Assessment of the Cultural Heritage Values of the Australian Alps National Parks

Marilyn Truscott ● Alistair Grinbergs ● Kristal Buckley ● Michael Pearson

June 2006

This document has been prepared on behalf of the Department of the Environment and Heritage. The views, professional opinions and positions contained herein are those of the authors and do not necessarily reflect the views of the Government of Australia.

Document Control	
This Version	Draft
Checked By	Marilyn Truscott
Initial	
Date	6th July 2006

Original document printed on paper made from timber sourced from sustainable plantations.

Contents

1 BACKGROUND

1.1 Project Context

The Department of the Environment and Heritage (DEH) has commissioned research and preliminary assessment of the non-Indigenous, or historic, cultural values of the Australian Alps national parks. This will form part of a wider assessment of National Heritage List (NHL) values associated with this suite of protected areas that spans the Australian Capital Territory, New South Wales and Victoria. The study area is over 1.6 million hectares and includes:

- Namadgi National Park
- Tidbinbilla Nature Reserve
- Bimberi Nature Reserve
- Kosciuszko National Park
- Scabby Range Nature Reserve
- Brindabella National Park
- Alpine National Park
- Avon Wilderness
- Baw Baw National Park
- Snowy River National Park
- Mount Buffalo National Park

Whilst both Baw Baw and Mount Buffalo National Parks are a part of the Australian Alps, their geographic isolation form the otherwise contiguous suite of protected areas that make up the Australian Alps national parks has resulted in the assessment of these protected areas under separate cover at the request of DEH.

The research and preliminary assessment of the cultural values of the Australian Alps national parks included the following tasks:

- An audit and review of available data including reports, published histories, previous assessments and conservation management plans;
- Identification and description of heritage values; and
- Assessment of the cultural significance of the Australian Alps national parks.

1.1.1 Data Audit and Review

The data audit and review consisted of the following elements:

- A review of data available on cultural heritage themes and places relevant to the Australian Alps national parks;
- A review of relevant State/Territory heritage registers, relevant Regional Forest Agreement (RFA) assessments, nomination reports for the Australian Alps national parks, Register of the National Estate (RNE) place records and other relevant data sources for information about potential heritage places and values in the Australian Alps national parks;
- A review of relevant documents including the World Heritage values study and the Kosciuszko and Namadgi National Park Plans of Management;
- Identification of any critical gaps in information relevant to NHL criteria values and the expression of relevant heritage themes; and

- The development of a framework for the History and Description components of the NHL assessments relating to themes and geographic context.

1.1.2 Description of Values

The description of values component consisted of the following elements:

- Establishing and describing the historical and biophysical context, with particular description of the relevant historical themes, noting the way these themes are expressed throughout the area, including regional differences, physical features such as specific huts, tracks, yards, buildings, water catchment works and tourism elements;
- Describing the particular aesthetic characteristics of places of importance to community and cultural groups, that have potential national heritage significance for each nominated place; and
- Describing the social values that have importance to communities, including the intangible values and their links to the place or specific areas for each nominated place.

1.1.3 Assessing Significance

The assessment of significance component consisted of the following elements:

- Developing a process for determining NHL significance using the NHL criteria and the thematic research conducted in the previous components;
- Describing the assessment process adopted including discussion of how thresholds have been established and where comparisons have been made with relevant expression of the identified values in other parts of Australia;
- Analysis against the NHL criteria using the framework developed in consultation with DEH;
- Ensuring that linkage of significant values, themes and places is clear and that where possible physical features are map referenced;
- Preparation of Values Tables and Summary Statement of Significance for each nominated place; and
- Preparing individual assessment reports for each nominated place incorporating the History, the Description, the Analysis, the Values Table, the Summary Statement of Significance, the Bibliography and Condition.

1.2 Project Methodology and Limitations

1.2.1 Methodology

The objective of this assessment of the Australian Alps is to identify which cultural heritage values within the set boundaries of the Alps nomination are, in themselves, National Heritage values. It is not simply a case of identifying all values within the boundary, but assessing what distinctly National Heritage values exist there, so that management responsibilities for National Heritage values can be clearly defined and planned for.

A structured approach was adopted for looking at the Australian Alps in the context of the assessment of National Heritage cultural values involving:

- identifying key themes that reflect the national experience of the Alps;
- identifying the 'indicators of significance' for each theme—these being the specific characteristics or attributes of places that might make them significant within the context of a particular theme; and
- considering the thresholds that might apply to significance assessment at the national level in relation to the National Heritage criteria.

The Australian Alps cultural heritage (non-Indigenous / historic) assessment has three 'sieves' of assessment. This is graphically explained in the flowchart below.

In following this approach of three assessment 'sieves', the project team applied basic cultural heritage assessment principles as outlined in the *Burra Charter* (Australia ICOMOS 2000), in following the listed tasks outlined above at 1.1. In doing so, an independent assessment was achieved by focussing on secondary (even primary) reports rather than derived by restating past heritage assessments (tertiary reports).

The use of historic themes is based on past themes work (Domicelj et al 1992; AHC 2000). Any number of increasingly narrow and specific themes could be developed, but the approach taken here is to select a small number of themes indicating the key story-lines that might encapsulate the National Heritage values of the Alps. These themes were those already deemed to have National Heritage potential for the Alps by DEH, presented below at 2.2. Each of these themes, or story-lines, are researched resulting in histories and descriptions of the key events, processes and places representing them (Chapter 2; Appendix 2, 3). Linking themes and past assessments of intangible values are also outlined.

It is argued that the experience of humans living in the Alps is quite different from other Australian experiences, forming a special national story found in the Australian Alps, that of the 'Australian experience of the Alps'. This view informed the methodology of identifying the key values in the Australian Alps national parks according to a set of National Heritage indicators based on overarching themes relevant to this national story, one largely unique in Australia.

This reasoning results in an approach taken in this study to view the 'Alps experience' as a modifier of other, more general stories of the Australian experience that might give places in the Alps a distinctive set of National Heritage values not shared by associated sites in the lowlands. Chapter 3 outlines the indicators and thresholds that assist in assessing places relevant to the 'Alps experience' theme. The results of assessing the places and values identified in the historic theme histories against this 'Alps experience' sieve are also described in that chapter.

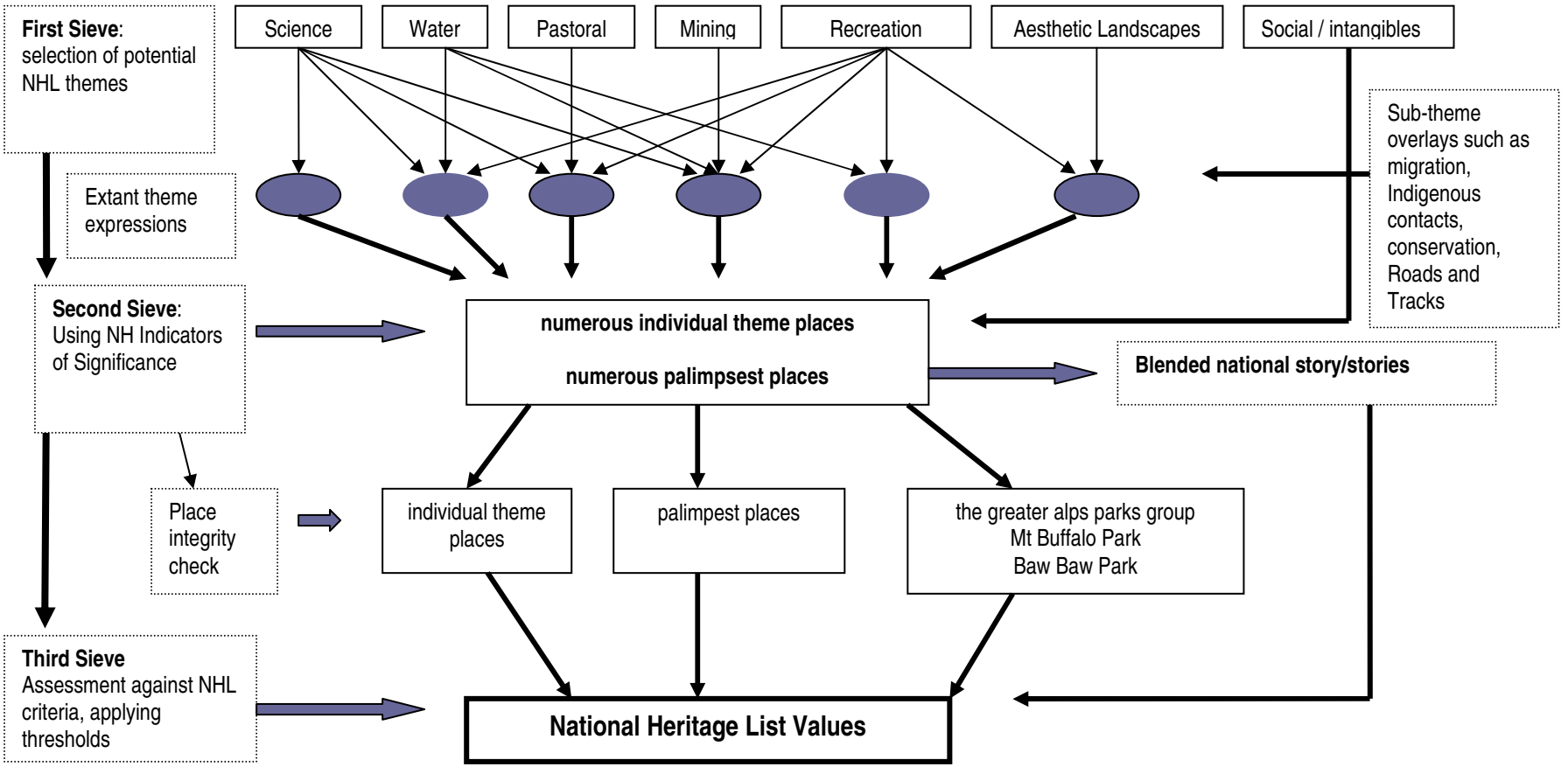
Assessment of the condition and integrity of places, sites and features within the Australian Alps representing the key history themes researched, in this desktop study, was based primarily on state / territory heritage databases, and individual site reports. Most important were the site-based audits and monitoring studies undertaken after the extensive January-February 2003 bushfires across the Alps (Gill et al 2004; GML 2005; LRGM 2005).

In considering the significance assessment in relation to the National Heritage criteria, it was decided to assess the Australian Alps as a whole, rather then individual elements. Two key factors prevailed in this decision: the review of the historic

themes / story-lines highlighted that these stories were intertwined throughout the Alps, forming an extensive, detailed and complex cultural landscape, and the assessment against the 'Alps experience', confirmed that features / attributes identified in this assessment 'sieve' cover the Alps.

Thresholds, or the measure of value, above which the Alps were are seen to meet the criteria, making them eligible entry in the National Heritage List, were based on the DEH 'Draft National Heritage List Assessment Guidelines – Historic Heritage', having 'attributes', that is features containing values, to a high degree and recognition to the nation. No real comparison was possible for the Australian Alps as they are largely unique in Australia.

The process undertaken treated the three areas of the project brief as one, as they are all part of the Australian Alps national parks, and largely subject to the same historic story-lines. Separate assessments for Mt Baw Baw National Park and Mount Buffalo National Park derive from the primary assessment of the Australian Alps as a whole.


First Sieve: selection of potential NHL themes
Science
Water
Pastoral
Mining
Recreation
Aesthetic Landscapes
Social / intangibles
Extant theme expressions
Sub-theme overlays such as migration, Indigenous contacts, conservation, Roads and Tracks
Second Sieve: Using NH Indicators of Significance
numerous individual theme places
numerous palimpsest places
Blended national story/stories
Place integrity check
individual theme places
palimpest places
the greater alps parks group
Mt Buffalo Park
Baw Baw Park
Third Sieve
Assessment against NHL criteria, applying thresholds
National Heritage List Values

1.2.2 Limitations

In essence the project combines elements of a 'nomination' to the National List whilst at the same time assessing it. The team has sought to avoid making unfounded assertions of significance, although in some cases the data assessed could not be fully verified or is untested.

Another limitation to this assessment has been the unevenness of data across the Australian Alps national parks with past research either not covering the entire geographic spread of the Alps, or using different methodologies. This is particularly an issue for values derived from community attachment or response. These gaps are identified; in some cases they do not affect the overall result of the assessment. In some cases, original research has been undertaken.

Some themes have not been as fully considered as wished, notably mining. The topographic differences in the Alps in Victoria and NSW, ACT, mean that most mining in Victoria was undertaken in the deep valleys extending into the Alps rather than on the high plains. This makes for a different mining technology applied that was not as influenced by the Alps environment as for example at Kiandra.

Whilst the first 'sieve' of themes was provided in the project brief, it is considered that other story-lines need further consideration. In particular, forestry has not been reviewed, other than in passing in regards to the ACT Arboreta. Timber was an important resource for mining and for the hydro-electricity schemes construction, resulting in extensive landscape changes; this needs further consideration.

Further research gaps have been noted by Argue (2000) and deserve future follow-up.

1.3 Project Team

The project team consisted of:

Marilyn Truscott	Heritage Consultant	Project manager, Science, Water, Mining, Aesthetic Value, assessment methodology, assessment
Alistair Grinbergs	Heritage Solutions	Pastoralism, Recreation, assessment methodology, assessment
Dr Michael Pearson	Heritage Management Consultants Pty Ltd	Mining, Hydro advice, assessment methodology
Kristal Buckley	Heritage Consultant	Social Value, assessment methodology

1.4 Acknowledgements

This project could not have been completed without the generous assistance of the following people who gave freely of their knowledge and professional expertise:

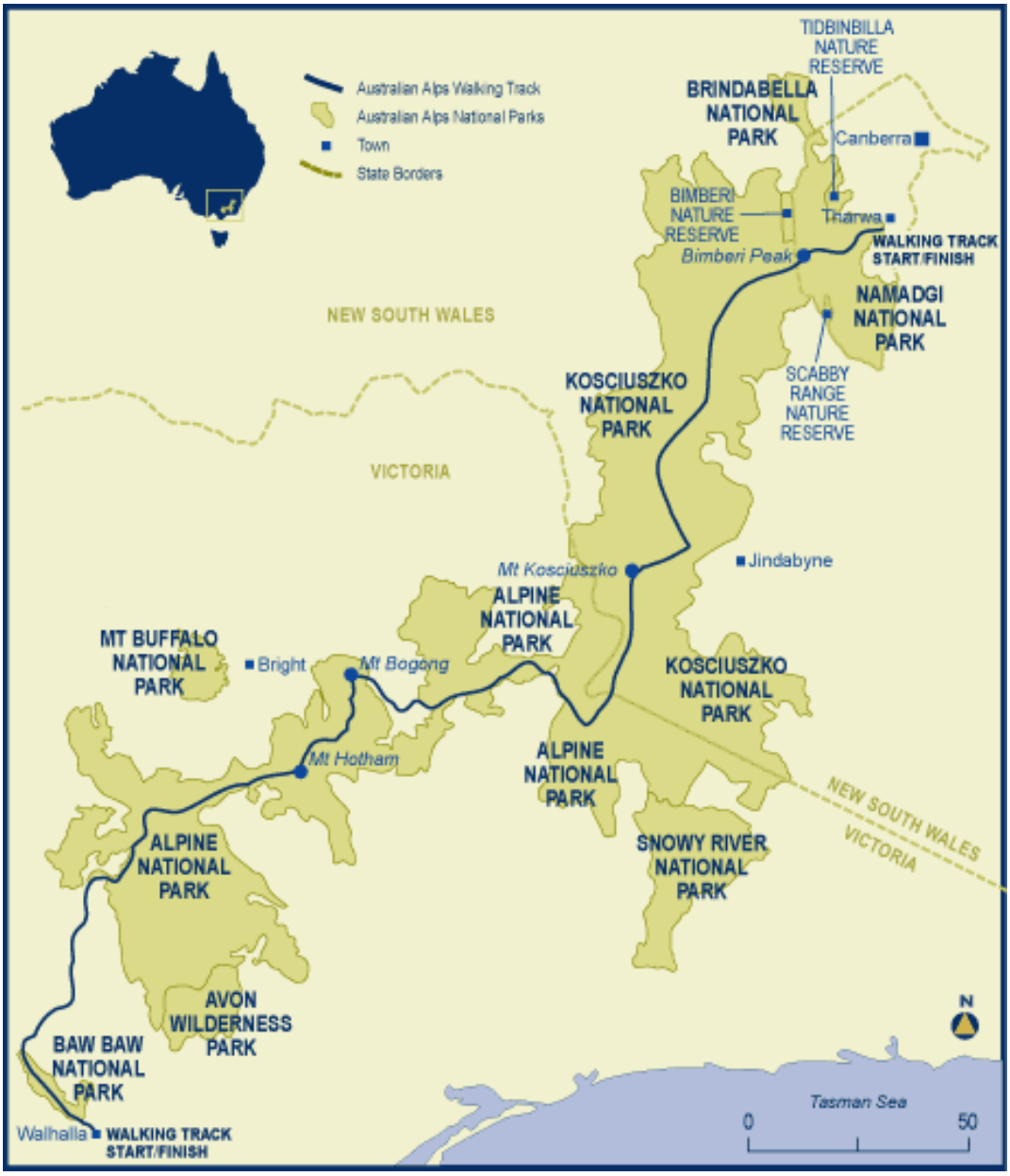
Juliet Ramsay	Historic Assessment Section	Department of the Environment and Heritage
Janine Cullen	Manager - Historic Assessment Section	Department of the Environment and Heritage

Grahame Crocket	Historic Assessment Section	Department of the Environment and Heritage
Dr Annabel Wheeler	Natural Assessment Section	Department of the Environment & Heritage
Ray Supple	Heritage Planner	Parks Victoria
Dave Darlington	Regional Manager - Snowy Mountains	Department of Environment and Conservation
Brett McNamara	District Manager - Parks and Conservation Service	Environment ACT
Stephen Alegria	Ranger	Environment ACT
Keith Smith	Ranger	Environment ACT
Dr Jane Lennon	Heritage Consultant	Jane Lennon and Associates
Roger Good	Environmental consultant	

2 HISTORY OF THE AUSTRALIAN ALPS

2.1 Description of the Australian Alps national parks

The Australian Alps national parks stretch from Canberra through the Brindabella Range to the Snowy Mountains of New South Wales and along the Great Divide through eastern Victoria Australia's alpine and sub-alpine environments (refer Map 1). The information on the landform, geology, climate and ecology of the Australian Alps presented here has been drawn from education material prepared by the Australian Alps Liaison Committee (www.australian-alps.gov.au).



Map 1: The Australian Alps national parks. Source AALC.

The protected areas that make up the Australian Alps national parks total an area over 1.6 million hectares:

Namadgi National Park	ACT	105,900
Tidbinbilla Nature Reserve		5500
Alpine National Park	Victoria	646,000
Avon Wilderness		40,000
Baw Baw National Park		13,530
Mount Buffalo National Park		31,000
Snowy River National Park		98,700
Kosciuszko National Park	New South Wales	690,000
Scabby Range Nature Reserve		3400
Bimberi Nature Reserve		7100
Brindabella National Park		12,050

Individual descriptions of these parks and reserves can be found at the Australian Alps website (http://www.australianalps.deh.gov.au/parks/index.html).

Landform

The Australian Alps consist of extensive undulating plateaux and ridges surrounded by a dissected landscape of steep slopes, escarpments and deep gorges. The plateaux are characterised by broad shallow valleys and gentle slopes rising to rounded or flattened hill tops. In NSW much of the undulating plateau landform is still intact; in Victoria there are a number of smaller isolated plateau areas dissected by deep gorges and river valleys. This topographic feature results in two parks in Victoria, Mount Baw Baw National Park and Mount Buffalo National Park, not being contiguous with the other parks and reserves.

Geology

The Australian Alps have a diverse and active geological history which is reflected in a large range of rock types and structures. They are 'mountains with soil' as distinct from many ranges overseas which are 'rock mountains'. Their antiquity contrasting with the European Alps, the Andes and the Himalayas, which are more recent formations, which are generally younger and steeper, and have been more heavily glaciated. Glaciation was restricted to a small area at the highest elevations in New South Wales.

The upland area of the Australian Alps is underlain by marine deposited sediments. These rocks have been intruded by granites and folded and uplifted to many times their current height, then worn down and dissected by different forms of erosion. Rivers have carved deep valleys and gorges. Glacial and periglacial erosion and deposition have left further imprints on the landscape.

Climate

The Australian Alps experiences a mid-latitude mountain climate, with no dry season and a mild summer. Precipitation falls more often in winter and spring but does occur all year round. Cold temperatures in winter mean that precipitation then falls as snow

which sediments deposited 860-400 million years ago when south-eastern Australia was inundated by the sea. Snow covers the higher altitudes for many months at a time. Transpiration, which is a major form of water loss in other areas, remains low all year in the Alps because of low daytime temperatures. The ability to hold water and regulate its discharge to rivers flowing out of the alpine environment, and general seepage down slope makes the Australian Alps an important water storage for the eastern coastal catchments and the Murray Darling Basin. During winter, much water is held as snow and ice and held back from streams until it thaws in warmer weather.

Ecology

Although most of the plants of the Alps are recognisably similar to those growing in other areas of Australia, the species that grow here have evolved special characteristics in response to this harsh environment. Cold weather, high precipitation, persistent snow (one to four months in the sub-alpine zone and four to nine months in the alpine zone), frost, strong winds, steep slopes and big variations in temperatures, restrict growth and present other challenges to the plants living here. Alpine plants are by necessity adapted to grow in extreme conditions.

There are four distinct zones in the Australian Alps - lower slopes or tableland, montane, subalpine and alpine. Species from across nearly all Australian plant families grow here either in the eucalypt forests of the montane slopes or the open woodlands and herb fields that begin with the sub-alpine plateaux at 1500m. The most obvious change is the transition above the tree-line to the true alpine zone where there are no trees and vegetation is primarily dwarfed shrubs and ground-hugging herbs.

The lower elevations include some tableland plains and the lower slopes of mountains and areas of grassy woodlands and open woodlands found above the level of cold air drainage in valley floors. On the lower slopes or tableland areas of the Alps there are grassy woodlands and dry open forests, whilst in the montane area where precipitation is higher, the eucalypt forest generally becomes taller, wetter, darker and denser. The most obvious change is the transition at the tree-line or upper altitude where trees grow. Above the tree-line is the true alpine zone where there are no trees and vegetation is primarily dwarfed shrubs and ground-hugging herbs. In summer there are mass displays of yellow Billy Buttons, pink Trigger Plants, white Snow and Silver Daisies and many other species of flowering herbs and shrubs.

The diversity of vegetation in the Australian Alps provides habitats for a wide range of animals. All major animal groups are represented in the Australian Alps. There are also many species of animals not native, but introduced, to the Alps.

2.2 Introduction to Historic Themes

The Australian Alps is an Australian landscape providing resources dictated by the climate and topography. A strong cultural pattern in the Alps area is the comparatively heavy seasonal movement of people into and across the Alps.

Europeans first followed the established Aboriginal pathways; their lifestyles whilst using mountain resources were greatly influenced by climate and topography. Activities included grazing, scientific research, mining, timber harvesting, water catchment works, tourism and recreation, resulting in a range of physical features across the Alps, that are linked historically as well as by tradition, memory, and community attachment.

The use of historic themes is based on past work on themes development by Domicelj, Halliday and James (1992) for World Heritage assessment, and the development of the *Australian Historic Themes* (AHC 2000). Any number of increasingly narrow and specific themes could be developed, but the approach taken here is to select a small number of themes indicating the key story-lines that might encapsulate the National Heritage values of places in the Alps.

There are a number of key historic themes that are relevant to the Alps. Those researched are a series of 'sub-themes' selected by DEH as 'draft National Heritage List' themes for this Australian Alps cultural heritage (non-Indigenous) assessment, whilst recognising that there are other potential themes for future research:

Pastoralism, grazing/transhumance	• Understanding and Shaping the Land - land and resource use • Living as Australians – ingenuity
Scientific research	• Understanding and Shaping the land - land and resource use
Mining	• Peopling the Land - Migrants by choice • Understanding and Shaping the Land - land and resource use
Water catchment, hydro electricity	• Peopling the Land - Migrants by choice or coercion • Understanding and Shaping the Land - land and resource use
Recreation, tourism	• Living as Australians - ingenuity • Living as Australians - recreation

Most of these themes or story-lines found in the Alps are based on 'national stories' have a continental context that is not being studied in detail here. If these story-lines were to be investigated in full as themes, places with National Heritage values might be found in many environments, not just in the Alps. In this broader story-line approach, for example, it would make little sense to identify the National Heritage values of seasonally-occupied pastoral holdings in the Alps without also identifying the values of the head stations in the Riverina or the Monaro from which the stock came and to which they returned. In this Alps assessment, such reference to areas outside the Alps is only made when most relevant to the context of the Alps.

Associated with the Alps historic themes are intangible values such as responses to the landscape as well as attachments made by community to the Alps and the past and present associations and activities, discussed as *Aesthetic* and *Social Value.*

Related to these historic themes or story-lines are other narratives, linking them in time and in space. These are Indigenous contact in the Alps, the history of the tracks and roads through and across the Alps, migration to the Alps and conservation and rehabilitation in the Alps.

The following sections of this cultural heritage assessment of the Alps provide a summary history according to each of these themes, or story-lines, cross-referencing each other where appropriate.

Places, sites and elements representing these themes are referred to with a fully referenced of such places by theme is found at Appendix 2. These places were **not** selected from prior heritage assessments of the Australian Alps, although in the case of some of the 'aesthetic places', only past community input could be used to identify such places, in this desktop assessment. The work on Social Value is different in that it is not primarily a 'first sieve' but a summation and description of past identification and assertions of social value in the Australian Alps, that has elements, places or areas from the story-lines.

2.3 Overview of Non-Indigenous History

The history of human activity in the Australian Alps dates back over 20,000 years. In the case of the story since European colonisation of Australia in 1788 it is one of an intertwining of activities and experience of the Alps based around key historic activities.

A central feature of the Alps experience is the early identification of those coming from Europe - pastoralists, explorers, botanists and other scientists and artists, with the Alps as a landscape largely familiar, valued for its scenic topography, its good pasture, its snow. This experience of the Alps changed through time to become one recognised by most Australians as different and atypical from the awareness of the general Australian landscape, the Alps still valued but for their otherness.

The stories of the early non-Indigenous experience of the Alps formed myths that have shaped the Australian sense of national identity. The icons of the Bushman, the Mountain Cattleman – the Man from Snowy River, merge with the idea of the digger, which whilst not central to the Alps is also associated with them. These stories connect with later ones of the Snowy Mountains Scheme, its engineering triumph and the many migrant workers, to maintain a sense of endurance in remote and rugged country.

Over the 180 years of non-Indigenous use of the Alps another story has been heard, one of aesthetic appreciation of the Alps and its experience, inspiring artistic responses until the present. Combined with scientific research, this appreciation of the landscape and its beauty became an increased understanding of the Alps ecology and rarity. This triggered conservation interest and a wish to protect the area for its own sake and increasingly for those visiting the area for recreation.

The Alps create strong attachments and responses to them, from community groups who wish to maintain a traditional way of life, to those that wish to care for physical reminders of past ways of life, to communities who wish to restore the landscape to pre-European settlement, as shown in the various story-lines below.

2.4 Pastoralism and Grazing

Understanding and Shaping the Land - land and resource use
Living as Australians - ingenuity

The history of pastoral and grazing endeavour in the Australian Alps spans 180 years. The search for good pastures by the early settlers who headed south from the Sydney colony is inexorably linked to the European discovery and colonisation of the Monaro, Upper Murray, South-west Slopes and East Gippsland. Early pastoralists and graziers, or their agents, were moving into and through the rugged valleys and ridges of the Great Dividing Range seeking good grazing country only ten years after Blaxland, Wentworth and Lawson discovered a route through the Blue Mountains – and only thirty five years after the First Fleet landed at Botany Bay.

2.4.1 The European Settlement of the Australian Alps

By the early 1820s settlers – often the agents of wealthy pastoralists from the Sydney region – were moving south, eager to take up good grazing country beyond the limits of the existing colony. By 1820 Joseph Wild, James Vaughan and Charles Throsby Smith had discovered the Canberra plains and hills (Higgins 1991 in Scougall 1992:165) and in 1823 Captain Mark John Currie was attributed with the European discovery of the Monaro plains (Hancock in Lennon 1991 in Scougall 1992:144) sparking interest in the availability of good grazing country. These early explorer-settlers were therefore moving into the Snowy Mountains well before the colonial administration took steps to promote the spread of the colony (Hayes 1999:11; Higgins 1991 in Scougall 1992:166). A year before Robert Campbell established his extensive property – Duntroon – on the Limestone Plains, Joshua John Moore had taken up a land grant for Canberry run in the district (Higgins 1991 in Scougall 1992:166) and Tom Pendergast is said to have been in the Snowy Mountains with nearly 400 head of cattle as early as 1824 (Hayes 1999:11) at the same time that Hume and Hovell were heading south on their journey of exploration from Lake George to Corio Bay (Andrews 1920:8). In 1827 Richard Brooks moved from his run at Lake George to take up a run at Gegedzerick, near Berridale (Hayes 1999:11) within view of the snowy peaks of the Main Range.

The rapid uptake of land in the next decade meant settlers and stockmen were pushing into the Snowy Mountains looking for grazing country. William Woodhouse was at Ingebyra, south of the present day town of Jindabyne by 1830 (Hayes 1999:11) and James MacFarlane took cattle past the Pilot in 1835 to claim land at what was to become MacFarlane's Flat, south of the Ingeegoodbee River on what is now the NSW-Victorian border (Stephenson 1980:1). To the north-west, the previous year, cattlemen working for Dr Gibson were grazing cattle at Gibson's Plain (a location that would become famous twenty five years later for the discovery of gold at Kiandra).

On the eastern watershed of the Great Divide, the pastoral settlement of the Victorian high country started with the early journeys of exploration by George MacKillop who travelled along the Snowy River and through to Omeo in 1835. MacKillop's reports of good open grazing country at Omeo led MacFarlane, Pendergast and Livingston to take cattle south from the Monaro – with Pendergast and Livingston established at Omeo by 1837 (Andrews 1920:25). Almost simultaneously with MacFarlane's move south, William Wyse crossed the Murray on the west of the range, establishing Mungabareena run (a property that took in country from Albury to the Mitta Mitta valley) and Bonegilla run at the junction of the Kiewa and Murray Rivers (Stephenson

1980:1). The country on the west of the Divide was rapidly taken up in the decade from 1835-45 (Andrews 1920).

Changes to land laws by the colonial administration in 1836 had the effect of providing increased security of tenure for squatters – encouraging many absentee landlords to move onto their runs from established properties closer to the Sydney colony (Hayes 1999:11-12).

Drought at the end of the 1830s created significant interest in the well watered mountain pastures. The high pastures offered landholders with good grazing during the summer months when feed was scarce on their home stations – allowing time for the home pastures to recover and maintaining the condition of their stock.

Grazing the High Country as a Response to Drought

The cattlemen and their families that came to the Snowy Mountains (and the ranges of the Great Divide) more generally, were also pioneers of a grazing practice unique in Australia – that of bringing cattle and sheep up to graze on the high country pastures during the summer months, avoiding, or at least ameliorating the ever present threat of drought in the low lands and allowing home pastures time to recover (Hayes 1999:14).

The drought of 1835-1844 also played a significant role in forcing the hand of graziers, many of whom were overstocked following the boom in the live sheep market from 1835-7 driven, in part, by the arrival in the colony of numerous immigrants backed by significant capital (Andrews 1920:17-18). Possibly in response, the colonial administration instituted a system of grazing licenses in 1836 – licenses were issued on an annual basis for a fee of £10, and whilst they afforded no title in land they could be renewed and there was no limit to area or stocking rate – they were essentially a permit to graze (Andrews 1920:19). By 1839 the lack of good feed on the Monaro and Limestone Plains had prompted Terrence Aubrey Murray (owner of Yarralumla station) to open routes through the Brindabella Ranges to high pastures (Lennon 1991 in Scougall 1992:149). By 1855 taking cattle up to the high pastures of the Alps had become an established practice on both sides of the Great Divide. In the NSW high country grazing continued for over a century before the declaration of the declaration of the Kosciusko State Park in 1944. Grazing continued over the next twenty or so years, but by 1958 a combination of political pressure from and emerging environment movement and the desire to protect the catchment assets of the Snowy Mountains Scheme led the NSW Government to accept the findings of a report by the Catchment Areas Protection Board not to renew grazing leases for areas above 4500 feet. The practice had all but ceased in NSW 1969 (Mosley 1991 in Scougall 1992:27-28) [see also: Conservation].

In the Victorian Alps different land management arrangements meant that pastoralists and graziers continued to have licensed access to the high country pastures. Large areas of the Victorian country continues to be managed as crown land well into the 1980s with the declaration of the Alpine National parks only coming in 1989 (Mosley 1991 in Scougall 1992:29). In recent years a concerted effort by Victorian protected area managers, backed by environment groups has seen the introduction of a ban on alpine grazing in 2005.

2.4.2 Places in the Alps Associated with the Early Grazing Period

There are numerous sites throughout the Australian alps national parks that are associated with grazing and pastoralism including:

- Homesteads, outbuildings and associated structures
- Cattlemen's huts
- Plantings including fruit and ornamental trees and shrubs
- Brush fences, post and wire fences and yards, brumby runs
- Pathways, bridle trails and track and routes of movement
- Pastoral landscapes including clearing and fire and grazing modified landscapes.

Some of these places are associated with the early occupation of the alps (e.g. Wallace Hut, Coolamine Homestead and Orroral Homestead) while others are relics from more recent times. The nature of vernacular bush architecture and the environmental context (including the presence of fire) has meant that many of the earliest fabric elements have been lost. Nevertheless there exists a continuum of the fabric record that spans from the earliest pastoral activity through to the present day.

2.4.3 Condition of Pastoral and Grazing Sites in Australian Alps

Significant research and investigation has been undertaken into the nature and condition of sites associated with the pastoral and grazing history of the Australian Alps. In Victoria the work undertaken by Graeme Butler & Associates (2005) provides a detailed assessment of huts and related structures in the Victorian high country. In NSW the new Kosciuszko National Park Plan of Management included detailed consideration of pastoral and grazing heritage places within the park and in the ACT detailed assessments and conservation plans have been carried out for the majority of structures and associated features within Namadgi NP. The bushfires of the summer of 2003-2004 that burned approximately 1,127,000 ha (68%) of the protected areas included in the Australian Alps national parks have had a significant impact upon pastoral and grazing heritage sites in the Alps. Numerous huts were lost to these fires as were many of the less obvious fabric elements associated with pastoralism and grazing including fences, yards, brumby runs and exotic plantings.

2.5 Indigenous Contact

Indigenous communities and early British settlers had many encounters in the Australian Alps, forming a relationship based on initial dependence by the newcomers on local Aboriginal knowledge. It is probable that existing were followed by early pastoral settlers and explorers (Grinbergs 1993:11-12) [see Tracks and Routes], including McMillan being guided in 1839 from the Monaro to East Gippsland by Jemmy Gibber – a Monaro Aboriginal. Aboriginal use of the Alps dates back some 20,000 years and their knowledge of the Alps environment and the meanings of its landscape to them have continued until today (Goulding 2002).

Aboriginal people are known to have worked for early pastoralists in the 19th century, seen as 'a form of accommodation … perhaps in order to stay in their country' whilst 'others retreated to less accessible areas' (Young 2000:2). Some explorers were curious and described encounters and their impressions of the impact of European arrival, such as Lhotsky, it having more than halved: 'The Menero tribe is already

very weak, consisting of about fifty men' (in Hancock 1972). But it was the arrival of large numbers of miners that impacted most on numbers of Aboriginal people

ABORIGINES – The native tribes of the Monaro and Twofold Bay districts are dying away year by year. During the time of the Kiandra Gold Rush, they mustered in Cooma for their annual donation in good number, but now a score will tell them all....

(*Monaro Mercury*, 21 July, 1868)

Many miners stayed on the Alps region, providing labour instead of Aboriginal workers.

From 1883 changed policy in NSW with the establishment of the Aboriginal Welfare Board and the Aboriginal missions / missions / reserves resulted in most Aboriginal moving to Brungle station, near Tumut, or to Delegate.

Nonetheless traditional practice is still observed, for example by Helms in the Snowy Mountains in 1893 with Aborigines feasting on aestivating Bogong moths [see Science]. A key source of information from that period is from Alfred Howitt, with his anthropological studies in the region (Howitt 1904), who was also important in the Australian Alps, especially on the Victorian side for his geological survey work [see Science].

Ongoing seasonal employment on high country properties continued, one common area of work was in fencing on high country. However after World War II many moved to the South Coast of NSW and employment in horticulture.

Ongoing connections and oral landscapes have been maintained (Goulding 2002), and as a result of increasing recognition of past and ongoing knowledge and connections to the Alps landscape in the 1990s, there has been a shift to the involvement of relevant Indigenous groups in the management of some of the Australian Alps national parks, notably Namadgi with its co-operative agreement between the ACT Government and the Ngunnawal people in 2000-01.

2.6 Scientific Research

Understanding and Shaping the Land – Scientific Research

2.6.1 Scientific Research in the Australian Alps

The history of science in the Australian Alps has received considerable attention in recent years (Good 1989; Griffiths and Robin 1994; Macdonald and Haiblen 2002a), partly a natural outcome of one of the most researched regions in Australia, but also an acknowledgement of the contribution science has made to land use and land management decisions relevant to the Alps.

The nature of the Australian Alps as alpine soil mountains has been increasingly understood by Australians. Being researched from the mid-1800s – a time when globally, enormous increases in an understanding of the natural sciences were being made. In the Alps, the impacts of new behaviour such as grazing or mining, took a while to understand. Scientific research on the ecology and its response to such changes and an improved recognition of the need for clean drinking water in the growing urban areas, as well as the desire to protect expensive infrastructure such as dams, aqueducts and tunnels directly contributed to the protection of water catchments and the declaration of national parks [see also: Pastoralism; Mining; Water; Recreation].

This scientific research in the Australian Alps is seen to encompass three stages (Macdonald and Haiblen 2001a:2), in many ways reflecting the state and interest of scientific research of those periods:

- 'science of exploration, a traveller's and discoverer's science mostly done by individuals' (eg Mueller, Lhotsky, David);
- ecologists who established experimental science – problem-oriented and sustained over repeated visits (Maisie (Fawcett) Carr, Alec Costin); and
- 'Conservation science'.

These categories clearly demonstrate the changes in approaches to scientific research in the Alps that reflect the general phases of the wider Australian communities' interest and concern, as well as a general increase in the understanding of the natural environment and its processes. Globally these included the newly introduced concepts in the mid-19th Century, such as geological and geomorphological stratigraphic principles and processes and evolutionary theory. The development of these fields of scientific inquiry were taking place at the very time of the first discoveries in the Australian Alps, informed all later scientific inquiry, and increasingly, in a newly colonised country, an appreciation of the impact of past and subsequent human activity on the natural environment.

Explorers and Discovery in the 19th Century

The first stage not only demonstrates the curiosity of the European settlers to discover the newly colonised continent of Australia, but also is characteristic of the 19th Century which saw an enormous interest in the natural sciences both in Europe and around the world. Vast collections were made and housed in national museums established to display and study the specimens and curiosities for an increasingly interested public.

Most early visits to the Australian Alps were therefore typically being undertaken by individuals who, whether there for a specific purpose or not, also undertook at general interest in all they could see and brought back reports and specimens representing the geology, flora, fauna and Indigenous heritage of the region.

The first Europeans to move into the Australian Alps were the explorer-pastoralists who moved rapidly into the high country from the 1820s seeking to acquire pasture – either for themselves or their sponsors. As a result much of the Alps country was taken up by the 1840s [see also: Pastoralism] with only the later explorers contributing to scientific knowledge. Dr John Lhotsky collected geological and botanical specimens in March 1834, and crossed the Snowy River and climbed several mountains on the Main Range 'upwards of 8,000 feet' (2440 m), based on boiled water temperature. It was Lhotsky who noted the impact on the local Indigenous population, having more than halved: 'The Menero tribe is already very weak, consisting of about fifty men' (in Hancock 1972) [see also: Indigenous contact]. Count Paul Strzelecki, geologist and explorer named the highest peak after fellow Pole, nationalist Thaddeus Kosciuszko, in 1840 (Good 1992a:198).

Many of the earlier 'scientists' were there for a specific purpose, such as in 1846-47, when the NSW Government Surveyor, Thomas Townsend, determined the source of the Murray River so that the border between the colony states of New South Wales and the new colony state of Victoria could be delineated and declared 1 July 1851, shortly after gold was found in NSW and just before it was found in Victoria. The

discovery of gold in Australia resulted in an increased interest in the Alps' geology and a search for gold. Both the NSW and Victorian governments commissioned experts to prospect in the Alp (geologist Reverend W B Clarke in 1851 for NSW, Alfred Howitt in 1860 for Victoria) [see Mining]. Clarke also visited the only two major karst areas in the Alps, Coolamine and Yarrangobilly, in NSW.

Botanical research in the region was greatly advanced by Baron Dr Ferdinand von Mueller, Government Botanist for Victoria, over five journeys into the Alps in both Victoria and NSW, between 1853 and 1861, when he made extensive collections of plants, recording their habitat and geographic distribution (Willis 1988:381-381; Gillbank 1992:211-222; Griffiths and Robin 1994). He used tracks made by pastoralists and gold-prospecting surveyors [see Roads / Tracks], but also explored 'new' ground, that is new to Europeans, finally climbing Mt Baw Baw in 1861:

… a wild, rocky, isolated summit at the south-western slope of the Australian Alps, hitherto unexplored, and perhaps the only locality from which additions may be expected of importance to our knowledge of Alpine Flora.

(von Mueller in 1855, Gillbank 1992:219)

Increasing numbers of other government officials took the opportunity to observe and report on the nature of the Alps. James Stirling, the Victorian district surveyor at Omeo in East Gippsland in the 1870s and 1880s recorded the geography, geology, botany and meteorology of the Alps (Macdonald and Haiblen 2002:3). These scientists continued their generalised observations and data collection and were beginning to report on the harmful effects of stock grazing on the high plains and burning to improve pasture (eg Lendenfeld, J H Maiden and Richard Helms). Stirling noted in 1887 that the anemone buttercup was 'fast disappearing from the summits of our Victorian mountains owing to the inroads made into the native vegetation by stock', indeed the species has not been recorded in Victoria since (Coyne 2001:131). Other impacts were also being observed – in 1899 Maiden expressed concern about the proliferation of exotic weeds being brought into the area. A problem perhaps exacerbated by Mueller who had scattered blackberry seeds for future visitors in the 1850s (Gillbank 1998) [see also: Conservation].

Such 'collecting' resulted in an increasing understanding of the faunal species of the Australian Alps, such as the aestivation cycle of Bogong moths observed by Helms in the Snowy Mountains in 1893 with Aborigines feasting on them [see also: Indigenous contact]. However, the Pygmy Mountain Possum, known in the fossil record, was not found live in the Alps until 1966 at Mt Hotham, Victoria.

It was at this time, towards the end of the 19th Century that researchers increasingly began to pursue more specific inquiries, such as in meteorology with Clement Wragge's weather station built in 1897 on the top of Mt Kosciuszko, supported by the 1896 international meteorological conference in Paris (Higgins 2002). A growing interest in the question about the possible glaciation of alpine Australia led to conflicting theories held until the 1960s: one that an extensive ice sheet extended to the Monaro in NSW or that there was no glaciation whatever (Macdonald and Haiblen 2001a:57-60). In 1901, when no absolute dating techniques were available, Edgeworth David, Richard Helms and E Pitman estimated the absolute age of glacial features at Railway Embankment, NSW, as between 3000 and 10,000 years ago, now seen as 'one of the finest attempts at an absolute age anywhere in the world' (Griffiths and Robin 1994:40).

