservation on the Main Range

From the heritage assessment viewpoint, the substantial erosion control and revegetation work along the Main Range has considerable historical significance. It represents a major shift in soil-conservation thinking in coming to grips with an Australian environment and conserving it rather than manipulating it with exotic species. The work is an important part of the overall Snowy Mountains Scheme, and indicates the degree of concern for catchment protection associated with the Scheme's development. It also is indicative of shifting public and, more importantly, political attitudes to the protection and appropriate use of natural environment areas of high heritage value.

The soil conservation work has had a major impact on the alpine landscape, though most observers would not be aware of it without access to the historical information that makes the signs visible. The work has put a bandaid on the wounds inflicted by grazing, but the underlying scar will take much longer to heal. The simplistic interpretation of the program is that it has returned the Main Range to its natural state. However, this is clearly not the case. The area will never be in the state it was in before grazing, though it will eventually develop the species diversity and ecological and hydrological processes that replicate that state to varying degrees.

In a manner similar to the often blinkered interpretation of wilderness, there is a risk that the Main Range may be interpreted to the public as a 'natural' area, and the history of degradation and rehabilitation will be ignored or glossed over. The Main Range is not part of a gazetted wilderness area, but the parallels in thinking are worth considering. The identification of an area as 'wilderness' often results in a conceptual and management position that defines an area of land as being devoid of human history and having evolved in the absence of human processes, regardless of the demonstrated facts about the human use of the area. Aboriginal land-use practices are simply regarded as part of the 'natural' state, regardless of the extent of ecological impact it may have had. Evidence of 'modern' human land-use is either ignored or actively removed. Tom Griffiths has argued that the
definitions of 'wilderness' rely at their core on the look and feel of an area, and that 'wilderness' need not be actually ancient, pristine and timeless; it just needs to seem so.10

In the case of the Main Range, the undoubted scenic beauty and high natural values of the high country dominate the conceptualisation and interpretation of the area. In that context the historical processes that have led to the present character of the Main Range could be overlooked as irrelevant distractions, or worse, could be actively suppressed in the interpretation of the area to visitors. This tension between natural history and cultural history, and natural conservation and cultural conservation, has been explored by others.20

In trying to see how NPWS is dealing with this tension, I looked at what information about the landuse history and rehabilitation of the Main Range was readily available to the visitor at the NPWS Jindabyne headquarters visitor display, at the Charlotte Pass car park, and on the Main Range Track. The interpretation panels at the Jindabyne Visitors Centre included information about the history and impacts of grazing, but nothing about the post-grazing soil-conservation rehabilitation work. Similarly, the NPWS leaflets and brochures available there contained no information about the post-grazing rehabilitation work.21 Upon asking the very helpful counter staff if anything on the Main Range soil conservation work existed, I was given a very informative and well illustrated brochure put out by the Soil Conservation Service of NSW,22 but this came from the inside storeroom, and was not available to the passing visitor. At the information shelter at Charlotte Pass, where the track to the Main Range starts, one panel had some information and one photograph about the soil conservation work, but nothing to link this information with what the walker would see on the track. On the track itself there was no information that mentioned the thirty-year rehabilitation program, even where the evidence of that work was most visible and easily interpreted.

While NPWS is clearly not suppressing the history of degradation and rehabilitation, it equally does not appear to rank this part of the history of the area as a very important aspect to impart to visitors. I would argue that a fuller knowledge of the human history and impacts on the Main Range should enrich the understanding of the visitors to Kosciusko. The history of the recent (150 year +) degradation caused by grazing can be used as a powerful educational message about the fragility of the environments of the Alps (and indeed elsewhere in Australia), and the history of the development of appropriate soil-conservation responses can equally be used to demonstrate that good conservation-oriented and research-oriented management is essential if these fragile environments are to survive. The history of the Main Range, if fully told, would highlight for the visitor the need to be continuously alert to future environmental threats to Australia's mountain heritage.

References


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Irwin, F. 1991 Above the treeline: how the high country was rescued, Sydney: Soil Conservation Service of NSW.


Endnotes
2 Hancock 1972: 132
3 Hancock 1972: 136
4 see for example: Kosciusko State Park Trust, 1963; Bryant 1971; Durham 1959
5 see Mosley 1992; Wigmore 1968.
10 Cote1998: 37.
13 based on Good 1966 and personal communication 29/9/00.
15 Good 1986.
16 Roger Good, pers comm 29/9/00
17 Roger Good, pers comm 29/9/00
18 Good 1996. see also Chapter 7 of Good 1992.
21 For example, National Parks and Wildlife Service of NSW 1991, Kosciusko Grazing: a history, a purchased brochure, contained no reference to post-grazing rehabilitation.