Many of the early explorers and surveyors have their names remembered in features in the alpine landscape: Mount Townsend, KNP, Mount Clarke, KNP, Mueller's Peak, KNP, Mount Howitt, ANP, Mount Stirling, ANP, Wragge's Creek, KNP, Helm's Moraine, KNP, David Moraine, KNP, Spencers Creek, KNP, Hedley Tarn, below Blue Lake, KNP, and species: *Ranunculus Muelleri* and *Helichrysum stirlingii*.

Experimental Science

Little scientific research appears to have taken place from early in the 20th Century until the 1930s, no doubt partly arrested by World War I and the economic Depression of the late 1920s-30s. The second phase of alpine science is typified by problem-oriented and sustained research contributing to a growing understanding of the ecology of the area.

An early example of sustained research is found in the arboreta of the newly established Australian Capital Territory (then Federal Capital Territory), where specific research questions were asked about what types of trees could be grown in the area. It started initially as a central aspect of the Garden City planning and design of Canberra, when T C G Weston in 1913, was appointed as head of the Afforestation Branch, and chose to test both eucalyptus species and exotic trees for the future suburbs of the newly accepted Walter Burley Griffin design. In 1927, the Commonwealth Forestry Bureau (later the Forestry and Timber Bureau) was established by Charles Lane Poole in Canberra to steer Australian forestry generally and he also headed the new Australian Forestry School that moved to Canberra that year. Practical work was undertaken by the students in the surrounding forests, where in 1928 the Commonwealth Forestry Bureau established its first arboretum, Laurel Group, near Pierce's Creek, and in 1932 higher into the Brindabella's including at Piccadilly Circus. This was about the time that the NSW Forestry Commission stopped planting arboreta in 1935.

Some 28 arboreta were in the area now covered by Namadgi NP, at many different altitudes the highest being at over 1700m above sea level Mount Ginini planted in 1974 as part of ongoing scientific research, that informed both the ACT but also states' forestry industries (Chapman and Varcoe 1984:4-5). A number of the arboreta established by Lindsay Pryor from 1940-1961 including Bendora, Snow Gum Hill and Mount Ginini, are seen as important species trial sites in the development of scientific monitoring (Griffiths and Robin 1994:50).

The risk to a clean water supply for urban areas from erosion in the upland water catchments, with fire and grazing suspected as major causes, triggered the establishment of state soil conservation agencies in NSW (1938) and Victoria (1940) [see also: Water], and long-term research on this issue. Key scientific figures driving this research and debate included Maisie Fawcett (Carr), who in the 1940s with John Turner, established a series of grazing exclusion plots at Rocky Valley and Pretty Valley near Falls Creek in Victoria. These sites have, over the long term, provided major scientific evidence of grazing impacts on alpine grasslands and information about long-term regeneration (Macdonald and Haiblen 2001a:28).

Hydrological research by Costin and Wimbush also focused on catchments, hundreds of stream gauging stations installed by water and power authorities providing important data sources, related to surface and snow run-off, and impacts from erosion and fire, fire predictors (such as in the ACT) and post-fire recovery, and infrastructure impacts.

Elsewhere, Alec Costin documented the destruction of alpine / subalpine moss beds (*Sphagnum*) in Victoria and NSW from grazing and fire specialists Raeder-Roizsch and Phillips were examining the relationship of fire and soil erosion in the upper Tooma River catchment, NSW. Dendrochronological research by Lindsay Pryor at Bulls Head in the Brindabella Range, ACT, showed a dramatic increase in fire from around 1860 (Griffiths and Robin 1994:50).

State governments responded in the late 1950s to the growing body of scientific evidence on the impact of grazing on the high country mountain catchments by removing grazing at Mounts Hotham, Loch, Feathertop and Bogong in Victoria, and from Kosciuszko State Park above 1370m in NSW, the ACT having already ceased grazing in the Cotter River catchment in 1913 [see also: Water].

Long term studies were set up to monitor and better understand the recovery from grazing impacts. Research and investigations by Walter Bryant of the NSW Soil Conservation Service from the mid-1950s at Long Plain, Kiandra and Plains of Heaven, and concluding in the 1970s at Nungar Plain, indicated that regular prescribed burning of fuel should be avoided. This work culminated in a complete ban of grazing from the new Kosciuszko National Park in 1969.

Fauna studies became more targeted from the 1940s, with 40 different insect families found above 1700m in the Snowy Mountains, and from the 1960s the longest continuous bird banding site in Australia began in the Brindabella's, ACT (Environment ACT 2005:128).

The 1960s-70s research elucidated geomorphological processes in the Alps. It is now accepted that the extent of glaciation was only in the very highest regions of Mt Kosciuszko area. Key research sites associated with this work were located in the Kosciuszko National Park and in Victoria at the Buffalo Plateau and Mt Howitt (Macdonald and Haiblen 2001a:61). Karst research at Coolamine and Yarrangobilly defining periglacial dates and knowledge of the climate and vegetation variation of this alpine area is also considered to be internationally important.

Space research also took place in the Alps – at a time when this branch of scientific endeavour was at a new and highly experimental phase. The Alps provided the necessary setting for this work primarily because of the better communications capacity in high isolated areas. A joint agreement in 1960 between Australia and the United States of America, resulted in three space tracking stations being built in the ACT – part of a wider international network. Tidbinbilla, Orroral Valley and Honeysuckle Creek, provided key assistance in satellite tracking, space data acquisition and communications. Honeysuckle Creek provided essential support to the Apollo 11 mission in August 1969, relaying Neil Armstrong's first words on stepping on the moon "That's one small step for a man, and one giant leap for mankind." (Fabricius 1995:13-14).

Conservation Science

Increasingly from the 1970s-80s, scientific research took a strong ecological approach, often with a political dimension. Heightened public consciousness about the environment raised concerns about the impacts of human activity on 'pristine wilderness' areas within an argument for the intrinsic rights of natural environment communities (Griffiths and Robin 1994:21 [see also: Conservation]).

The declaration of national parks reflect this concern, such as four national parks [names] being gazetted in Victoria in 1981 and linked as the Alpine National Park in 1989, which maintained grazing. In the ACT, Namadgi National Park was declared in 1984 [see also: Conservation].

Ongoing research took place on the impact of grazing over the 1980s, with a focus on fen / bog systems and snow patch herb fields. Results on exclosures after some 50 years confirmed the long time needed to return environments to their pre-grazing state, leading to further areas being removed from grazing in Victoria in the 1990s and since in 2005 (Macdonald and Haiblen 2002:126, App.3). There has been a consequent shift of research focus on the impacts on species of different activities in the Alps, from fire, construction, such as ski resorts, and increasingly the potential impacts from global warming.

A snow gauging network not only refuted in 1985 that Australia had more snow than Switzerland, but led, in the mid-1990s, to research on global warming projections to assess when snow might disappear from the Alps. Climate change predictions pioneered studies on the impacts on already endangered species such as the Mountain Pygmy-possum and the Alpine Tree Frog.

Research sites in the ACT (Piccadilly Fire Ecology Plots), to investigate effects of fire on subalpine vegetation, are, with a Northern Territory study, the longest running fire ecology experiment in Australia, possibly the world. (Macdonald and Haiblen 2001a:41-43). Results from such fire plots and experiments show the possibility of fire being rare in the Alps before European settlement, including that fire was essentially absent from alpine / subalpine wetlands for 10,000 years. More recent research in the ACT used the Piccadilly Fire Ecology Plots and work in the Brindabella's concludes that there is no evidence of Aboriginal burning in that area.

Scientific studies were increasingly undertaken jointly across borders, often under the auspices of the Australian Alps Liaison Committee, established in 1986 by the different governments' parks management agencies. For example, in 1996, joint studies in fire were established in the Australian Alps Vegetation Fire Response Monitoring Plots. These are important tools to study post-fire regeneration, such as the wildfire in 1985 at Mt Buffalo incinerating the moss beds (*Sphagnum*), the huge 1998 Caledonian fire, southeast Alpine NP, Victoria, and the January-February 2003 bushfires that burnt out 68% of the alpine national parks (Gill et al 2004:App 1).

Gaps in History of Scientific Research

(noted by Macdonald and Haiblen 2002)

- Geology
- Most fauna
- Forestry research – arboreta in other areas
- Archaeology

Other Gaps

- Forestry
- Border surveying

2.6.2 Scientific Research Places in the Australian Alps

Key locational data is available for many of the Scientific Research sites in Macdonald and Haiblen where 228 research sites are listed including their general location and at times their grid references (50 ACT, 99 NSW, 79 Vic) (2002b in Excel format). Such research sites appear to cover the Australian Alps, although many are clustered near access roads.

Little precise physical description has been made of the sites where scientific research was undertaken, and none is summarised in one report; instead 'descriptions' are generally limited to the nature of the research that took place at the sites (eg Macdonald and Haiblen 2002b), which in some cases determines the site and its environmental context.

The locations where scientific research has been undertaken in the Alps, and continues to be undertaken, are manifest in various ways. Some are sites readily identifiable on the ground whereas others may not be visible, and yet others not directly known or recorded. For example locations of the original phase of scientific exploration and discovery are noted in diaries and in some cases reports, such as Mueller's alpine botanical expeditions mapped by Barnard in 1904 (Gillbank 1992:222, Figure 2; also shown in Lennon 1992:148).

Other research locations are occasionally identified in reports, such as key ones in Griffiths and Robbins (1994), but generally not all are identified, other than in Macdonald and Haiblen (2002b). Many research sites are not only determined by the research topic but also by accessibility, so that many are to be found close to roads, although others are in remote areas, only accessible by helicopter (pers comm. Roger Good: 15/3/06); other research may not have taken place in any particularly locality, such as modeling of climates.

Many research sites have been subject to various assessments as to their scientific importance (Good 1989; Griffiths and Robin 1994), or for their interpretive value (Macdonald and Haiblen 2002a). These studies rarely include any physical description, instead they generally fall into categories such as type localities where a species has first been found or studied, or teaching sites, reference sites and benchmark sites.

It is thus difficult to characterise the types of places that reflect this theme, nor generalise about their locations. Sites mentioned in current or draft plans of management for some of the relevant National Parks acknowledge the heritage importance of scientific research sites listing several relevant to alpine research as outlined above in its history, as being tangible manifestations of this topic (DCE 1992a,b,c,d; ISC 2004:154; Environment ACT 2005:127-129).

Past reviews of the history of science in the Alps and significance assessments repeatedly cite the same sites and research. Apart from those already referenced these include two comprehensive regional assessments for Regional Forest Agreements in Victoria under significance criterion C1, related to scientific significance, being for their importance to contribute to a wider understanding of natural history, 'by virtue of its use as a research site, teaching site, type locality, reference of benchmark site', and provide mapped locations (RFA 1999, 2000). The sites identified in these past studies or in park management plans are listed at Appendix 2. This list not comprehensive nor does it fully provide a sense of the coverage and presence across the Alps.

2.6.3 Condition of Scientific Research Sites in Australian Alps

No overall audit has been undertaken of scientific research sites and their condition or integrity. However a report after the January-February 2006 bushfires that destroyed 1,127,000 ha (68%) indicates the damage done to certain types of research sites 'Research plots; monitoring and baseline sites; 4 out of 5 arboreta in ACT' (Gill et al 2004:16). Several post-bushfires research and monitoring projects are being undertaken to gauge recovery and regeneration issues (Gill et al 2004:App 1).

It is suggested that in many of the experimental research sites such as exclosure plots will not have necessarily suffered as a result of the 2003 bushfires as such fires and research into the impact 'are part of the process' (Roger Good pers comm. March 2006). Good indicated that in other cases the damage was more severe in destroying monitoring equipment.

2.7 Pathways, Tracks and Roads

Pathways of human movement through the Australian Alps – the tracks, roads, pathways and routes taken by explorers, cattlemen, scientists, gold prospectors and those seeking recreation have been influenced by a range of factors – not the least of which is the topography of the Great Dividing Range itself.

Early Colonial visitors to the Australian Alps such as James McFarlane, Alexander Livingstone, Richard Brooks and Angus McMillan are likely to have followed earlier existing Aboriginal pathways (Grinbergs 1993:11-12). McMillan's 1839 journey from the Monaro to East Gippsland was undertaken in the company of an Aboriginal guide, Jemmy Gibber – a Monaro Aboriginal – who was employed as a guide. It is therefore likely that McMillan's 'discovery' of East Gippsland is likely to have been via time-worn and established Aboriginal pathways (Grinbergs 1993:12).

Based on recorded Aboriginal heritage sites and archaeological investigations (Flood 1973; Geering 1981 and Grinbergs 1992) there are likely to be numerous Aboriginal pathways in the Alps that were adopted by Colonial explorers, settlers and pastoralists and prospectors. Some routes are likely to correspond with:

- Snowy River valley;
- Cann River Valley;
- Tambo River Valley;
- Thredbo River Valley; and
- Cotter River Valley.

This is by no means an exhaustive assessment and it is likely that there are numerous routes of movement in the Alps that were adopted from Aboriginal pathways – these should be fully investigated under the Indigenous heritage assessment of the heritage values of the Australian Alps.

There are likely to be a number of stock routes that link pastoral sites within and adjacent to the Australian Alps national parks. Potentially the most important of the stock routes was the route from the Monaro through to East Gippsland following the Snowy River large numbers of cattle (sometimes numbering in the thousands) were taken along this route when the ports of Gippsland handled large livestock export volumes (Grinbergs 1993).

The construction of the Snowy Mountains Hydro-Electric Scheme led to the development of a number of new routes through the Australian Alps. Where previously tracks may have followed an evolution from Aboriginal pathways to bridle trails to stock routes and dray tracks to become roads, the Snowy Scheme had to cut it's own roads – their routes governed by engineering imperatives and the necessity to move large equipment to remote locations. The Alpine Way – from Jindabyne to Khancoban is an example of this type of road.

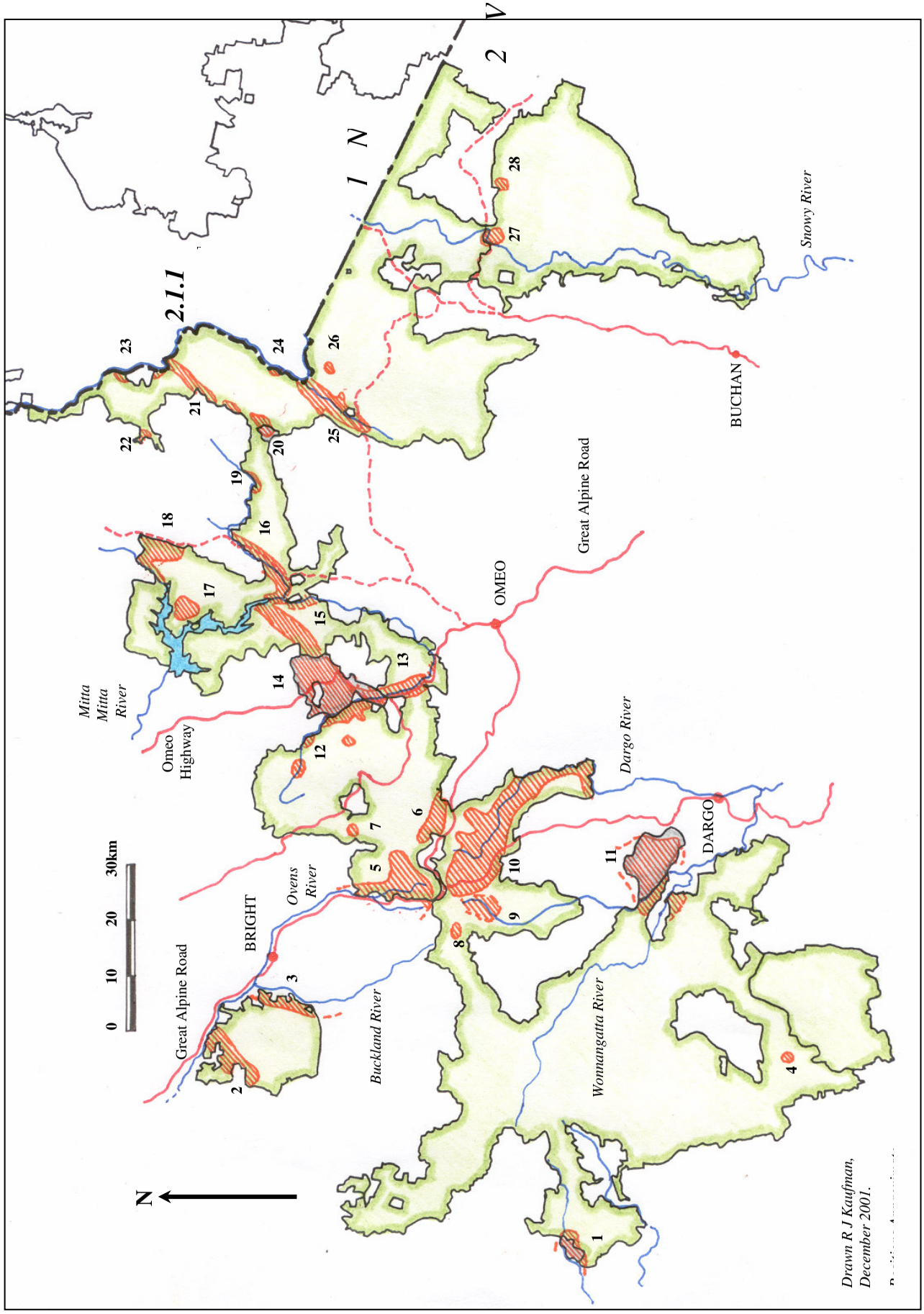
Recreation in the Australian Alps is reflected by a range of pathways from the subtle to the highly engineered. The route from Kiandra to Kosciuszko pioneered by Stuart McAllister in 1898 is popular with back-county skiers although the path is largely a 'cognitive' one with no markings. The Mt Feathertop track in Alpine National Park and the Main Range Track in Kosciuszko National Park have been popular with walkers for many decades and the Australian Alps Walking track spanning some 650km from Walhalla in Victoria to Tharwa in the ACT is becoming increasingly popular. The road from Jindabyne to Perisher, Charlotte Pass and the Summit of Mt Kosciuszko and the Great Alpine Road from Bright to Omeo are examples of works undertaken by State Governments to encourage and underpin tourism in the Australian Alps. In the same light, the Ski-tube – Australia's highest railway - from Bullocks Flat in the Thredbo River valley to Guthega represents a more contemporary example of promoting visitor access to the Alps [see also: Recreation].

2.8 Mining

Peopling the Land – Migrants by choice
Understanding and Shaping the land and resource use – Sub-theme – Mining

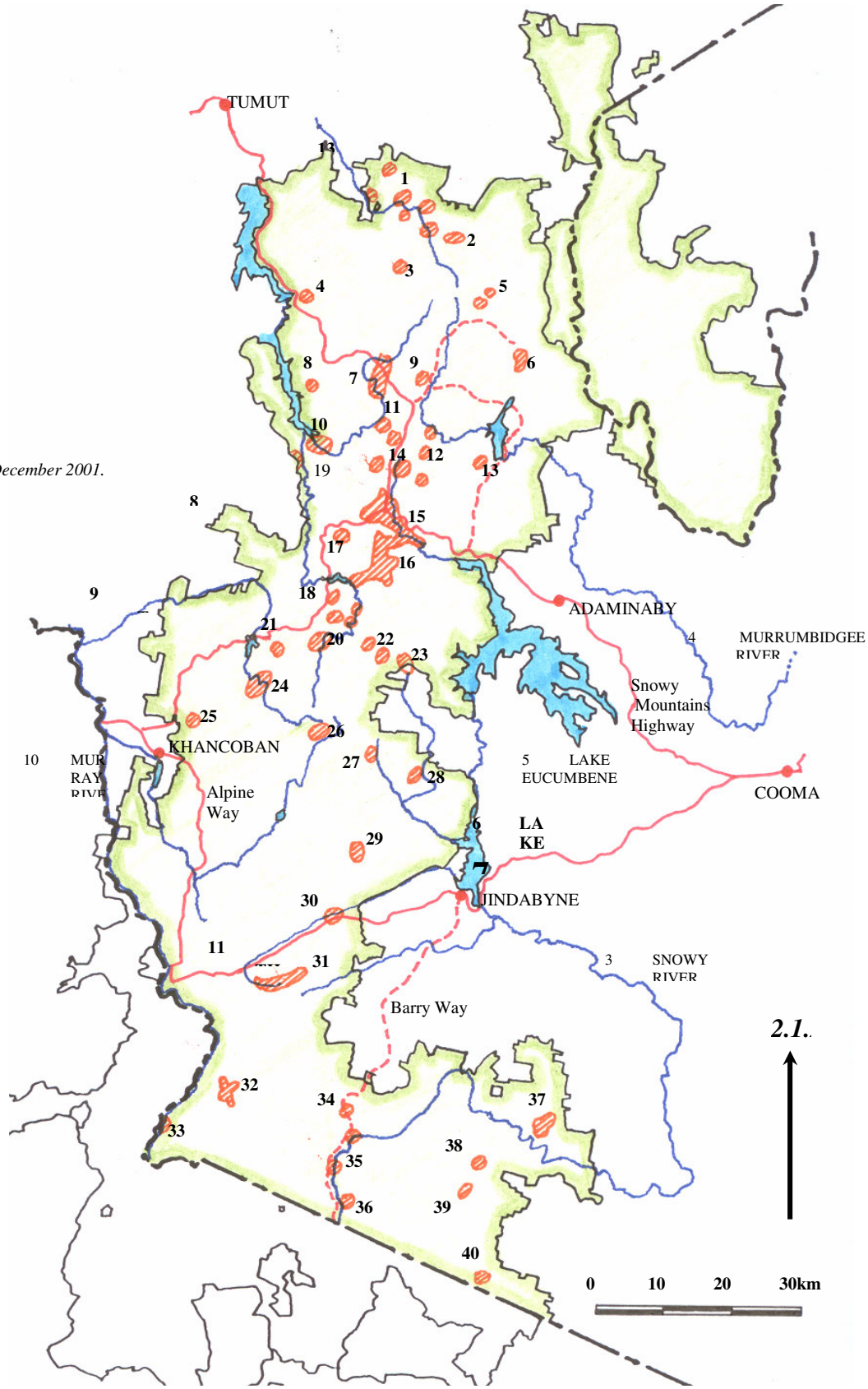
2.8.1 Mining in the Australian Alps

Mining in the Australian Alps was primarily gold mining and part of the larger Gold Rush that took place in the mid-19th Century to Victoria and New South Wales. As such it had many of the technical, economic and social aspects of that Rush, but it also shows some unique characteristics, due partly to the Alps environment in which it took place. From 1851 to the 1920s almost 70 fields, including some tin and copper mines, were mined in what is now the Australian Alps and adjacent Historic Areas in Victoria, part of many more in the neighbouring valleys and foothills (See Maps 2 and 3 from LRGM 2002:Maps 2, 3). Mining remains dot the alpine landscape.


2.1.1
1 N
2 V
Snowy River
BUCHAN
Great Alpine Road
OMEO
Dargo River
DARGO
Mitta Mitta River
Omeo Highway
Ovens River
BRIGHT
Great Alpine Road
Buckland River
Wonnangatta River
0 10 20 30km
N
Drawn R J Kaufman, December 2001.

Drawn R J Kaufman, December 2001.

Positions Approximate



As elsewhere, the influx of hopeful miners from around the world changed the demography of the region which had consisted of sparse pastoral settlement since the 1820s, and although not all miners stayed, many did. A number of the mining townships that sprang up, mostly just outside the Alps, continue as economic hubs today (eg. Omeo, Dargo, Tumbarumba), whilst others, fully abandoned, remain as ghost towns to evoke former times (eg. Cassilis, Grant, Kiandra).

The discovery of gold in Australia in 1851, first in NSW, then Victoria, not far to the west of the Great Dividing Range, immediately focussed attention on the uplands, with instant results, for gold was found in the high country that same year, at Omeo in Gippsland, Victoria.

This was the result of the NSW government's action to promptly contract the Reverend W B Clarke, (the 'father of Australian geology'), to prospect the Alps also in 1851. He did so as far as Omeo and Yackandandah, at the time that Victoria was declared a colony state separate from NSW. He also reported favourably on the potential for gold mining in the Snowy Mountains of NSW and the extensive deposits 'all along the range to Giandara' (Kiandra) (Good 1992:148-149).

The valleys and foothills surrounding and leading into the Alps were the first to be overrun as a result of these finds, such as in 1852 at what is now Bright in north-east Victoria to the west of the Alps. In NSW, gold was also found in 1851 eastwards of the Alps above the coast at Araluen and Braidwood, and westwards in the foothills of the Alps in 1855, at Tumbarumba, and later in 1857 in Adelong just to the north, (LRGM 2002:9). The rivers bearing this gold were followed upstream up into the Alps.

These discoveries were also due to prior exploration and settlement of the alpine areas, by 19th Century explorers recording the geography and geology, as well as flora and fauna, of the region, and pastoralists who had moved into the area with their sheep and cattle [see also: Science; Pastoralism]. The Gold Rush followed tracks already established by earlier travellers [see also: Tracks and Roads]. At times graziers had an important role in prospecting, for example, the Pollock brothers, David and James, who annually brought their sheep flocks from the Murray to graze on the High Plains, and discovered gold and started the Kiandra gold rush in late 1859 (Winston-Gregson 1992:238).

Kiandra had both the greatest and the shortest rush to the Alps. It is estimated that at least 10,000 diggers came to the Kiandra goldfields within six months of the find, a town hastily thrown together, drawing men from other diggings and showing phenomenal yields , the majority of its production of some 180-200,000 ounces of gold occurring in the early years (LRGM 2002:103). The main rush at Kiandra was largely over by 1861, although mining continued – with diminishing degrees of success into the 1930s. Many miners moved on to other gold fields in the mountains, others stayed to work in pastoralism or took up small holdings [see also: Pastoralism]. At one stage a quarter of the miners were Chinese and for a short period they even outnumbered the Europeans. There was a separate Chinese camp and separate Chinese shops (Good 1992; ISC 2004:143). As at other goldfields, in many cases the longer lasting change was that people moved to the area and some stayed on, including Chinese, who often opened small shops [see also: Migration]. Lifestyles changed, one example being skiing introduced by northern European miners at Kiandra, and continuing sporadically from that time in the Alps during the 19th Century [see also: Recreation].

Another impact of the sudden influx of large numbers of people, compared to the sparser pastoral settlement, was on Aboriginal inhabitants with the decline of numbers of Aboriginal people observed in the Alps [see Indigenous Contact].

The Victorian government, keen to benefit further from the Gold Rush asked Alfred Howitt in 1860 to lead a surveying and prospecting party into the Victorian Alps, that found and record the remote Crooked River goldfield (a year later he led the expedition to find Burke and Wills and was well known later as a pioneering anthropologist [see also: Indigenous Contact]). Howitt continued to expand knowledge of the geology of the Alps, as Mining Warden for East Gippsland and later Secretary of Mines.

An evocative description of the mood in Victoria at this time is given by historian Geoffrey Blainey (1963):

White reefs were hidden by snow in the Gippsland mountains. From the lower Goulburn River the Irish prospectors went upstream, following the razorback spurs, deep ravines and finding rich reefs and pockets of alluvial. Gaffney's, Gooley's, Donnelly's, Stringer's in Walhalla and Walsh's Creeks were opened between 1860 and 1862 and diggers and miners built huts and water races at Happy-go-Lucky, Tubal Cain, Jericho and the Jordan, Red Jacket and Blue Jacket, Alabama and Alhambra. Packhorses carried boiler plates and stampers up the muddy trail, strings of fifty of more horses with jangling bells. Melbourne gamblers began to hunt fortunes in the mountains and in 1866 the Woods Point district had 262 registered companies or 13 percent of Victoria's mining companies.

Similar scenes would have been seen in NSW, for example tracks via the upper Cotter River through the Brindabella's, in what is now Namadgi NP, following the early pastoral route to Gibson's Plain, led many to the Kiandra goldfield in its short rush. Throughout the rushes, pastoralists benefited financially by provisioning the miner's travel and the mining fields and towns. Gudgenby and Orroral Stations in the ACT and Wonnangatta Station in Victoria profited from supplying miners with provisions on their way to the fields and in some instances were also able to take advantage of cheap labour – employing out of luck prospectors to work on the runs clearing and building fences in return for food and lodgings (Truscott 2002d).

It is difficult to assess the numbers of individual miners in the Alps, without research into primary records such as license numbers. Kiandra's rush is described above, whilst earlier at Buckland, in 1853, there were 6000-8000 miners. Many miners moved from field to field, either as a field was mined out, or to improve their chances elsewhere. Many would not have stayed in the Alps when doing so but moved to other mining areas, such as the Central Goldfields in Victoria, or in NSW. Nor were all miners full-time, returning to other employment for the winter, and others, such as some pastoralists, mined part-time.

However many miners were in the mining fields of the Alps, the numbers that came to Australia for the mid-19th Century Gold Rush were huge. In 1852 alone, 370,000 immigrants arrived in Australia, Victoria's population growing in two years from 77,000 to over half a million people, and by 1858, Australia's population had reached a million (ABS 2001). Whilst many hopeful miners were from other parts of Australia, and the majority arriving were British, people came from all over the world, others from America, such as the Californian goldfields, and most European countries [see also: Migration].

Europe had only just experienced the 1848 revolutions and beginning of the workers' rights movement. Those views and a general lack of class barriers and mateship on the fields, led to the Eureka Stockade in Ballarat in December 1854, and with it a tradition of egalitarianism reflected in long-lasting changes in Australian society.

Tension between Chinese and non-Chinese miners, who overall formed only 10 per cent of miners, but were dominant at some fields, arose when large numbers arrived in the mid-1850s, at a time when opportunities to get rich on the fields were flagging. Resentment and inter-racial hostility plagued the goldfields in all parts of Australia until the end of the century, including late in Queensland and the Northern Territory. The first real violence took place in the Alps at the Buckland field in 1857. Known as the Buckland Riots, a mob of approximately 500 European and Americans attacked some 2000–2500 Chinese miners. Police from Beechworth arrived after a few days, under Robert O'Hara Burke (of Burke and Wills fame) (LRGM 2005:24). The Buckland Riots *caused colonial governments to review their Chinese immigration policies, and are regarded in many quarters as the first signal event in a long chain that eventually led to the 'White Australia Policy' of Federation times* (LRGM 2005:25).

Whilst the generally difficult conditions of mining in a newly colonised country prevailed in the Alps, high country conditions added to the difficulties. Yet, most miners arrived from Europe or North America where winter conditions were harsher even in urban areas. Several had been at gold rushes elsewhere where winter conditions were infinitely harsher over a much greater area, such as in the high cordilleras of the USA or sub-Arctic conditions in Siberia, Alaska and Canada. These could not be escaped to temperate valleys by a one-day ride such as in the Australian Alps. Although only some of the Australian Alps fields were above the snowline, at many there was summer only mining, which was not unique to the Alps area, but undertaken for different reasons (LRGM 2002:8).

Whilst the rush was on Victoria contributed more than one third of the world's gold output in the 1850s, but each field experienced downturns. Such boom and bust of the Gold Rush not only led to such tensions, but to changes in mining technology. Many of the alpine mining fields had relatively low yields (LRGM 2002), but in many cases they also shifted to different extraction technologies requiring more structured working systems, and companies forming. Drawing on historical reports, government records and general and local histories of mining, key phases of mining in Victoria have been determined based on technological and economic changes (Supple 1992:243):

- Alluvial mining
- Prospecting and track construction
- Initial mining of quartz reefs
- Deep lead mining
- Hydraulic sluicing
- Company mining period
- Dredging
- Successful reworking of quartz mines

These phases are not mutually exclusive, later extraction technologies and phases were introduced but not necessarily fully succeeding earlier technologies that might continue. Not all phases occurred in all mining divisions, although their occurrence at individual fields is recorded in Victoria (Supple 1992; 2005) and NSW (eg LRGM 2002).

Brief histories and outlines of the mining technologies applied at each mining field in the Australian Alps, whether for gold or other ores (LRGM 2002:App 8), with a discussion of the possibility of technical adaptation to the Alps conditions, concluding that that overall, apart from the Red Robin mine, no special adaptations to the Alps were made (LRGM 2002:128-131). However, the environment, notably the topography, does highlight the particular use of certain technologies to capitalise from the good supply of water in the Alps.

At Kiandra, located at an altitude of around 1400m and the largest high altitude field in the Alps, the problem of obtaining sufficient water power for alluvial mining on the high flat alpine plain was resolved by extensive water races and dams that capitalised on the limited slope opportunities to achieve hydraulic volume and velocity at the field. Relatively little other high altitude alpine mining was undertaken in the Alps. In the Victoria Alps, the gold fields generally followed the river valleys that deeply dissect the mountains, where technologies such as hydraulic sluicing were applied based on the topography and the availability of water at high heads. Extensive water race systems were constructed running many kilometres to bring water to many of these sub-alpine fields.

Despite the applications of new technologies, a key feature of most of the goldfields in the Alps was their short life, for whilst some individual mining fields were hugely productive, others faded quickly or continued at a very small scale. Towns appeared and died quickly with the rapid exhaustion of the alluvial deposits, leaving ghost towns behind. Victorian government made efforts to stimulate the industry in the 1890s, including by building an extensive network of roads for improved access into the Alps. The introduction of bucket dredging in the early 1900s was however not as successful in the Alps as in surrounding districts.

By the 1920s mining had mostly ended in the Alps, except for Mt Wills. This reflects the broader economic situation affecting mining throughout Australia at this time – impacted by a shortage of labour and materials after World War I coupled with rising costs. These factors contributed to the decline of mineral resources extraction in the Alps (LRGM 2005; NSW NPWS 1991).

There was sporadic later activity, for example in the 1930s during the Depression, when the gold price rose, and later in 1941 there was a rush at the Red Robin mine near Mt Hotham in Victoria which is still being mined. It has been argued that the mine at over 1600m and battery at over 1200m, has made various physical adaptations to the winter snow (LRGM 2002:131).

The great gold rushes in Victoria and NSW, including the Alps, that took place in the latter half of the 19th Century also influenced the way in which Australian society was shaped and the way it saw itself. It led, in part, to the introduction of the White Australia Policy, however it also contributed to the evolution of an image of a classless Australian society, and the image of the ‘digger’ and Eureka as invoked by Lawson:

Not in vain these diggers died. Their comrades may rejoice
For o'er the voice of tyranny is heard the people's voice

Mining in the Alps was an integral part of this story.

2.8.2 Description of Mining Places in the Australian Alps

There is extensive descriptive data on mining sites in the Alps, although it is uneven, with some fields extensively recorded, others with only brief descriptions. A summary description and history is given for each of the 68 mining fields found in the Alps or the Historic Areas abutting the Alps from LRGM (2002:93-111; Maps 1 and 2) – See maps 3 and 4 and the associated sites listed at Appendix 2.

Supple sees that in the Victoria alpine area there is a *legacy of significant mining features which are rare in other parts of Victoria*., and of which important remnants survive partly as a result of *the isolation and inaccessibility of some of localities* (1992:243), and those not found in other parts of Victoria (Supple 1992:255):

- Use of sluicing to separate gold from the gravels … puddling machines do not appear to have been used [as elsewhere]
- Government assisted prospecting and track construction, with nearly 500 roads and tracks listed in the 1909 map of Mining Roads and Tracks of Eastern Victoria
- Distinctive quartz reef mining features
- Isolated mining areas stimulated the manufacture of portable equipment

Whilst the number of individual mines / licenses although recorded at the time is not given here, there are some 120 places in the Alps and adjacent Historic Areas are known historically, with 68 mining fields, both gold and other ores within today's Alps area and adjacent Historic Areas, all former mining sites, in Victoria (LRGM 2002:93-111; and listed at Appendix 2). The remains in the alpine landscape of the technological phases of mining range from minor to permanent changes to the topography of the Alps at the time mining began. They include diverted water-courses and extensive channels and aqueducts bringing water from upland headwaters at time for miles [see Water], and large areas of original soil and rock permanently removed from the landscape. Mining also resulted in the development of forestry to cater to the voracious for timber, resulting in many denuded landscapes in the Alps.

Associated with mining sites and areas are a series of types of places known as 'mining infrastructure' including:

- Roads and tracks
- Towns and settlements
- Huts
- Other, including early hotels, stores and way stations, along the tracks between mining fields
- Police camps were set up in mid-1860 on the way to the Kiandra goldfield (these are outside of Kosciuszko NP, NSW), including stables, lock-ups and slab huts
- Prospecting camps in Victoria (within Alpine NP), location on maps, Geological Survey of Victoria)

- Races to bring water [see also: Water] for sluicing, crushing, and power generation [seen as part of Mining]
- Graves

Some of these fields in the Alps are seen as relatively intact mining cultural landscapes, such as Kiandra (Kosciuszko National Park); or Grant Township site (Grant Historic Area) (LRGM 2002:15A).

Gold fields that were above the snowline are listed below; some others are excisions in the Alps such as at Mt Wills and Mt Hotham (LRGM 2002:5):

- Kiandra goldfield, including most outlying fields (Kosciuszko NP, NSW)
- Minor NSW gold diggings – Bogong Lead, Thredbo / Crackenback, Snowy Plains etc (Kosciuszko NP, NSW) (Pearson 1979)
- Hotham Heights – upper sites only (Alpine NP, Vic)
- Brandy Creek – Boiler Plain – Tabletop deep leads (Alpine NP, Bogong Unit, Vic)
- Mt Wills – upper sites only (Mt Wills Historic Area, Vic)
- Dargo High Plains – north end only, including the high western front of the Upper Dargo Goldfield (Alpine NP, Bogong Unit, Vic)

2.9 Migration

Early Arrivals

The history of migration and the Australian Alps is one where a relatively high proportion came to the Alps from countries other than the British Isles. Most early settlers that came to Australia did generally come from Britain and this applies also to the first pastoralists into the Alps. However, it is striking how many early explorers, scientists, and artists in the Alps came from other countries in Europe: Lhotsky and Strzelecki (Poles), von Mueller, von Guérard, von Neumayer (Germans), (von) Lendenfeld (Austrian), Chevalier (French-Russian).

There are two big waves of migration into Australia that impacted on the Alps and their story, and brought people from diverse ethnic backgrounds – during the Gold Rush and ongoing Alps mining and after World War II to the major hydro-electric developments, the Kiewa and the Snowy Mountains schemes. In each case, people stayed on in the Alps and region, influencing the cultural mix and the types of uses of the Alps.

Gold Rush Migration

The discovery of gold in New South Wales, then Victoria, in 1850 sparked a massive influx of people. The Alps area was included in this gold rush. Victoria alone had its population treble from 80,000 from 1850 to 237,000 in 1854, reaching 540,000 by 1861, and in NSW the population increased from 200,000 in 1851 to 357,000 in 1861 (DCITA 2006), Australia's population having reached a million (ABS 2001). The hopeful miners came from all parts of the world, whilst many were British or from other parts of Australia, others flooded in from the Californian fields, and yet others came from France, Italy, the German states, Poland and Hungary. Chinese also came to the goldfields including the Alps.

Whilst barely more than 3 per cent of the total population, they were very visible at the goldfields, for example forming a quarter of miners at Kiandra in the Alps. Although most Chinese returned to China once they had made some money, they had several impacts on the new colonies, arising from competition over gold finds and resentment or fear of their difference and work practices. Separate camps probably heightened these tensions and conflict broke out at several fields.

The first was at the Buckland field in the Alps in 1857 near Mt Buffalo, known as the Buckland Riots, when a mob of approximately 500 European and Americans attacked some 2000-25000 Chinese miners. These riots had impacts on colonial governments who reviewed their Chinese immigration policies, and are regarding as culminating in the 'White Australia Policy' at Federation at the turn of the century. [see Mining]

Mining continued throughout the Alps throughout the rest of the 19th Century with new hopeful migrants continuing to arrive at the mining fields. A strong American influence remained as new technologies and finance often came from the United States.

Many miners stayed on in the Alps and region, taking the opportunity of new land selection legislation from the early 1860s, breaking up the large squatter holdings, or working for them, including taking on role as herdsmen in the high country. The Chinese that stayed were shopkeepers, market gardeners or grew tobacco and flax in the deep Alps valleys of Victoria, and Italians stayed on in horticulture.

A typical example of the history of migration and the Alps is the story of Wonnangatta Station, the high Alps valley 'discovered' by American gold prospector, Oliver Smith who took it up with his wife in partnership with Scot settlers. The early success of the cattle run, with summer grazing above the station on the Howitt High Plain, was the supply of meat and cheese, butter and bacon to the mining township at Crooked River (Truscott 2002:17).

Post-World War II Migration and the Alps

The arrival of migrants to the Alps after World War II was based on assisted migration under the Australian Government's agreement as part of the relief and rehabilitation of two million persons disrupted by war in Europe, when some 170,000 Displaced Persons came to Australia between 1947 and 1952.

The Snowy Mountains Hydro-electric Scheme began construction in 1949 and had 60,000 European Displaced Persons and migrants working on it, the Authority recruiting many directly in Europe under this arrangement (Pearson and Marshall 2000:18). Migrants formed some 70 per cent of all workers, from some 30 countries, especially from eastern and southern Europe. Similarly the Kiewa Hydro-electric Scheme in the Victorian Alps had 3459 workers in 1951, many being migrants (LRGM 2004:43). [see Water]

Whilst the Snowy is much touted as fostering multi-culturalism, there were in the 1950s incidents of violence between former enemies in the War or linked to historic animosities but these petered out (Pearson and Marshall 2000:22).

Many of these migrant workers stayed on in the Alps and region. They and other European migrants contributed to post-war development of snow-based recreation in the Alps, for example the Kiewa scheme led directly to the development of Falls Creek ski resort on the Bogong High Plan. Such European migrants lent a

cosmopolitan feel and European experience to the growing hospitality and skiing industries throughout the Australian Alps. [see Recreation]

2.10 Water

Peopling the Land – Migrants by choice or coercion
Understanding and Shaping the Land – land and resource use
Living as Australians – ingenuity, creativity – Sub-theme – Water catchment, hydro-electricity

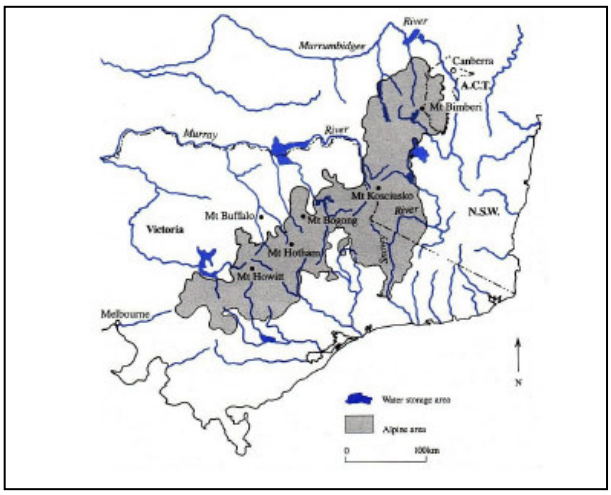
2.10.1 History of Water in the Australian Alps

Water in the high country of Australia, of both the mainland and Tasmania, in the driest inhabited and flattest continent, was recognised and used early after European colonisation as a source for domestic and industrial purposes [see Aesthetic Value]. As the settler population increased, the Alps were increasingly seen as a source of water outside the area, its flow harnessed for hydro-electricity and irrigation. These resulted in major infrastructure projects, marking the landscape today and influencing change in Australian society beyond the region.

The Australian Alps contain the headwaters of a number of major rivers such as the Snowy, Murrumbidgee and Murray rivers, south-eastern Australia's largest river system, the latter two feeding the regions west of the Great Dividing Range.

The Alps receive some of the highest precipitation in Australia, both as rain and snow, partly because of its high altitude. The relatively low temperatures result in low evaporation rates, the high water-holding capacity of snow, alpine soils and vegetation, notably bog communities, slowly discharging water throughout the year (AALC 2005). This results in a high runoff and low variability of runoff, and a high proportion of the yield of rivers descending to the plains being fed by water from the high mountain catchments (Lawrence 1992:295).

Early settlers, primarily pastoralists, unsurprisingly established themselves, and their stock, close to natural water supplies. Others used the Alps in summer moving their sheep and increasingly cattle to the 'clean and green' high grassland pastures [see also: Pastoralism]. The discovery of gold in 1851 led to a search and discovery of gold in



Map 4 – River system in Australian Alps (AALC 2005)

the Alps and a rush of miners to the area, boosting its population, and the extensive use of water for both domestic use and in the extraction of gold [see also: Mining].

As 19th Century exploration in other parts of Australia failed to find extensive water sources, such as the 'inland sea', the importance of the Australian Alps' water supply in the driest inhabited and flattest continent was realised, both for domestic use and industrially. Water as a source of power had been understood for millennia. But it was really only at the time of the rise of population in Australia because of the Gold Rush in the mid-19th Century, that the importance of clean drinking water to avoid infectious diseases was realised (for example, John Snow's discovery in 1854 in London that cholera is water-borne). The water in Australia's Alps became increasingly of interest to governments taking on responsibility for public health and the provision of power.

Domestic and Agricultural Water Use

The new and growing Australian cities implemented this new understanding of the need for clean water. For example in 1857 in Melbourne the first water reservoir was built at Yan Yean (Melbourne Water 2006). The headwaters of such systems were in the Alps, and led to a concern about the impact of sheep and cattle grazing in the uplands of water catchments from the late 19th Century [see Science, Pastoralism]. This was acknowledged as early as 1913, when Dr John Cumpston, then head of the Commonwealth Quarantine Service, cleared cattle on public health grounds from the Upper Cotter catchment (now largely in Namadgi NP, ACT), an area especially included in the new federal territory formed for Australia's national capital to provide that community with water. Today not only the Cotter Dam, built in 1915, just outside the now Park, but also Corin and Bendora dams, both in the Park, are fed by this catchment (Crabb 2003:14). In the 1890s, the newly established Melbourne and Metropolitan Board of Works acquired and closed to the public the headwaters of the Yarra River. Over time several dams were built to supply clean water to Melbourne and the industrial needs of the LaTrobe Valley, impounding the headwaters of other rivers, such as the Thompson River, north of Mt Baw Baw, and to its south the Tyres and Tanjil Rivers (Lawrence 1992:296). Both NSW and Victoria established soil conservation bodies with responsibilities for water catchments, including in the Alps [see Science].

The Murray River and its management became an issue between NSW, Victoria and South Australia, because of the need for consistent water flow for transport from 1863. In 1915 the River Murray Waters Agreement was signed by the governments of Australia, New South Wales, Victoria, and South Australia, establishing the River Murray Commission (the precursor of the Murray Darling Basin Commission) (MDBC 2000). One of its main provisions was the construction of a storage on the upper Murray, and the Hume Dam was built in 1919 up-stream from Albury, partly fed by headwaters now in the Alpine NP (Vic), and much later in the early 1970s, Australia's highest dam, Dartmouth, was also built for this purpose.

This need for a manageable water flow focussed attention on the fact that the Snowy River, one of Australia's biggest rivers in terms of water flow, ran eastwards to the sea, and the possibility of manipulating this direction. As early as 1884, the NSW Surveyor-General, P F Adams, proposed that the Snowy River be diverted and a canal constructed across the Great Dividing Range to lead water westwards to the Murrumbidgee (Pearson and Marshall 2000:15).

Growing pressure on water supply west of the Alps resulted from burgeoning irrigation along the length of the Murray River and its tributaries, such as the Murrumbidgee and Goulburn rivers from the late 19th Century. By World War I, a guaranteed supply of water was needed and state intervention and population policies drove new government schemes. One such was the Murrumbidgee Irrigation Area (MIA) in New South Wales established between 1906 and 1913, with water supplied by the Burrinjuck Reservoir (to the north of what is now Brindabella and Kosciuszko National Parks), the first major reservoir built for irrigation in 1921. Other schemes were established in Victoria and in South Australia. After the war, soldier settlement schemes in Victoria, NSW and also South Australia, increased dependence on reliable water. Key individuals involved in such group settlement for irrigation, later had a role in the decisions in the Snowy Mountains Scheme, such as Sir Ronald East, Chairman of the State Rivers and Water Supply Commission, 1936-64 (Blackburn 2004; MDBC 2000).

Water as Power

Miners followed the rivers up into the Alps during the Gold Rush of the mid-1850s and mining continued in the Alps well into the 20th Century. Water was central Alps mining operations, determining the location of mines and the extractive technologies applied based on the availability of hydraulic power [see also: Mining]. The rivers determined the location of mining for alluvial gold and the focus of early gold extraction by panning, cradling and puddling (Lawrence 1992:296). As technologies changed, water was still crucial for sluicing, with hydraulic hoses. Long race lines were dug at many mines to provide water extending many miles and waterways diverted from their natural path to direct water as the mining technology required (Lawrence 1992:297) [see also: Mining]. Water power was also used in other ways, such as for battery wheels crushing the ore, and in the late 19th Century to power electricity for mining near Omeo (Lawrence 1992:297).

It was in Victoria that the first harnessing of water for public power was suggested. Melbourne was first city to have a power station (1888), and by the end of the 19th Century most city streets in Australia were lit by electricity and by 1927, 34 per cent of Australians had electricity in their houses. This was all powered by coal (ENA 2004). Increasingly attention focussed on the opportunity of using water sourced form the Alps to power these changes. In Victoria in 1911, the use of Kiewa River was suggested by a private syndicate, but at the time the development of power from brown coal in the La Trobe valley prevailed.

In the 1920s increased interest in hydro-electric power saw the suggestion in 1920 by William Corin, chief electrical engineer, NSW Department of Public Works, of a power station on the Snowy River downstream of Jindabyne (Bambrick 1992:309; Pearson and Marshall 2000:15) and the formation of the Victorian State Electricity Commission (SEC) in 1921. The latter proposed a major hydro-electric scheme for the Kiewa in 1929.

From the 1920s on, repeated reference was made, especially in NSW, to using the Snowy River to enhance water security, such as diverting it via tunnels to Canberra and Sydney (Keele in 1926), and reports led in 1936 to the formation of the Snowy Mountains Hydro-electric League (Pearson and Marshall 2002:15).

It would appear that the Depression slowed decisions and action. For example, it was not until 1938 that the Victorian government approved the Kiewa Hydro-electric

Scheme, at which time World War II interrupted the construction of such infrastructure. Action on the Snowy idea only really took place as part of post-war reconstruction planning during World War II, led by the federal government, seeing a possible Snowy Scheme as part of a major tool for full-employment post-war. The political process, including the states' different positions and preferences for the use of the Snowy River diversions for either irrigation or electric power, and the role of the Commonwealth, is outlined in detail in Marshall and Pearson 2000. It led to excesses in state rights bickering, such as on which side of the river more rain fell (Bambrick 1992:309).

H C 'Nugget' Coombs, as head of Post War Reconstruction and the Prime Minister, Ben Chifley, were largely instrumental in cutting through these differences and pushing for a mixed power / irrigation scheme, and eventually at a Premiers Conference in 1947 demanded a solution and accepted a 1948 report for a joint Snowy-Murray and Snowy-Murrumbidgee scheme to balance these preferences; legislation was enacted in 1949 (Bambrick 1992:311).

Both Schemes underwent changes to their original plan, the Kiewa Hydro-electric Scheme being enlarged and the Snowy Mountains Hydro-electric Scheme eventually linked the Snowy-Murray and the Snowy-Tumut components. Both took longer than anticipated to be completed, the Kiewa Scheme in 1961 and the Snowy Scheme in 1974. They were both major government projects, the Snowy being the biggest public infrastructure project in Australia in the 20th Century (Pearson and Marshall 2001:53).

The Kiewa Hydro-electric Scheme is the second largest such system in Australia, consisting of five dams and pondages, 32 km of aqueducts, three power stations, and a total installed capacity of 184 megawatts and an average annual electricity output of 300 million kilowatt hours (Lawrence 1992:302). The underground generators at Mackay Creek and West Kiewa were the first to be built in Australia (Lawrence 1992:300-302).

The Snowy Mountains Hydro-electric Scheme is the largest power system in Australia with 16 / 17 dams, 150 km of tunnels, seven power stations, and a total generating capacity of 3.74 million kilowatts (Bambrick 1992:312). Up to 99 per cent of the Snowy River water was diverted westwards to supplement natural supplies to the Murray River [see also: Conservation].

The construction of both Kiewa and Snowy schemes was dependent on a large migrant labour force, part of an influx of many 'Displaced Persons', people whose lives had been disrupted during World War II. Australia took some 170,000 such European refugees and migrants, of which 60,000 worked on the Snowy Scheme over the life of its construction, coming from some 30 countries and forming 70 per cent of its labour force, which had 7300 at its peak. In the case of the Kiewa Scheme, there were 3459 workers in 1951, many being migrants (LRGM 2004:43) [see Migration]. Whilst the Snowy is much touted as fostering multi-culturalism, there were in the 1950s incidents of violence between former enemies in the War or linked to historic animosities, but these petered out (Pearson and Marshall 2000:22).

These large projects in sparsely settled areas required their own infrastructure and apart from up to 120 temporary camps for the Snowy Scheme, new towns were built, such as Mt Beauty in Victoria, and Khancoban, Talbingo and Cabramatta, Australia's highest town, for the Snowy Scheme. The construction displaced the local

populations from their homes and land with much grief (McHugh 1999) [see Social Value], whole townships disappearing under the dam waters, such as Adaminaby and Jindabyne, and many of their buildings being moved to new town locations given the same name.

Technical achievements on the Snowy Scheme, notably innovations such as the invention to use rock bolts to strengthen tunnel roofs, resulted in international practice. Perhaps more significantly special labour conditions were created, some introduced from the United States of America, with work practices changing to multiple shifts, pushed through in a manner seen as breaking the unions' power (Pearson and Marshall 2000:22).

These two major hydro-electric schemes had significant impacts on the Alps beyond the structural features built. Raised awareness about the requirement for clean water, at least for irrigation, meant that there was increased scientific research undertaken into the causes of erosion in the headwater catchments, notably by Maisie (Carr) Fawcett in Victoria in Pretty Valley and Rocky Valley associated with the Kiewa Scheme [see also: Science]. The Snowy Scheme consciously funded rehabilitation, activity strongly supported by the head of the Snowy Mountains Authority, Sir William Hudson, who supported the end of grazing when Kosciuszko National Park was declared in 1969 [see Conservation]. Roads and tracks constructed for the schemes led into areas previously hard to reach and whilst the increased power output provided electricity to urban centres, their inhabitants, increasingly sedentary at work, increasingly accessed the high country by those roads for active, physical recreation, such as bushwalking and skiing (Grenier 1992; Pearson and Marshall 2000:20) [see Roads and Tracks; Recreation]. In summer the many dams and weirs formed are popular for fishing and boating [see also: Recreation].

Many European workers stayed on in the Alps, lending a cosmopolitan feel and contributing their European experience in winter recreation to the Alps' hospitality and skiing industries, and directly influencing its architectural forms [see also: Migration; Recreation].

The environmental impacts associated with these schemes increasingly triggered concern. The Kiewa Scheme was repeatedly criticised in the 1960s-70s (Butler 1997:18) and from the 1980s, the lack of flow down the Snowy River led to calls for a change to the system. After the change of the Victorian Government to Labor – after an election campaign fought in part on this issue – there was further community and scientific debate that lead to the decision by relevant governments to return up to 28 per cent of its former flow back to the Snowy River by 2012 – a decision formalised by the *Murray-Darling Basin Amendment Act* 2002.

Gaps in History of Water in Alps

Water for Forestry

2.10.2 Places Characterising 'Water' in the Australian Alps

An itemisation of sites associated with the Kiewa and Snowy Mountain hydro-electric schemes is at Appendix 2. It must be noted that there is a difference in the level of documentation between the Kiewa and Snowy Schemes, for example detailed recording took place in the Kosciuszko National Park on all Snowy related physical features prior to the possible sale of the scheme (A Grinbergs pers comm. March 2006); this complete inventory of Snowy Mountains Scheme sites within Kosciuszko

National Park is at Appendix 2, Attachment 1. In the case of Kiewa, the list does not indicate which sites are in the Australian Alps, as some are outside the area and some on private land or excisions from the Alps national parks, although within the alpine area. Ruth Lawrence has indicated that more detailed information about the technical and physical features of the Kiewa Scheme is available in her doctoral thesis (pers comm. 30 March 2006) this has not been accessed.

Features and sites relevant to water for domestic use or mining are not included, those related to the Mining sub-theme in that part of this report.

Kiewa Hydro-electric Scheme, Victoria

Kiewa Hydro-electric Scheme comprised three power stations, McKay Creek, Clover and West Kiewa, utilising water from 310 square kilometres of the Kiewa River and adjacent catchments, with five dams and pondages, 32 km of aqueducts, through 5.5 kilometres of subsurface tunnels, a surface pipeline, and pressure tunnel, and three power stations (Lawrence 1992:300-302); a map of the Kiewa Scheme's components is at Lawrence 1992:301-figure 1). Key components are (Lawrence 1992):

The scheme diverts and harnesses the Rocky Valley and Pretty Valley branches of the East Kiewa River, which rises on the Bogong High Plains, and the West Kiewa River, which rises near Mount Hotham. The Kiewa scheme utilises the water from 310 square kilometres of the Kiewa River catchment. In addition, 32km of aqueducts transfer water to the scheme from adjacent catchments, much of the water coming from snow, which covers the area for up to five months each year.

… through 5.5 kilometres of subsurface tunnels, a surface pipeline, and pressure tunnel, to the six 16-megawatt generators in the underground power station. The water discharged from the McKay Creek Power Station flows down the Pretty Valley branch of the East Kiewa River to meet the Rocky Valley branch at Bogong township. Lake Guy, located just below the junction of the two streams, forms the head storage for the Clover Power Station, and the water is conveyed through a tunnel and a pressure shaft to the two 13-megawatt generators in the second power station, after which it is discharged into the Clover pondage. A tunnel from the Clover pondage is then joined by a tunnel conveying water from the West Kiewa diversion, and the combined flow passes through a pressure tunnel to the four 15.4-megawatt generators of the West Kiewa Power Station, which are located 140 metres underground. From this power station water is discharged through a rock tunnel and an open canal to a regulating Junction Dam.

Butler in his study of North East Victoria forested areas notes several sites related to the Kiewa Hydro-electricity and power supply, particularly huts, villages and pole lines. Whilst filling gaps in this theme, he notes that it has not been adequately researched (1997 Volumes 1 and 2, Appendix). Again not all the sites he lists, may be in the Australian Alps (see Appendix 2).

Snowy Mountains Hydro-electric Scheme, NSW

On completion of Snowy Mountains Hydro-electric Scheme it consisted of 16 (17) major dams, 150km of tunnels, seven power stations, total generating capacity of 3.74 million kilowatts) (Bambrick 1992:312; plan at Pearson and Marshall 2000:90 from McHugh 1999).

Pearson and Marshall have described the Snowy Mountains Hydro-electric Scheme as having the following major components (2001:25):

- 17 dams (including Dry Dam)
- 13 tunnels
- pumping stations
- 7 power stations
- 8 switching stations and control centres

The functions of these features is described in Pearson and Marshall (2001:25-16), there also being several other infrastructure elements of the Scheme, totalling some 280-287; although there are many other site not included in this total (Pearson and Marshall 2000:25-16 and Attachment 1).

The work camps built by the Snowy Mountains Hydro-electricity Scheme include some 120-127 sites, the tent camp being the most common of various types, their key elements described and recorded by Pearson and Marshall with then and now photographs, as many are ruined or removed (2001:33- 40):

The camps were initially comprised of army-surplus tents, with no flooring and with wire bunks and straw-filled mattresses. At longer-lived camps the basic tents were replaced with iron Nissen huts and prefabricated timber huts built in Cooma. Food was provided by the construction contractors at the cost of 20% of the base weekly wage of each man. Many camps were remote and rugged, and the men worked hard. …

The social stratification of the time was reflected … Labourers and tradesmen … professional 'staff' … The two groups received different levels of housing, in different part of the camps and townships.

The basic typology … divides the camps by their built form [tent camps, snow hut camps, barrack camps, cottage camps, individual huts and buildings]. Many camps … were hybrids … evolved through various building forms over time, and had several different building forms.

(Pearson and Marshall 2001:21-34 informed by Collis1998; McHugh 1995).

2.10.3 Condition of Water Sites in Australian Alps

No overall audit has been undertaken of sites related to water and their condition or integrity. A thorough audit was taken of all physical features of the Snowy Mountains Hydro-electric Scheme in Kosciuszko NP, NSW undertaken in 1998 as part of the corporatisation of the scheme (Appendix 2, Attachment1; pers comm. Alistair Grinbergs March 2006). It is possible that since then some features have been removed as part of a 'cleanup' (Woodford 2005). It is unclear whether such a total audit has happened for the Kiewa Scheme.

A report after the January-February 2006 bushfires that destroyed 1,127,000 ha (68%) indicates the damage done to water harvesting sites, being 'Loss of stream gauges etc; increased sedimentation, turbidity – affecting aesthetic value' (Gill et al 2004:16). Several post-bushfires research and monitoring projects are being undertaken to assess recovery issues (Gill et al 2004:App. 1).

2.11 Conservation

The story of the conservation of the Australian Alps environment reflects the general growing awareness in Australian society of the importance of sustainable natural environments and preserving and understanding ecosystems. Linked in time with a growing recreational use of the natural environment, especially mountains, this resulted in the ultimate declaration of the various parks and reserves that form the Australian Alps national parks.

A growing appreciation of 'wilderness' is evident in Australia from the late 19th Century, and especially after World War I, stemming in part from the 19th Century Romantic movement appreciating the wild and sublime and the growing use of the Alps for recreation [see Aesthetic Responses, Recreation]. This was part of the healthy body movements throughout the then Western world, seen in the increase mountain hiking and the formation of various recreational clubs (famously the Sierra Club in the USA in 1892), the declaration of parks, and also the protection of natural resources such as forests and water. It is clearly a concern for clean water that is the key driving force for the protection of the catchments in the Australia's Alps supplying Australia's urban centres [see also; Water; Science].

From the late 19th Century concern was expressed by some at the potential damage to the Alps environment by sheep and cattle grazing practices, including burning, thought to be causing large-scale erosion [see also: Science].

... inconsiderate people... replacing fresh and fragrant growth by dead and half burned sticks ... That ignorance and maybe greed should be allowed to interfere so drastically in the economy of nature is pernicious, and should not be tolerated.

(Helms 1893)

Park Declaration

These two thrusts, for safe water and for natural recreational areas combined to see the protection of several areas within the Australian Alps, restricting certain activities. The first protection of an Alps water catchment was the upper Cotter in the newly established federal territory (now ACT) by removing cattle from it [see also: Science].

At the same time, an urge to protect recreational resources results in the protection of Alps areas, such as the Yarrangobilly cave reserves declared 1872 and 1890 (Crabb 2003:14) and in 1898 in Victoria with the establishment of the Mount Buffalo National Park.

After World War I, increased bushwalking in mountain areas generally, and skiing in the Alps, was fostered as part of the healthy body movement. An important figure in the early conservation movement was Myles Dunphy, a bushwalker and conservationist, influenced in 1910 by the scenic beauty of the Blue Mountains above Sydney. His focus remained the Blue Mountains but he extended his activitism about 'primitive' areas to call in 1933 for volunteers to establish a National Parks and Primitive Areas Council in NSW, proffering the justification as (Dunphy 1934:2002):

… recreational purposes of man-kind, where he can rid himself of the shackles of ordered existence ... to escape his civilisation.

In 1935, one of the list of areas identified was for the Snowy-Indi Primitive Area, of the Australian Alps, the proposed reserve of 400,000 ha included land on both sides of the NSW/Victorian border (KNP 2004:4).

Both NSW and Victorian governments established soil conservation bodies in the early 1930s to protect water catchments and research erosion mitigation [see also: Science], and further catchment areas were declared in the Snowy Mountains in 1938 prohibiting overstocking and burning.

The declaration of national parks followed with NSW in 1944 establishing the Kosciusko State Park, for water catchment protection and recreational enjoyment. The increasing need to harvest water for power and irrigation that led to the major Snowy Mountains and Kiewa hydro-electric schemes in the Alps also required them to protect the water catchments. The Snowy Authority, notably its head, Sir William Hudson, strongly supported conservation efforts, if only to protect the scheme's dams from siltation and led to the stop of grazing in Kosciuszko National Park in 1969 (Pearson and Marshall 2000:23).

The push for national parks was slower in Victoria, despite urging from bodies such as the Town and Country Planning Association (1949), Victorian National Parks Association (1952) and in 1979 the Land Conservation Council recommended to government after extensive public consultation that a series of parks and reserves be established in the Australian Alps, culminating in the contiguous Alpine National Park in 1989. Namadgi National Park was declared in 1984 from various former ACT reserves.

As the protection of 'natural' areas as national parks took place, a finer definition of 'wilderness' evolved in Australia, initially from a mid-1970s process of recording such areas, based on size, remoteness, and lack of human impact. In the 1990s, a concern that this terminology dismissed millennia of Indigenous use, resulted in the view by conservationists that Aboriginal land use was generally to be more sustainable, compared to impacts of European settlement over the past 200 years [see also: Indigenous contact]. This 'integration' of Indigenous with natural has tended to excluded seeing or appreciating the non-Indigenous story in such 'wilderness'. Wilderness Areas are now declared in each state and territory covering the Australian Alps, Wilderness Areas; all have evidence of non-Indigenous land use. In some cases, this has resulted in policies to remove evidence of non-Indigenous human activity in the Alps national parks.

Below is a summary of the declaration dates of the National Parks and reserves comprising the Australian Alps national parks(Crabb 2003:17 in AALC 2005):

Jurisdiction	Protected Area	Established	Size (hectares)
ACT	Namadgi National Park	1984	106,095
	Tidbinbilla Nature Reserve	1962	5,450
NSW	Kosciuszko National Park	1967	690,000
	Brindabella National Park	1996	18,472
	Scabby Range Nature Reserve	1982	4,500
	Bimberi Nature Reserve	1985	7,100
Victoria	Alpine National Park	1989	647,700

Snowy River National Park	1979	98,700
Avon Wilderness Park	1987	39,650
Mount Buffalo National Park	1898	31,000
Baw Baw National Park	1979	13,300

Rehabilitation

A key aspect of the growing concern for clean water catchments was the need to restore areas that were eroded by grazing and burning. Massive sheet erosion of soil to a depth of 0.6m on the Main Range of Kosciuszko NP, started rehabilitation efforts in the late 1950s (Macdonald and Haiblen 2001a:49). These resulted in a story of 'trial and error' as various re-vegetation trials (with exotic species, mulching, fertilisers and netting) in areas from Mt Twynam to Mt Carruthers were shown to be unviable, in fact deleterious to native vegetation (Pearson 2005:29, 30). Over the 1970s-90, different mixes of fertilisers and native or exotic species to revegetate degraded areas were tried, in ACT with volunteer Bushcare groups, and the 1993 results at Rocky Valley with alpine native species is now applied in Victoria and in NSW.

This rehabilitation is not fully realised by visitors, for example on the Main Range of the Snowy Mountains it is visibly generally masked to them. It is however part of the historic process of a shift from exploitation to conservation, if not restitution of the natural, 'wilderness' state of the Australian Alps.

In doing so, apart from removing the evidence of past land use degradation, other cultural features, such as evidence of the Snowy Mountains Scheme construction, have been actively removed to restore the natural environment (ISC 2004:222). Another example of such removal of cultural sites is the demolishing of the arboreta from certain parks, such as the Jouanama arboretum in northern Kosciuszko National Park (note: The Jouanama arboretum appears to be still there post-2003 fires, and no suggestion in documents that has been removed, see ISC 2004:204-205) due to a concern at the risk to natural values from wildlings from such exotic plantings.

2.12 Recreation

Tourism and recreation in the Australian Alps centres on a range of passive and active recreational pursuits based around the natural attractions of the mountains and valleys.

2.12.1 Recreation and Tourism in the Australian Alps

The earliest tourism activity in the Alps appears to centre on the Mount Buffalo region. Touring groups were visiting the Mount Buffalo plateau from 1856 and by the 1880s there were a number of guest houses on the plateau offering accommodation to visitors (Mosley 1988:57).

Snow sports were also gaining popularity with the earliest recorded 'snow-shoe and skiing sports' reported at the goldfields town of Kiandra in 1861 (Sydney Morning Herald: 27 August 1861). The Kiandra Snow Shoe Club became the Kiandra Pioneer Ski Club and actively promoted skiing and snow-sports in the Snowy Mountains.

With the increasing popularity of the Alps as a destination for visitors came lobbying of the Government by various groups including the Bright Progress Committee to have portions of the high country reserved as National Park. In 1898 1160Ha of the Mount Buffalo plateau was provisionally reserved for the purposes of a national park[1]. Kosciusko National Chase was declared eight years later in 1906 (Mosley 1991:19) around the same time that increasing visitor interest saw the development of the Kosciusko Road and the opening of the Kosciusko Chalet which attracted visitors with bushwalking, horse riding cycling, tennis, golf and ice skating on the hotels artificial lake (Gare 1991:322).

Government agencies were also recognising the growth in popularity of tourism in the alps providing funding for improved access and infrastructure – the road from Bright to Bairnsdale via Harrietville and Omeo was opened in 1899 (Hodges 1991:329) and the development of the Yarrangobilly Caves around the same time (Gare 1991; 321)

The early part of the 20th Century saw rapid growth in the popularity of the Alps as a tourism destination and setting for recreational pursuits. The decades between 1900 and 1920 encompass the opening of the Yarrangobilly Caves House, Kosciusko Hotel and Mount Buffalo Chalet and the development of roads into the alps and rail networks in the surrounding regions.

The emergence of skiing as a significant recreational activity started in the 1920s with the formation of the Ski Club of Australia (1920) followed by the Ski Club of Victoria (1924). In the Brindabella Ranges of the ACT the Mt Franklin Chalet was built in 1938 by the Canberra Alpine Club as the Territories first ski lodge. Up until January of 2003 when the building burned down Mt Franklin Chalet was the oldest surviving club-built ski lodge on the Australian mainland.

Facilities for winter sports were already well established at Mount Buffalo, and the slopes of Mount Hotham were attracting more adventurous skiers with a range of accommodation available by the early 1930s. The first downhill skiing in the Falls Creek area was around 1949 when a couple by the name of St Elmo-Beveridge built a rope tow on the present day site of the Summit Chairlift. The Skyline Lodge was the first lodge to be built in 1948 with the Bogong Ski Club lodge built the following year in 1949. Development continued over then next decade with the first chairlift operated in Australia at Falls Creek in 1957. The present day ski resort has its roots in the creation of Alpine Developments Pty Ltd which was formed in 1961 and built two lifts, the Summit and Village T-bars (Falls Creek Resort Management 1999:2). The Ski Club of Victoria was formed in 1924 and it held its first organised races at Mt Buller in 1928. The club built its first hut at Mount Buller in the late 1930s and in 1946 a road was built to the fledgling village. By 1948 a number of ski runs had been cleared paving the way for the growth of the village and the fledgling resort (Hodges 1991 in Scougall 1992:334, Buller Ski Lifts Pty Ltd 2006).

Many Australians benefited as increasing leisure time favoured such travel, enabled by changed working conditions, such as shorter working weeks, down from 44 to 40 hours in 1927, and a guaranteed one week's leave (1936). The 1930s Depression slowed car ownership meaning that 'the railway remained a major focus of mobility throughout the period' (AHC 2003:Ch 10 Mobility Culture). A chalet was built at Mount Buller in 1929 (Mosley 1988:58). In NSW the story was the same. The

[1] This was later extended to 10,518Ha in 1908 before the area was formally gazetted as a National Park in 1948 (Mosley 1988:57-8)

Chalet at Charlotte Pass was built by the NSW Government in 1930, facilitating access to the Main Range (Gare 1991:322).

The Declaration of the Kosciusko State Park in 1944 saw the start of a significant shift in land use in the Alps [see also: Conservation]. The *Kosciusko State Park Act* of the same year and the establishment of the Kosciusko State Park Trust fundamentally changed the balance of land management from grazing, mining and timber-getting towards recreation (Gare 1991:322).

In 1943 Wally and Evelyn Reed leased the Courthouse and converted it to ski accommodation, known as the Kiandra Chalet. The Kiandra Chalet was run by the Reeds until 1953 and it was the centre of Kiandra skiing, the main ski lodge in the northern part of the Snowy Mountains and one of only a small number of ski accommodation buildings in NSW at the time. Other Snowy Mountains ski buildings of the period were the Hotel Kosciusko (since burnt), the Chalet at Charlottes Pass, Betts Camp (since demolished), Alpine Hut (since demolished) and Pounds Creek. Some changes were made to the building but its basic form was retained. The Kiandra Chalet was advertised in the 'Ski Year Book' and Reed built a hut at Mt Tantangara for the use of guests when out on ski tours.

The Reeds returned to Sydney in 1953 and the lease was taken over by Harvey and Joyce Palfrey. The Palfreys remained as leaseholders until 1970, but in the mid 1950s the Kosciusko State Park Trust got ownership from the previous NSW government department, and the Trust (no doubt with the Palfreys' agreement) wanted to further develop the building. Changes and extensions started to be made. A liquor licence was granted in 1959 and business escalated, especially as Snowy Scheme workers began to patronise the establishment, now called the Kiandra Chalet Hotel. During 1960-62 major expansion of the building took place and it assumed its two storey form and a new wing was erected as well. The Kiandra Chalet Hotel was the major ski resort in the northern Snowy Mountains during this period, and its development reflected in a modest way the extensive resort developments taking place at Perisher Valley, Smiggin Holes and Thredbo further south. Several small ski clubs also erected premises in Kiandra.

In 1904, a meeting of Heads of Departments was convened by the Premier to discuss means which might be adopted to publicise the products, resources and scenic attractions of New South Wales.

An outcome of this meeting was the establishment, in 1905, of the Intelligence Department "with very multifarious duties, all designed to make the attractions and possibilities of the State better known at home and abroad, to promote settlement on the land and to encourage immigration". Among the duties of the new Department was the management of the Government Tourist Bureau.

Initially, Ministerial control was exercised through the Treasury, then, for a couple of years, through the Department of the Attorney-General and of Justice. In November 1908 the title of the Department was changed to Immigration and Tourist Bureau. By 1909, control of the Bureau had passed to the Premier. In January 1919 the Immigration section of the Bureau was transferred from the control of the Premier to that of the Minister for Labour and Industry, and the Tourist section to the control of the Chief Secretary. The Bureau operated as a branch of the Chief Secretary's Department until

1938, when it was transferred to the control of the Department of Railways. It reverted to Ministerial control in 1946 with the establishment of the Ministry of Tourist Activities and Immigration. In 1962 the Immigration Division was made a separate branch of the Chief Secretary's Department.

From its early years the Bureau had control of caves resorts at Jenolan, Yarrangobilly, Wombeyan and Abercrombie, and the Hotel Kosciusko, erected in 1909. Previously the upkeep and supervision of caves resorts at Jenolan and elsewhere had been the responsibility of the Department of Mines and Agriculture. The only addition to these resorts was the Chalet at Charlotte's Pass, Mt Kosciusko, which was built in 1931.

The Hotel Kosciusko was destroyed by fire in 1951 and in October 1962, the Chalet was handed over to the Kosciusko State Park Trust, which leased it to a private concern. The Department also passed the control and management of the Yarrangobilly Caves to the Kosciusko State Park Trust on 31 December 1962. Jenolan Caves House was then the only hotel administered by the Department, but caves reserves at Wombeyan and Abercrombie were also under its control.

(State Records of New South Wales. Concise Guide to the State Archives – Tourism.)

Migrant workers on the Alps hydro-electric schemes from continental Europe often stayed on in the region and contributed to the growing winter recreation. In the late 1950s-1960s, many facilities were built by ski clubs in a European alpine style. There was also re-use of hydro structures. An example is the World War II Luftwaffe prefabricated huts brought from Norway by Norwegian construction firm I F Selmer in 1951 as workers accommodation when it constructed the Guthega Power Station. One was later bought by the Alpine Ski Organisation and moved from Guthega to Thredbo and re-erected as one of the first lodges there (pers com G Crocket 3 March 2006; Rodwell 1999).

Increased annual leave (three weeks in 1963, four weeks in 1974), a rise in car ownership and holiday-makers' improved access to the Alps, partly a result of road building by hydro-electricity construction [see Water, Roads], led to a huge rises in numbers visiting the Australian Alps from the 1970s onwards.

2.13 Aesthetic Responses

Understanding and Shaping the Land – Inspirational landscapes – Sub-theme: Appreciating the natural environment

2.13.1 Aesthetics of the Australian Alps

Defining Aesthetic Value

A definition for aesthetic value was developed by experts and applied in all the assessments for the Regional Forest Agreement National Estate studies. All the Victorian alps areas were included in those studies (RFA 1999; 2000):

Aesthetic value is the response derived from the experience of the environment or particular natural and cultural attributes within it. This response can be to either visual or non-visual elements and can embrace emotional response, sense of place,

sound, smell and any other factors having strong impact on human thoughts, feelings and attitudes.

(Ramsay and Paraskevopoulos 1993:81)

A heritage study on 'inspirational landscapes' refined understanding of aesthetic responses to landscapes (particularly natural landscapes) for National Heritage List assessments. The Inspirational Landscape studies Australia included the Alps (Context 2003; Crocker 2004a and b). These were not drawn on closely to provide the following history, in order to provide an independent account of responses to the Australian Alps.

The criterion for aesthetic heritage significance for the National Heritage List (NHL):

e) the place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group

In applying the criteria for the National Heritage List assessments, the definition of 'aesthetic' follows that in the Macquarie Dictionary: *having a sense of the beautiful – characterised by the love of beauty.*

Responses to the aesthetic value of the Australian Alps is rooted in a broader international story of the Romantic cultural movement at the time of early settlement and exploration in Australia. Later in the 19th Century a shift to the search for an Australian identity drew on landscape and environment to form a separate identity from the 'home country', within a worldwide context of nationalistic movements. As these changes took place, the Australian Alps took their place as a central landscape of difference, as responses to them as wild and remote, emerged as the idea of wilderness, whilst creating key parts of Australians' national story as heroic and epic, widely celebrated today beyond the Alps.

At the time of first non-Indigenous encounters with Australia's 'high country', in the 1820s, Romanticism was the dominant cultural movement in the arts, notably in Germany and England. It was first defined as an aesthetic in literary criticism around 1800 and offered an alternative to the ordered world of Enlightenment thought. This movement influenced those that wrote about or painted the Australian Alps at that time.

Romanticism emphasised imagination and feeling. Part of a negative response to the increasing industrialisation, materialism, secularism, and rationalism as the 19th Century began, the movement favoured a glorification of nature, the expression of the emotions and a myth-making of the past. The garden landscape movement of the latter 18th Century had created an approval of the natural landscape and picturesque scenery. Romanticism added an admiration of dramatic, wild nature, previously seen as wasteland. Musicians, poets and artists embraced the notion of the sublime in nature, and its inspirational force, and many travelled widely for new sights and scenes and adventure.

One focus of Romanticism was wild, less-cultivated or undeveloped areas, for example in the Lake District in England or Scotland and Ireland as well as the European Alps, where it was felt the awesome power of nature was visible, for example, J M W Turner's several Swiss Alps dramatic landscapes of 1803. His 1812 depiction of Hannibal and his army crossing the Alps (Tate Britain, London),

overwhelmed by the scale of the surrounding landscape embodies this notion, as does similarly the poet Wordworth's diary of his journey through the European Alps in 1790.

Many of the early explorers and scientists of the Australian Alps were central Europeans and would have been familiar with Goethe's and Schiller's Romantic writings, including references to the European Alps, and also the wild and almost impressionist landscapes by Caspar David Friedrich, the German Romantic landscape painter.

Romanticism was also a strong force in instilling a sense of nationalism in many eastern European countries such as Poland which was partitioned in the late 18th Century among Russia, Austria and Prussia, influencing the sentiments of early Australian Alps explorers Lhotsky and Strzelecki, both Polish. Nationalism, a key part of independence movements from dominant empires, such as the Austrian-Hungarian, drew on myths and sagas from the past to develop national identities later in the 19th Century at a time that a similar discussion took place in Australia.

Whilst some artists in Australia early in the 19th Century were ignorant of this movement as there was a lag in its arrival in the antipodes, Romanticism was a major inspiration for the early explorers' and artists' appreciation of the Australian Alps. Their influence of an appreciation of the aesthetic values of the Australian Alps has been long and deep.

'Scientific explorers in the 19th Century often recounted their emotional response to landscapes and inspired others' (Context 2003:10). The Romantic responses to the Alps were written by well-educated, cultured and generally widely-travelled men who had seen the European Romantic art or read its poetry at a time when literacy rates were generally so low (10 per cent at 1800) that we do not have the responses of most other early migrants:

On November 8th, they were destined to enjoy a sight never before witnessed by white men in Australia. Ascending a range, in order to get a view of the country ahead of them, they suddenly came in front of snowcapped mountains. There, under the brilliant sun of an Australian summer's day, rose lofty peaks that might have found a fitting home in some far polar clime, covered as they were for nearly one-fourth of their height with glistening snow.

Hume and Hovell 1824

Strzelecki in 1845

Mt Kosciusko is seen cresting the Australian Alps, in all the sublimity of mountain scenery … [it] is one of those few elevations … [which] present the traveller with all that can renumerate fatigue.

(in Gare 1992:317)

Alfred Howitt in 1866

The scene was grand in the extreme. South of us went the great dividing range – and all beyond this was an ocean of milk white clouds … rolling up against the dividing range … breaking into feathery surf … suddenly, as almost to take us by surprise, the sun shot over the cloud horizon like a dart of molten gold.

(in Gare 1992:318-319)

Joseph Maiden in 1898

The air is as exhilarating as champagne … It is impossible to view the scenery without emotion. … the practically illimitable panorama of mountain and valley is perplexing. It is grand, sublime, enobling! It gives one a broader view of men and things

(in Gare 1992:318)

As early as 1839, artistic responses to this alpine landscape were predicted by Polish explorer and scientist Lhotsky:

Australian sky and nature awaits, and merits real artists to pourtray it. … defying description – mornings and evenings so pure and serene that the eye is absorbed …, in the depths of the azure on the horizon. … All this and more … will produce a Daniell, and in succession a Salvator Rosa, and, perhaps, such as will even succeed them.

(in Smith 1971:32).

And geologist, the Reverend W B Clarke invoked the famous contemporary English landscape painter J M W Turner is his aesthetic response to the high country in 1860:

… camped under a peak of Muniong near Kosciusko. … I lay facing the east, and saw all the process of dressing the day and wished I had been a Turner to have transformed the tints of that glorious drapery, in which morning marched along the horizon, to canvas.

(in Gare 1992:318)

These responses are in contrast to earlier first responses to Australia who had not been so impressed by Australia's landscape, which seemed alien to them. By contrast, the Alps seemed familiar as part of the then favoured European iconography.

Others put such responses into verse, such as NSW South Coast resident, Henry Kendall in 1869 with his famous poem *Bellbird* of rainforest gorges (published in 1869 in *Leaves from Australian Forests* when living in Melbourne):

By channels of coolness the echoes are calling,
And down the dim gorges I hear the creek falling:
It lives in the mountain where moss and the sedges
Touch with their beauty the banks and the ledge

So I might keep in the city and alleys
The beauty and strength of the deep mountain valleys:
Charming to slumber the pain of my losses
With glimpses of creeks and a vision of mosses.

His third volume of poetry *Songs from the Mountains* (1880) was a huge financial and success, suggesting its wide popularity, and that many who may never have visited the Australian Alps, heard of its scenic power. It is possible that such verse, as well as the writings of the explorers, also widely known, allowed these 'invented landscapes' to be possessed (Lennon 1992:151), at least regarded as 'icons' whether known and experienced or not (Context 2003:10).

The relationship between explorer, surveyors, scientists and art was close as artists accompanied them, often as official illustrators of the new terrains. For example, both Eugen von Guérard and Nicholas Chevalier accompanied Alfred Howitt to the Alps in

1858 [see also: Science] the latter resulting in *Mount Kosciusko seen from the Victorian border (Mount Hope Ranges) 1866*, inspired by this tour, the former influencing Howitt's naming of topography (Walker 1971):

At the top of the Dividing Range ... imagine yourself ... about twelve hundred feet above the rivers... I called the place ...von Guérard's Range as he was with me at the time.

Both these artists came from mixed European backgrounds, and trained, worked and travelled in various countries before their arrival in Australia at the onset of the Gold Rush. Von Guérard, an Austrian-born German, spent 30 years in Australia (1852-1882) and Chevalier, a Russian of French descent.

Whilst also painting pastoral scenes on commission for early squatters, their paintings of the Alps were quickly recognised, Chevalier's 1864 painting *The Buffalo Ranges, Victoria* winning the Trustees prize that year on the opening of the National Gallery of Victoria, being the first Australian painting in the collection, whilst being described in the Argus newspaper that year as a depiction of the landscape … 'admired for European qualities and grand "reminiscences of the old world"'. (NGV nd:17)

Shortly after, von Guérard's *Valley of the Mitta Mitta with the Bogong Ranges* and his *Mount Kosciusko* entered the Gallery, of which he was later curator, and another of his works, *North-east view from the northern top of Mount Kosciusko* 1863, now in the National Gallery of Australia. Paintings of other peaks of the Victorian Alps were made, such as von Guérard's *View of the snowy bluff on Wonnangatta River*, 1864. These paintings have therefore been accessible to Australian gallery visitors for almost 150 years. Whilst gallery visitors were only 3per cent until the 1980s, these paintings increasingly were reproduced in histories of Australian art from the 1960s and since in post-card reproductions.

Whilst 1860s colonial Victoria quickly recognised these art works of the Australian Alps, from the 1880s landscape art turned to different views, of pastoralism and sunshine, in a sense more French and genuinely *plein air*, such as the Heidelberg School, and away from German (and English) Romanticism, seeing it as too 'universal' (Thomas 1973:22):

…you could commune with nature in a mountain wilderness anywhere in the world, and anyway crags and waterfalls were considered less typical of Australia than were grassy plains.

This is interpreted as more 'nationalistic' and triggered first by an anti-elitism at the goldfields, and the beginning of the myth of the 'digger' and 'larrikin' [see also: Mining]. The onset of the discussion of federalism began a parallel debate on the Australian national identity and a welcome of the unique Australian landscape as a deliberate point of difference when compared to that found it Europe – although it would be a long time before there evolution of an appreciation of Australia's arid interior.

Attitudes to these artists has gone through cycles, such as Hughes' rejection of these 'European *émigré* painter*s* in 1970 at a time when impressionistic or modern renditions of the desert and 'Outback' gave Australians another 'sense of place', just prior to the onset of Aboriginal dot painting (1970:50):

Eugène von Guérard and Nicholas Chevalier produced gloomy and indigestibly stodgy prospects of mountains and lakes.

More recent critical analysis of art recognises again these influences of European ideas of travel, nature and art on the Australian landscape (Bonyhady1985; Horne 2005).

A more popularly potent image of the Australian Alps, is evoked by *The Man from Snowy River*, which has entered Australian consciousness as an image of national identity reinforcing the notion of larrikin bushman. The ballad by A B 'Banjo' Paterson, written in 1895, was a runaway success, being sold out within two weeks. A dispute on the Bush Myth between poets Paterson and Henry Lawson in the widely read nationalistic *Weekly Bulletin*, symbolised the debate on federalism and the Australian national identity, this in a country that was even then one of the most urbanised countries in the world. Both published their poetry on this theme, Paterson claiming Lawson's possibly more 'realistic' view was full of doom and gloom and Lawson maintaining Paterson was a 'City Bushman' who romanticised the Bush:

…He hails from Snowy River, up by Kosciusko's side,
Where the hills are twice as steep and twice as rough,
Where a horse's hoofs strike firelight from the flint stones every stride,
The man that holds his own is good enough.
And the Snowy River riders on the mountains make their home,
Where the river runs those giant hills between;
I have seen full many horsemen since I first commenced to roam,
But nowhere yet such horsemen have I seen.

And

And down by Kosciusko, where the pine-clad ridges raise
Their torn and rugged battlements on high,
Where the air is clear as crystal, and the white stars fairly blaze
At midnight in the cold and frosty sky,
And where around the Overflow the reedbeds sweep and sway
To the breezes, and the rolling plains are wide,
The man from Snowy River is a household word to-day,
And the stockmen tell the story of his ride.

The romanticised view won popular opinion, and added 'the Alps, or 'the Snowy', to the landscapes of Australian identity, with the 'The Bush', and more recently 'The Outback', and the mountain horseman as an Australian emblem joining the Bushranger, the Digger, the Doomed Explorer and the Battler in the Bush (Truscott 2003:22). The Alps was to reappear in nationalistic literature by Elyne Mitchell at the time of World War II.

This ballad is now central to Australian folklore, resulting in two films, a television series, a fake 'mountain hut' that is more widely known than many genuine huts, and festivals based on the figure of 'the Man', included in the opening ceremony of the 2000 Sydney Olympics (Truscott 2003:24), and 'the Man's' appearance on the Australian $10 note.

Written shortly later in 1899, the language of the ballad is repeated in a formal scientific report (W H Ferguson in the Snowy Gorge, 1899, quoted in AALC 2005):

The scenery is wild and rough and grand in the extreme. In no place else in Victoria are there such dizzy precipices, such sheer bluffs, or gorges with such vertical sides. In places the river is hemmed in between rocks which leave but a 30ft waterway.

Whilst the national identity primarily focused on the Bush Myth and art turned to the dominant bush Australian landscapes, the mountains were not forgotten, such as in Dorothea Mackellar's My Country published first in the UK in 1908 and in Australia in 1911:

I love a sunburnt country,
A land of sweeping plains,
Of ragged mountain ranges,
Of droughts and flooding rains.
I love her far horizons,
I love her jewel-sea,
Her beauty and her terror -
The wide brown land for me!

A stark white ring-barked forest
All tragic to the moon,
The sapphire-misted mountains,
The hot gold hush of noon.

Whilst Local Snowy area 'bush poets', such as Sydney Jephcott, a cattle farmer near Corryong, and Marie Pitt and Edward Harrington, are said to have written about the mountains (Crocker 2004b:32), they are primarily known for their writings as working class radicals.

Appreciation of this mountain environment is seen at that time in the increasing numbers of city dwellers who travelled to the high country for recreation [see also: Recreation]. Recreation had already been seen as important to spiritual life in the mid-Victorian period. Increasingly, this notion translated into the idea that remoteness, solitude and reflection in certain environments was restorative. This was fostered in photographs and other images. Early 1860s examples of Alps photography by Charles Walter in the *Illustrated Australian News* were described as:

… ably illustrating the romantic and picturesque which nature has scattered so lavishly about us …

(in Hodges 1992:328)

Nicholas Caire also photographed in the high country early from the 1870s on, especially forestry activities, and everyday alpine scenes such as *Mailman going down the Dargo Valley, Victorian Alps* (1900), where the mailman is on skis (NLA nla.pic-an3105467), and today interpreted as representing 'colonial endeavour' (Monash Gallery of Art, 2004 www.mga.org.au/cols-main.htm), but also pure nature scenes, such as *Buffalo Falls* 1900. Other photographic scenes include a postcard Christmas greeting from Australia *A White Australia* (1908) by Frederick Grosse, wood cuts and engravings. But increasingly photographs, seen in magazines, precursors to the later *Walkabout,* brought remote Australia, including the Alps, into everyday homes. This was at a time when a worldwide movement of landscape photography was taking shape in the early 1920s and culminating with the work of American nature photographer Ansel Adams.

Such images were even more widely accessible than paintings in galleries, generally only seen by the educated classes, and fostered the idea of the mountains as a

destination for recreation to a wider audience. Hikers began to visit late in the 19th Century, such as the first 'sport' walk in 1886 by Watson and Davies from Mt Buffalo to Sale, who responded that it was more 'romantic and interesting' than more civilised areas and that the area around Mitchell River 'forms a scene well worthy of the brush of our Victorian artists' (Hodges 1992:328). The burgeoning scouting movement took a strong hold in Australia, producing 'manly' men. Increasing numbers of walkers and skiers resulted in improved road access and accommodation, as well as recreation clubs being formed in Sydney and Melbourne. There was a view that such activity was more admirable than easier recreational pursuits as well as resulting in an increasing awareness of the environmental value of the mountains [see Conservation] and the romantic landscape values, such as the first 'bushwalkers' who in 1886 noted that the area around Mitchell River:

…forms a scene well worthy of the brush of our Victorian artists…

(in Hodges 1992:328)

After World War I, poster images of the Alps served to encourage visitors, at least in Victoria. In 1920, Sir Harold Winthrop Clapp, was appointed Chairman of Victorian Railways Commissioners, and from 1929 chaired the Australian National Travel Association, now Tourism Australia. He embarked on an advertising campaign promoting railways and tourism with slogans, pamphlets and posters, being also the first targeting of tourists overseas, including in other languages.

Travel posters were extensively used internationally and in Australia in the 1920s and '30s, generally with clear graphic designs and simple slogans**,** an eye-catching form of publicity before television, Railways and ANTA hired artists to portray the attractions of Australian destinations, particularly Percy Trompf, widely regarded as a master of poster art, and other key designers, Gert Sellheim and James Northfield, who by the 1930s had formed a distinct Australian style, now widely seen in postcard reproductions (Spearritt 1991). These posters provide an insight into the images and slogans that promoted the Alps, for whilst beach culture was prominent, mountain destinations and alpine recreation, notably skiing, walking, fishing and horse-riding were shown along with scenic mountain vistas, as well as flora and fauna.

The arrival of Kodak box cameras owned by many ordinary families was taken up in the Victoria Railways posters in the *Take a Kodak* campaign, such as *North Eastern Victoria Australia. For the Tourist. Take a Kodak* (Percy Trompf, c1938), showing recreational skiing, fishing and horse-riding against a backdrop of High Country.

The Mt Buffalo Chalet, built by Victorian Railways in 1910 and owned and run by them particularly featured. For example the Chalet was advertised in a huge banner across the front of Melbourne's Flinders Street Station c1920, (NMV), and posters such as *Visit the Victorian Alps* (James Northfield 1931) showing skiers at Mt Buffalo, or *Summer is Always Spring at Mt Buffalo National Park Victoria* (Gert Sellheim, c1936), or another with a tennis player, and *Mt Buffalo National Park The Holiday Spirit* (Percy Trompf).

Books were written recounting adventurous experiences in the Alps, such as Robert Croll, Vice President of the Melbourne Walking Club who wrote in the *The Open Road* listing hundreds of walks, including in the Alps, noting the relevant railway station to access them, but also saying (1928:2):

…the train, the car, the buggy, the bicycle are excellent means of getting from place to place; none of them gives him leisure to note what lies between.

The enterprising Victorian Railways also built on the association of the mountains and horsemen in its *Skyline Tours* from 1935 to the onset of World War II. These tours were for men only, packaged with railway transport to and from Melbourne with a two week walk or horse ride from Mansfield to Omeo (Beeton 1996), that continued the idea of the heroic male in the wilderness, such as seen in a Skyline tour album with verse:

Dark gullies walled by mountains steep
and Gippsland gullies grim
where forest shadows lie at noon
the Picture made for him.

(from La Trobe collection 1933-34, in Hodges 1992:328)

After World War II, limited poster art continued such as in 1955 in the Australian Travel Poster Series on Kosciusko 1955, and again from Victorian Railways *Come to the hills by train*, but these were increasingly replaced by photography. Such romantic images are perpetuated today by 'wilderness photographers' (Hodges 1992:328), such as Harry Nankin, former wilderness photographer and environmentalist, primarily known for his rainforest paintings but also for his mountain scenery in several publications such as climbing magazine *Wild* (see Index Issue 37 (1 July 1990); Nankin 1983; Crocker 2005b:33), and award-winning landscape photographer David Tatnall, whose works of national parks, including alpine scenery are widely acclaimed and held in several galleries, and whose exhibitions include not only natural scenery but cultural features such as Mountain Huts (e.g. 1991 The Station Resort, Jindabyne).

The mountain scenery displayed in such photos is often not specifically located, showing general mountain vistas or snow covered slopes, or focusing in on individual wildflowers, snow gum bark or individual elements and other typical visual moments in the Australian Alps. Such images abound today in postcards and calendars and portray the difference in landscape, the distinctive nature of the Alps, when compared to the Bush or coastal scenes more familiar to most Australians. As Kirkpatrick states (1994:30):

The Australian Alps are aesthetically unique. The combination of gently rounded slopes, highly floriferous alpine vegetation and the pastel untidiness of the eucalypt forest combine to form a highly natural and ineffable beauty.

In comparing the Alps to Australia's world heritage places, Kirkpatrick asserts that the aesthetic aspect of the Australian Alps that stands out among internationally recognised general elements is the outstanding wildflower display in the alpine environment (1994:37). He argues that nonetheless this beauty is ultimately quintessentially Australian (1994:59):

This aesthetic is outstandingly epitomised in the Australian Alps, being, as it is, centred upon the subtleties of dry eucalypt bark and leaf and the gentle and ancient eucalypt-covered slopes.

The mountains as destination also figure in other pictorial forms, such as the Post Master General's commemorative stamp cover in 1960 showing a skier, with the following text: *posted from Mount Kosciusko The roof of Australia 7,308 feet*.

The landscape of the Alps was again part of nationalist literature, when during World War II at the height of the perceived danger from the Japanese, Elyne Mitchell wrote *Australia's Alps*, noting their beauty, the mountain horse – the brumbies, and ecological issues (1942:3):

The spirit of these hills is one of remoteness... Unlike the European Alps, where the actions of our forerunners, their hopes and dreams, cling round each summit ridge, here we have only our dreams and our memories about which to build our own infinitesimal tradition.

The romance of mountain horses was further popularised from 1958 in Mitchell's *Silver Brumby* series of books for children which brought the High Country to generations of young Australians, and has since been turned into feature film/s and a television series, continuing the connection of young people in their imagination with the Alps.

The idea of wildness and scenic beauty became an urge to protect these areas as 'wilderness', part of a wider international and national nature conservation movement from the 1960s in Australia that built on a century of concern about impacts of human behavior in the high country, including especially cattle and horse [see Science, Conservation, Water]. Increased visitor numbers to the Alps, in part due to increased annual recreation leave as well as improved roads built by the hydro-electric schemes, and other factors led to the declaration of national parks in the Alps.

Since then Park managers have made conscious efforts to protect, and rehabilitate, scenic areas and viewsheds to maintain the aesthetic value of the Alps'. The agreement between the Commonwealth, NSW, Victoria and the ACT for the co-operative management of the Australian Alps national parks, acknowledges:

Australia's highest mainland peaks and most spectacular mountain scenery (clause 2.1(a) And commits to co-operate in the determination and implementation of best-practice management to achieve the protection of the unique mountain landscapes (clause 3.2(a)

(Australian Alps Liaison Committee – Memorandum of Understanding 1986)

Part of that process has been to identify aesthetic value for heritage protection (Context 2003; Crocker 2005a,b), with predictions as Wilderness areas are declared with restricted access and activities, that potentially people will withdraw from using Alps spaces altogether in order to protect their ecological and aesthetic values (Slattery and Slattery 2003/ 2005).

For those not visiting the Alps for recreation, opportunity to appreciate its scenic landscape was presented in the 1980s when the myth of *The Man from Snowy River* was again presented, in film and television and strengthened a romanticised vision of Mountain Men and grazing in the High Country [see also: Pastoralism and Grazing]. Promotional tourism material continues to draw on these stories as well, such as Craig's Hut originally built for the film, a fake hut and false location, yet which has become an icon for the Alps, featuring in postcards and posters to promote both tourism and an appreciation of the Alps beauty (Truscott 2003:24). However the huts

in their landscapes setting, particularly those of timber vernacular charm have great aesthetic appeal.

2.13.2 Description of Aesthetic Places in the Australian Alps

Various expert assessments of aesthetic responses to the Alps have identified key places as having aesthetic value.

Regional Forest Assessments in North East and the Gippsland region of Victoria identified all units of the Alpine National Park and Avon Wilderness, as well as several individual features as having aesthetic value, notably various mountain peaks; not all of these are in the Alps (RFA 1999; 2000). This identification was based on community heritage workshops, forest critics, art and literature survey and tourism literature review and other published sources.

The trial of the Inspirational Landscapes identification methodology (Context 2003) by Crocker found that various places related to the Australian Alps met the various indicators for 'inspirational landscapes' one type of place triggering aesthetic responses (2005a:20-21). Those rating highly relevant to this Alps study included Namadgi, Kosciuszko, Alpine, Snowy and Mount Buffalo national parks.

Several mountain peaks in the Australian Alps have been found to have aesthetic value in Victoria in past studies (Crocker 1997, 1999, 2005a and b):

- Mount Speculation
- Mount Bogong
- Mount Cobberas
- Mount Cobbler
- Mount Cope
- Mount Feathertop
- Mount Howitt
- Mount Pinnibar
- Mount Stirling
- Mount Warwick
- Mount Wombargo
- The Bluff
- The Pinnacles
- General views of Great Dividing Range

Areas of the Kosciuszko National Park have been identified as having aesthetic qualities, such as its walking tracks and viewpoints, Mount Kosciuszko itself in its alpine setting as Australia's highest mountain as a symbol, a source of inspiration, and a unique recreational attraction for national and international visitors, Yarrangobilly Caves complex and Caves House as part of a complex of cave sites, and the mountain huts in the park, especially the slab huts, because of their vernacular construction and setting, have an element of simple beauty, which blends well with the dramatic and austere alpine landscape and environment (ISC 2004:218).

2.14 Social Value

2.14.1 Identification of Social Values

Definition

Social values are defined differently in the various heritage regimes in place across Australia, and are often asserted rather than assessed within larger heritage studies.

In the context of the National Heritage List, social values are considered in relation to criterion (g), *the place's strong or special association with a particular community or*

cultural group for social, cultural or spiritual reasons. The current application of criterion (e) also has considerable reliance on social values.[2]

Assessment guidelines for the National Heritage List have not yet been provided by the Department of the Environment & Heritage. Therefore, this assessment of the Australian Alps uses the established indicators and methods established for the Register of the National Estate, with the further application of the national significance threshold (Australian Heritage Commission, 1994). According to this framework, there are three major indicators of social significance:

- landmarks, markers or signatures;
- reference points in a community's identity or sense of itself; and
- strong or special community attachment development from long use and association.

Social values are held by present day living and identifiable communities. These are the so-called 'intangible' values which are expressed and conserved through tangible and intangible elements of a place or landscape. Description and assessment of social values requires an identification of one or more communities with these associations, an articulation of the specific nature of these values, and an evaluation of the significance or intensity of the association, often involving comparative assessments.

Social values therefore occur in relation to a wide range of historic themes, and almost never occur without association with other heritage values. Perhaps unsurprisingly, more than half of the 28 places currently included in the National Heritage List have met the very high national threshold for criterion (g). Furthermore, criterion (g) occurs in association with each of the other national heritage criteria, and in all but two cases occurs in association with criterion (a), underscoring the obvious connection between the history and community associations of heritage places.[3]

2.14.2 Description of Social Values

The social values of the Australian Alps have not been directly assessed. A more comprehensive and definitive assessment of the social values of the Australian Alps will require consultation and research with communities that have associations with the Alps to determine the nature and intensity of their connections. Such an assessment would also involve a review of literature and other cultural references to the Alps, and an exploration of the place these landscapes occupy in the national narrative.

However, the outcomes of several studies of social values undertaken for other purposes are useful in providing a good indication of the range and characteristics of the social values of the Australian Alps.

These previous studies and sources used for this overview include:

[2] For this reason, there are some areas of overlap between the description of social values and aesthetic values in this study.

[3] While very few places have been listed so far according to criterion (i), it is expected that when more places are listed for their importance in Indigenous cultural traditions, there will be a very high correlation between criteria (g) and (i).

- Plans of Management for the national parks which comprise the Australian Alps – in some of the more recent examples, these provide indications of an intrinsic recognition of social values by management agencies;
- typological studies of alpine huts and associated structures, particularly those conducted following the 2003 bushfires (these explicitly examine social values to varying extents);
- community heritage studies undertaken as part of the comprehensive regional assessments for the North East Victoria and Gippsland Regional Forest Agreements in the late 1990s;
- statements and reasons given by the Minister for the Environment & Heritage in his consideration of proposals for emergency listing of the Alpine National Park in the National Heritage List; and
- overviews written for the key historical themes for this study which provide strong indications of the potential social values of the Australian Alps, and of High Country generally.

It is important to note that while this paper addresses social values in relation to historic themes, it is not necessarily the case that these are 'non-Indigenous' cultural heritage values (as specified by the assessment brief). Although often poorly documented and recognised, Aboriginal people have been part of each these histories and have potentially important stories relevant to them.[4] It is assumed that these will be considered in the assessment of Indigenous cultural heritage values.

Park Management Plans

Alpine National Park

The Management Plan for the Alpine National Park was completed in 1992 and Parks Victoria is planning major revisions.

The major features identified by the Plan include spectacular scenery and views, remoteness, outstanding natural landscapes, diverse and significant flora and fauna, and major rivers (and their contribution to water supply to human settlements). Some specific popular features are particularly noted such as Lake Tali Karng, Dandongadale Falls, Mount Bogong, the Bogong High Plains, the upper Snowy River and Mount Wills.

The Alpine National Park Management Plan does not explicitly recognise social values as part of the cultural heritage values which underpin the management arrangements. Both Indigenous and non-Indigenous cultural heritage values within the Park are generally recognised.

The historic themes identified include high country summer grazing, gold mining (and the establishment of townships), recreation and tourism, hydroelectric power generation and timber harvesting. An inventory of sites associated with these themes includes huts and yards, homesteads, mining sites, bridges, tracks and markers. The associations between the Cobberas and Jack Riley, the 'Man from Snowy River' is briefly acknowledged in the Plan, although these 'intangible' values are not further considered in the values for management of the Park.

[4] see for example: Grinbergs (date); Goulding & Buckley (2002); Young (2000); Jackson-Nakano (2001); NSW National Parks & Wildlife Service (2004).

The cultural heritage values of the huts and mining sites within the Park and associated Reserves have been extensively documented and assessed since the completion of the Management Plan, although the potential social values have not been a primary focus of those studies.

In addition to the cultural heritage management provisions of the Plan, there are strategies given for place naming, management of huts, liaison with user groups, the role of volunteers, and the placement of commemorative plaques and memorials which are generally relevant to the potential social values of the Park.

The Alpine National Park Management Plans also recognise the importance of managing the Park within the context of the reserves system in the region, and contains management provisions for a number of these such as the Avon Wilderness, Howqua Hills Historic area, the Grant Historic Area, Mount Wills Historic Area, Sunnyside Education Area and the Mount Murphy Historic Area.

Baw Baw National Park

The Management Plan for Baw Baw National Park was completed in 2005. It emphasises the importance of the Park's scenic and natural values, and its opportunities for bushwalking and cross-country skiing within a remote and natural setting (Parks Victoria 2005:vi).

The Baw Baw Management Plan provides little information about any potential social values of the Park. The cultural values recognised include Indigenous cultural heritage values, places associated with the Park's gold mining and timber harvesting history, huts and tracks associated with early tourism activities, the legacies of the 1939 bushfires, and the Walhalla Tramway Bridge at Poverty Point. (Parks Victoria 2005:4). There are a small number of huts which are of 'expected historic significance', but the potential social values of these are not indicated. (Parks Victoria 2005:27-28).

Mount Buffalo National Park (Victoria)

The Management Plan for Mount Buffalo National Park was completed in 1996. As well as being one of the State's oldest parks, the Plan acknowledges that Mount Buffalo is *one of Victoria's best known and most popular national parks* (DNRE 1996:v). It is managed for its magnificent landforms, scenic views, lookouts, flora and fauna, and recreational opportunities.

The cultural values recognised by the Mount Buffalo Management Plan include the historic Mount Buffalo Chalet, and places associated with past Indigenous use (in particular, the seasonal Bogong moth feast), the early history of skiing, and other historic uses. These are very briefly articulated in the Plan.

In relation to social values, the Plan only acknowledges these for the Mount Buffalo Chalet, and perhaps implicitly in relation to the long history of alpine tourism, sight seeing, skiing and skating (DNRE 1996:13).

Namadgi National Park

Namadgi National Park and the Tidbinbilla Nature Reserve cover all of the alpine and sub-alpine land in the ACT. The process of preparing a management plan for Namadgi National Park is well advanced, with a draft plan released for public

comment in 2005. An agreement for cooperative management of Namadgi National Park has been made between the ACT Government and the Ngunnawal people.

The draft plan recognises the tangible and intangible elements of Namadgi's history (both Indigenous and non-Indigenous). The historical uses include pastoralism, forestry, water harvesting, brumby running, recreational skiing and space exploration. The statement of significance for the Park refers to these themes, and also to the ecological values, Indigenous culture, distinctive natural landscapes, aesthetic values, wilderness and recreational uses.

The Plan explicitly acknowledges issues of 'community attachment' for both Indigenous and non-Indigenous people. These attachments are broadly described as *an attachment based on an intellectual, spiritual or emotional connection to the landscape or specific places or objects within the landscape; a connection to previous occupants, be they ancestors, prominent figures or persons unknown; and/or a connection to community identify, tradition and custom.* (Environment ACT 2005:73). However, the significance of these attachments is not described, nor are the specific elements within the Park which are considered to be of social significance.

The management objectives for the Park include the acknowledgement of community attachment and participation in heritage management. Specific strategies include the recording and continuation of historical traditions, and facilitation of access and development of heritage management partnerships with associated communities. There are also strategies for interpretation, place naming, commemoration and cultural events which operationalise the recognition of social values.

Kosciuszko National Park

Almost all alpine land in NSW is included in Kosciuszko and adjacent nature reserves. A draft management plan was prepared and released for public comment in 2004. Development of the Plan involved a high level of involvement by scientists/experts, Aboriginal people, user groups and community interests.

The draft Plan recognises that Kosciuszko is a *very important place for many Australians* (2004:vi). It recognises the interrelationships between natural and cultural values, and the need for holistic management strategies.

The draft Plan attempts to articulate the social values of Kosciuszko, and proposes a range of specific management strategies and Park programs. It explicitly acknowledges the cultural heritage associations of Aboriginal people and provides specific mechanisms for cooperative management approaches. The draft Plan also aims to establish cultural heritage management partnerships with particular associated communities and families, and proposes programs to record intangible cultural values, including the 'Memories' and 'Traditional Knowledge' projects for both Aboriginal and non-Aboriginal people.

The significance of the cultural values of the Park include associations with the historic themes of pastoralism, mining, water and timber harvesting, hydroelectric power generation, nature conservation and recreation. The draft Plan attempts to specifically identify the social values associated with some of these themes (NSW NPWS 2004:76-79):

- Pastoralism: *the numerous high country traditions and stories that are known and commemorated and hold an important place in the consciousness of Australians, albeit in an often romanticised way*;

- Snowy Mountains Hydro-Electric Scheme: *the largest engineering scheme ever undertaken in Australia and [of] national symbolic importance…The Scheme is held in high regard by the Australian community.* The draft Plan also recognises the importance of the Snowy scheme in Australia's social history, its contribution to the development of Australia's multi-cultural society, the Scheme's distinctive work attitudes and work culture, and its associations with the experiences of many of the Scheme's workers, designers and contractors;
- Recreation: the social values associated with some ski resorts, walking tracks and viewing points within the Park are acknowledged; and
- Huts in their landscape settings are considered to be significant as a group, partly based on their social values, due to their range of types, and diversity of thematic associations. *The complex has social value as representing a way of life that has an iconic, if somewhat romanticised status in Australia and one that is associated with important social movements and persons… For contemporary users they provide a tangible and important trigger to the historical imagination.* The history of volunteer activity to maintain the huts is also recognised as relevant to their social values.[5]

Victorian RFA Studies

Community heritage studies were conducted as part of the comprehensive regional assessments for the Regional Forest Agreements in a number of forest regions throughout Australia. Methods for these studies were piloted for the East Gippsland and Central Highlands Regions of Victoria (AHC, 1994), and were used and further refined for subsequent regional assessments, particularly in Victoria, NSW and Tasmania.

The method involved an initial series of community workshops, which generated very large datasets for the assessment of non-Indigenous cultural values. Of these, a subset was allocated for social values assessment based on the community information provided. A further testing for these values occurred via questionnaire surveys in a number of townships in each region. Despite the very large datasets generated by the community heritage workshops, only about 60+ places were actively assessed. Fieldwork included the establishment of boundaries and key features for the assessed places. For the most part, these studies assessed places according to the threshold for the Register of the National Estate, although there are occasional suggestions that places may be of State or national significance.

The assessed places occurred in both private and public land (and across a variety of parks and reserves). The significance indicators are those given in the discussion of definitions at the beginning of this paper.

Two of these studies are useful in considering the social values of the Australian Alps: North East Victoria and Gippsland (Victoria). Baw Baw National Park is within the Central Highlands RFA region. There was no Regional Forest Agreement for the ACT, and in NSW, the RFA regions excluded the Alps.

[5] Since the draft Plan was released, a comprehensive assessment of the huts has been completed (GML 2005).

It is important to note that these RFA studies covered very large areas of forested land, and were not particularly focused on alpine landscapes or on public land within the Alps National Parks.

The results show a high degree of correlation between social and aesthetic values, and between social and historic values.

Alpine Huts Studies – Victoria and the ACT

The heritage significance of huts in the Australian Alps has been the subject of several very detailed studies in NSW, Victoria and the ACT.

In Victoria, many high country huts (located both within and outside the Alpine National Park) were recorded and assessed by Graeme Butler (1996), and a further comprehensive re-assessment was made by Butler following the 2003 fires which destroyed a large number of the Victorian huts (Butler 2005).

In relation to social values, Butler (2005) states that no social values research was carried out in the most recent evaluation, although an Appendix detailing sources and information relevant to 'Public Recognition and Social Value' is provided for each hut record in his extensive inventory. The information in these Appendices varies, but includes relevant citations from the RFA studies, and views about the hut expressed by well known alpine hut enthusiasts and community-based hut organisations (such as the Victorian High County Huts Association and the Kosciuszko Huts Association). Butler also notes that a *generic value for alpine huts was expressed* in the RFA Social Value workshops.

Butler rejects the notion that social value can only be assessed by public consultation, and argues against the notion that social value is attributable by the present day community alone, invoking the interests of past and future communities also. He also criticises the statistical viability of the workshop and consultation methods applied by Context (1997, 1999) and Truscott (2002a-d).

Nevertheless, Butler (2005:11-13) states that he has used the RFA workshop data in relation to social values, although he also notes that *the 2003 fires (burning many of the huts) is thought to have enhanced the social value held for the surviving huts: this is underscored by the formation of the Victorian High Country Huts Association soon after the fires with aims to conserve all high country huts.*

In assessing the significance of each hut, the 2005 study clearly establishes a significance threshold (with State significance being the highest threshold applied), and indicates which of the Victorian Heritage Council criteria apply. In the results shown below, it is assumed that all huts significant according to criterion (g) and assessed as above the regional or state thresholds are worthy of further assessment in the current project.

Huts destroyed in the 2003 fires, and those previously included in the Victorian Heritage Register were not re-assessed in the 2005 study.

In Namadgi National Park, a number of huts and homesteads have been included in the ACT Heritage Register. The statements of significance for all registered places have been reviewed for their relevance to the description of social values. Following the 2003 fires, a number of huts were re-assessed. These include the Boboyan / ACT Forest Hut, Brandy Flat Hut, Frank & Jacks Hut, Horse Gully Hut and Cotter Hut. Also assessed during 2004 were the Orroral Woolshed, the Gudgenby Precinct and

Tennent Homestead (Truscott *et al* 2004:a-e). These studies also provide a comparative assessment with 74 huts and hut ruins in Namadgi National Park.

Issues raised in the community consultation for these projects posed the view of the huts as a group – or 'system of huts' – as well as individually significant for different reasons. The role of caretaker groups in maintaining and protecting the heritage values of the huts was also a strong message.

Kosciuszko Huts Study

A comprehensive cultural heritage assessment of all huts in Kosciuszko National Park was commissioned by the NPWS following the 2003 fires (GML 2005). The assessment included all surviving huts, and also the huts destroyed in the fires. The assessment of heritage values formed the basis of a draft management plan, which has been available for public comment and is now being finalised.

The social values assessment was conducted to a considerable extent according to the methodology established for the RFA processes. Based on the NSW Heritage Council's criteria and decision making guidelines, the study established the following indicators for articulating the social values of the Kosciuszko huts.

1. Recognised and esteemed by associated community/communities for cultural values
2. Intrinsic to a community's/communities' sense of wellbeing and, if damaged or destroyed, would result in a strong sense of loss.
3. Recognised as intrinsic to the identity of an associated community/communities.
4. Demonstrates a layering of strong community associations and meanings arising form connections with a number of distinct communities.

In the results of the study, the third indicator is the most commonly cited (98%), and the second is rarely cited (5%) as the basis for the social significance. There is a frequent correlation between social values and historical or aesthetic values.

Based on the social values research undertaken, the Kosciuszko Huts Conservation Strategy suggests that the huts are regarded as a 'collection' by many people (GML 2005:80-81). The huts assessed in the Plan are therefore seen as having both individual and collective values. The shared or collective values include:

…the iconic social value of their place in Australian culture reflecting aspects of true stories, legends and myths associated with historic patterns and lifestyles.

(GML 2005:iii)

As a result, the Plan concludes that:

the huts of Kosciuszko National Park… are together with other hut groups in the Australian Alps National Parks, of outstanding national heritage value.

For this reason, the loss of so many huts in NSW, Victoria and the ACT in the 2003 fires is seen as more than just the loss of so much significant fabric:

…the breaking of the chain has a bigger impact than the loss of an individual hut alone.

(GML 2005:iii)

Emergency Listing of the Alpine National Park

In June 2005, the Minister for the Environment & Heritage included the Alpine National Park – part of the Australian Alps national parks in the National Heritage List under the emergency listing provisions of the EPBC Act. In doing so, he found that the Park may have national heritage values, and that the Victorian Government's decision to ban grazing in the Park posed a threat to those values.

Following an assessment by the Australian Heritage Council, the Minister found that while the Park may have outstanding heritage value to the nation, there was not an immediate threat. The Park was removed from the List, and the assessment of national heritage values continued.

The Minister found that the Alpine National Park may have historic national heritage values under criteria (a) and (g), stating that:

…the potential historic values relate to the expression of transhumant grazing within the National Park and the special association of the place for a particular community, the mountain cattleman, connected with the practice of transhumant grazing.

(Minister for the Environment & Heritage 2005:105811)

The initial action by the Minister was the subject of considerable community debate, much of which centred around the perceived conflicts between the conservation of natural and cultural values, and in particular the social values associated with summer grazing within the Victorian high country, the practices of transhumance, and the associated folklore.

Summary

Based on these studies, and on the thematic summaries prepared for this assessment, there are a number of facets to the assessed social values of the Australian Alps.

Social values are often found in association with:

- a range of historic themes – by far the most common is pastoralism/summer grazing, and the establishment and operation of the Snowy Mountains scheme is another strongly represented theme;
- well known high country stories, remembered or still celebrated events and mythical themes – these are often romanticised by the wider community;
- responses to tragedy or loss – including commemoration/memorialisation of deaths or catastrophic natural events;
- events, periods or places of community effort – for example, the huts which have survived through the long and consistent activities of caretaker groups;
- strongly articulated aesthetic values – such as popular look-outs, well known and recognised views or vistas, waterfalls and mountain peaks;
- long established routes, and the destination points within them;
- the activities and places of work – such as the many workplaces associated with the Snowy Mountains Scheme and SECV hydro-electricity developments;
- long established and 'iconic' recreational experiences, particularly for skiers and bushwalkers – places of refuge within remote areas are often valued for these reasons;

- evidence of vernacular traditions of building or land use, offering tangible insights into past lifestyles;
- long family connections – particularly in relation to traditions originating with pastoral runs and summer grazing; and
- human experiences of nature, including refuge and access to remote areas and living within challenging environmental conditions.

2.14.3 Community Connections and Celebrations

Several communities associate closely and often with the Australian Alps. These range from groups based on economic activity in the Alps, such as the Mountain Cattlemen, to caretaker / friends groups for individual huts, homesteads, mining fields. Two major hut caretaker groups are the Kosciusko Huts Association formed in 1970 and the more recent peak Victorian huts group, the Victorian High Country Huts Association. Others communities such as field naturalist clubs focus on contributing to the care of the natural environment. User groups such as recreational clubs, from bushwalking, skiing, horse riding, fishing, shooting, 4-wheel driving, mountain biking, are permitted to enjoy these activities in the Alps according to zoning and permit arrangements.

Opportunities to celebrate the Alps and its associations have proliferated, such as festivals with art and photography exhibitions, bush poetry and folk music, a major one being the *Man from Snowy River Bush Festival* held each year *…by Kosciuszko's side…* at Corryong, held since 1995. Such artistic and community responses to the Alps, whether actual or mythologised, serve to maintain a sense of 'the Alps' as a space of great natural beauty, one that is different to most landscapes, yet part of Australia's story. This has recently been recognised by the Australian Broadcasting Corporation in its commissioning of a radio series, *From a Trickle to a Roar* (ABC March 2006).

Fantasy and nostalgia combine in the huge national and international commercial success of 'Mountain Cattlemen's clothing' such as 'Driz-a-bone' as part of the past alpine lifestyle, shown to be false in early photographs. Nostalgia also features in recent exhibitions celebrating past travel posters and notions of past travel to then seemingly exotic places, including the mountains, such as *Follow the Sun* (NLA), *All the Rage* (SLV 2001) and *Tourism in Australia* (Monash 2003).

2.14.4 List of sites

As noted above, there have been a number of studies resulting in the assessment of places within the Alps landscape for their social values. Those assessed as significant at the thresholds for the Register of the National Estate or for Regional or State significance are listed below. Many of these places have been assessed as significant according to one or more other criteria also. Note that not all of these places occur within the boundaries of the Alps National Parks.[6]

Social Values of the Australian Alps

There are some indications that the entire Alps landscape is significant for its social values. For example, in the Victorian RFA studies, participants often nominated 'all

[6] For example, a number of these places occur in the Dargo High Plains which is outside the Alpine National Park.

high country' or the whole of particular national parks or reserves as significant to them and their communities.

Each of the major parks comprising the Australian Alps has a history of community esteem, and often community-based campaigns to protect these areas from perceived threats or changes in land use. The formation of the parks themselves, and the progressive withdrawal of grazing (and the associated community debate about the loss of important traditions) is an indicator of these values [see also: Pastoralism and Grazing; Conservation]. The intense sense of loss following the 2003 (and 1939) bushfires is another.

In a similar vein, there are indications that high country huts are often see as a single assemblage of strong social value (see the discussion above regarding the Kosciuszko Huts Conservation Plan).

Finally, in many cases, there is a strong indicative relationship between the 'intangible' values of the Australian Alps and the social values attributed to the high country, and to individual areas or features. The relationships between these intangible values, and the social values of the Australian Alps could do with some more careful research, but these connections are well captured by the draft Plan of Management for Kosciuszko National Park:

Places within the park have been the scenes of innumerable human experiences. Some of these have survived as legends or anecdotes, others are remembered within place names, songs, literature, art, traditional knowledge, customs, symbolism or spiritual observance. More still reside in the memories of communities, families or individuals. For many people, these human experiences, be they first hand or retold, real or imagined, are what give meaning to a place. All of them help shape community and personal perceptions, attitudes, values and identities.

(NSW NPWS 2004:75)

These intangible values are also evident in the description and assessment of aesthetic values, including the popularity of 'mountain cattlemen' clothing and images of high country huts used in travel promotions, and the growing number of popular festivals and cultural events associated with the Alps which celebrate the natural and cultural attributes of the landscape.

Huts and Homesteads

Several huts in the Australian Alps are found to have social value, 99 huts of which five are just outside the Alps have been found of social value in various community consultations, as well as another 6 huts burnt during the 2003 bushfires. These are all listed at Appendix 3 including the various functions they had or have today. Seven homesteads are of value to the community, these are (listed with more detail at Appendix 3:

- Mitchell's Homestead Site and Gorge[7], Victoria
- Wonnangatta Station, Victoria
- Currango Homestead, NSW
- Brayshaw's Homestead & Environs

[7] Assessed as local significance by Butler (1996)

- Westerman's Homestead & Environs, ACT
- Tennent Homestead, ACT
- Orroral Homestead & Ploughlands, ACT

Recreation/Ski Lodges Recognised for their Heritage Values

- Mt Franklin Chalet and Precinct, ACT – the ACT's first ski lodge and the oldest surviving club-built ski lodge on the Australian mainland, associated with the Canberra Alpine Club and the development of skiing in the Canberra region; and
- Mt Buffalo Chalet, Victoria.

Landmarks, Routes and Distinctive Features

Landmarks and places of importance to the Alps communities of Victoria for their long use and association, assessed as above threshold for the Register of the National Estate (Context 1997, 1999):

- Nariel Festival Ground (near Corryong)
- Blue Duck Inn, Anglers Rest, Cobungra River.

Also: Wollangara and Mittagundi (outdoor education camp), and the Bogong View Picnic Area were assessed as having potential social values, which have yet to be assessed.[8]

Landmarks registered by the ACT Heritage Council (ACT Heritage Council):

- ACT-NSW Border Markers – associated with the establishment of the national capital, including several rare survey marker types.

Landmarks and inspirational landscapes in Victoria assessed as above threshold for the Register of the National Estate (Context 1997, 1999):[9]

- Eurobin Falls, Buffalo National Park
- Power's Lookout
- Paradise Falls
- Dargo High Plains
- Freda Treasure Tree Reserve, Dargo High Plains
- Hinnomunjie Bridge
- Dogs Grave Reserve, Dargo High Plains

Also: Bennison Lookout, Bryce's Gap & Lookout, Carmichael Falls and Mount Howitt, Howitt High Plains, Mount Hotham, McMillan's Lookout, Pinnacle Lookout, Mount Buffalo mineral springs, Tawonga Gap and Tali Karng[10] have been assessed as having potential social values, which have yet to be assessed.

[8] A number of Aboriginal heritage places were also identified as significant for their (broader) community heritage values.

[9] see also the description of Aesthetic Values (Truscott, this study) and Context (2004)

[10] The Aboriginal cultural associations of Tali Karng have been separately documented through a project jointly conducted by Parks Victoria and Aboriginal Affairs Victoria.

Tracks assessed as above threshold for the Register of the National Estate (Context 1997, 1999):

- Bon Accord Spur Track
- Bungalow Spur Walking Track
- Harrietville-Mt St Bernard Road

Also: The Alpine Walking Track, Dungeys Track, Barry Way, Macalister Track, the pack horse track between Omeo and Glen Wills, the No.3 Road (Razorback – Buttercup – Tomahawk) and the Bicentennial Trail have been assessed as having potential social values, which have only partially been assessed. [11]

Settlements

Small alpine settlements assessed as above threshold for the Register of the National Estate:

- Dargo Township
- Licola Township

See also the discussions about hydro settlements in the 'Water Harvesting' theme for this study [Truscott].

Mining Landscapes

Historic Mining Areas/Landscapes in Victorian reserves in the alpine region assessed as above threshold for their social values for the Register of the National Estate (Context 1997, 1999):

- Glen Wills Historic Area
- Howqua Hills Historic Area
- Pioneer Mine and Water Races (Omeo)
- Grant Historic Area
- Oriental Claims Historic Area (Omeo)

Also: Cassilis Historic Area and a number of mining sites at Wandiligong were assessed as having potential social values, which have yet to be assessed.

Snowy Mountains Scheme

There do not appear to have been any specific studies of the social values of the landscapes modified by the Snowy Mountains Authority (including the displacement and loss of earlier settlements, and the influx of workers and their families). However, there are reasonable indications of social values drawn from the increased recognition and commemoration of these experiences, the emerging social histories, and the rich intangible heritage associated with this them. The landscapes and places are listed in the Description for the Water Resources theme [Truscott, this study].

[11] There are indications that many tracks and routes in the alpine region are likely to be of cultural heritage significance for their social values – but these have not been systematically assessed. Note that many of the key routes within the Alps are considered to have a strong Aboriginal history.

3 ASSESSING THE 'ALPS EXPERIENCE'

3.1 National Heritage Significance Indicators – Methodology

The process for assessment against the National Heritage Indicators (the 'second sieve') was developed in a discussion paper presented to a workshop with the consultant team and the DEH project steering group held on 12 April 2006. Such 'indicators of significance' provide greater focus on the values of each criterion and are an important first step or filter to decide whether the specific characteristics of places that might make them significant.

The following presents the agreed argument for the indicators for this 'sieve' of the places and values in the Alps identified in the histories and descriptions in Chapter 2. It was agreed that the expression of the 'Alps experience' was the overarching indicator for potential National Heritage significance for this study. The agreed indicators served to identify the attributes of the Australian Alps that express potential National Heritage significance.

3.1.1 Cultural Themes of 'Alps Experience'

The story-lines (historic themes) presented in Chapter 2 form the first assessment 'sieve'. They identify and highlight the particular characteristics of these themes in the Australian Alps. For whilst most of the story-lines found in the Alps, such as pastoralism, mining, water-harvesting, recreation and scientific investigation of the environment (to name only the most obvious), have a continental context that is not studied here. Instead it is the distinctive nature of the human experience of these events in the Alps that is quite different from the broader suite of Australian experiences.

The very fact that the Alps is largely snow covered in winter gives it an environmental character that led to very distinctive human responses. There is a strong argument that those elements of the general story-lines (eg pastoralism, mining, water-harvesting, recreation and scientific investigation of the environment) occurring in the Alps have characteristics that distinguish them from the expression of those stories elsewhere in Australia. The approach taken in this study is to view the 'Alps experience' as a modifier of other, more general, stories of the Australian experience that might give places in the Alps a distinctive set of National Heritage values not shared by associated sites in the lowlands.

In this study, then, the broader story-lines are all filtered through the lens of the 'Alps experience'. Through this process a small number of themes were identified that encapsulate the distinctive aspects of the human experience of the Alps, and stand as the framework in which to consider National Heritage values.

Places could then be identified that best represented the themes (by having a good set of indicators) and might meet the thresholds. Issues such as **integrity, authenticity and ability to demonstrate the theme** would have a large bearing on the threshold judgement. A nationally important place would be expected to have a high degree of intactness and authenticity in its physical components, and an outstanding potential to demonstrate its associational and non-tangible heritage values.

It is recognised that other places may subsequently be identified within the Alps area that have National Heritage values not related to the Alps experience and themes. These would be assessed in their particular thematic context. Those other, non-Alps, thematic contexts have not been investigated in this study.

Arising out of the historical overview of the key story-lines of human history in the Alps above at Chapter 2, the following themes are suggested as being of national importance, and providing a good basis for assessing National Heritage values:

Theme 1 The utilisation of the alpine environment for human benefit based on resources or environmental characteristics associated with seasonal snow cover.

The theme covers the Aboriginal occupation of the Alps, transhumance pastoralism, alpine mining, snow-based recreation, water harvesting and utilisation of snow-melt, and the development of alpine human settlements

Theme 2 The development of community/societal relationships with the alpine environment.

The theme covers the development of distinctive community associations related to the communities experiences of the alpine environment, the recognition of alpine environment as inspirational landscapes in art and literature, and the development of iconic stories valued by the Australian community related to the alps experience.

Theme 3 The development of environmental research and conservation responses to the alpine environment.

The theme covers scientific research related to the alpine environment, and conservation work related to the alpine environment

3.1.2 National Heritage Significance Indicators – 'Alps Experience'

'Indicators of Significance' are specific characteristics or attributes of places that might make them significant within the context of a particular theme in the Alps story. The Alps theme straddles many themes in the *Australian Historic Themes Framework* as defined by the Australian Heritage Council (Australian Heritage Commission 2001). The Alps experience falls within the following themes, and may relate to other themes in particular strands of the Alps story.

2. *Peopling Australia*
3. *Developing local, regional and national economies*
4. *Building settlements, towns and cities*
5. *Working*
7. *Governing*
8. *Developing Australia's cultural life*

Indicators of Significance help in the assessment of places under the National Heritage Criteria, and can be grouped within each criterion for that purpose. Indicators help explain, in a broad way, the aspects of a place or its associations that would have to be assessed in order to establish significance.

Some indicators are simply qualifiers of the themes, to make it clearer how the places to be selected for further assessment should relate to the theme. Others are attributes or characteristics that might be shared by places meeting the National Heritage

Criteria. The use of indicators enables places with like values to be compared to establish relative levels of significance.

Places might have evidence in the form of buildings, ruins, artefacts, structural remains, archaeological deposits, landscape modifications or whole cultural landscapes having heritage values, or the values might be solely associational, the places having historical or symbolic associations but no surviving physical evidence beyond the place itself. The integrity and condition of physical evidence are generic indicators that might be a factor in assessing the relative significance of surviving evidence and the comparative significance between places with similar values.

The following table is the agreed set of indicators of significance for the Alps experience. The way in which the indicator might apply to one or more themes is indicated by generalised examples. The absence of an example does not necessarily mean that the indicator does not apply to that theme, just that no obvious example springs to mind.

It should be noted that just because a place is representative of an example identified in the table, it does not mean that the place would meet the threshold for the National Heritage List.

By assessing the theme or themes a particular place well represents, then testing which (if any) of the Indicators of Significance might apply to that place, it would become apparent if the place was worthy of the next step of applying the National Heritage criteria to it.

Indicators and Criteria for Assessing Places in the Alps

Indicator	**Theme 1—examples** *The utilisation of the alpine environment for human benefit based on resources or environmental characteristics associated with seasonal snow cover.*	**Theme 2—examples** *The development of community/societal relationships with the alpine environment.*	**Theme 3—examples** *The development of environmental research and conservation responses to the alpine environment.*	**Criteria most likely to apply to NH places in relation to alpine cultural themes** a – historic b – rarity c – 'research' d – characteristic e – aesthetic f – creative / technical g – social h – special person I – Indigenous (N/A here)
Shaping and defining *1 The place is strongly associated with, and clearly represents a process, phase, social or economic event, development, or activities of an individual important in the human experience in the Alps*	the place is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing the place is important in demonstrating the nature of mining in the alpine environment. The place is an important demonstration of the utilisation of alpine water for power generation or irrigation. The place is important in the development of snow-based recreation in Australia. The place is an outstanding example of a pastoral, mining, water management, recreational, human settlement or other place	The place has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of human occupation of the Alps. The place has an outstanding set of characteristics associated by a community with its experience of the alpine environment.	The place is closely associated with important changes in the evolving environmental management of the alpine environment. The place is closely associated with the development of environmental science in the Alps. The place is an important example showing key characteristics of a particular type or phase of scientific environmental research in the alps. The place is an important example showing key characteristics of a particular type or phase of conservation management response in the alpine environment.	A (most likely) b, d, f, g, h (also relevant)

Indicator	**Theme 1—examples** *The utilisation of the alpine environment for human benefit based on resources or environmental characteristics associated with seasonal snow cover.*	**Theme 2—examples** *The development of community/societal relationships with the alpine environment.*	**Theme 3—examples** *The development of environmental research and conservation responses to the alpine environment.*	**Criteria most likely to apply to NH places in relation to alpine cultural themes** a – historic b – rarity c – 'research' d – characteristic e – aesthetic f – creative / technical g – social h – special person I – Indigenous (N/A here)
	demonstrating the particular characteristics of a distinctive alpine type. The place is closely associated with the activities or life of an important individual or group in a particular land use or recreational activity in the alps.			
Richness of the assemblage *2. The place exhibits a richness of significant assemblages and physical features within the landscape characterising the 'alpine expression' of the national story*	the place clearly demonstrates multiple phases of human activity utilising the alpine environment. The place is a landscape that clearly reflects layers of human modification of the alpine environment.	The place is a landscape with multiple documented stories associated with different communities.	The place clearly demonstrates successive changes in responses to the conservation of the alpine environment. The place is closely associated with the work of an important individual or group in the history of field-based scientific research or environmental management in the Alps.	A (most likely) b, c, d, g, h, I (also relevant)
Community association *3. Strong and special associations between a community and a place is*	There is a strong and special association at a place between a community and a specific land use.	The place is associated with particularly stories demonstrating the development of strong community attachment to a place.	The place has strong community associations, good or bad, with changing responses to environmental conservation in the Alps.	G (most likely) a, b, e, g (also relevant)

Indicator	**Theme 1—examples** *The utilisation of the alpine environment for human benefit based on resources or environmental characteristics associated with seasonal snow cover.*	**Theme 2—examples** *The development of community/societal relationships with the alpine environment.*	**Theme 3—examples** *The development of environmental research and conservation responses to the alpine environment.*	**Criteria most likely to apply to NH places in relation to alpine cultural themes** a – historic b – rarity c – 'research' d – characteristic e – aesthetic f – creative / technical g – social h – special person I – Indigenous (N/A here)
clearly demonstrated.		The place is closely associated with an individual held in particularly high esteem by a community.		
Stories and myth making *4. The place is associated with particular stories that have shaped important cultural beliefs or concepts of national identity*	the place is closely associated with stories of alpine land use that have become iconic in the broader Australian community (eg Man from Snowy River, Snowy Scheme).	The place is closely associated with stories that influence contemporary responses to the alpine environment.	The place is associated with stories and beliefs that have influenced the nature of environmental management responses to the alpine environment.	A, g (most likely) b, (also relevant)
Inspiration *5. The place elicits or has elicited in the past strong responses from the Australian community to its alpine aesthetic characteristics*		the place is regarded as an 'inspirational landscape' the place has been or is the subject of important artistic representations of the alpine environment.		E (most likely) a, b, g (also relevant)

3.2 Results of NH Significance Indicator Assessment

The selection of indicative elements, places, and areas deemed to pass this second sieve of indicators for 'Alps experience' was based on assessment of the many physical features best expressing the key historic themes as described above in Chapter 2, and outlined at Appendix 2.

The results of the second sieve assessment include some 30individual sites, and about 11 cultural landscapes, some rich assemblages from one historic Alps theme, others formed by a layering, or palimpsest, of human activity embodying several historic themes. In some cases, there are places that may come over the NH significance threshold individually.

Each of these indicative elements, places and areas is described below identifying which Alps cultural themes and indicators they meet, as well as the National Heritage criteria they potentially meet. Some places were ruled out as their condition or integrity not intact or the site is no longer extant, for example, the Wragge's weather station on Mt Kosciuszko is no longer there, so it has not passed this sieve.

Individual boundaries have not been set for any of these individual or grouped places, for in identifying these elements it is clear that individual sites, assemblages and cultural landscapes are linked by tracks and story, and they occur throughout the Australian Alps. These elements, places and areas identified via this indicator sieve are considered as attributes of the Australian Alps as a whole. It is as parts of a whole that they contribute to the potential National Heritage significance of the Australian Alps, and it is as such that they have been assessed against the National Heritage significance criteria in the values statements in Chapter 4.

3.2.1 Indicative Elements

Indicator - Shaping and Defining

The place is strongly associated with, and clearly represents a process, phase, social or economic event, development, or activities of an individual important in the human experience in the Alps.

Place	Potential National Heritage Criteria
Arboreta (remaining post-fires), NNP	a, b, d, g, h
Army Chalet, NNP	c, e, g
Cascades Hut, KNP	a, b, d, e, g
Coolamine Homestead, KNP	a, b, g
Cooleman Plain Karst Area, KNP	a, b, d, h
Cope Hut, ANP	a, d
Cotter Hut Site, NNP	a, c, e, g
Currango Pastoral Landscape, KNP	a, b, d, e, g
Franklin Chalet, NNP	a, b, d, g
Glaciation research sites, KNP	a, b, h
Great Alpine Road (original portions)	a, b, e, f, g
Gudgenby Pastoral Landscape, NNP	a, g
Hotel Kosciusko (Sponars), KNP	a, d, g
Illawong Lodge (near Guthega), KNP	a, b, d, e, g
Kiandra Mining Field, KNP	a, b, c, d, f, g
Kiandra (The Kiandra Courthouse), KNP	a, b, d, e, g
Long term stream monitoring sites, all	a, d
Main Range conservation sites, KNP	a, d, g
Mining Ghost Towns, Vic	a, d
Mount Buffalo Chalet, MBNP	a, b, d, e, g

Place	Potential National Heritage Criteria
Oldfields Hut, KNP	a, b, d, e, g
Orroral Pastoral Landscape, NNP	a, b, d, g
Piccadilly Fire Ecology Plots, NNP	a, b, d
Pretty & Rocky Valley Exclosures, ANP	a, c, h
Red Robin Reef Mine	g, g
Rock Creek Lodge (Perisher), KNP	a, b, d, e, g, h
Snowy Mountains Hydro Scheme, KNP	a, b, f, g, h
Snowy River, KNP, ANP, SNP	a, b, e. g
The Chalet – Charlotte Pass, KNP	a, b, e, g
Tidbinbilla Nature Reserve	c, e, g
Upper Cotter catchment, NNP	a, c, d, h
Von Mueller's survey routes, ANP, KNP	a, b, g, h
Wallace Hut, ANP	a, b, d, e, g
Wonnangatta Station, ANP	a, b, c, d, g
Yarrangobilly Caves Karst Area, KNP	a, b, d, h
Yarrangobilly Caves Precinct, KNP	a, b, d, e, g

Indicator – Richness of Assemblage

The place exhibits a richness of significant assemblages and physical features within the landscape characterising the 'alpine expression' of the national story. Other landscapes have been identified formed from many indicative elements and are discussed below at 3.2.2.

Place	Potential National Heritage Criteria
Currango Pastoral Landscape, KNP	a, b, d, e, g
Franklin Chalet, NNP	a, b, d, g
Great Alpine Road (original portions), ANP	a, b, e, f, g
Gudgenby Pastoral Landscape, NNP	a, g
Hotel Kosciusko (Sponars)	a, d, g
Illawong Lodge (near Guthega)	a, b, d, e, g
Kiandra Mining Field, KNP	a, b, c, d, f, g
Kiandra (The Kiandra Courthouse)	a, b, d, e, g
Mount Buffalo Chalet, MBNP	a, b, d, e, g
Oldfields Hut, KNP	a, b, d, e, g
Orroral Pastoral Landscape, NNP	a, b, d, g
Rock Creek Lodge (Perisher). KNP	a, b, d, e, g, h
Snowy Mountains Hydro Scheme, KNP	a, b, f, g, h
The Chalet – Charlotte Pass. KNP	a, b, e, g
Upper Cotter catchment, NNP	a, c, d, h
Von Mueller's survey routes, ANP, KNP	a, b, g, h
Wonnangatta Station, ANP	a, b, c, g
Yarrangobilly Caves Precinct, KNP	a, b, d, e, g

Indicator – Community Association

Strong and special associations between a community and a place is clearly demonstrated.

Place	Potential National Heritage Criteria
Army Chalet, NNP	c, e, g
Australian Alps generally	g
Cascades Hut, KNP	a, b, d, e, g
Coolamine Homestead, KNP	a, b, g
Cooleman Plain Karst Area, KNP	a, b, d, h

Place	Potential National Heritage Criteria
Cope Hut, ANP	a, d
Currango Pastoral Landscape, KNP	a, b, d, e, g
Franklin Chalet, NNP	a, b, d, g
Glaciation research sites, KNP	a, b, h
Great Alpine Road (original portions)	a, b, e, f, g
Gudgenby Pastoral Landscape, NNP	a, g
Hotel Kosciusko (Sponars), KNP	a, d, g
Illawong Lodge (near Guthega), KNP	a, b, d, e, g
Kiandra (The Kiandra Courthouse), KNP	a, b, d, e, g
Kiandra Mining Field, KNP	a, b, c, d, f, g
Kiewa Hydro Scheme, ANP (part(	g
Long term stream monitoring sites, all	a, d
Main Range conservation sites, KNP	a, d, g
Main Range, Snowy Mountains, KNP	a, e, g
Mining Ghost Towns, ANP	a, d
Mount Buffalo Chalet, MBNP	a, b, d, e, g
Mount Buffalo National Park, MBNP	g
Mount Kosciuszko, KNP	a, e, g
Oldfields Hut, KNP	a, b, d, e, g
Orroral Pastoral Landscape, NNP	a, b, d, g
Piccadilly Fire Ecology Plots, NNP	a, b, d
Pretty & Rocky Valley Exclosures, ANP	a, c, h
Rock Creek Lodge (Perisher), KNP	a, b, d, e, g, h
Snowy Mountains Hydro Scheme, KNP	a, b, f, g, h
Snowy River, KNP, ANP, SNP	a, b, e. g
Suite of huts in Australian Alps	g
The Chalet – Charlotte Pass, KNP	a, b, e, g
Tidbinbilla Nature Reserve	c, e, g
Upper Cotter catchment, NNP	a
Victorian Alpine Mountain Peaks, ANP +	a, e
Von Mueller's survey routes, ANP, KNP	a, b, g, h
Wallace Hut, ANP	a, b, d, e, g
Wonnangatta Station, ANP	a, b, c, d, g
Yarrangobilly Caves Karst Area, KNP	a, b, d, h
Yarrangobilly Caves Precinct, KNP	a, b, d, e, g

Indicator – Stories and Myth-making

The place is associated with particular stories that have shaped important cultural beliefs or concepts of national identity.

Place	Potential National Heritage Criteria
Cascades Hut, KNP	a, b, d, e, g
Coolamine Homestead, KNP	a, b, g
Currango Pastoral Landscape, KNP	a, b, d, e, g
Gudgenby Pastoral Landscape, NNP	a, g
Oldfields Hut, KNP	a, b, d, e, g
Orroral Pastoral Landscape, NNP	a, b, d, g
Snowy Mountains Hydro Scheme, KNP	a, b, f, g, h
Snowy River, KNP, ANP, SNP	a, b, e. g

Indicator – Inspiration

The place elicits or has elicited in the past strong responses from the Australian community to its alpine aesthetic characteristics.

Place	Potential National Heritage Criteria
Alps Scenery, vistas, snow, wildflowers	e
Great Alpine Road (original portions)	a, b, e, f, g
Main Range, Snowy Mountains, KNP	a, e, g
Mount Buffalo, MBNP	e, g
Mount Kosciuszko, KNP	a, e, g
Snowy River, KNP, ANP, SNP	e, g
Victorian Alpine Mountain Peaks, ANP	a, e

3.2.2 Cultural Landscapes

All the areas listed below were found to meet the 'Richness of the Assemblage' indicator. They are either rich assemblages representing one historic theme or more commonly a cultural landscape formed by an intertwining or layering (palimpsest) of different story-lines. As landscapes they all have the potential to meet National Heritage significance criterion (a). As many of them are formed by individual sites listed above as indicative elements, they have the potential also to meet several other National Heritage significance criteria.

ACT

- Orroral–Gudgenby Pastoral Landscape
- Upper Cotter catchment, NNP

NSW

- Coolamine Plain Area, KNP
- Tantangara Plain / Long Plain Pastoral Landscape, KNP
- Yarrangobilly Caves Landscape, KNP
- Kiandra Landscape, KNP
- Mount Kosciuszko and Main Range, KNP

Victoria

- Bogong High Plain, ANP
- Dargo High Plain, ANP (partial)
- Wonnangatta Station, ANP
- Mount Buffalo National Park, MBNP

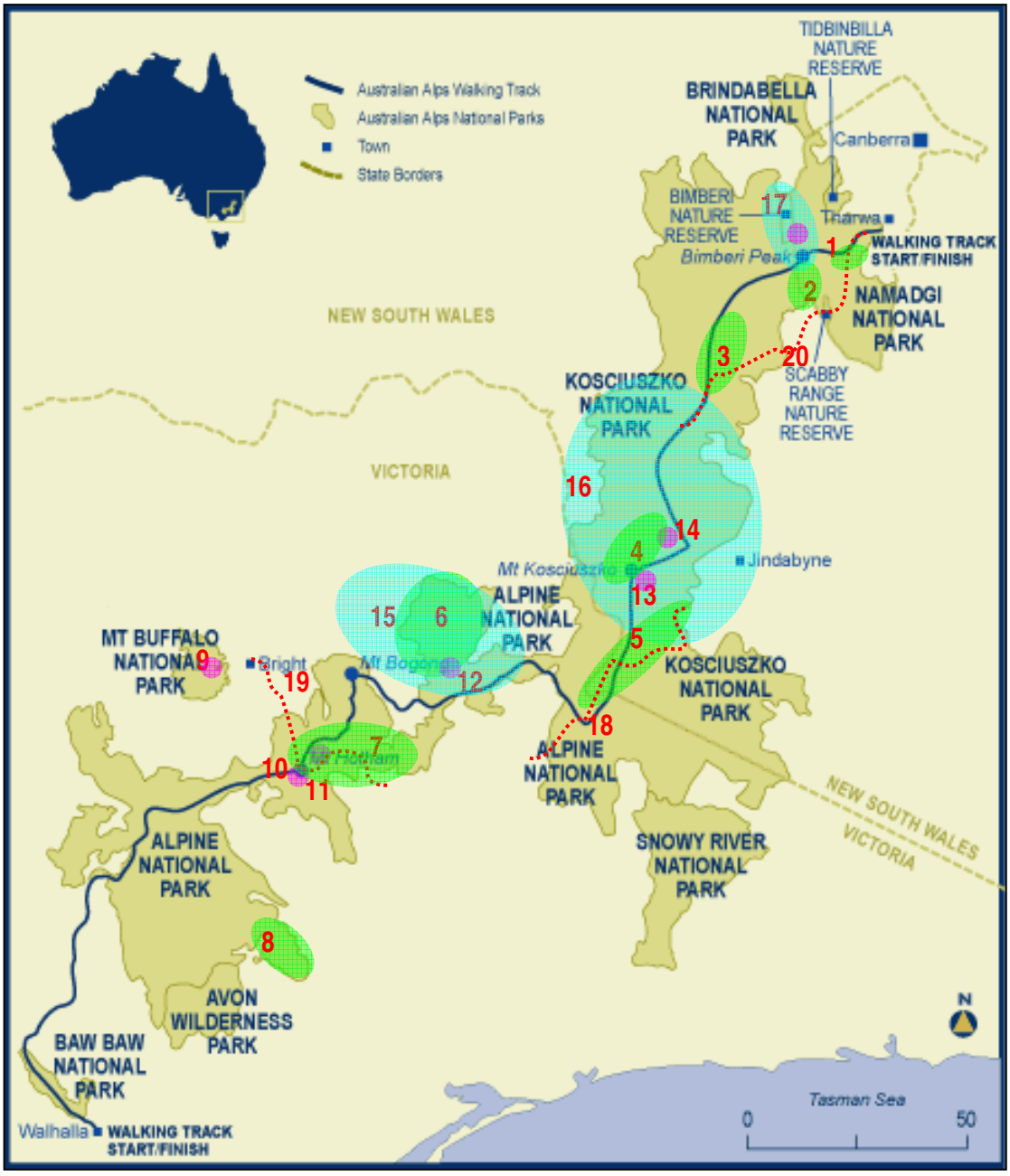
NSW and Victoria

- Snowy River, KNP, ANP, SNP

3.3 Descriptions of Indicative Elements

3.3.1 ACT Arboreta (remaining post-fires)

The role of forestry including arboreta needs to be reassessed. The ACT Arboreta had an important national role in forestry as outlined above.



Map 5: Cultural Landscapes in the Australian Alps National Parks. Map sourced from AALC

Key

1	Orroral – Gudgenby Pastoral Landscape	**11**	Dinner Plain Village
2	Upper Cotter Catchment	**12**	Falls Creek Ski Resort
3	Currango Pastoral Landscape	**13**	Thredbo Ski Resort
4	Kosciuszko Range Pastoral Landscape	**14**	Perisher Range Ski Resorts
5	Lower Snowy Pastoral Landscape	**15**	Kiewa Hydro Scheme
6	Bogong High Plains Landscape	**16**	Snowy Mountains Hydro Scheme
7	Hotham / Cobungra Pastoral Landscape	**17**	Upper Cotter Catchment
8	Wonnangatta Pastoral Landscape	**18**	Snowy River Stock Route
9	Mount Buffalo Chalet and Ski Fields	**19**	Great Alpine Road
10	Mount Hotham Resort	**20**	Tharwa-Kiandra Stock Route/Miners Trail

3.3.2 Alps Scenery

Broad historic themes associated with the Alps scenery include Aesthetic responses, and Recreation and Tourism.

Potential National Heritage Importance

Alps scenery, such as snowscapes, summer wildflowers, and mountain vistas, meets the indicators for *Inspiration* and *Community association.*

Alps scenery, such as snowscapes, summer wildflowers, and mountain vistas, meets is regarded as an 'inspirational landscape' and has been the subject of important artistic representations of the Alps environment.

Alps scenery, such as snowscapes, summer wildflowers, and mountain vistas, meets is associated with particular stories demonstrating the development of strong community attachment to a place**.**

Description

Such scenery is general throughout the Australian Alps.

Potential National Heritage Criteria

e, g

3.3.3 Australian Alps Generally

No specific assessment has been made of the social value of the Australian Alps, but expert studies undertaken to date provide predictive indicators that the Australian Alps generally have social value for associations with places and stories expressing the Alps experience.

Potential National Heritage Importance

The Australian Alps generally (potentially) meet the indicators for *Community association* and *Stories and mythmaking*.

There is a strong and special association between the community and the Australian Alps generally related to places and stories of pastoralism / summer grazing, including evidence of vernacular traditions of building and land use, and the idea of long family connections.

The Australian Alps generally are associated with the development of a strong community attachment developed and demonstrated in events, periods or places of community effort, for example, the huts which have survived through the long and consistent activities of caretaker groups [this not unique to Alps?]

The Australian Alps generally are associated by the community with long established routes, and the destination points within them.

The Australian Alps generally are associated by the community with access to remote areas, living within challenging environmental conditions, the experience of snow, and places of refuge within remote areas associated with long established and 'iconic' recreational experiences, particularly for skiers and bushwalkers.

The Australian Alps generally are closely associated by the community with well known high country stories, remembered or still celebrated events and mythical, often romanticised, themes, that have shaped important cultural beliefs or concepts of national identity, including *The Man from Snowy River*.

Description

The Australian Alps generally [no specific description possible given the general nature of these places and associations]

Potential National Heritage Criteria

d. g

3.3.4 Cascades Hut

Cascades Hut demonstrates the historic themes associated with *Pastoralism and Grazing*.

Potential National Heritage Importance

Cascades Hut meets the indicators for *Shaping and defining*, *Community association* and *Stories and myth making*.

Cascades Hut is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Cascades Hut between a community and a specific land use.

Cascades Hut is closely associated with stories that influence contemporary responses to the alpine environment

Description

From KHA website: Located about 50m off the fire trail from Dead Horse Gap to Tin Mines. The Cascades hut was built in 1935 by Bill Nankervis and other stockmen for grazing. It originally had a bark roof, which is visible in photographs taken by the Mitchells in the 1940's. The hut was restored in the early 1970s by the Illawarra Alpine Club. The hut and the Cascades region, inspired Elyne Mitchell's Silver Brumby books. The Cascades themselves are to the east of the hut. The walls are horizontal slabs, making a very authentic alpine grazing hut. The original bark roof has been replaced by iron and the dirt floor was dri-creted in 1976. Part of the floor is raised and timbered to make a sleeping platform. There is a fireplace with a rock hearth, and outside, a toilet.

Potential National Heritage Criteria

a; b; d; e; g

3.3.5 Coolamine Homestead

Coolamine homestead demonstrates the historic themes associated *Pastoralism and Grazing*.

Potential National Heritage Importance

Coolamine homestead meets the indicators for *Shaping and defining*, *Community association* and *Stories and myth making*.

Coolamine Homestead is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Coolamine Homestead between a community and a specific land use.

Coolamine Homestead is closely associated with stories that influence contemporary responses to the alpine environment

Description

From RNE Listing: Coolamine was first taken up as a grazing holding by T A Murray of Yarralumla in 1839. Subsequently it passed to his brother-in-law Augustus Gibbes in the 1840s and then to David O'Rourke in 1863. In 1873 Leopold Fane De Salis of Cuppacumbalong acquired the station. Eight years later Coolamine passed to Frederick Campbell who had purchased Yarralumla (and like Murray and De Salis before him he used Coolamine as a high country outstation for his main property). Campbell's manager George Southwell and his family arrived at Coolamine in 1882 and he built a two room horizontal slab home (which is now the oldest surviving structure on the site). This building was extended during the next decade and a kitchen was built along with a pig sty, fowl house and water race. A log walled cheese house was built by one Franklin in 1889 and this adjoined the original De Salis hut (which has now gone). In the 1890s the main homestead with its distinctive steep gabled roof was either constructed on site or was moved to Coolamine from another location. This building, with walls of rounded horizontal slabs, served as accommodation for the Campbells during their visits. A barn was built in 1905 but this has now gone. The Southwells left in 1907 and were succeeded by the Taylor family. After Campbell's death in 1927 Coolamine passed to the Litchfield brothers. The Taylors left when Litchfields sold the property to the Naughton brothers in 1934. The NSW National Parks and Wildlife Service acquired Coolamine in 1975. The complex today consists of the slab walled Southwell and main homesteads, the log walled cheese house (all of these buildings having iron roofs), an iron building in front of the Southwell House (possibly the kitchen), yards and outhouses. The buildings display various elements of timber-craft techniques and the cheese house is also notable for its thatched roof insulation.

From Kosciuszko National Park draft Plan of Management:

Those karst areas that support native grasslands, such as Coolamine Plain, Cooinbil, Cowombat Flat and parts of Yarrangobilly were formerly grazed by livestock from the 1830s onwards. The remaining physical evidence of this pastoral activity includes a number of fence lines and huts, and a substantial homestead complex at Coolamine Plain. (KNP 2004:44)

Potential National Heritage Criteria

a; b; g

3.3.6 Coolamine Plain Karst Area

The Coolamine Plain Karst Area demonstrates the themes associated with Science

Potential National Heritage Importance

The Coolamine Plain Karst Area meets the indicators for *Shaping and defining* and *Richness of assemblage.*

The Coolamine Plain Karst Area is closely associated with the development of environmental science in the Alps.

The Coolamine Plain Karst Area is an important example showing key characteristics of a particular type or phase of scientific research in the Alps.

The Coolamine Plain Karst Area is closely associated with the work of an important individual, Professor Joe Jennings, and associated group in the history of field-based scientific research in the Alps.

Description

One of the two most researched karst areas in the Australian Alps, and first visited in 1860 by the geologist, the Reverend W B Clarke, attracting along with Yarrangobilly Caves karst, ongoing

research interest. Research at Coolamine Plan, by Joe Jennings from 1965, makes it the most researched karst site in Australia. At hydrological monitoring sites he defined periglacial dates and knowledge of the climate and vegetation variation of this alpine area, for example in comparison to his Yarrangobilly Caves karst research, and illustrating a facet of the complex interrelationship of karst and cold climate geomorphology, and is considered internationally important. (Griffiths and Robin 1994:41; ISC 2004:154; Macdonald and Haiblen 2002a:70).

There are several research sites including:

grid sq 4955 A-tents, GR 495-552 micro-catchment, GR 502-597 Karst solution studies – Peppercorn. Sites scattered over this area, GR 502-548 Mudflow site, GR 527-565 Blue Waterholes site, GR 508 553 Doline/tablet study, GR 509 583 (Peppercorn) and GR 484 592 (Coolamine Mt) Climate stations (Macdonald and Haiblen 2002b: NSW sites table)

From Kosciusko National Park draft Plan of Management (KNP 2004: 43):

The Coolamine Plain karst area is located to the north of Tantangara Reservoir, in the northeast of the northern part of Kosciuszko NP, within the Bimberi Wilderness. It contains a comprehensive range of karst features including 110 known caves, dolines, blind and semi-blind valleys, dry valleys, gorges, active and abandoned springs and stream sinks. The popular visitor destination of Blue Waterholes is the largest karst spring in eastern Australia.

The landscapes of the unit vary from the broad grassy Coolamine Plain, pocked with sinkholes and rimmed by timbered hills, to the dramatic gorges and waterfalls of Cave Creek and the forested valleys of the Goodradigbee River and its tributaries. The unit contains an outstanding collection of karst features including dry valleys, springs, stream sinks and more than one hundred caves. These varied and unusual landscapes contain important Aboriginal sites and a scattering of more recent historic places relating to mining and grazing ventures. Amongst these, the Coolamine Homestead complex, which consists of the homestead and various outbuildings, introduced deciduous trees, fences and yards, represents one of the most significant historic precincts in the park. Recreation within the unit is centred around Blue Waterholes and the nearby gorges and caves of Cave Creek. Car-based camping along the narrow ridge above Blue Waterholes and at Coolamine Mountain is seasonally popular, as is fishing, walking and caving. The unit receives very little visitation in the winter months as the access roads to the area are closed at that time. (KNP 2004:147)

Potential National Heritage Criteria

a, b, d, h

3.3.7 Cotter Hut Site

Cotter Hut demonstrates the themes associated with Pastoralism and Grazing.

Potential National Heritage Importance

Cotter Hut meets the indicators for *Shaping and defining*, *Community association*, and *Stories and myth making*.

Cotter Hut is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Cotter Hut between a community and a specific land use.

Cotter Hut is closely associated with stories that influence contemporary responses to the alpine environment

Description

Cotter Hut was built in the 1890s by Thomas and Hannah Oldfield. It was a shingled roof slab cottage. The hut was relocated to the site of the contemporary Cotter Hut in the 1930s.

The site of the original Cotter Hut is located on the eastern bank of the Cotter River, approximately 250-300m from the existing Cotter (Rangers) Hut. Extant fabric at the site includes a single poplar tree and other European plantings, remains of a granite hearth, post holes, fragments of corrugated galvanised iron and evidence of former yards and decorative iron bed head.

From archaeological evidence at the site it is possible to measure the dimensions of the building as approximately 6800mm x 4700mm (with evidence of a 3000mm wide verandah on the western side of the building). (Truscott et al 2004e).

Potential National Heritage Criteria

a, c, e, g

3.3.8 Currango Pastoral Landscape

The Currango pastoral landscape reflects the historic themes associated *Pastoralism and Grazing*.

Potential National Heritage Importance

The Currango Pastoral Landscape meets the indicators for *Richness of the assemblage*, *Shaping and defining*, *Community association* and *Stories and myth making*.

The Currango Pastoral Landscape is a landscape that clearly reflects layers of human modification of the alpine environment.

Old Currango and Currango Homestead are an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Old Currango and Currango Homestead between a community and a specific land use.

Old Currango and Currango Homestead are closely associated with stories that influence contemporary responses to the alpine environment

Description

Source KHA Website: Old Currango: The primary building was built in 1873 by Tom O'Rourke, who had been grazing on the plain since 1834. It is the oldest homestead in the Kosciuszko National Park. An old slab and bark hut had stood about 1.5 km to the east until this building was constructed. The kitchen, bedroom and fireplace were built in the 1880s and the store room added in 1900 by Fischer. The army removed the decaying store room in 1981 and a major restoration with KHA and the Land Rover Club followed.

The building is 10m by 7.5m and is mostly timber, including floors and weatherboards. There is a wide verandah and mud mortared flues to the chimneys. There are four classic windows.

From NSW Heritage – SHR: The establishment of the Currango pastoral station in the late 1830s is part of the story of the rapid spread of Australian settlement based on pastoral expansion.

Currango demonstrates better than any other snow belt property, the pattern of European occupation and subsequent development of montane summer relief pastoralism and seasonal transhumance that characterised the region. It is the largest and most intact homestead complex of the 11 snow belt stations and is the only one that has been almost continuously seasonally occupied since the 1830s. Its story demonstrates an early recognition of a need for summer grazing and drought relief strategies and is associated with the romanticised tradition of exceptionally hardy stockmen and

horses. It demonstrates the displacement of local Aboriginals and the disruption of their use of their mountain pathway network.

Currango is a rare place in the mountains that has become a symbol within the region for mountain hardiness and past living conditions. It stimulates unusually high levels of attachment among people associated with the place and in 1975 the early fishermen, and holiday makers demonstrated their commitment to the place when they spontaneously formed a group that still operates as the Friends of Currango to support its continued operation.

Currango has strong associations with early pastoralists who were significant in developing the region, most notably Thomas O'Rourke and Arthur Triggs and it was a critical component of the Australian Estate Mortgage Company's chain of properties, drought relief strategy. The Taylor family (Tom and Molly, Ted and Helen) are well known throughout the region as its most significant caretakers, who have perpetuated and enhanced the longstanding tradition of lively and active mountain hospitality and stories associated with Currango.

The cultural landscape of Currango is significant as an aesthetically pleasing combination of low key weatherboard accommodation buildings and vernacular drop log and slab outbuildings set among exotic plantings, creating a landmark within a broader natural landscape where the Port Phillip pines stand out as a beacon for travellers. The cultural plantings in the Currango area are an integral part of the heritage value of the place, providing a demonstration of landscape management, self-sufficiency and use of an established pastoral property in the Kosciuszko Mountains. The cultural landscape as a whole is of greater value than its individual built or planted elements.

The subsurface archaeological deposits associated with European occupation have potential to contribute to our greater understanding of the site.

A very detailed description and plans of the Currango Homestead site is found in its conservation management plan at Sheppard 2003:17-21, and the archaeological features (Sheppard 2003:29-30).

Potential National Heritage Criteria

a, b, d; e, g

3.3.9 Franklin Chalet

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Franklin Chalet precinct meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

The Franklin Chalet precinct is important in the development of snow based recreation in Australia using the Alps characteristics of seasonal snow cover.

The Franklin Chalet precinct clearly demonstrates multiple phases of human activity utilising the alpine environment.

The Franklin Chalet precinct exhibits a richness of significant assemblages and physical features within the landscape characterising the 'Alps expression' of the national story.

The Franklin Chalet precinct has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

From ACT Heritage Register listing: Mt Franklin Chalet was built in 1938 as the ACT's first ski lodge. Until it was destroyed in the 2003 bushfires, it was the oldest surviving club-built ski lodge

on the Australian mainland and is evidence of downhill skiing in the Brindabella's, an activity that is no longer conducted there. The Chalet site, associated huts, a stone gateway, ski runs, and the remains of a vehicle powered tow are all associated with Australian skiing in the period 1936 to 1963. The place also reflects the recreational activities of Canberra Alpine Club (CAC) members over this period. The CAC, which built and still maintains the Chalet, played a prominent role in ski development in the region and the Chalet remains important to the Canberra ski fraternity.

The precinct comprises:

- the Mt Franklin Chalet, now a ruin (and archaeological site)
- the remains of a vehicle powered tow rope
- the ski runs, small huts, walks and gateway

Potential National Heritage Criteria

a, b, d, g

3.3.10 Glaciation Research Sites

The Coolamine Plain Karst Area demonstrates the themes associated with Science.

Potential National Heritage Importance

The Coolamine Plain Karst Area meets the indicators for *Shaping and defining*

Glaciation research sites are closely associated with the development of environmental science in the Alps.

Glaciation research sites are important examples showing key characteristics of a particular type or phase of scientific research in the Alps.

Glaciation research sites are closely associated with the work of an important individual, Edgeworth David, and associated group in the history of field-based scientific research in the Alps.

Description

The resolution of a long debate over the 19th and 20th Centuries as to whether the Australian Alps were glaciated was resolved over longstanding research. This took place at a series of glacial features in areas now in Kosciuszko NP as well as in Victoria, showing in the 1960s that the only glaciation was in only very highest regions of Kosciuszko NP (Macdonald and Haiblen 2001a:57-60). In 1901, when absolute dating was not scientifically possible, Edgeworth David, Richard Helms and E Pitman, estimated the dates of glacial features Railway Embankment, NSW, now seen as 'one of the finest attempts at an absolute age anywhere in the world' (Griffiths and Robin 1994:40).

In Victoria, the dispute over the existence, extent or nature of glaciation is demonstrated at the Buffalo Plateau and Mt Howitt (Macdonald and Haiblen 2002a:61).

No physical descriptions or site locations obtained for the following sites identified in Macdonald and Haiblen (2002b:NSW site table).

- David Moraine
- Guthrie Saddle and Perisher Creek Exposure
- Railway Embankment

Potential National Heritage Criteria

a, b, h

3.3.11 Great Alpine Road

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Mount Buffalo Chalet meets the indicators for *Shaping and defining*, and *Richness of assemblage*, and *Community association*.

The Great Alpine Road is important in the development of snow based recreation in Australia.

The Great Alpine Road clearly demonstrates multiple phases of human activity utilising the Alps environment.

The Great Alpine Road has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

From RNE (indicative place) listing: The Great Alpine Road climbs sharply into the mountains immediately south of Harrietville, traversing a forested and then alpine landscape as the road climbs from Harrietville to Mount St Bernard. The track from Harrietville to Mount St Bernard and then on to Omeo was constructed initially as a mining track, built for the benefit of prospectors and commerce. St Bernard's Hospice was built in 1863 to serve prospectors and packers travelling between the Ovens, Dargo and Crooked River goldfields. When the Government reconstructed the mining track into a road suitable for wheeled vehicles, it also purchased the hospice leasing it back to the former owner and paying him to keep it open to travellers. It survived – in various ownerships – until the 1939 fires.

Tourism was promoted by local organisations such as the Bright Alpine Club which published the 'Illustrated Guide to the Victorian Alps' in the 1880s. While it focused on Mount Buffalo, it also gave details of travel routes and places of interest including the Mount St Bernard Hospice.

The route continues to serve tourists to the present day, providing access into the alpine area and offering wonderful views. It also provides excellent examples of the impact of fire, aspect and altitude on vegetation.

The road is a built feature through a natural landscape. The alignment of the route generally follows the early route. A section of an earlier, unsealed route remains near Harrietville, and other fragments may survive elsewhere.

Potential National Heritage Criteria

a, b, e f, g

3.3.12 Gudgenby Pastoral Property

The Gudgenby Pastoral Property reflects the historic themes associated *Pastoralism and Grazing* but may also include *Mining* as the place is associated with the provisioning of miners on their way to the Kiandra diggings in the initial gold rush of 1859-60.

Potential National Heritage Importance

Gudgenby meets the indicators for *Richness of assemblage*.

Gudgenby pastoral property clearly demonstrates multiple phases of human activity utilising the alpine environment.

Description

The earliest records demonstrating what has become to be accepted as ownership of the land now identified as Gudgenby Station identify Edward Severne as the first landholder in 1844. It is unclear as to whether or not Severne actually lived at Gudgenby as records show that by 1845 Charles McKeahnie was employed by Severne as a manager at Gudgenby (Scenic Spectrums 1989:34). By around 1850 McKeahnie had purchased Gudgenby from Severne and it is likely that it was McKeahnie who build the original homestead in 1851. It is believed that McKeahnie was able to generate a considerable income through the sale of farm produce to miners travelling to and from the Kiandra goldfields and with the profits he purchased Orroral and Booroomba Stations, disposing of Gudgenby in order to concentrate more fully on these later acquisitions. By 1884 Gudgenby appears to have passed into the control of C Stanley Greenfield (Scenic Spectrums 1989:108). Research undertaken by Winston-Gregson (1978) indicates that there were a number of individuals and companies associated financially with Gudgenby between 1884 and 1907 when the property was bought by Marmaduke Watson Lee. Lee undertook an extensive programme of improvement at Gudgenby that included the fencing of paddocks, extensions to the original homestead, connection of telephone services and the establishment of a small saw milling operation (Scenic Spectrums 1989:50). Lee held Gudgenby until 1927 when it was sold to A W Bootes who erected the Hudson redi-cut dwelling and the foot bridge connecting the homestead with the redi-cut building. Bootes passed the property to his son WS Bootes in 1954 who remained in possession of the property until the time when it was acquired by the Crown in 1974. It was during this last phase of private ownership that the present homestead building was erected on the site of the original homestead (Scenic Spectrums 1989:51).

Historical land use of Gudgenby Station has concentrated on pastoral and grazing activities. The clearing of vegetation for grazing, although practiced from the time of earliest settlement, was dramatically escalated in the 1880s with large areas of land opened up through the use of ring-barking (Scott 1988:12-13). Other land use strategies may have included seasonal burning of grasses to suppress the scrub under-story and to stimulate green pick for the sheep and cattle. The grazing of livestock had its own impact upon the landscape with cattle altering the composition of grasses and succulents via selective feeding habits and the tramping of stream banks. It is also possible that pasture improvement through the application of super-phosphate was undertaken fro around 1954 (Scenic Spectrums 1989:109). Other land use impacts include the construction of vehicle access routes and roads and the damming of drainage lines to provide water for stock.

The planning of exotic plant species does not appear to have had a major impact at Gudgenby with the exception of willows and poplars which have spread with some vigour along the banks of Gudgenby and Hospital Creeks.

The geographic isolation of Gudgenby Homestead from the commercial centre of Queanbeyan, and later Canberra, had an influence on aspects of the built environment at Gudgenby. Scott (1988:12-13) suggests that the development of buildings beyond that required for meeting immediate accommodation requirements reflects the isolation and need to function in a self sufficient manner for between 6 to 12 months of the year. Although this is not clearly demonstrated by the contemporary built elements at Gudgenby (with the homestead, redi-cut and sheds accounting for the built environment), it may have been the case in earlier times. W S Bootes has noted that when his father purchased Gudgenby in 1927 the homestead precinct included a blacksmiths shop and a two-storey hayshed (Scenic Spectrums 1989:51).

All of the residential buildings at Gudgenby are located in relatively elevated positions, above cool air drainage points. The main homestead building would also be sheltered against cold winter winds from the south and south-west and whilst it is difficult to ascertain whether or not the design features of the Gudgenby buildings represent a specific adaptation to the climate or whether they merely reflect the contemporary tastes at the time of their construction, the pitched roofs of both the

homestead and the redi-cut would effectively shed snow and rain and both buildings have a northerly aspect that takes advantage of the available sunlight.

The Gudgenby property consists of the main homestead and ancillary buildings and structures at the heart of the former Gudgenby Pastoral Station. It is contained within the Gudgenby Valley at the junction of the Gudgenby River and Hospital Creek. The Precinct is specifically located within Block 12, Portion 8, District of Rendezvous Creek, Parish of Gudgenby, County of Cowley. It is the longest continually occupied station in the Namadgi Area and one of the oldest in the ACT.

Gudgenby Pastoral Station includes the following site elements:

- Original Homestead
- Current Homestead (on the site of the original homestead) including out buildings and ancillary structures and features
- The Hudson Ready Cut Cottage and associated elements
- Pastoral elements including stockyards, nursery pen, fences, and cleared paddocks
- Plantings

Potential National Heritage Criteria

a, g

3.3.13 Hotel Kosciusko (Sponar's Chalet)

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Hotel Kosciusko meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

The Hotel Kosciusko is important in the development of snow based recreation in Australia.

The Hotel Kosciusko is clearly demonstrates multiple phases of human activity utilising the Alps environment.

The Hotel Kosciusko has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

With the growing popularity of snow sports the NSW Government took an entrepreneurial role when it opened the Hotel Kosciusko in 1909. This was one of the first attempts to meet consumer demand for accommodation away from the Kiandra area. The aim was to make it the premier holiday and health resort in Australia and attract visitors from across the country as well as travellers from as far away as New Zealand, England, America and India. Less than two years later it had extended the hotel to include, among other facilities - a ballroom. The main hotel building was destroyed by fire in 1951 and in October 1962, the remaining building (the original staff accommodation wing now, Sponar's Chalet) was handed over to the Kosciusko State Park Trust, which leased it to a private concern (NSW Department of Tourism, Sport and Recreation – 100 Years of Tourism in NSW, Concise Guide to the State Archives of NSW – Tourism).

Potential National Heritage Criteria

a, d, g

3.3.14 Illawong Lodge

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

Illawong Lodge meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

Illawong Lodge is important in the development of snow based recreation in Australia.

Illawong Lodge clearly demonstrates multiple phases of human activity utilising the Alp environment.

There is a strong and special association at Illawong Lodge between a community and a specific land use.

Illawong Lodge has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

From RNE listing (edited): The original section of Illawong Lodge was Pounds Creek Hut built by the New South Wales Government Tourist Bureau in 1925-26. Pounds hut was constructed as a shelter hut for skiers and at the time it was one of only two or three such huts in the Kosciusko-Main Range area. In 1927 it was the stopping point on the second night of the Schlink party's historic ski crossing from Kiandra to the Hotel Kosciusko (the party, led by Dr Herbert Schlink, was the first group to ski this route). In subsequent years pounds was used by numbers of skiers exploring the Main Range. It was a simple gabled structure clad with corrugated iron, with six pane windows and with finials to the gables. Inside were two rooms, a raised timber floor, four bunks, a Canadian stove, blankets, axe, etc. Not all users of the hut treated it with respect and by 1955 it was virtually derelict. At this time the Illawong Ski Lodge Project, led by John Turner, set about converting the building to Illawong Lodge. An extra gabled section (designed by Turner) was added to the old hut (thus forming a T-shaped structure) and at the direction of the Kosciusko Park Trust the iron cladding on the old section was removed and the entire building clad with timber. However, the internal frame and walls of the old hut were retained. Materials for the conversion were taken in without vehicles as no roads lead to the lodge. With battery lighting, gas cooking, hot water and other amenities Illawong Lodge opened in 1957 and it was part of the development of the Main Range area by ski clubs at this time, as evidenced by the construction of Albina Lodge in 1951 and Kunama in 1952 (both of these buildings have since gone). A suspension bridge over the Snowy River at the front of Illawong was also built by the Illawong Club. Illawong Lodge still functions as a club ski lodge. The lodge is a simple gable roofed structure of one storey. Its dimensions are about 8m x 7m. Roofing is iron and the walls are clad with vertical timber boarding and with horizontal boards to the gables and lower wall area. Inside there is a bunk room, kitchen, shower, pantry, toilet, clothes drying cupboard, living room and entry area. Room heating and water heating is by kerosene. Lighting is by batteries which are recharged with a small petrol charger.

The morticed and tenoned framing of the original hut is unaltered as is the original roof. The original dividing wall and most internal lining was reported to also be intact at the time of nomination. The building was extended in the mid 1950s at which time the whole structure was clad externally with timber. The lodge continues to function as a club lodge. (November 1991).

Potential National Heritage Criteria

a, b, d, e, g

3.3.15 Kiandra Mining Landscape

The Kiandra Mining Landscape demonstrates the themes associated with Mining as well as Recreation.

Potential National Heritage Importance

The Kiandra Mining Landscape meets the indicators for *Shaping and defining,* and *Richness of assemblage.*

The Kiandra Mining Landscape is important in demonstrating the nature of mining in the Alps environment, notably above the snowline.

The Kiandra Mining Landscape is an outstanding example of a mining field showing the particular characteristics of a distinctive Alps type, notably in its extensive alluvial mining remains and use of water races to capitalise on the high water volume but low water velocity. It has been extensively researched with several archaeological surveys and excavations providing information on alpine mining.

The Kiandra Mining Landscape is a rich assemblage of physical features expressing the Alps experience of mining above the snowline.

The Kiandra Mining Landscape is important in the development of snow-based recreation in Australia being where it first started in 1861, and continued intermittently into the 20th Century when such recreation became more popular generally.

Description

From RNE Listing (edited): The Kiandra gold rush began in 1859 and by 1860 there were 10,000 people on the goldfield. But the rush was short-lived and the population soon declined. Mining continued, and in the 1880s hydraulic sluicing got underway and in the early 1900s dredges worked the Eucumbene River. Mining had petered out by the middle of the twentieth century.

The Kiandra township site and associated diggings include Township Hill, New Chum Hill, Surface Hill, Kiandra cemetery, Pollocks Gully, Commissioners Creek, and sections of Bullock Head and Eucumbene River The township site consists primarily of archaeological fabric. The only early extant buildings are the courthouse and Matthew's cottage, both of which have been significantly altered. Archaeological fabric severely disturbed in many sections before the road, and apparent past demolition of town buildings. The diggings are in generally good condition, with all machinery and equipment removed (see sketch plans, LRGM 2002:40, 41; LRGM 2002:35-42).

Mining features that remain are abundant and include surface diggings, ground and hydraulic sluicing workings, adits, shafts, mullock dumps, water races and dams, town sites, relic machinery and equipment, dredge tailings etc (LRGM 2002:103).

Australian skiing was born at Kiandra in 1861 when miners made skis and began using them. A ski club soon formed and the annual Snow Shoe Carnival was subsequently organised; this was some of the earliest organised skiing in the world. Around 1900 Kiandra skiing was well publicised by Sydney photographer Charles Kerry. Skiers stayed at Kiandra's hotels and the town was the centre of NSW skiing up until the opening of the Hotel Kosciusko further south in 1909.

Potential National Heritage Criteria

a, b, c, d, f, g

3.3.16 Kiandra (Courthouse)

Broad historic themes associated with this place include Mining, and Recreation and Tourism.

Potential National Heritage Importance

Kiandra meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

Kiandra is important in the development of snow based recreation in Australia.

Kiandra clearly demonstrates multiple phases of human activity utilising the Alps environment.

Kiandra exhibits a richness of significant assemblages and physical features within the landscape characterising the 'Alps expression' of the national story.

Kiandra has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

Kiandra's first courthouse, designed by either by Colonial Architect James Barnet (who played a major role in NSW architecture for 25 years) or his assistant Edward Rumsey was opened in May 1890. It was the only stone building erected in Kiandra.

In 1943 Wally and Evelyn Reed leased the Courthouse and converted it to ski accommodation, known as the Kiandra Chalet. The Kiandra Chalet was run by the Reeds until 1953 and it was the centre of Kiandra skiing, the main ski lodge in the northern part of the Snowy Mountains and one of only a small number of ski accommodation buildings in NSW at the time.

The former Courthouse/Chalet is today one of only four buildings remaining in Kiandra.

Potential National Heritage Criteria

a, b, d, e, g

3.3.17 Kiewa Hydro-electricity Scheme

Kiewa Hydro-electricity Scheme demonstrates the themes associated with Water, also to Conservation, Migration, Roads, indirectly Recreation in the Alps.

Potential National Heritage Importance

Kiewa Hydro-electricity Scheme meets the indicators for *Shaping and defining*, *Richness of Assemblage*, and *Stories and mythmaking.*

The Kiewa Hydro-electricity Scheme is strongly associated with, and clearly represent a process, phase, social or economic event, development, or activities of an individual important in the human experience in the Alps.

The Kiewa Hydro-electricity Scheme is an important demonstration of the utilisation of alpine water for power generation and irrigation.

The Kiewa Hydro-electricity Scheme is associated with particular stories that have shaped important cultural beliefs or concepts of national identity.

The Kiewa Hydro-electricity Scheme is closely associated with stories of alpine land use that have become iconic in the broader Australian community.

Description

Kiewa Hydro-electric Scheme is located on the Kiewa River within and outside the Alpine National Park in its Bogong Unit, in the far north west of the Alpine NP. The topography of the Victorian Australian Alps with its low valleys extending deep into the high country, means that several parts of the Scheme are not within the park, including key features such as the town of Mt Beauty,

especially built for the Scheme on the floor of the Kiewa Valley in 1949. However, the relevant catchments and many individual features of the Scheme lie within the national park.

Kiewa Hydro-electric Scheme comprises three power stations, McKay Creek, Clover and West Kiewa, utilising water from 310 square kilometres of the Kiewa River and adjacent catchments. Elements do not appear to have been fully itemised, although Lawrence outlines its function, noting it's the relationship between its different features – dams and reservoirs, power stations, with underground generators at Mackay Creek and West Kiewa being the first to be built in Australia tunnels and pipelines, pondages (Lawrence 1992: 300-302; 301-figure 1). Key components are described by Lawrence (1992: 300):

The scheme diverts and harnesses the Rocky Valley and Pretty Valley branches of the East Kiewa River, which rises on the Bogong High Plains, and the West Kiewa River, which rises near Mount Hotham. The Kiewa scheme utilizes the water from 310 square kilometres of the Kiewa River catchment. In addition, 32km of aqueducts transfer water to the scheme from adjacent catchments, much of the water coming from snow, which covers the area for up to five months each year.

Butler in his study of North East Victoria forested areas notes several sites related to the Kiewa Hydro-electricity and power supply), whilst filling gaps in this theme, he notes that it has not been adequately researched (1997 Vol. 1, 2, Appendix). Again not all these sites may be in the Australian Alps:

Condition / Integrity

It is unclear whether any asset audit such as undertaken of Snowy Mountains Hydro-electric Scheme within Kosciuszko NP in NSW

Potential National Heritage Criteria

a, b, f, g

3.3.18 Long Term Stream Monitoring Sites

The Long term stream monitoring sites demonstrate the themes associated with Science Water and Conservation

Potential National Heritage Importance

The Long term stream monitoring sites meet the indicators for *shaping and defining,*

The long term stream monitoring sites are closely associated with important changes in the evolving environmental management of the alpine environment.

The long term stream monitoring sites are important examples showing key characteristics of a particular type or phase of scientific research in the Alps.

Description

Hundreds of stream gauging stations installed by water and power authorities provide important data sources, related to surface and snow run-off, and impacts from erosion and fire, fire predictors and post-fire recovery, and infrastructure impacts. (Hydrological research by Costin and Wimbush). They provide important data on the changing condition of catchments, post-fire recovery, and climate changes. Further descriptions especially of the scientific results and importance of these grazing exclosures are at Griffiths and Robin (1994) and Macdonald and Haiblen (2002a).

Important scientific results have taken place in the following areas of stream gauging stations:

- 12 sites studying surface runoff and snow at Sawpit Creek (forest) to Carruthers Peak (alpine) (Kosciuszko NP, NSW (1950s – Costin, Wimbush)

- six small subalpine catchments studying grazing damage over 20 years in Kosciuszko (Wimbush and Costin)
- post-fire recovery studies in northern Kosciuszko in (1965 – J A H Brown); in the Geehi and Swampy Plains River catchments (1970s – Good) ; network ACT Water stream gauging stations(1988 – Kulik and Daniell), pioneering on national scale predictors of fire
- 12 SEC stream gauges 1925 –1995data re effects of different land uses on hydrology of Bogong High Plains and impact of construction of Kiewa Hydro-Electric Scheme (1990s – Ruth Lawrence
- 79 reference sites throughout Australian Alps, using the Australian Rivers Assessment Tool to gather baseline data form resulting in a predictive model for the number and type of macro-invertebrate species likely in undisturbed aquatic ecosystems (2002 – CRC for Freshwater Ecology)

(Locations are noted in Macdonald and Haiblen 2002b)

Potential National Heritage Criteria

a, c, d

3.3.19 Main Range, Snowy Mountains

The Main Range meets the indicators for Aesthetic Responses, and Science, Conservation, and Recreation.

Potential NH Importance

The Main Range of the Snowy Mountains meet the indicators for *Shaping and Defining, Inspiration* and *Community association.*

The Main Range of the Snowy Mountains, is regarded as an inspirational landscapes, particularly for its views and wildflowers in the summer, which receives some 1million visitors each summer.

The Main Range of the Snowy Mountains, has been important for the development of snow-based recreation in Australia.

The Main Range of the Snowy Mountains has been important for the development of environmental science and conservation in the Alps.

Description

From Kosciuszko National Park draft Plan of Management:

The Main Range Management Unit extends along the spine of the Great Dividing Range for a distance of 28 km, between the rocky outcrops of the South Ramshead and Dicky Cooper Bogong. To the west, the unit is bounded by the wilderness area of the Western Fall and by the Schlink Pass Road. This road marks the northern and eastern boundary of the management unit as far south as Guthega Power Station located at the confluence of the Munyang and Snowy Rivers. From here, the unit adjoins the boundaries of the Guthega Road corridor, Perisher Range Management Unit, Kosciuszko Road corridor and Charlotte Pass Management Unit, before following the southern break of slope of the Rams Head Range. The unit covers an area of 20,800 ha and is superimposed over the Back Country Zone (Map 5). (KNP 2004:137)

Potential National Heritage Criteria

a, e. g

3.3.20 Mount Buffalo Chalet

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Mount Buffalo Chalet meets the indicators for *Shaping and defining*, and *Richness of assemblage*, and *Community association*.

Mount Buffalo Chalet is important in the development of snow based recreation in Australia.

Mount Buffalo Chalet is clearly demonstrates multiple phases of human activity utilising the Alps environment.

Mount Buffalo Chalet has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

From RNE Listing: The first road to the summit of Mount. Buffalo was declared open by the Premier of Victoria, Sir Thomas Bent in September, 1908. In his speech, he expressed his intention to open up the state's beauty spots to tourism and the Alpine Observer reported that the government intended to build a chalet on the summit (Allom Lovell and Assoc. research).

The government had originally intended to build a granite structure, but this proposal was shelved in favour of a cheaper timber building (Allom Lovell and Assoc. research).

The new chalet was first leased to a Mr J Newton in April 1910 for a period of two years. The Chalet proved to be very popular, and improvements were soon begun. A golf links was built in 1911. A 1912 tourist Handbook published by the Victorian Railways described the Chalet as the epitome of luxury with large sitting rooms, ample fireplaces, well ventilated bedrooms and hot and cold baths. Also in 1912, the north wing was added to the original structure and this was followed by construction of the south wing and billiard room in 1914 (Allom Lovell and Assoc. research).

In 1919, the lease of the Chalet was awarded to Miss Hilda Samsing. Miss Samsing lobbied the government to make improvements to the boiler, the heating, the lighting and the laundry. In the summer of 1921-22, an addition to the south wing was made, comprising further bedrooms and bathrooms. The billiard room was moved to the front of the house, and the garden at the front of the Chalet was laid out. A new drying room was also built, then in 1923, an electric generator was installed (Allorn Lovell and Assoc. research).

In 1924, the management of the Chalet was transferred from the Public Works Dept. to the Railways and the Railways wasted little time in embarking on further improvements. In December, 1924, the Argus reported plans to convert the existing dining room into a sitting room. Balustrading along the front of the building was removed, and panorama windows were installed to provide an uninterrupted view of the gorge. The heating was also improved with the installation of an emergency boiler (Allom Lovell and Assoc. research).

The building was again extensively altered in 1937-38. The south wing was again extended, and a second storey was added to the main building (Allorn Lovell and Assoc. research).

The clientele has varied over the years and people of both modest and grand means have enjoyed the pleasures of the Chalet and its environs. During the war, service men and women enjoyed holidays there, then after the war, migrants and displaced persons from Europe found the Chalet to be a comforting reminder of their homelands. This was a marked change, since where English had been the only language spoken before the war, it was now possible to hear patrons speaking languages such as German, Polish and Yiddish.

Notwithstanding these changes in clientele, the Chalet has actually changed little over the years, and it is this absence of change that remains the Chalet's greatest charm (Moylan and Watt, 1994:480).

Physical Description: The Chalet is reminiscent in style to northern European Chalet architecture. It is a weatherboard building bearing onto a coursed random rubble plinth, with a series of hipped and gabled green painted corrugated iron roof structures. There are several slender rough cast render chimneys with tapering tops and random coursed rubble bases. The gable ended bay over the main entry features a decorative barge board. Protruding gable ends are supported on decorative timber brackets and the upper portions of the gable ends are clad with timber shingles. Heavy timber posts and brackets support the hip roofed entry porch. Rafters are generally exposed along the eaves lines. Windows are characteristically double hung with upper sashes divided with mullions, though some windows on the principal elevation have been replaced with panorama windows. The exterior has been repainted recently in heritage colours (ie. Cream, green and red). The Chalet sits in a well manicured garden incorporating a variety of exotic plantings as well as some natural features such as granite outcrops (Moylan and Watt, 1994:481).

The Mount Buffalo Chalet is identified as having social value (DNRE 1996: 13).

Potential National Heritage Values

The Mount Buffalo Chalet [potentially] meets the indicators for *Community association* and *Defining and shaping*.

There appears to be a strong and special association between a community and Mount Buffalo Chalet for recreation, including snow skiing. [implicit]

Mount Buffalo Chalet has an outstanding set of characteristics associated by a community with its experience of the Alps environment. [implicit].

Potential National Heritage Criteria

a, b, d, e, g

3.3.21 Mount Buffalo National Park

Broad historic themes associated with this place include Aesthetic responses, and Recreation and Tourism.

Potential National Heritage importance

The Mount Buffalo National Park meet the indicators for *Inspiration* and *Community association*

The Mount Buffalo National Park is regarded as an 'inspirational landscape' and have been the subject of important artistic representations of the Alps environment.

The Mount Buffalo National Park is associated with particular stories demonstrating the development of strong community attachment to a place

Description

Artistic responses to Mount Buffalo range from early paintings, such as Nicholas Chevalier's 1864 *The Buffalo Ranges, Victoria*, to photographs, such as by Nicholas Caire's nature scene, *Buffalo Falls* 1900. Recreational promotion by Victoria Railways of Mount Buffalo, including its Chalet, built in 1910, included between the two world wars a series of famous posters such as *Visit the Victorian Alps* (James Northfield 1931) showing skiers at Mount Buffalo, or *Summer is Always Spring at Mount Buffalo National Park Victoria* (Gert Sellheim, c1936) and *Mount Buffalo National Park The Holiday Spirit* (Percy Trompf).

Mount Buffalo is stated to be *one of Victoria' best known and most popular national parks* (DNRE 1996:v).

Potential National Heritage Criteria

a, e, g

3.3.22 Mount Kosciuszko

Mount Kosciuszko lying within the Main Range of the Snowy Mountains is the highest mountain in Australia, but as Kirkpatrick notes, it is not the sense of jagged height of other alpine systems, but the gently rounded slopes of Australia's soil mountains that are aesthetically unique (1994:30). It is generally the knowledge of its stature rather then its visibility as such, that inspires community and artistic responses. The views from the area particularly to the south towards the Victorian Alps are highly regarded for their rolling sense of remote, blue distance.

Potential National Heritage Importance

Mount Kosciuszko meets the indicators for Inspiration and Community association.

Mount Kosciuszko in the Australian Alps has outstanding characteristics associated by the community with its experience of the Alps environment.

Mount Kosciuszko is regarded as an 'inspirational landscape' and has been the subject of important artistic representations of the Alps environment.

Mount Kosciuszko is associated with particular stories demonstrating the development of strong community attachment to a place.

Description

Mount Kosciuszko is located in the southern section of the Kosciuszko National Park, NSW, latitude -36º 27' 3", longitude 148º 15' 8".

Whilst the tallest mountain, Mount Kosciuszko does not appear as a high peak above the surrounding landscape of high plateau and rounded shapes. Surrounding Mount Kosciuszko are only slightly lower mountains, Townsend, Carruthers, and Twynam, part of the Main Range of the Snowy Mountains. Views from the summit of Mount Kosciuszko extend 360 degrees, south to the Victorian High Country, north to the Main Range and east to the Monaro tablelands.

Early aesthetic responses to Mount Kosciuszko include the first European explorers and scientists, Strzelecki in 1845 and the geologist Clarke in 1860, who both respond to the mountain scenery in terms of its purity, sublimity, and call for an artistic response. This came soon, when von Guérard painted the view of the Main Range from the top of Kosciuszko in 1863, and later from the Victorian side in 1866. Later artistic images include travel poster art, a commemorative stamp cover in 1960, and countless photographs. Some 30,000 people walk or ski to the summit of Mount Kosciusko every year.

Potential National Heritage Criteria

a, e. g

3.3.23 Oldfields Hut

Oldfields Hut demonstrates the historic themes associated with *Pastoralism and Grazing*.

Potential National Heritage Importance

Oldfields Hut meets the indicators for *Shaping and defining*, *Community association* and *Stories and myth making*.

Oldfields Hut is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Oldfields Hut between a community and a specific land use.

Oldfields Hut is closely associated with stories that influence contemporary responses to the alpine environment

Description

From KHA website: Oldfields is located in the east of KNP almost at the border with Namadgi National Park and on the track that leads up to Murrays Gap and Mt Bimberi.

Oldfields was built in 1925 by Jack Pheney for the Oldfield family. It replaced the Wards hut previously built nearby for the family in 1920. The structure is a typical vertical split slab hut measuring 10m by 3m, with vertical boards and a great verandah. The roof is of iron and the floor of stones and wood. A vegetable garden is still visible at the front, plus stockyards about 500m to the east.

An Aboriginal circle of stones (a Bora Ring) used to exist in front of the hut, but careful searches have failed to find it.

Potential National Heritage Values

a, b, d, e, g

3.3.24 Orroral Homestead Precinct

The Orroral Homestead precinct demonstrates the themes associated with *Pastoralism and Grazing*.

Potential National Heritage Importance

The Orroral Homestead precinct meets the indicators for *Shaping and defining*, *community association* and *stories and mythmaking*.

There is a strong and special association at Orroral Homestead between a community and the previous pastoral land use and the present protected area land use.

Orroral Homestead is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing reflected in the slab construction of the homestead with its separate kitchen building, shearing shed, cleared land and other pastoral elements.

Orroral Homestead is closely associated with stories that influence contemporary responses to the alpine environment including romantic notions heroism attached to the pioneering rural tradition and high country grazing.

Place Description

- Ruins (including building foundations and hearths);
- Fences and stockyards;
- Huts;
- Dray tracks;
- Animal pens;

- Sheds;
- Shearing shed;
- Homesteads (1860s including kitchen ruins and 1950s);
- Well; and
- Orchard and plough-fields.

From RNE Listing: The general structure consists of timber floors and sub-structure; a timber frame of posts, head beam and sill beam and vertical timber slab infill; rendered stone end walls incorporating fireplaces chimney stacks and weatherboard gables; a timber roof of rafters and ties with shingle covering overlaid with corrugated metal; a timber decked east verandah and timber doors and sash windows. Evidence indicates that originally the Homestead consisted of three rooms. Rooms 1 and 4 were entered from the eastern verandah and the large central room was connected to both by doorways in the dividing walls. Rooms 1 and 4 had a single window and the central room two windows all in the eastern wall. In the western wall a single door opening in room 1, gave access to a kitchen building, sited a short distance away and lying parallel with the Homestead. At some time (date uncertain) the centre room of the Homestead was subdivided by the introduction of an internal partition; a window was removed from the eastern wall and replaced by a doorway and the window was modified and crudely inserted into the western slab wall to provide natural light to the new room. The eastern verandah is part of the original building but the verandah on the western side of the Homestead was added at a later (also uncertain) date.

The area was first used for summer grazing in 1839 when a drought prompted Murray of William Herbert established Orroral Station in 1836 however there is little information on what structures were present from that earliest period. The homestead that survives today is believed to have been built for Archibald McKeahnie in the 1860s. There precinct consists of a variety of built elements and cultural features that include:

Potential National Heritage Criteria

a, b, c, d, g

3.3.25 Piccadilly Fire Ecology Plots

The Piccadilly Fire Ecology Plots demonstrates the themes associated with Water and Conservation in the Alps.

Potential National Heritage Importance

The Piccadilly Fire Ecology Plots meet the indicators for *Shaping and defining*

The Piccadilly Fire Ecology Plots are closely associated with important changes in the evolving environmental management of the alpine environment

The Piccadilly Fire Ecology Plots are closely associated with the development of environmental science in the Alps.

The Piccadilly Fire Ecology Plots are important examples showing key characteristics of a particular type or phase of scientific research in the Alps

Description

The Piccadilly Fire Ecology Plots, with the Northern Territory Top End sister study, are the longest running fire ecology experiment in Australia, possibly the world, established by Phil Cheney, CSIRO, in 1973 to investigate effects of fire on subalpine vegetation. In 2000 further research at these plots and elsewhere in the Brindabella's show that vast majority of low intensity fires do leave

fire scars on snow gums concluding there is no evidence of Aboriginal burning in that area (Macdonald and Haiblen 2001a: 41-43).

Grid reference 637854 (Macdonald and Haiblen 2002b:ACT site table); near Piccadilly Circus Series of 20m x 20m fire ecology plots, NNP, ACT, Environment ACT 2005:127-129.

Potential National Heritage Criteria

a, b, d, g

3.3.26 *Pretty Valley and Rocky Valley Grazing Exclosures*

The Pretty Valley and Rocky Valley Grazing Exclosures demonstrate the themes associated with Science Water and Conservation ,and related to Pastoralism and Grazing]

Potential National Heritage Importance

The Pretty Valley and Rocky Valley Grazing Exclosures meet the indicators for S*shaping and defining*

The Pretty Valley and Rocky Valley Grazing Exclosures are closely associated with important changes in the evolving environmental management of the alpine environment

The Pretty Valley and Rocky Valley Grazing Exclosures are closely associated with the development of environmental science in the Alps.

The Pretty Valley and Rocky Valley Grazing Exclosures are important examples showing key characteristics of a particular type or phase of scientific research in the Alps

The Pretty Valley and Rocky Valley Grazing Exclosures are important examples of a conservation management response in the alpine environment

The Pretty Valley and Rocky Valley Grazing Exclosures are closely associated with the work of an important individual, Maisie Fawcett (Carr) and associated group in the history of field-based scientific research in the Alps.

Description

These grazing exclosures are part of scientific research resulting from a concern for clean water supply. First started in 1941, by Maisie Fawcett (Carr) when with the newly established Soil Conservation Board of Victoria, later with John Turner of Melbourne University, to explore the impacts of cattle on vegetation and erosion, by monitoring grazed and un-grazed conditions, and form one of the oldest scientific reference sites in Australia. These long-term plots were places grassland and heathland on the Bogong High Plains, Alpine National Park (RFA 1999:Map28). These plots have been carefully maintained and the vegetation remeasured regularly. The results have been widely published in reports and scientific journals (Papst et al 1997 in RFA 1999:71).

The precise site positions are given by Macdonald and Haiblen as:

- Two plots established by Carr and Turner in *Poa* grassland in 1944. Surrounding vegetation burnt in 1939 bushfires. One plot fenced to exclude cattle; the other accessible to free-ranging cattle. Vegetation is now recorded every 10 years (1979, 1989, 1999). S 36° 53’49” E 147° 17’48” and S 36° 53’39” E 147° 17’46”
- Two plots established by Carr and Turner in Poa grassland in 1944. Surrounding vegetation burnt in 1939 bushfires. One plot fenced to exclude cattle; the other accessible to free-ranging cattle. Vegetation is now recorded every 10 years (1979,89,99). S 36° 53’43” E 147° 17’51” and S 36° 53’40’ E 147° 17’47”

- Plots established in 1947 by Carr and Turner in forb rich grassland (termed Grassland C). One plot fenced to exclude cattle; the other plot is grazed by free-ranging cattle. Vegetation is now recorded every 5 years (1989, 1994, 1999). S 36° 54'25" E 147° 17'29" and S 36° 54'25" E 147° 17'30"
- Grazed and un-grazed moss bed plots were surveyed and the vegetation mapped in 1979 by Keith McDougall et al. as a basis for recording future vegetation changes. Un-grazed moss bed fenced in 1944. In 1996, quadrants used to record species composition. S 36° 53'42" E 147° 17'52" and S 36° 53'43" E 147° 17'54"
- Mt Mesley Plot – one of the two earliest soil conservation plots established 1941.
- Mt Livingstone Plot – one of the two earliest soil conservation plots established 1941.

Further descriptions especially of the scientific results and importance of these grazing exclosures are at Griffiths and Robin 1994:37 and Macdonald and Haiblen 2002a:34-35.

Condition / Integrity

It is suggested that in many of the experimental research sites such as exclosure plots will not have necessarily suffered as a result of the 2003 bushfires as such fires and research into the impact 'are part of the process' (Roger Good pers comm. March 2006).

Potential National Heritage Criteria

a, c, g, h

3.3.27 Red Robin Reef Mine

The broad historic themes associated with this place include Mining.

Potential National Heritage Importance

Red Robin Reef Mine meets the indicators for *Shaping and defining*

Description

From Heritage Victoria Register: The site consists of:

- Adit
- Battery/Crusher
- Gold Mining Site
- Mine Dam
- Mine Machinery & relics
- Mineral Discovery site
- Mining camp/settlement/housing
- Mullock Heap
- Tailings Dump

Since its discovery the Red Robin mine has been worked virtually continuously. Spargo sold his mine in 1952, but evidence of his activities still remains on site. Subsequent miners, including the present operator, Ken Harris, have continued to work the mine in traditional or 'old-style' ways, relying on their own brands of inventiveness to counter the difficulties posed by extreme Alpine conditions. Each of the owners, therefore, has in turn, added their own ingenuity to the site and now the mine contains a fascinating blend of old and new elements including huts, adits, mullock heaps, tracks, roads, sand dams, and mining equipment.

The Red Robin Gold Mine is a palimpsest of mine workings, operational and redundant mining equipment and huts. The significance of the Red Robin Gold Mine is increased by its continued use since 1940 essentially with 'traditional-type' mining technology and techniques. The retention of all

the existing elements at the mine from original to current (and future) use is crucial to the significance of the place. These elements combine to document the evolution of mining operations on the site and underscore the engineering ingenuity and human spirit that enables successful gold mining in one of the most remote and hostile environments in Australia. Of particular importance are the remains of the vertical boiler next to the battery house. The boiler, used to heat water to facilitate plate amalgamation of gold in sub-zero conditions, evinces the first (and so far only) attempt to operate the battery over winter.

Potential National Heritage Criteria

a, g

3.3.28 Rock Creek Lodge

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

Rock Creek Lodge meets the indicators for *Shaping and defining*, and *Community Association.*

Rock Creek Lodge is important in the development of snow based recreation in Australia.

Rock Creek Lodge is clearly demonstrates multiple phases of human activity utilising the Alps environment.

There is a strong and special association at Rock Creek Lodge between a community and a specific land use.

Rock Creek Lodge has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

Source: Rock Creek Ski Club (http://www.rockcreek.org.au/history.htm): The Kosciusko State Park Trust first met on 4 July 1944. Early in its life the New South Wales Tourist Bureau representative, Mr H J Lamble drew attention to the need for a shelter for tourists between Hotel Kosciusko and Betts camp, for people en route to Charlotte Pass and beyond.

A group of young men drove from Sydney to Perisher Valley nearly every weekend over the next two years slowly building the lodge. At the time, the road from Canberra onwards was a dirt road thus making the journey long and dusty. All materials had to be brought from Sydney and transported by private vehicle to Perisher Valley.

On 4 May 1948 the New South Wales Tourist Bureau was authorised to rent the hut, presumably as shelter for tourists en route to the Charlotte Pass Chalet.

On 26 January 1949, Rock Creek Hut was destroyed by lightning. The Kosciusko State Park Trust decided not to re-build the hut.

On 24 June 1949, the Kosciusko State Park Trust refused an application by Snow Reveller's' Ski Club to rebuild the hut as a club lodge.

In 1958 two of the original members were taking shelter in the fireplace of the ruins and they discussed the possibility of rebuilding the hut as a ski lodge. An application was made to the Kosciusko State Park Trust and in 1958 permission was granted to rebuild the lodge preserving the remains of the original hut.

A group of young men drove from Sydney to Perisher Valley nearly every weekend over the next two years slowly building the lodge. At the time, the road from Canberra onwards was a dirt road thus making the journey long and dusty. All materials had to be brought from Sydney and transported by private vehicle to Perisher Valley.

In 1959 the hut became Rock Creek Ski Club – built on the original site, it has retained its unique and original features. It is a fully self contained private ski lodge which sleeps six people. The lodge has a small membership consisting of those who re-built the lodge and their children.

Potential National Heritage Criteria

a, b, d, e, g, h

3.3.29 Snowy Mountains Hydro-electricity Scheme

The Snowy Mountains Hydro-electricity Scheme demonstrates the themes associated with Water, Conservation, Migration, Roads, and indirectly Recreation, in the Alps.

Potential National Heritage Importance

The Snowy Mountains Hydro-electricity Scheme meets the indicators for *Shaping and defining*, *Community association*, and *Stories and mythmaking*

The Snowy Mountains Hydro-electricity Scheme is an important demonstration of the utilisation of Alps water for power generation and irrigation.

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) is closely related to community relationships with the Alps environment leading to contemporary community responses and environmental conservation management responses to that Alps environment.

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) is closely associated with stories of alpine land use that have become iconic as myths in the broader Australian community shaping important beliefs and concepts of national identity.

The Snowy Mountains Hydro–electricity Scheme reflects conservation responses to environmental research with conservation responses, being closely associated with the work of the Snowy Mountains Authority's head, Sir William Hudson, who not only achieved the realisation of the Scheme, but consciously funded rehabilitation, and supported the end of grazing when Kosciuszko National Park was declared in 1969.

The Snowy Mountains Hydro-electricity Scheme which is based on the use of the Alps environment seasonal snow cover, is closely associated with stories of Alps land use that have become iconic in the broader Australian community and shaped the broader community's concept of its national identity.

Description

The location of the Snowy Mountains Hydro-electricity Scheme is partly in the north-western part of the Kosciuszko National Park (see plan at Pearson and Marshall 2000:90 from McHugh 1999)

The Snowy Mountains Hydro-electric Scheme was constructed between 1949 and 1974. Essentially it diverts the water flow of the Snowy River to the west instead of to the east, via a series of major diversions, and in so doing produces electric power as well as providing water to major irrigation systems along the Murrumbidgee and Murray Rivers.

The Snowy Mountains Hydro-electric Scheme was the biggest public infrastructure project in Australia in the 20th Century (Pearson and Marshall 2001:53). It also was instrumental in supporting 60,000 of post-World War II migrants coming to Australia, providing employment, and also influencing high country recreation as many Europeans who worked on the Snowy stayed on in the region and contributed to the growing skiing and mountain tourism.

On completion of the Snowy Mountains Hydro-electric Scheme, it consisted of 16 (17) major dams, 150km of tunnels, seven power stations, total generating capacity of 3.74 million kilowatts) (Bambrick 1992:312; plan at Pearson and Marshall 2000:90 from McHugh 1999)

Pearson and Marshall have described the Snowy Mountains Hydro-electric Scheme as having totalling some 280 / 287? major sites with the following key components (2001: 25):

- 17 dams (including Dry Dam)
- 13 tunnels
- 2 pumping stations
- 7 power stations
- 8 switching stations and control centres
- some 120 /127? work camps, the tent camp

The functions of these features is described in Pearson and Marshall (2001:25-16).

Some 600 elements of the Snowy Mountains Hydro-electricity Scheme are within the Kosciuszko National Park. This data is held within DEH, Historic Assessments Section.

The Scheme is considered to have social value for the Australian community. Whilst there do not appear to have been any specific studies of the social criteria of the landscapes modified by the Snowy Mountains Authority, the displacement and loss of earlier settlements, and the influx of workers and their families, has partly been recorded in the social histories of this process (Cosettini 1999; McHugh 1995, 1999; McGoldrick 1998; Read 1996, as cited in Pearson and Marshall 2000a), providing a reasonable indication of social values, as do the increased recognition and commemoration of these experiences, and the rich intangible heritage associated with this them [see also: Social Value].

The importance of the Snowy Mountains Scheme to the Australian community is manifest in current protests about its sale from public ownership (28 May 2006) and nominated to the NHL under the emergency listing provisions.

Several huts are noted to have associations with the Scheme and classed as having social value (Buckley, this study from GML 2005:Table 9.1)

- Horse Camp Hut – associations with the Snowy scheme and education-based recreation, a place associated with caretakers
- Tin Mine Barn – associated with alpine grazing, tin mining, Snowy scheme, forestry and science
- Valentine's Hut – associated with the Snowy scheme, a community meeting place for walkers and skiers
- Whites River Hut and SMA Annexe – a meeting place for skiers.
- Brook's Hut – classic stockman's hut, associated with pastoralism, the Snowy scheme and recreation, a place associated with caretakers
- Grey Hill Café – possible social values arising from associations with pastoralism and the Snowy scheme
- Old Geehi Hut – associated with the Snowy scheme and recreation
- Opera House – landmark in a beautiful and remote location, associations with the Snowy scheme and with refuge
- Paton's Hut – an interesting and evocative example, associated with pastoralism, the Snowy scheme and recreation

Condition / Integrity

A full audit of all the sites within Kosciuszko National Park has been undertaken by NSW NPWS and is held in DEH.

Potential National Heritage Criteria

a, b, f, g, h

3.3.30 Snowy River – Headwaters and 'Lower Snowy' in NSW

The Snowy River demonstrates the themes associated with Water, Conservation, Aesthetic Responses and Social Value in the Alps.

Potential National Heritage Importance

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) meets the indicators for *shaping and defining*, *community association*, and *stories and mythmaking*.

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) is important demonstration of the utilisation of Alps water for power generation and irrigation.

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) is closely related to community relationships with the Alps environment leading to contemporary community responses and environmental conservation management responses to that Alps environment.

The Snowy River (headwaters, /Upper Snowy, 'lower Snowy' in NSW) is closely associated with stories of alpine land use that have become iconic as myths in the broader Australian community shaping important beliefs and concepts of national identity.

Description

The Snowy River is a symbol to many Australians for diverse reasons. Its name, and that of the 'Snowy Mountains' evokes the alpine high country with its months of snow a year. The precipitation of that snow is partly because of the steep mountain ranges of the Australian Alps, which are evoked in the ballad 'The Man from Snowy River'. That snow, particularly in the case of the Snowy River which has a large water flow, led to the various plans for the use of that water, culminating in the case of the Snowy River in the Snowy Mountains Hydro-electric Scheme. The Snowy River has as a result become a national icon, in part leading to the environmental conservation decision in 2002 to 'rescue the Snowy' by reversing up to 28% of its water flow back down the river, rather than it continuing to go to the Murray-Darling irrigation areas to the west of the Great Dividing Range.

The Snowy River starts on the Main Range of the Snowy Mountains to the south west of Charlotte Pass, and head north east, now being empounded as part of the Snowy Mountains Hydro-electric Scheme at several locations before east, where it is dammed in Lake Jindabyne, and then on east out of Kosciuszko NP in a big sweep south before heading west back into Koscisuszko National Park through steep-sided ridges of the Byadbo Wilderness Area crossing the Victorian border and heading south through the Alpine National Park and the Snowy River National Park through steep gorges and mountains, emptying into the Tasman Sea south of Orbost.

Prior to damming, the Snowy River was described as 'flow[ing] evenly, 200 yards for miles, fringed by willow-like acacia, tea bush and large sandy beaches' (Myles Dunphy 1934, quoted in KNP 2004:4). Before that the Snowy River's importance to Indigenous people is recorded in 1844 by George Augustus Robinson in conversations with Monaro Aboriginal people in 1844, recorded the following story of the creation of the river by the Moon and Water Mole (platypus) (KNP 2004:52).

The Byadbo wilderness area of the 'lower Snowy' was subject to early conservation calls in 1935 for its protection as the 'Snowy-Indi Primitive Area' across NSW and Victoria by the newly established National Parks and Primitive Areas Council led by Myles Dunphy, demonstrating the development of strong community attachment to a place, as this was strongly supported by groups of bushwalkers and other conservationists, aroused the interest of the then Premier of NSW, William McKell. The proposal later became a move for a national park.

This area is not only steep-sided but has characteristic vegetation with the Snowy River valley enclosing 'a lower, drier and warmer environment that supports woodlands and scrubs not found elsewhere in the park. Of particular interest is the white box (*E. albens*) – white cypress pine (*Callitris glaucophylla*) woodland, which is the largest occurrence of this association east of the Great Divide. This association shows affinities with the vegetation of both the coastal and inland regions and may be a relict of earlier, more widespread climatic conditions, still preserved within the Snowy Valley.' (KNP 2004:9) Noted as park like in its growth by first settlers, these pines may be referred to in *The Man from Snowy River* ballad by Paterson:

> …
> *And down by Kosciusko, where the pine-clad ridges raise*
> *Their torn and rugged battlements on high, …*
>
> (A B 'Banjo' Paterson *The Man from Snowy River* 1895)

Assessments of aesthetic and social heritage values have identify the importance of the 'Snowy River' to the Australian community as a national icon, such as the 'upper Snowy River' in Victoria, and the Snowy Gorge in the Snowy River National Park, although specific parts of the river are not specified, and community heritage assessments have not taken place in NSW.

Potential National Heritage Criteria

a, b, e. g

3.3.31 The Suite of Huts in Australian Alps

It has been argued that the huts form a group that have potential social value as a group, stating that their shared or collective value is *the iconic social value of their place in Australian culture reflecting aspects of true stories, legends and myths associated with historic patterns and lifestyles* (GML 2005:iii). Of a total some 200 huts in the Australian Alps, more than 100 of them are regarded as having social value individually.

Potential National Heritage Importance

The huts in the Australian Alps as a group (potentially) meet the indicators for *Community association* and *Stories and mythmaking*.

There is a strong and special association between the community and the huts in the Australian Alps; several individual huts have friends / caretaker groups and in Kosciuszko National Park the Kosciusko Huts Association has cared for the huts in association with the parks managers since 1974, and more recently in Namadgi National Park. Since the 2003 bushfires the Victoria High Country Huts Association was formed to care for the remaining huts.

The huts in the Australian Alps have outstanding characteristics associated by the community with its experience of the Alps environment.

The huts in the Australian Alps are to many in the community closely associated with stories that influence contemporary responses to the alpine environment including romantic notions of heroism attached to the pioneering rural tradition and high country grazing.

Place Description

Extensive documentation has been undertaken of the huts, including their social value. Key descriptions are to be found for the huts in the Alpine National Park, including post-2003 assessments (Butler 2000; 2005), and for the history and values of huts in the Kosciuszko National Park post-2003 bushfires (GML 2004). The Kosciusko Huts Association maintains a website that describes the history, hut and maintenance of most mountain huts including in Victoria (www.kha.org.au). Five huts in the Namadgi National Park are described in detail by Truscott et al

(2004a-3), with the heritage values also identified. A summary of the social value of some 100 huts identified for this study is found at Appendix 3.

Potential National Heritage Criteria

d, g

3.3.32 The Chalet at Charlotte Pass

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Chalet at Charlotte Pass meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

The Chalet at Charlotte Pass is important in the development of snow based recreation in Australia.

The Chalet at Charlotte Pass is clearly demonstrates multiple phases of human activity utilising the Alps environment.

The Chalet at Charlotte Pass has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

The Chalet at Charlotte Pass built by the NSW Government to encourage tourism in the snowy Mountains – opened in 1930. The original building was destroyed by fire in 1938, however it was re-built and open for business before the 1939 winter. Whilst having undergone some modifications and upgrades to meet visitor demand and expectations over the years the Chalet is still relatively intact and continues to operate as a tourism destination.

Potential National Heritage Criteria

a, b, e, g

3.3.33 Tidbinbilla Nature Reserve

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

Tidbinbilla Nature Reserve precinct meets the indicators for *Shaping and defining*, and *Community associations.*

The Tidbinbilla Nature Reserve has an outstanding set of characteristics associated by a community with its experience of the Alps environment.

Description

From RNE listing: Tidbinbilla Nature Reserve (TNR) provides significant opportunities for education, recreation, nature conservation and scientific research. The landscape is varied and the wildlife abundant and there are some interesting geological formations. TNR is also provides a sample of one of the most northerly parts of the South-east Highlands. The varied landscape contains vegetation types and landscapes ranging from highly modified agricultural areas to relatively undisturbed forests and sub-alpine flora. The diversity of habitats is reflected by the varied and abundance of the wildlife. The Tidbinbilla Nature Reserve is a popular destination for many of Canberra's residents as well as interstate and international visitors providing an opportunity to interact with the sub-alpine environment and its flora and fauna.

Potential National Heritage Criteria

c, e, g

3.3.34 Upper Cotter River Catchment

The Upper Cotter River Catchment demonstrates the themes associated with Water, Grazing, and Mining in the Alps.

Potential National Heritage Importance

The Upper Cotter River Catchment meets the indicators for *Shaping and defining*, and *Richness of assemblage*

The Upper Cotter River Catchment presents evidence of the use of the Alps environment for summer grazing, its location on the route for stock movement to the former Gibson's Plain now Kiandra, and the track followed by miner's during the Gold Rush to Kiandra, and for water use for urban drinking water.

The Upper Cotter River Catchment is an important example of a conservation management response in the Alps environment being the first water catchment that had stock grazing excluded from it

The Upper Cotter River Catchment demonstrates multiple phases of human activity utilising the alpine environment, from evidence of past snow leases for summer stock grazing, the route to Gibson's Plain / Kiandra for summer grazing then the Gold Rush, to its exclosure in 1913 as a water catchment for the new federal capital, Canberra, and its current inclusion in the Bimberi Wilderness, as a valued for scientific research.

Description

The Upper Cotter River catchment is associated with early concern about water quality resulting in the then high country pastoral land use being removed and the area protected as a water catchment. In 1984 it was declared as part of the Bimberi Wilderness area, this part of the wilderness area within the Namadgi National Park in the ACT, as others are in NSW including the Kosciuszko NP.

'Yarralumla', now part of the ACT, to take his cattle via the upper Cotter to Gibsons Plains (now Kiandra) [see Pastoralism, Grazing]. This is the same route used by miners in the Gold Rush to Kiandra in 1860-61. There is evidence in 1885 of a mountain hut / or 'humpies' having being built on the eastern side of the upper Cotter River when the land was purchased (Truscott et al 2004e:9). In 1892 a more substantial house was built 'reputed to have cost 12 pounds to erect, was constructed with slab walls and a shingle roof; there was a verandah to the northern wall.' (Higgins 1994: 9) 'Cotter House' with the Oldfield family was the centre of a close, social network of pastoral families, especially in summer when they took their cattle to the remote highland snow leases of the Brindabella Ranges. Remains of the pastoral landscape include fencing, exotic plantings, notably a poplar.

It was the first water catchment to have grazing excluded from it, when in 1913 Dr John Cumpston, then head of the Commonwealth Quarantine Service, cleared cattle on public health grounds. The area had been specially included in the new federal territory formed for Australia's national capital to provide that community with water, and its closure from grazing acknowledged a growing concern for clean water and the impacts of grazing on erosion.

Despite being a rugged remote terrain protected from development for almost 100 years, traces of earlier pastoralism form a cultural landscape within the wilderness. This cultural feature has continued as the centre of human activity in the area. Three or four generations of structures have used as shelter and habitation reflecting the changing use from pastoralism, to water conservation, to broader biodiversity protection, and biodiversity research.

Cotter House was then used by the various rangers protecting the water catchment, and subsequently moved to a rise above the river on the western side, the original house location forming an archaeological site of research potential. In 1960 a new house was built next to the old house. The current Cotter Hut is now used by the parks service and conservation service and other researchers for scientific, especially ecological studies, having survived the 2003 bushfires. It is important to the community as one of a series of cultural features and huts representing past pastoralism in the high country. Full descriptions of all cultural features are found in Truscott et al 2004e.

Potential National Heritage Criteria

a, d, h

3.3.35 Victorian Alpine Mountain Peaks

Broad historic themes associated with this place include Aesthetic responses, and Recreation and Tourism.

Potential National Heritage importance

The Victorian Alpine Mountain Peaks meet the indicators for *Inspiration* and *Community association*

The Victorian Alpine Mountain Peaks are regarded as 'inspirational landscapes' and have been the subject of important artistic representations of the Alps environment.

The Victorian Alpine Mountain Peaks are associated with particular stories demonstrating the development of strong community attachment to a place

Description

Several mountain peaks in the Australian Alps have elicited aesthetic responses, by artists, photographers, writers and communities. These include several peaks found to have aesthetic value in Victoria in past studies (Crocker 1997, 1999, 2005a, b).

General views of Great Dividing Range	Mount Howitt
Mount Speculation	Mount Pinnibar
Mount Bogong (Victoria's highest peak)	Mount Stirling
Mount Cobberas	Mount Warwick [sp?]
Mount Cobbler	Mount Wombargo
Mount Cope	The Bluff
Mount Feathertop	The Pinnacles

A number of these peaks were the subject of early aesthetic responses by explorers and artists, such as Chevalier (Buffalo Ranges 1864), von Guérard (Bogong Ranges 1866), and other unnamed peaks. Later Streeton painted the Bogong High Plain and Mount Feathertop. Later photographers responded to the Alps, such as Caire (Mount Bogong) and Hurley (including Mount Bogong).

Potential National Heritage Criteria

a, e

3.3.36 Von Mueller's Botanical Survey Routes

Von Mueller's botanical survey routes demonstrate the themes associated with Science and also Exploration.

Potential National Heritage Importance

Von Mueller botanical survey routes meet the indicators for *shaping and defining*

Von Mueller's botanical survey routes are important examples showing key characteristics of a particular type or phase of scientific research in the Alps.

Von Mueller's botanical survey routes are closely associated with the development of environmental science in the Alps.

Von Mueller's botanical survey routes are important examples showing key characteristics of a particular type or phase of scientific research in the Alps

Von Mueller's botanical survey routes are closely associated with the work of an important individual, Baron Dr Ferdinand von Mueller, in the history of field-based scientific research in the Alps and his important identification of Alps botanical species.

Description

The routes the Government Botanist for Victoria, Baron Dr Ferdinand von Mueller, in his five [actually 4] botanical surveys into the Alps between 1853 and 1861 followed tracks made by pastoralists and gold-prospecting surveyors [see Roads / Tracks], but also explored 'new' ground, that is new to Europeans, finally climbing Mt Baw Baw in 1861. His botanical research of sub-alpine and alpine flora, in many cases made new finds and named several new species for western science, advancing botanical research. (Willis 1988:381-381; Gillbank 1992:211-222; Griffiths and Robin 1994).

The journeys have been mapped and comprise (from Gillbank 1992):

- 1853 – Buffalo Range to Mount Buller
- 1854 – Cobberas – upper Mitta Mitta valley, across the Gibbo Range, then up the Mitta Mitta to Omeo (probable route of gold prospectors along route of early pastoralists Gray, Brown, and Wells on way to Cobungra) and to Cobberas mountains and adjacent plateaux
- 1854 – Mt Wellington, Hardinger Range, Bogong Range, and into New South Wales to Snowy Mountains climbing Mt Kosciuszko.

Actual locations today have not been detailed although it is understood some are now on current, main roads – no detailed current mapping was sought.

Potential National Heritage Criteria

a, b, g, h

3.3.37 Wallace Hut

Wallace Hut demonstrates the historic themes associated with *Pastoralism and Grazing*.

Potential National Heritage Importance

Wallace Hut meets the indicators for *Shaping and defining*, *Community association* and *Stories and myth making*.

Wallace Hut is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Wallace Hut between a community and a specific land use.

Wallace Hut has an outstanding set of characteristics associated by a community with its experience of the alpine environment.

Wallace Hut is closely associated with stories that influence contemporary responses to the alpine environment.

Description

From KHA website: Also known as Seldom Seen Hut, Wallace Hut is located at Wallace Gap on the Bogong High Plain. This hut is the oldest complete structure in the Alpine National Park, being built in 1889 by the Wallace bothers, Arthur, William and Stewart from snow gum slabs and woollybutt shingles. David and Henrietta Wallace held the lease from 1869 and their sons later. The National Trust classified the hut in 1967, and the Rover Scouts of Victoria have continued to maintain it for some decades.

Up to date descriptions and plans can be found in Truscott 2002c.

Potential National Heritage Criteria

a, b, d, e, g

3.3.38 Wonnangatta Station

Wonnangatta Station demonstrates the historic theme associated with *Pastoralism and Grazing*.

Potential National Heritage Importance

Wonnangatta Station meets the indicators for *Richness of the Assemblage*, *Shaping and defining*, *Community association* and *Stories and myth making*

Wonnangatta Station is a landscape that clearly reflects layers of human modification of the alpine environment.

Wonnangatta Station is an important example of a summer pastoral grazing run reflecting a particular phase of alpine grazing.

There is a strong and special association at Wonnangatta Station between a community and a specific land use.

Wonnangatta Station has an outstanding set of characteristics associated by a community with its experience of the alpine environment.

Wonnangatta Station is closely associated with stories that influence contemporary responses to the alpine environment

Description

From RNE Listing: The Wonnangatta Station site consists of the homestead site, blacksmith shop site, cattleman's hut, cattle yards and pens, orchard, plantings and cemetery. It is located near the junction of Conglomerate Creek and the Wonnangatta River, 29km north-west of Crooked River township.

Wonnangatta Station is situated in the Victorian Alps in a remote pastured valley with the Wonnangatta River running along its length. The Homestead area is defined by European tree plantings including elms, poplars and pine trees. There are cattle yards enclosed by post and rail fencing, an orchard, wire fenced cemetery site, a ruined cattlemen's hut, the ruined site of a blacksmith's, and the burnt ruins of the main Homestead with its stone chimney prominent. The

valley area of pasture forms a clear contrast with the surrounding hills and mountain country. The area was first settled in 1861 when an American adventurer named Oliver Smith and his wife Ellen built a hut after Smith discovered the valley while prospecting for gold. He recognised the potential of the valley's fertile pasture lands as a cattle run associated with summer grazing lands on the High Plains. The Smiths entered into partnership with some Scottish settlers, John and Annie Bryce. Oliver Smith left the area disheartened in 1866 after his wife died in childbirth and her body was buried in the Homestead cemetery site. The Bryces continued to manage the property moving cattle between the high plains in summer and valley pastures in the winter. Cattle were sold in Gippsland and excess farm produce of cheese, butter and bacon were sold to miners working at the Crooked River. The Bryces had a family of ten children, two of whom died on the Station and are buried in the cemetery: Ellen aged three and Jessie aged twenty-two. Alan Calder, an uncle, is also buried there. William Bryce died in 1902 in a road accident and is buried elsewhere and Annie Bryce continued to run the property until she died in 1914 and was buried in the Wonnangatta Cemetery. The Station was soon sold to Arthur Phillips and Geoff Richie and in 1917 a double murder occurred on the property when James Barclay, the station manager and John Bomford, his cook, were killed and the bodies disposed of in macabre fashion. Bomford was killed at some distance from the Homestead and at first he was suspected to be alive and guilty of the murder of Barclay. The crimes were never solved and the murders remain a local legend and mystery. After these deaths the Station remained unoccupied except as overnight shelter for passing stockmen until it was purchased by Alex Guy in 1934. In May 1957 the Homestead burnt down, probably due to bushwalkers lighting too big a fire in the chimney. In 1970 it was sold to Bob Gilder and in 1988 the Department of Conservation, Forests and Lands bought the property for the Victorian National Parks Service. This last change in ownership, in order to add the land to the National Parks and eliminate grazing from the alpine pastures, has caused much controversy amongst the local mountain cattlemen who perceive their culture and heritage under threat. Wonnangatta Station, which is a key cattle station in the Victorian Alps and has held cattle continuously since 1860, has become a focus for their cause to protect their culture and heritage from the combined pressures of National Parks and tourism.

The area is intact in its original state as it was settled in the 1860s. The main Homestead was burnt down accidentally in 1957 but the site with its burnt out chimney remains surrounded by exotic European tree plantings. An orchard nearby is in an overgrown condition as are the cattleyards associated with the Station. The Homestead cemetery is fenced and is tended regularly. Blackberries and box thorn noxious weed growth is causing problems throughout the Homestead site and the whole valley. The lack of a road through the valley and an increase in tourist visits is resulting in erosion problems caused by visitors' vehicles negotiating poorly drained areas.

Up to date plans and descriptions can be found in Truscott 2002d.

Potential National Heritage Criteria

a, b, c, d. g

3.3.39 Yarrangobilly Caves Karst Area

The Yarrangobilly Caves Karst Area demonstrates the themes associated with Science, and Recreation]

Potential National Heritage Importance

The Yarrangobilly Caves Karst Area meet the indicators for *Shaping and defining*

The Yarrangobilly Caves Karst Area is closely associated with the development of environmental science in the Alps

The Yarrangobilly Caves Karst Area is an important example showing key characteristics of a particular type or phase of scientific research in the Alps

The Yarrangobilly Caves Karst Area is closely associated with the work of an important individual, Professor Joe Jennings, and associated group in the history of field-based scientific research in the Alps

Description

One of the two most researched karst areas in the Australian Alps, and first visited in 1860 by the geologist, the Reverend W B Clarke, attracting along with Cooleman Plain karst, ongoing research interest. Research at Yarrangobilly, by Joe Jennings from 1974, at a number of hydrological monitoring sites defined periglacial dates and knowledge of the climate and vegetation variation of this alpine area, for example in comparison to his Cooleman Plain karst research, and illustrating a facet of the complex interrelationship of karst and cold climate geomorphology, and is considered internationally important. (Griffiths and Robin 1994: 41; ISC 2004: 154; Macdonald and Haiblen 2002a:70)

From Kosciuszko National Park draft Plan of Management:

Yarrangobilly is the best-known and largest karst area in centre of the northern part of Kosciuszko NP, straddling the Snowy Mountains Highway. Measuring 14 km long and 1.5 km wide, this limestone belt contains an outstanding collection of surface karst features such as gorges, arches, blind valleys, springs and pinnacle fields. It contains several hundred caves including six highly decorated show caves open for public viewing. The area also contains a number of rare and endangered plant and animal species and limestone-endemic plants, as well as significant subfossil deposits (KNP 2004:43).

Links to Recreation theme as the Yarrangobilly Caves precinct has state and regional historic and aesthetic significance as part of a complex of cave sites developed for tourism in the context of an important national social movement. The architecture of Caves House is also a significant intact example of early twentieth century resort style development. (KNP 2004:8)

Potential National Heritage Criteria

a, b, d, h

3.3.40 Yarrangobilly Caves Precinct

Broad historic themes associated with this place include Recreation and Tourism.

Potential National Heritage Importance

The Yarrangobilly Caves precinct is meets the indicators for *Shaping and defining*, *and Richness of assemblage,* and *Community Association.*

The Yarrangobilly Caves precinct is important in the development of snow based recreation in Australia.

The Yarrangobilly Caves precinct clearly demonstrates multiple phases of human activity utilising the Alps environment.

The Yarrangobilly Caves precinct has well documented and strongly felt contemporary associations with a community or defined group that experienced a phase of occupation of the Alps.

Description

From RNE listing (edited): The precinct was one of the earliest Government sponsored tourist destinations in South Eastern Australia and it remains remarkably intact. The Yarrangobilly Caves

House, built in 1901, was designed by architect Walter Liberty Vernon. The majority of buildings from this period are still present and in near original condition.

Potential National Heritage Criteria

a, b, d, e, g

3.4 Layered Cultural Landscapes

As noted above at 3.2.2, most of the identified cultural landscapes are formed from layers of different historic activities. Assessment against the National Heritage indicators of the Alps experience indicate that these landscapes occur over much of the Australian Alps. Most are an assemblage, or palimpsest, of the elements that have themselves been identified against the National Heritage indicative elements, as described in detail above.

Cultural Landscape	Indicative Elements	Potential NH Criteria
ACT		
Orroral–Gudgenby Pastoral Landscape	Orroral Pastoral Landscape Gudgenby Pastoral Landscape Tracks leading to Gibson's Plain / Kiandra	a, b, d, g
Upper Cotter	Cotter Hut Archaeological Site Upper Cotter catchment, Cotter Hut Tracks leading to Gibson's Plain / Kiandra	a, c, d, e, g, h
NSW		
Coolamine Plain Area	Coolamine Homestead Coolamine Plain Karst Area	a, b, d, g, h
Tantangara Plain / Long Plain Pastoral Landscape	Currango Pastoral Landscape	XX
Yarrangobilly Caves Landscape	Yarrangobilly Caves Karst Area Yarrangobilly Caves House	a, b, c, d, g, h
Kiandra	Former Gibson's Plain Kiandra Mining Field Kiandra Courthouse	a, b, c, d, e, f, g
Mount Kosciuszko and Main Range	Mount Kosciuszko Main Range Snowy River headwaters Mt Twynam to Mt Carruthers rehabilitation sites Alps alpine scenery The Chalet, Charlotte's Pass Glactiation research sites	a, b, e, g, h

Victoria		
Bogong High Plain	Pastoral landscape Wallace Hut Pretty Valley and Rocky Valley exclosures Red Robin Reef Mine Von Mueller's botanical survey routes General Alps scenery	a, b, c, d, e, g, h
Dargo High Plain		
Mount Buffalo National Park	Mount Buffalo Chalet Buckland Goldfield General Alps scenery	a, b, d, e,, g
NSW and Victoria		
Snowy River	Lower Snowy (NSW), upper Snowy (Vic), Snowy Gorge	a, e, g

4 AUSTRALIAN ALPS SIGNIFICANCE

4.1 Assessment against National Heritage criteria

The process of assessing the historic cultural in the Australian Alps as outlined above in Chapters 2 and 3, resulted in some 30 individual places and sites, some forming 11 cultural landscapes or rich assemblages, identified as representing the national story of the 'Alps experience'.

These indicative elements are linked by track, road and story, and huts, vistas, and scenery that hold tangible and intangible expressions of the Alps experience. These elements and the linkages between them form the attributes of the Australian Alps assessed according to any or all of the National Heritage significance criteria:

(a) The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history;

(b) The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history;

(c) The place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history;

(d) The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:

(i) a class of Australia's natural or cultural places; or

(ii) a class of Australia's natural or cultural environments;

(e) The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;

(f) The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period;

(g) The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

(h) The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.

(i) The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.

Most of these attributes of the Australian Alps have individually or collectively also been found to have heritage significance in past assessments, using similar criteria (although not generally attempting to apply a national significance threshold). These previous assessments were generally undertaken for individual sites by states / territory, and for the Register of the National Estate, including for the Regional Forest Agreements in Victoria. The current study has been undertaken independently of these past evaluations, in order to ensure objective results and to consider the application of national significance thresholds.

The assessment against the National Heritage criteria was guided by the DEH 'draft National Heritage List Assessment Guidelines – Historic Heritage' (February 2006), especially in regard to thresholds for outstanding national value. The results of the assessment are found in the Values Tables at 4.3.

4.2 Analysis

4.2.1 Criterion a – Historic

This step in the assessment of the cultural heritage values of the Australian Alps provides a statement of evidence in support of any claim that the Alps meet one or more criteria for inclusion in the National Heritage List.

Much of this analysis is foreshadowed above in section 3.1. In this section, statements of evidence are summarised against each National Heritage criterion.

Each of these analyses is underpinned by the histories and physical manifestations of potential National Heritage historic themes, or story-lines, relevant to the Australian Alps summarised in Chapter 2.

Further, the condition and integrity of identified places and landscapes has been checked to the extent possible based on desk-top sources (including the post-2003 bushfire audits).

4.2.2 Criterion a – Historic

The histories consulted for this assessment showed that there are key events and processes that have taken place in the Alps that are defining and shaping for the nation. They demonstrate that the Alps have been the location of events that are well-known and valued by the wider community, and have shaped its sense of national identity.

The assessment identified approximately 30 places across the Alps with potential to meet the National Heritage List criterion (a). Several areas across the Alps combine an array of elements forming cultural landscapes and concentrations of story that present different elements of the Alps experience. These are linked across the Alps as described in detail in Chapter 3. The association between the events and processes and the identified sites and areas is clear and well substantiated by extensive historic documentation.

The Alps are almost unique for demonstrating the historical responses to alpine environments. With the exception of the Central Highlands of Tasmania, the Alps are the only part of Australia with the potential for such a rich assemblage of events and processes related to this experience. The Alps therefore are of outstanding value to the nation for the national theme *the Alps experience*, according to criterion (a).

4.2.3 Criterion b – Rarity

Histories of the Alps reviewed for this assessment demonstrate that there are key events and processes that have taken place in the Alps that are rare events for the nation. In part this is due to the rarity of the Alps environment itself, resulting in key events and processes only occurring within this landscape. Associated intangible values are in many cases dependent on the rarity of the Alps experience within the broader Australian landscape. Some of these associations and stories associated with the Alps are nonetheless central to the community's sense of identity.

Elements with the potential to meet criterion (b) are described in detail in Chapter 3. Their rarity is clear and well substantiated by extensive historic documentation. Comparing individual elements within the Alps is problematic with no or very few like features. For example, Mount Buffalo Chalet

can be compared to other extant railway accommodation houses from the turn of the 20th Century, but no others are expressions of the Alps experience. As a result a form of inherent rarity exists in relation to these places.

The Alps therefore have outstanding national value to the nation for the national theme *the Alps experience* for criterion (b).

4.2.4 Criterion c – Research

Histories of the Alps reviewed for this assessment show that there are a very few places in the Alps with the potential to individually meet criterion (c). Some of these are sites with high archaeological potential due to their sub-surface remains or structural history. These sites have the potential to expand on information available from written and oral histories about specific stories.

This research value in the Australian Alps is not seen as substantial, contributing relatively little to the Alps as a whole to meet this criterion (ie. yielding information of national importance).

Research gaps in the Alps have been identified and it may be that there are other aspects of the history of the Alps, not identified as part of the indicator sieve and not included in the features described in Chapter 3, that may contribute in the future to this particular cultural heritage value of the Alps.

There are few if no places in Australia that are comparable in their research potential, although there are very many individual places and cultural landscapes that compare more favourably for their research potential generally.

The Alps are therefore not seen as having outstanding national value against criterion (c).

4.2.5 Criterion d – Characteristic

Histories of the Alps reviewed for this assessment show that there are events and processes that have taken place in the Alps that are characteristic of the Alps experience, and that the Alps are extensively covered with such features, elements and attributes that demonstrate this. Community responses and attachments to such characteristics of the Alps experience have been widely identified, in many cases shaping its sense of national identity.

The assessment of the evidence of these characteristics against the National Heritage indicators identified that many of the attributes across the Alps have the potential to meet criterion (d). Several areas across the Alps combine an array of elements forming cultural landscapes and concentrations of story that typify the Alps experience.

Key attributes that characterise the Alps experience are found throughout the Alps, and include the evidence of summer grazing (such as tracks, fencing, high country ‘snow leases’, mountain huts), places based on snow recreation and scientific research sites. All these are linked across the Alps. These elements are described in detail in Chapter 3.

Extensive documentation substantiates that these features demonstrate the characteristics of the Alps experience. Since Paterson’s *The Man From Snowy River* was first published, cultural places, elements, features and landscapes, even names themselves (such as ‘Snowy’), associated with the pastoral and grazing story-line in the Australian Alps have been part of the myths associated by the community with the Alps, and a notion of a characteristic way of life.

The landscapes and scenery of the Alps also characterise the Alps experience, and are seen by the community as central to their understanding of the Alps experience, including snow based recreation.

These indicative elements, or attributes, cover the Alps. The Alps therefore have outstanding national value to the nation for the national theme *the Alps experience*, for criterion (d).

4.2.6 Criterion e – Aesthetic

The evidence reviewed for this assessment demonstrates the aesthetic responses to the Australian Alps and the Alps experience, including community and artistic responses since first European settlement to the present. Whilst previous expert studies have been done for some areas of the Alps to identify which types of places inspire aesthetic responses, not all the Alps have been previously assessed for this value.

A limited amount of primary research was undertaken to enable an overview assessment of the aesthetic values of the Alps and the Alps experience. This primarily involved examination of additional artistic responses to confirm some claims for aesthetic value made in some tertiary reports.

In many cases, frequently replicated images of the Alps are location free, such as photographs of snow gums, alpine wildflowers, high country animals, snow scenes. Even huts are not usually identified when replicated on postcards, a common conveyor of such images. Instead such depictions of the Alps are symbols of the whole of the area as 'Alps'. The result of this review is presented in Chapter 2 and shows that the Alps are well-known and valued by the wider community for their aesthetic values, in part inspiring stories of national identity.

The assessment of the evidence of this aesthetic response against the National Heritage indicators identified several places across the Alps with the potential to meet criterion (e), including several extensive vistas and general landscapes occurring throughout the Alps, such as areas of summer wildflowers or winter snow. These elements described in detail in Chapter 3. The research undertaken and past research noted above demonstrates the value to the community of this form of Alps experience.

Some areas with aesthetic values were damaged by the 2003 bushfires, but in many cases are in the process of recovery. Some of the features, or attributes, identified in the Australian Alps with the potential to meet this criterion, are for the most part, also identified as having aesthetic significance in other heritage registers.

These indicative elements, or attributes, cover the Alps. The Alps therefore have outstanding national value to the nation for the national theme *the Alps experience*, for criterion (e).

4.2.7 Criterion g - Social

The social value of the Australian Alps has not been comprehensively assessed. Such value can only be identified in consultation with community groups. This study has thoroughly examined community attachments identified in past social value assessments to determine which groups have attachments to the Alps and what places are associated with those connections, as presented in Chapter 2.

Many groups have been identified as having connections with the Alps, from caretaker groups of certain features, such as huts and homesteads, to groups pursuing traditional uses such as the Mountain Cattlemen and recreational users. Attachments are to individual places and to entire landscapes, and cover the entire area of the Australian Alps and relate to the Alps experience.

The assessment of social values against the National Heritage indicators confirmed that there are many individual places and elements across the Alps with the potential to meet criterion (g). These include the idea of the Alps generally, as well as over 100 huts, as described in detail in Chapter 3. The reviewed research demonstrates the attachment of communities to various facets of the Alps experience

These indicative elements, or attributes, cover the Alps. The Alps therefore have outstanding value to the nation for the national theme *the Alps experience* for criterion (g).

4.3 Values Tables

4.3.1 Criterion a- Events & Processes

The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.

Economic, Political or Social Processes

The Australian Alps national parks capture a significant proportion of a cultural landscape associated with the pastoral experience of the Australian Alps and in particular the economic and social response to drought of high country / high pasture summer grazing (a form of transhumance).

Landscape elements include modification of the vegetation structures associated with the use of fire and selective grazing of grasses and succulents, fencing (including brush, post and rail and post and wire fences), cattle yards and runs, huts (of a wide range of construction styles and ages), tracks and homesteads (exemplars of which include Orroral, Currango, Coolamine and Wonnangatta Homesteads).

In the Australian Alps, the practice of grazing cattle and sheep in the high country has taken place since at least 1834 when stockmen working for a Dr Gibson of Tirranaville, Goulburn were grazing cattle in the Kiandra area. In 1839, Murray, the owner of Yarralumla Station, opened routes through the Brindabellas to high pastures in response to drought on the Limestone Plains.

In and near the Australian Alps, the earliest selections, pastoral runs, and stations established in and immediately surrounding what are now Namadgi and Kosciuszko National Parks date to 1820s. This was only seven years after Blaxland, Wentworth and Lawson discovered a route through the Blue Mountains, and barely thirty years after the arrival of the First Fleet. As a result, it is reasonable to conclude that the economic activity generated by these pastoral pursuits was integral to the early growth of the colonial economy.

The longevity of this practice, spanning some 170 years is notable. The Australian Alps have played a major role in the development of Australians' understanding of the environment and the need for responses which sustain natural systems whilst realising economic and social benefits. The Alps are seen as the most intensively researched Australian environment, and much the scientific work conducted has been internationally pioneering. From the earliest exploration in the 1830s, observation and later targeted experimental research led to an increased scientific understanding of the ecology of the Alps. This knowledge defines the extent of the glacial Ice Age, climate change since that time and possible future changes. It has also illuminated the relationships between soil erosion, fire and European land use impacts on the sustainability of the Alps environment. These scientific processes contributed to an increasing appreciation of the Alps environment and moves for its protection and conservation. Key defining events include the exclusion of cattle grazing in parts of the Alps and the declaration of the Australian Alps national parks from 1964 to 1989.

Research sites extend throughout the Australian Alps national parks, from the botanical survey routes by Ferdinand von Mueller, the Pretty Valley and Rocky Valley grazing exclosures, the Yarrangobilly and Coolamine karst areas, the Piccadilly fire ecology plots, the Brindabella arboreta, the glacial research sites (especially on the Main Range of the Snowy Mountains), and over 200 other sites

throughout the Alps. These sites are evidence of this historic research and continue to have an enduring consequence on land management decisions for the Australian Alps national parks.

A defining event in Australia's national story was the discovery of gold in 1850. The Australian Alps are geologically an integral part of that story as gold was also found there in that year. The Alps were a focus of early prospecting and part of the Gold Rush from around the world, trebling the then population of Australia in 20 years. Using tracks known to Aborigines, early pastoralists and explorers, large numbers of people moved to and through the Alps goldfields. The pattern of gold mining in the Alps was a boom and bust process, resulting in several townships springing up, then fading away to ghost towns in the Alps (eg Kiandra, Grant, Lobbs Hole, Cassilis), the Alps environment discouraging other economic activities, whilst those in the foothills became prosperous towns.

Kiandra both typifies this historic process of gold-mining in the Alps, and is a special case, the largest example of mining above the snowline. Kiandra had both the greatest and the shortest rush to the Alps in 1860-61, whilst continued mining adapted to the Alps environment successfully.

Gold Rush miners came from all continents, and contributed to both notions of egalitarianism, springing from Eureka Stockade, and the later White Australia policy. Whilst not a result of the Alps experience, the first recorded major inter-ethnic conflict with Chinese miners took place in 1857 at the Buckland field, now part of Mount Buffalo National Park of the Australian Alps.

The influx of miners into the Alps area changed the demography and economy of the Alps, for Alps pastoralists benefited from provisioning those heading for the goldfields and the mining townships, such as Orroral and Wonnangatta Homesteads, and many miners stayed on in the region, contributing to the workforce and further displacing Aboriginal workers.

Central to the Alps experience is the building of the Snowy Mountains Hydro-electric Scheme and the Kiewa Hydro-electric Scheme. Both relied on the natural water resources of the Alps, particularly from the Snowy River. The schemes were driven by economic priorities, especially growth in agricultural irrigation and power needs for the population boom of south-eastern Australia.

Shaping the Alps for development was dramatic and both schemes, particularly the Snowy Scheme, have long been seen as major feats. They inform Australia's view of itself as a progressive nation, capable of major engineering construction. Each Scheme consists of complexes of elements, most of which are within the Australian Alps national parks. Both schemes are well documented and retain their integrity.

Both Hydro-electric Schemes played key roles in post-World War II migration from war-torn Europe, generating and guaranteeing employment to over 60,000 displaced persons. This migration and the Snowy Scheme were part of a federal social and employment policy, being tools for post-war reconstruction.

The diverse mix of ethnicities from some 30 countries working on the Schemes is seen as a major element in Australia's evolution to a multi-cultural society. Their presence in the Australian Alps, many staying on after the construction was completed, contributed strongly to the expansion of winter recreation throughout the Alps, today enjoyed by millions each snow season.

The Snowy Mountain Scheme also was the first construction site which changed labour practice. Influenced by American consortia, often the successful tenderers, working conditions became tougher, weakening union control. The Snowy Mountain Scheme continues to reflect changing social, economic and political processes. Not only did its construction heighten awareness of alpine conservation issues, the growth in environmental conservation concerns saw the 2002 decision to return up to 28% of its water flow back along the Snowy River. The attempt to sell the Snowy Scheme in

2006, and the widespread debate about privatisation of government utilities also demonstrates continuing community interest.

The alpine, sub-alpine and montane regions of the Australian Alps national parks capture almost all of Australia's snowfields and all of Australia's major ski resorts. The first recorded accounts of Australians participating in winter sports were at Kiandra in 1861. Since that time Australians have been visiting the Australian Alps during the winter to pursue a range of snow based recreational pursuits. The Kiandra Snowshoe Club is the world's second oldest organised snow sports body – providing a link in the Australian Alps to the birth of skiing as a recreational activity internationally.

The Australian Alps national parks also contain places associated with the emergence of leisure and recreation as a pastime dating to the turn of the 20th century. Mount Buffalo Chalet, Yarrangobilly Caves House and the Hotel Kosciusko were all built by State Governments to encourage tourism in the Alps.

Richness of Assemblages or Cultural Landscapes

The Australian Alps is a cultural landscape woven from the many strands of the Alps experience. There are twelve areas within the Alps most richly expressing this: Orroral – Gudgenby Pastoral Landscape, the Upper Cotter, the Coolamine Plain Area, Tantangara Plain / Long Plain Pastoral Landscape, Yarrangobilly Caves Karst Area, Kiandra, the Snowy Mountains Hydro-electric Scheme, the Main Range, Bogong High Plain, Dargo High Plain, Wonnangatta, and Mount Buffalo National Park.

The physical elements of these areas tell the story of human interaction in the Alps since European colonisation (and in many cases the underlying Indigenous cultural layers also). Many of these rich assemblages document a single historic theme of the Alps experience, such as pastoral settlement and alpine summer grazing, or gold mining, or the harnessing of water for power. In others, the various Alps stories are intertwined, forming landscapes of densely layered physical elements or a range of features recycled through time. These concentrations are found across the length and breadth of the Alps, linked by tracks and stories, crossing a land less densely patterned by physical evidence from the past.

The time depth of high country grazing activity - from the 1830s through to the present - provides a variety of features from the sometimes subtle, sometimes dramatic, imprints on the natural environment. The maps of pastoral snow leases, some dating to the nineteenth century, divide the high country. However, there are numerous physical expressions of these leases extant today – cattle yards, brumby runs, huts, brush fences, bridle trails and salt licks connect the pastoral reality that stretched across the Australian Alps from the upper Cotter to Victoria. These snow leases often included high country huts to provided shelter to cattlemen. Over 200 high country huts form a cultural mosaic across the Australian Alps and tell the story of different phases of construction and use. To cattlemen, subsequent bushwalkers and skiers, and hydro-electricity workers they have formed a cognitive landscape to physically navigate the high country.

At the centre of such grazing patterns are the remains of the large established snow-belt pastoral runs, such as Orroral, Gudgenby, Currango, Coolamine and Wonnangatta. These complexes reflect the many functions needed for self-sufficiency in remote locations, with tracks radiating from them to markets, to summer pastures, and to former goldfields.

Water research sites and races drawing water to mining sites dot the Alps landscape. The latter are part of the evidence of the 68 mining fields across the Alps area, benefiting from the power provided by snowmelt and the steep Alps topography.

The intensive water use of the hydro-electric schemes have resulted in rich industrial assemblages. The Snowy Mountains Scheme is largely in the Australian Alps national parks. Its attributes are many, including large intact elements - dams, power stations and pumping stations - and also former townships, camps, worksites and huts. Some of the huts demonstrate the re-use of features in the Alps environment, having been brought in pre-fabricated and later recycled as club huts for skiers. An industrial landscape that is apparently non-contiguous, many of its features are indeed linked, such as by underground tunnels and dams.

An important part of the Alps experience in these cultural landscapes and extending beyond to blanket the Alps generally is snow-based recreation. The Australian Alps demonstrate a richness and diversity of site types associated with the development and evolution of skiing in Australia not found anywhere else in Australia. From the cattlemen's huts adopted by early back-country skiers (like Wallace and Cascades), huts built for skiing (Tin Hut, KNP) through to small club lodges (such as Franklin Chalet, Illawong Lodge, and Cope Hut), through to larger hotels and chalets built by State Governments to stimulate tourism or meet growing demand (Hotel Kosciusko, The Chalet at Charlotte Pass, Mount Buffalo Chalet) and the contemporary resorts – some within protected areas (NSW) and others excised (Victoria).

Based on this evidence the Australian Alps, with the particular attributes identified, demonstrate outstanding value to the nation against criterion (a).

4.3.2 Criterion b - Rarity

The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.

Processes, Activities, Beliefs, or Other Aspects of Culture that are Rare, Threatened or no Longer Practised

The Australian Alps constitute some 2% of the landmass of Australia. Human experience of the Alps landscape is therefore rare, with almost no other parts of Australia providing the experience of alpine climate, topography and seasonal variation.

The physical resources of the Australian Alps have shaped some uncommon aspects of Australia's story. Alps summer grazing was a particular response to the need to ensure feed for stock, and unique to the Australian Alps and the Central Plateau of Tasmania. Today this practice occurs on a relatively limited scale, with grazing progressively excluded from national parks over the past since the 1950s. Where the practice continues (in parts of the Victorian high country), there is a growing tourism and recreation focus.

High country grazing, almost by definition, is unique to the Australian Alps. Whilst Tasmanian pastoralists undoubtedly took advantage of the alpine pastures, the different climatic conditions meant that different economic imperatives were at work.

The temporal longevity of high country grazing, spanning some 170 years, as an ongoing expression of a pastoral response to Australia's climate and the reliance on skilled horsemanship to muster cattle in the natural grasslands, frost hollows and pastures of the montane and sub-alpine forests and woodlands are increasingly rare.

The politically charged debate that pits high country grazing against conservation objectives are contemporary indicators of these trends.

In the most arid peopled continent, water in the Alps produced the two major hydro-electric schemes, the Snowy River Hydro-electricity Scheme and the Kiewa Hydro-electricity Scheme. These were singular achievements that captured the nation's imagination and are known to every schoolchild. They remain as atypical developments in the perennial choices over water use in Australia.

Snow skiing is an activity that barely takes place outside the Australian Alps, a tiny proportion of Australia. It is an unusual experience in a predominantly summer-loving, beach culture, yet millions of visitors take part of this activity each winter, an activity seen as increasingly threatened by global warming.

Summer recreation in the Australian Alps is also a unique experience in Australia. The Chalet at Charlotte Pass, Hotel Kosciusko, Yarrangobilly Caves House and Mount Buffalo Chalet are all relics of the guesthouse tradition of early Australian tourism, providing accommodation destinations in natural settings that also met demand from visitors seeking a 'mountain' experience during the summer. They are also examples of significant State Government investment in tourism. These places are rare nationally and are the only examples in an Australian Alps context.

The cattleman huts that are spread through the high country were adopted by early snow sports enthusiasts who arranged to lease these modest buildings from the pastoralists and graziers during the winter months. Although many of these huts are still extant, age, bushfire and other impacts have meant that they becoming increasingly rare as an example of the type of accommodation used in the earliest days of Australian skiing.

Based on this evidence the Australian Alps, with the particular attributes identified, demonstrate outstanding value to the nation against criterion (b).

4.3.3 Criterion c - Research

The place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history.

The Understanding of the History, Ways of Life and/or Cultures in Australia

The Australian Alps bear evidence of some 170 years of European activity. Individual sites have research and archaeological potential to provide information on past life styles (eg Cotter Hut site, Wonnangatta). Despite outstanding research questions about the non-Indigenous story of the Alps experience, it is not considered that the 'research potential' of the Alps meets this national significance threshold.

Based on this evidence the Australian Alps, and the particular features identified, do not demonstrate outstanding value to the nation against criterion (c).

4.3.4 Criterion d - Principal Characteristics

The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of:

(i) a class of Australia's natural or cultural places; or

(ii) a class of Australia's natural or cultural environments.

A Particular Way of Life

There are numerous places, elements, features and landscapes within the Australian Alps national parks that can demonstrate the many aspects of the Alps 'way of life' and express the Australian experience of the Alps environment. The Alps possess high integrity in characterising the practice of high country

summer grazing, high country mining, alpine research, and harvesting of water for irrigation and power. The Alps is also a winter recreation landscape.

The Australian pastoral experience of the Alps as a particular way of life can be demonstrated by the diverse variety and range of extant fabric associated with the practice of high country grazing. Cattlemen's huts, fences, clearings, and cattle and horse yards can be found throughout the Australian Alps national parks. These elements are associated with the practice of grazing cattle and sheep in the high plains and alpine pastures during summer months when feed and water were often scarce on the home runs or stations. The practice is a direct response to climate and an economic innovation that allowed pastoralists and graziers to carry a higher stocking rate than if they were restricted to their low land properties alone.

The practice of high country summer grazing meant that men would often be away from their families for extended periods (sometimes from November through to April), living and working with their livestock and surviving on what rations could be readily carried with them on horseback or procured from the land. Even with the introduction of motor vehicles and improved access that comes with construction of roads and trails life for cattlemen on the high plains remained a remote and often lonely activity.

The horsemanship, resourcefulness and hardiness of the mountain cattlemen has been held in high esteem by rural and urban Australian communities since the 1890s. The contemporary graziers and pastoralists who continue what is potentially one of the most long lived pastoral practices in Australia view themselves as a community set apart and defined by their way of life.

The cattlemen's huts are a physical expression of this way of life. Huts such as Wallace, Oldfields, Cascades, and the Cotter Hut remains typify this type of hut used for high country summer grazing. Some 200 huts are found in the Alps and relate to all periods of pastoral use, and to subsequent land uses, such as winter recreation. Their physical forms typify the type of vernacular bush architecture used by shepherds and stockmen in other parts of Australia, but it is only in the Alps that such a large suite of huts continue to be found and used. Their built form characterises the use and re-use of available materials, due to the remoteness and difficulty of bringing building materials up to the Alps. This has often resulted in a continuity of use of early materials and techniques. The sheltered physical location of these huts within the landscape exemplifies the users' understanding of the Alps climatic variability, even in summer.

The Australian Alps national parks capture all of the critical elements required to demonstrate the development and evolution of snow based recreation in Australia. The earliest recorded snow sports participation events were at Kiandra in the 1860s and in the ensuing 140 years Australians have sought out recreational experiences in the Australian Alps. Contemporary snow based recreation – as expressed in the resorts in NSW and Victoria - has evolved from a club based activity centred on member built lodges and chalets to a vibrant commercial industry. The relationship between snow sports and groups or organisations established for the purpose of joint and communal enjoyment of snow sports defines a community within the broader Australian population that includes snow sports as a particular way of life.

A Particular Use or Land Use

Early European land use of the Alps resulted from an appreciation by the early settlers of the benefit and potential of its climate and topography to grazing sheep and cattle. The increased security of tenure for squatters encouraged many absentee landlords to move to establish large high country runs.

Extant homesteads in the Alps are representative of a rare and small sample of the type of high country runs established after 1836. Orroral, Currango, Coolamine and Wonnangatta within the national parks, and runs like Benambra, Black Mountain near Omeo, and Ingebyra on the southern Monaro (all outside the parks), with their combination of built elements represent the many functions required in such remote regions where such properties needed to be self-sufficient. These typically include original smaller homestead, later substantial house, outhouses, barns and haysheds, blacksmith, piggery, fowl house, horse and stock yards, fencing, home paddocks, and so on. Such complexes include mature plantings as well as their associated tracks, and huts in associated upland or snow grazing leases.

Montane summer relief pastoralism and 'seasonal transhumance' of the Alps was an economic response to the Australian environment. Good pastures of the high country provided an opportunity to maintain stock condition, and rest home pastures, resulting in better economic outcomes. Many features illustrate this summer grazing land use throughout the Alps, including huts, fences, yards, and tracks. Exemplars include Upper Cotter, Coolamine / Blue Waterholes, Tantangara Plain, Bogong, Dargo, and Howitt High Plains.

Certain mining fields in the Australian Alps show evidence of technological responses characteristic of the Alps environment, in refining the use of water races to high country low velocity. Kiandra exemplifies this expression of alpine mining, although smaller fields in the Alpine National Park also show this – the upper sites of Hotham Heights, Brandy Creek – Boiler Plain, upper sites at Mount Wills and the northern end of Dargo High Plains. The high river valley mining fields, abutting the Alps in Victoria, demonstrate the application of water power with their very long water races and at the.

The Australian Alps national parks capture nearly all of the major elevated alpine and subalpine snowfields on the Australian mainland. There are no other places in Australia where snow based recreation can be undertaken with any reliability. As a land use, or use of the natural environment, the Australian Alps possess all of the principle characteristics associated with snow based recreation. The examples of extant fabric, and significant places associated with, the evolution of snow sports in Australia is largely intact with a variety of elements ranging from cleared ski runs and basic tows (Franklin Chalet precinct), cattlemen's huts used as a destination and for overnight accommodation by skiers from the earliest period to the present, the more substantial hotels and guesthouses (Mount Buffalo Chalet, the Chalet at Charlotte Pass) and the smaller group or club based elements (Rock Creek Ski Club, Illawong Lodge).

The Australian Alps national parks provide the physical setting and environment for a number of early high country tourism enterprises that reflect the shift at the turn of the 19th-20th centuries to an escape to cooler regions as a retreat from the summer heat of Sydney and Melbourne. Caves House at Yarrangobilly, Mount Buffalo Chalet, Kosciusko Chalet and the slightly later Chalet at Charlotte Pass characterise this class of places. Those in the Alps typify this phase of early mountain recreation, with their small rooms and large public spaces and, in the case of Mount Buffalo Chalet, the role that the railways had in developing them, and encouraging year round use with the emergence of winter sports as a recognised mainstream recreational pursuit.

The mountain huts that existed in the Alps for summer grazing are regarded as central to the development of early bushwalking and cross-country skiing in the Australian Alps, a way of life that connected them to the mountain cattlemen. Many mountain huts are now maintained by walking or skiing clubs, and others have been specially built by such groups for recreational shelter, continuing the type and general integrity of this class of sites.

The Australian Alps hold a predominantly intact array of representative features in sound condition that characterise winter recreation. Many features provide evidence of the influence of European migrants

to the Snowy and Kiewa Hydro-electric Schemes, who stayed on in the Alps afterwards. They contributed to the development of skiing as a winter recreational pursuit and the accompanying built environment, such as winter resorts, with architectural forms drawing on styles / designs typical of their European homelands. These include several ski lodges in Perisher and Thredbo, and Falls Creek and Mount Buller ski resorts in Victoria (part of the Alps experience although excised from the Australian Alps national parks).

Based on this evidence the Australian Alps, and the particular features identified, demonstrate outstanding value to the nation against criterion (d).

4.3.5 Criterion e - Aesthetic

The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Features of Beauty, or Features that Inspire, Emotionally Move or have Other Characteristics that Evoke a Strong Human Response

The Australian Alps have aroused strong human responses since earliest European exploration. Initial appreciation of the Alps was as the 'familiar' by Europeans imbued with the ideas of Romanticism and valuing dramatic alpine landscapes as 'sublime'. Today the Alps have become appreciated for their difference to the 'typical' Australian landscape, their distinctiveness continuing to inspire artistic and emotional reactions, acknowledging the Australian Alps aesthetic value to Australians in these many responses.

The mountain peaks of the Australian Alps repeatedly feature in artistic responses. Mount Kosciuszko has become a cultural icon not only because it is known as Australia's highest mountain, but because it is repeatedly painted and photographed. Responses to its visual purity date from its European discovery (Strzelecki in 1845 and the geologist Clarke in 1860), and this was soon represented by von Guérard (1860s) for others to see. Later artistic images for travel and tourism, commemoration, and artistic purposes are seen nationally each year. Some 30,000 people walk or ski to the summit of Mount Kosciusko every year. Of course, it is also known to have Aboriginal cultural significance and is of contemporary importance to many Indigenous communities.

The Victorian Alps mountain peaks are regarded as 'inspirational landscapes' eliciting aesthetic responses by artists, photographers, writers (Chevalier, von Guérard, Streeton, Caire, Hurley) and communities, as shown by expert study. These include Mount Speculation, Mount Bogong (Victoria's highest peak), Mount Buffalo, Mount Cobberas, Mount Cobbler, Mount Cope, Mount Feathertop, Mount Howitt, Mount Pinnibar, Mount Stirling, Mount Warwick, Mount Wombargo, The Bluff, The Pinnacles, and general views of Great Dividing Range.

Other attributes of long-distant vistas and alpine plateaux are well researched as triggering aesthetic responses. The Main Range of the Snowy Mountains and the Victorian 'high plains', such as Bogong High Plain, Dargo High Plain and Howitt High Plain are shown to be visually important to communities, both when in snow or covered in summer wildflowers.

River valleys and gorges, notably the Snowy River, the lower Snowy (NSW) and the upper Snowy and Snowy Gorge in Victoria are highly valued as dramatic landscapes and as wild recreational areas.

Many other aspects of the Alps now symbolise the alpine region, such as the distinctive form and colours of snow-gums or summer wildflowers or a single mountain hut in its high country setting. These are frequently pictured without specific location, but define the Alps experience of remoteness, naturalness and landscape beauty, for people are not shown in these images.

The Snowy River is a place central to the Australian Alps experience, a symbol evoking potent defining images of Australian national identity and achievement. Whilst not seen by most Australians, its name reinforces Australians' sense of larrikinism and connection with the Bush identity, resulting from Paterson's widely known ballad, 'The Man from Snowy River'. The portrayal of the river and the steep-sided country 'up by Kosciusko's side', binds that identity to the Alps. The name of the river and its role in the Snowy Mountains hydro-electric scheme reminds Australians of heroic engineering achievements, views and films of its large structures and dams advancing over the Alps vivid to the 1950s-60s generations. The 'Snowy' now inspires protest to protect the river and the Scheme from sale.

The visual and emotional symbol that is the Australian Alps is evidenced in growing community protest over time to insist on the protection and conservation of the area, supporting their declaration as national parks.

Based on this evidence the Australian Alps, and the particular features identified, demonstrate outstanding value to the nation against criterion (e).

4.3.6 Criterion f - Creative or Technical Achievement

The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.
A high degree of achievement in design, art, or craftsmanship
designed landscape to achieve a productive or aesthetic purpose
A high degree of ingenuity or innovative use of material

The Australian Alps contains key features that express high degree of achievement in combining built features? into the Alps landscape / using the Alps landscape? to achieve a productive purpose. [as well as high degree of ingenuity / innovation]

Mining

Further research is required before mining can be properly assessed under this criterion.

Water

The Snowy Mountains Hydro-electric Scheme is a major technical achievement largely within and entirely dependent on the Australian Alps and the high water flow resulting from the climatic and topographic features. The idea of the utilisation of Alps water for power generation and irrigation led to the Snowy Mountains Scheme and the Kiewa Hydro-electric Scheme after World War II, still the largest engineering projects of their kind in Australia. The Snowy Scheme is internationally recognised as a major engineering work for its technical advance and quality. In 1997, it was designated as a 'historic civil engineering landmark' by the American Society of Civil Engineers, described as 'This monumental project consisting of sixteen large dams, 145 km of tunnels, seven power stations, a pumping station, and 80 km of aqueducts is a world-class civil engineering project that provides vital electric power and irrigation water [that] brought great economic growth to the southeastern sector of the country'.

The Snowy Scheme construction required many ground-breaking technical solutions to engineering problems, successfully achieving their purpose in the complex task of diverting a high proportion of the Alps water to the dry west for irrigation as well as deriving some 10% of electricity for south east Australia. The invention of mass rock-bolting to reinforce tunnel roofs is one innovative technique from the Snowy Scheme that has been adopted as standard practice internationally.

Based on this evidence [assessment] the Australian Alps, and the particular features identified, demonstrate outstanding value to the nation against criterion f.

4.3.7 Criterion g - Social

The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Of Traditional, Religious, Ceremonial or Other Social Meaning

The Australian Alps have outstanding heritage value to the broad Australian community for their iconic status. The Australian Alps generally are associated by the community with their unique environment, the experience of snow recreation and remoteness and past pioneering lifestyles.

The Australian Alps are joined to the Australian community's sense of national identity shaped by cultural myths, such as 'The Man from Snowy River'.

The suite of huts in the Australian Alps have special associations for many community groups, from mountain cattlemen to skiers and bushwalkers and caretaker groups. They have a collective status in defining the community's experience of the Alps environment and are physical expressions of stories, legends and myths of past mountain lifestyles which are associated with the community's sense of national identity.

Mount Buffalo National Park, with the Mount Buffalo Chalet, is held in high regard by the Victorian community, with memories and connections related to recreation over several generations.

The Snowy Mountains Scheme has icon status to the broader Australian community as a symbol of epic engineering achievement and the connections with the beginnings of a multi-cultural Australia. For many former workers, the landscape connects them to their arrival and experience as 'new Australians'. The Snowy Scheme now embodies for many Australians changed associations with the environment from exploitation to conservation.

The Snowy River is a place central to the Australian Alps experience, a symbol evoking potent defining images of Australian national identity and achievement. Whilst not seen by most Australians, its name reinforces an Australian sense of larrikinism and connection with the Bush identity, resulting from Paterson's widely known ballad, 'The Man from Snowy River'. The portrayal of the river and the steep-sided country '*…up by Kosciuszko's side…*', binds that identity to the Alps. The name of the river and its role in the Snowy Mountains hydro-electric scheme reminds Australians of heroic engineering achievements, views and films of its large structures and dams advancing over the Alps vivid to the 1950s-60s generations. The 'Snowy' now inspires protest to protect the river and the Scheme from sale.

Based on this evidence the Australian Alps, and the particular features identified, demonstrate outstanding value to the nation against criterion (g).

4.3.8 Criterion h - Significant People

The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.

The Major National Achievements of a Nationally Recognised Person or Group Occurred at the Place

The Australian Alps is where a number of nationally recognised persons or groups have made major national achievements in endeavours central to the Alps experience. The individual sites where such research results scatter across the Alps.

Scientists of the 19th century are widely recognised and associated with their exploration and early study of the Alps. Ferdinand von Mueller undertook a series of botanical surveys throughout the Victorian Alps and to the Snowy Mountains in the NSW Alps, identifying several new sub-alpine and alpine flora species. Von Mueller is generally known nationally for this and his other plant surveys, his development of the botanical gardens in Melbourne and regional Victoria, and was well-known and honoured internationally for his donation of Australian flora, including eucalyptus, from Australia (including the Alps).

Geologist Alfred Howitt also made several journeys studying the geology of the Alps, contributing to the gold mining boom in the Alps and longstanding geological studies as Mining Warden for East Gippsland and later Secretary of Mines. He was honoured internationally and nationally for this and for his anthropological observations of Aboriginal communities of south-eastern Australia, including Gippsland and the Alps. He is also well known as leading the expedition to find Burke and Wills. Both von Mueller and Howitt have Alps attributes named after them: *Ranunculus Muelleri* and Mueller's Peak (in Kosciuszko National Park), and Mount Howitt and the Howitt High Plain (Alpine National Park).

The Reverend W B Clarke, 'father of Australian geology', made major geological surveys on the NSW side of the Alps, extending into Victoria, importantly leading to major gold finds, such as Kiandra, as well as his identification of major karst areas at Yarrangobilly Caves and Coolamine Plain. Moraines in the Alps, such as on the Main Range of the Snowy Mountains, are where in 1901, T W Edgeworth David, Richard Helms, and E Pitman made internationally important attempts at absolute age of glaciation in the Alps, David being a highly praised geologist and long-standing professor at Sydney University. Geomorphologist, Joe Jennings with his team are renowned internationally for their Australian Alps karst studies at Yarrangobilly Caves and Coolamine Plains, defining periglacial dates and knowledge of the climate and vegetation variation of this alpine area.

Scientists researching the unique ecology of the Australian Alps in the 20th century have allowed informed decisions to be made in the conservation of the Alps environment. Maisie Fawcett (Carr) is acclaimed by the Australian scientific community nationally for her ground-breaking and long-standing study from the 1940s on of the impact of grazing on alpine grasses in the Rocky and Pretty valleys of the Bogong High Plains, and applied to the Alps generally as grazing has been incrementally excluded.

The Snowy Mountains Hydro-electric Scheme owed much to the energy and vision of Sir William Hudson, its head. Hudson also contributed to the burgeoning awareness of alpine conservation issues and the soil conservation and restoration of the Main Range between Mounts Twynam and Carruthers, and strongly supported the establishment of the Kosciuszko National Park.

The Australian Alps are the location of work by persons well-known for their important contributions to the development of the newly established capital of Canberra at the beginning of the 20th century. Dr J H L Cumpston's decision in 1913 as head of the Commonwealth Quarantine Service in 1913 to exclude grazing from the Upper Cotter for the water catchment of Canberra, pre-dated these studies in Victoria, and were based on the idea of clean drinking water. He later became head of the Commonwealth Department of Health.

Based on this evidence the Australian Alps, and the particular features identified, demonstrate outstanding value to the nation against criterion (h).

4.3.9 Criterion I - Indigenous

The place has outstanding heritage value to the nation because of the place's importance as part of Indigenous tradition.

The assessment of the Indigenous cultural heritage values of the Australian Alps is the subject of a separate study and specifically excluded from this assessment report by DEH.

However, it is important to note that while this assessment addresses cultural heritage values in relation to historic themes, it is not necessarily the case that these are always 'non-Indigenous' cultural heritage values. Although often poorly documented and recognised, Aboriginal people have been part of each these histories and have potentially important stories relevant to them. These associations are the subject of a separate assessment process conducted by the Department.

4.4 Summary Statement of Significance

The Australian Alps are of national heritage significance for their historical values because of the rich and interleaved array of tangible and intangible expressions of a number of nationally understood and valued past lifeways, uses of the land, and historical influences.

The historical values of the Australian Alps national parks meet National Heritage List criteria a, b, d, e, f, g and h.

The Australian alpine experience is built upon layers of Indigenous cultural expression and meaning, including a number of shared historical themes in the post-contact periods (these are the subject of a separate assessment).

The significant post-contact strands of *the Alps experience* include the specific high country expressions of pastoralism (including summer grazing), nature conservation, gold mining, water resource harvesting, snow-based recreation and tourism, and scientific research. Some of these strands have shaped elements of Australian national identity. The Australia Alps are also of outstanding value to the nation for their long standing and continuing capacity to inspire and provoke community and artistic responses. These are closely associated with the natural heritage values of the Australian Alps (which are the subject of a separate assessment process).

The Australian Alps national parks contain both rare and characteristic expressions of past ways of life associated with the national story. They also contain many individual sites and landscapes and rich assemblages which demonstrate the interleaving of different uses of the landscape over time. The Australian Alps national parks contain the most substantial of these assemblages, and the most significant expressions of nationally important historical themes associated with *the Alps experience*.

The most widespread and well recognised historical layer or strand is the pastoral use of the high country for summer grazing, a practice which spans 170 years. The pastoral runs, homesteads, stations, routes, yards and so on richly illustrate this story and are of national significance because of their historical, technical and social values (criteria a, d, f, g).

The suite of mountain cattlemen's huts occurring throughout the Australian Alps are a particularly well recognised and highly valued expression of the high country grazing history, and are individually and collectively significant as characteristic expressions of these uses (criteria a, d, g). Many of the huts are also of technological significance as an expression of vernacular methods of construction and re-use of difficult to obtain building materials (criterion f).

There are numerous references in works of literature, visual imagery and cultural mythology (most typically recognised through the *Man from Snowy River* ballad) associated with aspects of national cultural identity (criterion g).

From the 1850s, the Gold Rush swept through southern Australia, and *the Alps experience* is reflected in the many high country mining sites and settlements established during the latter half of the 19th century, the influx of migrants and new forms of economic activity (criteria a, f).

Snow-based recreation is another strand the history of the Australian Alps of outstanding value to the nation. The Australian Alps contains most of Australia's snowfields and all of the ski resorts. There are a range of individual places which demonstrate all elements and phases of skiing – from x to y to z. A number of high country huts and other built complexes (such as the chalets and guest houses) used by skiers were established specifically to support snow-based and 'off-season' recreation, but many cattlemen's huts have also been used for these purposes (criteria a, b, d, g).

Throughout the period since early European exploration and settlement, scientific research has been a continuing aspect of *the Alps experience*. To an extent, this is inextricably related to the history of nature conservation and popular activism for the establishment of national parks and the protection of natural heritage values. There are close associations between this strand of historical activity and the aesthetic and natural heritage values of the Australian Alps. Some of the scientists recognised for their research in the Australian Alps are of national and international renown (criteria a, e, h)

The iconic Snowy Mountains Hydro-Electricity Scheme and its Victorian counterpart, the Kiewa River Scheme are widely acknowledged feats of engineering achievement which harnessed the water resources of the Alps, transforming regional economies (criteria a, f). The construction of these schemes, including the multi-cultural make-up of the migrant workforce, has become recognised as a valued element of the national narrative (criteria a, g).

Together these layers, including their many individual sites and the links between them mapped by the topography and the networks of tracks, roads and huts/shelters comprise a unique landscape of outstanding value to the nation.

REFERENCES

Australian Broadcasting Corporation	2006	*From A Trickle To A Roar*. The ABC Regional Production Fund program (www.abc.net.au/radio/)
Australian Bureau of Statistics	2001	*Year Book of Australia: a century of population change in Australia.* Australian Bureau of Statistics (www.abs.gov.au/Ausstats)
ACT Heritage Council	various	*Entries to the ACT Heritage Register*: 20053 (Mt Franklin Chalet); 20054 (Tennent Homestead); 20055 (Brayshaw's Homestead); 20056 (Westerman's Homestead); 20057 (Bendora Hut); 20058 (Stockmen's Huts in Namadgi National Park); 20059 (Brumby Yards); 20062 (ACT-NSW Border Markers); 20076 (Bendora Arboretum); 20095 (Lees Creek Sawmill Ruin); 20096 (Orroral Homestead and Ploughlands); 20098 (Pryor's Hut); 20106 (ACT Forest Hut); 20107 (Brandy Flat Hut); 20108 (Cotter Hut Precinct).
Australian Heritage Commission	1999	*Protecting Local Heritage Places: a guide for communities.* Canberra.
	2003	*Linking a Nation: Australia's Transport and Communications, 1788 – 1970*. Report by Robert Lee for the Australian Heritage Commission. (www.ahc.gov.au/publications/national-stories/transport)
Andrews A	1920	*The First Settlement of the Upper Murray – 1835 to 1845*. D S Ford, Sydney.
Argue D	2000	
Ashley G	2005	'Buildings and Landscape', in Juliet Ramsay and Marilyn Truscott (eds) *Mountains of Meaning,* Proceedings of the International Year of Mountains Conference, 2002. *Historic Environment* 18:2 Australia ICOMOS.
Australian Alps Liaison Committee	1986	*Memorandum of Understanding*
	2005	*Education Kit, Part 2: People, Water Catchment in the Australian Alps.*
Australian Alps Ministerial Council	2005	Australian Alps National Heritage List Nomination, *Proposed under Criterion E of the National Heritage Criteria, Outstanding heritage value exhibiting particular aesthetic characteristics valued by a community.*

Bambrick S	1992	'Past and current water use in the Alps.' In Babette Scougall (ed) 1992 *Cultural heritage of the Australian Alps*, proceedings of the symposium held at Jindabyne, New South Wales, 16-18 October 1991, pp 309-316. A report to the Australian Alps Liaison Committee.
Bannear D	1998	Historic Gold Mining Sites in the Gippsland Mining District, Report on Cultural Heritage and Site Gazetteer, Victorian Goldfields Project, DNRE.
	undated	Unpublished state-wide database of visited sites, Victorian Goldfields Project, DNRE.
	1999	Historic Gold Mining Sites in the North East Region of Victoria, Report on Cultural Heritage and Site Gazetteer, Victorian Goldfields Project, DNRE.
Beeton S	1996	'Horseback Tourism and the environment', TOU 11 – Introduction to Tourism, Monash Open Learning (www.arts.monash.edu.au/ncas/teach/unit/tou)
Blackburn G	2004	*Pioneering Irrigation in Australia to 1920.* Australian Scholarly Publishing
Blainey G	1963	*The rush that never ended; a history of Australian mining*, Melbourne University Press.
Buller Ski Lifts Pty Ltd	2006	*Mount Buller History 1853 to Present*. www.mtbuller.com.au
Butler G	1997	*A study of places relating to selected historic forest themes in the north east forest region Victoria*. Report prepared by Graeme Butler & Associates for Environment Australia and Natural Resources and Environment, Victoria as part of the Comprehensive Regional Assessment: National Estate North East Regional Forest Agreement.
Butler G & Associates	1999	*A Study of Places Relating to Selected Historic Forest Themes in The Gippsland Region, Victoria - Vol 2: Place Assessment Report*, Environment Australia and DNRE.
Byrne D, Brayshaw H and Ireland T	2001	*Social Significance: a discussion paper.* NSW National Parks & Wildlife Service, Sydney.
Chapman, B, and Varcoe A	1984	*A Guide to Arboreta in the Australian Capital Territory.* Published by the ACT Region Royal Australian Institute of Parks and Recreation,

		Canberra.
Clark E	1987	*Ecology Or Heritage? A Question Of Conservation*, May. Paper For Ecopolitics 2 Conference.
Collis B	1998	*Snowy: the making of modern Australia.* Tabletop Press, Canberra.
Commonwealth and Victorian Regional Forest Agreement (RFA) Steering Committee	1999	National Estate Identification and Assessment in the North East Region of Victoria
	2000	National Estate Identification and Assessment in the Gippsland Region of Victoria
Context Pty Ltd	2003	Inspirational Landscapes, Vol 4: Assessment method report, prepared for Australian Heritage Commission.
	1997	*Identification and Assessment of Community Heritage Values in the North East Forest Region Victoria. Social Value Assessment Report.* Report to Environment Australia and NRE (Victoria) as part of the Comprehensive Regional Assessment: National Estate, North East Regional Forest Agreement.
	1999	*Identification and assessment of community heritage values in the Gippsland Forest Region, Victoria. Social Value Assessment Report.* Report for Environment Australia and NRE (Victoria) as part of the Comprehensive Regional Assessment: National Estate, Gippsland Regional Forest Agreement.
	2004	Identifying Inspirational Landscapes Stage 1 Report - Methodology. Draft report for the Department of the Environment and Heritage.
Coyne P	2001	*Protecting the National Treasures of the Australian Alps.* A report to the Natural Heritage Working Group of the Australian Alps Liaison Committee
Crabb P	2003	*Managing the Australian Alps: a History of Cooperative Management of the Australian Alps National Parks*, Australian Alps Liaison Committee and the Australian National University, Canberra
Crocker R	2005a	Identifying Inspirational Landscapes - Stage 2, Vol 1: Main project report. A report to the Department of the Environment and Heritage by

		Robin Crocker and Associates.
	2005b	Identifying Inspirational Landscapes - Stage 2, Vol 3: NHL draft nominations. A report to the Department of the Environment and Heritage by Robin Crocker and Associates.
Department of Conservation & Environment (Victoria)	1992	*Management Plan. Alpine National Park: Bogong Planning Unit.* Melbourne, September 1992.
	1992	*Management Plan. Alpine National Park: Cobberas-Tingaringy Unit.* Melbourne, September 1992.
	1992	*Management Plan. Alpine National Park: Dartmouth Unit.* Melbourne, September 1992.
	1992	*Management Plan. Alpine National Park: Wonnangatta-Moroka Unit.* Melbourne, September 1992.
Department of the Environment & Heritage	2004	Criteria for the National Heritage List. (www.deh.gov.au/heritage/national/criteria.html)
	2005	*A Greater Alpine National Park: a $15million plan for world-leading nature and heritage conservation.* Canberra.
Dunphy M	1934	Equilibrated minds and wilderness. In Thompson, (ed.) 1986 *Myles Dunphy, Selected Writings* Ballagrin.
Energy Networks Association	2004	'A History of Electricity in Australia', Energy Networks Association Website
Environment ACT	2005	*Imagine Namadgi: Expand your Horizons Namadgi National Park draft Management Plan*. Australian Capital Territory Department of Arts, Heritage and Environment.
Fabricius P	1995	*Heritage Study of NASA Ground Stations ACT.* Volume I: Historical Report. A report to the National Trust of Australia (ACT).
Falls Creek Resort Management	1999	School Project Information Kit.
Flood J	1973	*The Moth Hunters – Investigations Towards a Prehistory of the South Eastern Highlands of Australia.* PhD thesis – Australian National University, Canberra.
Geering K	1981	*Lower Snowy River Archaeological Survey.* Unpublished report to the NSW National Parks & Wildlife Service.
Gilbank L	1998	'Scientists in the Alps.' In D Slattery (ed)

Australian Alps: Kosciuszko, Alpine and Namadgi National Parks. University of New South Wales Press.

Gill A M, Good R, Kirkpatrick J, Lennon J, Mansergh I and Norris R — 2004 — *Beyond the Bushfires: Environmental issues in the Australian Alps*. A report to the Australian Alps Liaison Committee.

Gillbank L — 1992 — 'Scientific exploration of the botanical heritage of Victoria's Alps: Nineteenth - and twentieth-century contributions of Ferdinand Mueller and Maisie Fawcett.' In B Scougall (ed) *Cultural Heritage of the Australian Alps*, Proceedings of the symposium held at Jindabyne, New South Wales, 16-18 October 1991, pp. 211- 234. A report to the Australian Alps Liaison Committee.

Godden Mackay Logan — 2005 — *Kosciuszko National Park Huts Conservation Strategy.* Draft report prepared for NSW National Parks & Wildlife Service, May 2005.

Good R — 1992 — 'The Scientific Heritage of the Australian Alps.' In B Scougall (ed) *Cultural Heritage of the Australian Alps*, Proceedings of the 1991 Symposium, report to the Australian Alps Liaison Committee, pp 197-210.

Good R (ed) — 1989 — *The Scientific Significance of the Australian Alps.* Proceedings of the First Fenner Conference on the Environment, Canberra, September 1988. The Australian Alps National Parks Liaison Committee in association with the Australian Academy of Science.

Goulding M and Buckley K — 2002 — Aboriginal community directions for heritage management in the Australian Alps: Australian Alps Aboriginal Heritage Liaison and Directions Study. Report for the Australian Alps Liaison Committee, Goulding Heritage Management Pty Ltd in association with Context Pty Ltd.

Graeme Butler and Associates — 2005 — *Victorian Alpine Huts heritage Survey 2004-2005*. Report to Parks Victoria.

Grenier P — 1992 — Skiing in Australia Alps: development and conflict. In Grenier and Good (Eds) Les Alpes australiennes – The Australian Alps. *Revue de Géographie Alpine*. No.2-3 Tomme LXXX 1992. Institut de Géographie Alpine, Grenoble France. Pp.553

Griffiths T and Robin L — 1994 — 'Science in High Places: the cultural significance of scientific sites in the Australian Alps.' A report

		to the Australian Alps Liaison Committee.
Grinbergs A	1992	*The Myth Hunters – Investigations Towards a Revised Prehistory of the South Eastern Highlands of Australia*. Bachelor or Arts (Honours) thesis. Department of Archaeology & Anthropology – Australian National University, Canberra.
	1993	*A Study of Land Routes of Human Movement in East Gippsland*. A report for the Australian Heritage Commission.
Haiblen J (compiler)	2000	Sites of Significance Database for Namadgi NP
Hancock W K	1972	*Discovering Monaro*
Hayes M	1999	*Before We're Forgotten – The Spirit of the Snowy River*. ABC Books, Sydney.
Helms R	1893	'Report on the Grazing Leases of the Mount Kosciusko Plateau', in *Agricultural Gazette of New South Wales*, 4: 530-531.
Higgins M	1991	'That's Buggered the Cotter' – or – European Heritage in Namadgi. Paper presented to the AALC Cultural Heritage of the Australian Alps Symposium. In Scougall B (ed) 1992 *Cultural Heritage of the Australian Alps* – Proceedings of the 1991 Symposium. Australian Alps Liaison Committee, Canberra
	2002	'Life at the Top: Wragge's Kosciuszko Weather Observatory', in Janet Mackay & Associates (ed). 2003 *Proceedings of an International Year of Mountains Conference, Jindabyne, Australia, November 25-28, 2002*. Janet Mackay & Associates for Australian Alps Liaison Committee, compact disk format; XX.
Hodges S	1991	Recreation in the Victorian Alps. Paper presented to the AALC Cultural Heritage of the Australian Alps Symposium. In Scougall B (ed) 1992 *Cultural Heritage of the Australian Alps* – Proceedings of the 1991 Symposium. Australian Alps Liaison Committee, Canberra
Horne J	2005	*The Pursuit of Wonder,*
Hosking A D	1959	History of Broods in the Snowy Mountains. *The Riverlander*.
Hueneke K	1994	*People of the Australian High Country*. Tabletop Press, Canberra.
Hughes R	1970	*The Art of Australia.* Pelican.

Independent Scientific Committee	2004	*An Assessment of the Values of Kosciuszko National Park,* NSW National Parks and Wildlife Service. Website: http://www.nationalparks.nsw.gov.au/PDFs/ISC_Values_of_KosciuszkoNP.pdf
Jackson-Nakano A	2001	*The Kamberri: A History of Aboriginal Families in the ACT and Surrounds.* Aboriginal History Monograph 8, Weereewaa History Series Volume 1, Kingston, ACT.
Johnson R	1988	Wonnangatta Station, *Park Watch*, June.
Johnston C and J Ramsay	2005	'Dramatic, mysterious, contemplative and scary: seeking an understanding of the inspirational value of our mountain landscapes.' In J Ramsay and M Truscott (eds) *Mountains of Meaning*, papers from the *Historic Environment* 18(2): 16-21.
Johnston C	1992	*What is Social Value? A Discussion Paper.* Australian Heritage Commission, Technical Publications Series, no. 3, Canberra.
Kirkpatrick J B	1994	*The international significance of the natural values of the Australian Alps.* A report to the Australian Alps Liaison Committee.
Lawrence R	1992	'Use and abuse of water in the Victorian Alps.' In Babette Scougall (ed) 1992 *Cultural heritage of the Australian Alps*, proceedings of the symposium held at Jindabyne, New South Wales, 16-18 October 1991, pp 295-308. A report to the Australian Alps Liaison Committee.
Lennon J	1991	European Exploration. Paper presented to the AALC Cultural Heritage of the Australian Alps Symposium. In Scougall B (ed) 1992 *Cultural Heritage of the Australian Alps* – Proceedings of the 1991 Symposium. Australian Alps Liaison Committee, Canberra.
	1992	'European Exploration.' In R Good (ed) 1989 *The Scientific Significance of the Australian Alps.* Proceedings of the First Fenner Conference on the Environment, Canberra, September 1988, pp 143-154. The Australian Alps National Parks Liaison Committee in association with the Australian Academy of Science.
	1999	*The international significance of the cultural values of the Australian Alps national parks.* A report to the Australian Alps Liaison Committee.

LRGM Services	2004	Revised draft thematic environmental history of the Alpine Shire, North East Victoria. A report to written by Robert Kaufman of LRGM Services with parts of text from Ruth Lawrence, LaTrobe University, Bendigo Campus.
	2002	*Australian Alps mining heritage conservation & presentation strategy*. Report to Australian Alps Liaison Committee.
	2004	Revised draft thematic environmental history of the Alpine Shire, North East Victoria. A report to written by Robert Kaufman of LRGM Services with parts of text from Ruth Lawrence, LaTrobe University, Bendigo Campus.
Macdonald & J Haiblen	2001a	*Mountains of Science. Volume 1: A thematic interpretation strategy for the scientific sites of cultural heritage in the Australian alps.* A report to the Australian Alps Liaison Committee.
	2001b	*Mountains of Science. Volume 2: Scientific site tables, Victoria, NSW and ACT.* A report to the Australian Alps Liaison Committee.
Mackay J, and M C Truscott	2001	Heritage Action Plan for Oriental Claims Historic Area. A report to Parks Victoria.
McHugh S	1999	*The Snowy: the people behind the power.* Angus and Robertson, Sydney.
Melbourne Water	2006	Fact sheet (www.melbournewater.org)
Minister for the Environment & Heritage	2005a	Media Release: Emergency Heritage Listing for Victoria's Alpine National Park, 10 June 2005.
	2005b	Statement of reasons for decision under section 324f of the EPBC Act 1999. Decision not to include the Alpine National Park, Victoria in the National Heritage List. (www.deh.gov.au/heritage)
Monash University	2003	*Tourism in Australia*. An exhibition of material from the Monash University Library Collection, 23rd October 2003 - March 2004 www.lib.monash.edu.au/exhibitions/tourism)
Monash Gallery of Art	2004	www.mga.org.au
Mortimer W M	1981	*History Of Wonnangatta Station*.
Murray Darling Basin Commission	2000	Fact sheet by Murray Darling Basin Commission (www.kids.mdbc.gov.au)
Nankin H	1983	*Victoria's Alps: an Australian endangered heritage*. Collins: Australian Conservation

		Foundation, Melbourne, Victoria
National Parks and Wildlife Service (NSW)	2004	Kosciuszko National Park draft Plan of Management and associated reports. (www.nationalparks.nsw.gov.au)
National Parks Service (Victoria)	1996	Mount Buffalo National Park Management Plan. Department of Natural Resources & Environment, East Melbourne, June 1996.
National Gallery of Victoria	nd	The Altered Land Environmental Trail. National Gallery of Victoria with Parks Victoria. Online at www.ngv.vic.gov.au/alteredland/ resources/thealteredland_trail.pdf
National Library of Australia	nd	*Follow the Sun: Australian Travel Posters 1930s – 1950s*, National Library of Australia online exhibition
National Museum of Victoria	nd	www.museum.vic.gov.au/railways
NSW NPWS	1991	*An Outdoor Museum: Historic places in the NPWS estate. NPWS, Hurstville.* (www.nationalparks.nsw.gov.au)
Parks Victoria	2005	*Baw Baw National Park Management Plan.* Melbourne, July 2005.
Pearson M & D Marshall	2000	*Snowy Mountains Scheme: Scoping study of the European cultural heritage.* Report for the Australian Heritage Commission.
	2001	*Snowy Mountains Scheme: nomination report: Register of the National Estate & national list.* Report for the Australian Heritage Commission.
Pearson M	2005	Thatching the roof of Australia: landscape manipulation and history. In Juliet Ramsay and M C Truscott (eds) *Mountains of Meaning*, papers from the International Year of Mountains conference, Jindabyne 2002, *Historic Environment*18(2): 28-31.
	1979	'A report on the mining history remains in the northern half of Kosciusko National Park', Unpublished report for National Parks and Wildlife Service of NSW.
Pearson M and B McGowan	2000	*Mining Heritage Places Assessment Manual*. National Trust of Australia and the Australian Heritage Commission.
Ramsay J and M C Truscott (eds)	2002	*Mountains of Meaning*, papers from the International Year of Mountains conference, Jindabyne 2002, *Historic Environment* 18(2): 28-

31.

Ramsay J and Paraskevopouos J (eds) 1993 *More than meets the Eye: Identifying and assessing Aesthetic Value.* Report of Aesthetic Value Workshop, University of Melbourne 27 October 1993. Australian Heritage Commission Technical Series No 7.

Rayner G 1993 *National Estate Values of Areas within the Victorian Alps Region, Victoria* (2 Vols). NEGP Report.

RFA 1999 *National Estate Identification and Assessment in the North East Region of Victoria.* A report by officials to support the North East Regional Forest Process, published by the joint Commonwealth and Victorian Government Regional Forest Agreement (RFA) Steering Committee.

Rodwell F 1999 *Homes on the range: a history of townships and campsites built during the construction of the Snowy Mountains Scheme*, the author, Cooma.

Scougall B (ed) 1992 *Cultural heritage of the Australian Alps*, proceedings of the symposium held at Jindabyne, New South Wales, 16-18 October 1991, pp 295-308. A report to the Australian Alps Liaison Committee.

Sheppard J 2003 Currango Historic Precinct Conservation Management and Interpretation Plan - Draft. A report to Prepared by Jill Sheppard Heritage Consultants for NSW National Parks & Wildlife Service South West Slopes Region and Cultural Heritage Division. (www.nationalparks.nsw.gov.au)

Slattery D and Slattery B 2005 Exclusion or engagement? Cultural obstacles to restricting access to national parks, in J Ramsay and M C Truscott (eds) *Mountains of Meaning: celebrating mountains in the International Year of Mountains, 2002, Historic Environment* 18(2): 32-36.

2005 Rights Of Conquest: Some Reflections On The Cultural Obstacles To Restricting Access In National Parks. *Australian Studies* 18(1): 209-230. Published by the British Australian Studies Association.

State Library of Victoria 2001 *All the Rage: 150 Years of Posters*. State Library of Victoria exhibition, see description in *State Library of Victoria News* No, 17, June 2001 -

		August 2001 (www.slv.vic.gov.au)
Smith B	1971	*Australian Painting 1788 – 1970.* Oxford University Press.
Smith L M	1997	*The Chinese of Kiandra, New South Wales*. A report to the NSW. Heritage Office. Stacker, Julie & Stewart Perri
Spearritt P	1991	"Sites and Sights: Australian Travel Posters 1909-1990" in Trading Places: Australian Travel Posters 1909-1990, Monash University Gallery and National Centre for Australian Studies.
Steenhuis L	1998	*Ghost Towns of the High Country*
Stephenson H	1980	*Cattlemen and Huts Of The High Plains*. Penguin.
Sullivan S and Lennon J	2004	'Cultural values', in Independent Scientific Committee, *An assessment of the values of Kosciuszko National Park.* Report to the NSW National Parks and Wildlife Service
Thomas D	1980	*Outlines of Australian Art: the Joseph Brown Collection.* Expanded Edition, Macmillan, Melbourne.
Truscott M C	2002	*Wonnangatta Station Site (including Wonnangatta Hut) Heritage Action Plan*. Report for Parks Victoria with David Young and Juliet Ramsay.
	2002a	*Bluff Hut Heritage Action Plan*. Report for Parks Victoria.
	2002b	*Howitt Hut Heritage Action Plan*. Report for Parks Victoria.
	2002c	*Wallace Hut Heritage Action Plan*. Report for Parks Victoria.
	2002d	*Wonnangatta Station Site (including Wonnangatta Hut) Heritage Action Plan*. Report for Parks Victoria.
	2003	Fact or Fantasy? Celebrating mountain heritage today, in J Ramsay, A Grinbergs and M C Truscott (eds) *Mountains of Meaning: celebrating mountains in the International Year of Mountains, 2002, Historic Environment* 17(2): 22-24.
	2003	'Fact or fantasy? Celebrating mountain heritage today' in Juliet Ramsay, Marilyn Truscott and Alistair Grinbergs (eds) 2003 *Mountains of Meaning,* Proceedings of the International Year of Mountains Conference, 2002 *Historic Environment* 17(2) Australia ICOMOS.

Truscott, M, P Giovanelli and A Grinbergs	2004a	*ACT Forest Hut: Conservation Management Plan and Scope of Works*. Report to ACT Heritage Unit.
	2004b	*Brandy Flat Hut: Conservation Management Plan and Scope of Works*. Report to ACT Heritage Unit.
	2004c	*Frank and Jacks Hut: Conservation Management Plan and Scope of Works*. Report to ACT Heritage Unit.
	2004d	*Horse Gully Hut: Conservation Management Plan and Scope of Works*. Report to ACT Heritage Unit.
	2004e	*Cotter Hut: Conservation Management Plan and Scope of Works*. Report to ACT Heritage Unit.
Walker M H	1971	*Come Wind, Come Weather : A Biography of Alfred Howitt*, Melbourne University Press, Carlton, Vic; correspondence Alfred Howitt to Anna Mary Howitt 24 December 1860; see Ian Potter Museum of Art www.art-museum.unimelb.edu.au
Willis J H	1989	'Baron von Mueller's travels in the Australian Alps, 1853-61.' In R Good (ed) 1989 *The Scientific Significance of the Australian Alps.* Proceedings of the First Fenner Conference on the Environment, Canberra, September 1988, pp 381-381. The Australian Alps National Parks Liaison Committee in association with the Australian Academy of Science.
Winston-Gregson J	1978	*Gudgenby: A Register of Archaeological Sites in the Proposed Gudgenby National Park*. MA thesis. Australian National University, Canberra.
Woodford J	2005	'Mopping up the great Snowy River tip', article in *Sydney Morning Herald*, 10 December 2005.
Young M	2000	*The Aboriginal People of the Monaro – A Documentary History*. NSW National Parks and Wildlife Service.
Ziegler O I	1960	*Snowy Saga*. Second edition. Published by author

APPENDIX 1

Australian Alps Timeline

1788 Arrival of the First Fleet

1813 Blaxland, Wentworth and Lawson cross the Blue Mountains

1820 Joseph Wild, James Vaughan and Charles Throsby Smith discover the Canberra plains and hills

1823 Captain Mark John Currie RN discovers the Monaro plains

1824 Hume and Hovell journey from Lake George to Corio Bay

Joshua John Moore takes up land grant for Canberry run in the Canberra district

Tom Pendergast looking for grazing country in the Snowy Mountains with 400 head of cattle

1825 Robert Campbell establishes Duntroon

1827 Richard Brooks takes up the Gegedzerick run near Berridale

1828 Settlers take up land at Tuggeranong to the south of Canberra

S Boulney takes up Wambrook Station

1830 William Woodhouse at Ingebyra south of Jindabyne

1834 Stockmen working for Dr Gibson grazing cattle in the Gibson's Plains (Kiandra) area

John Lhotsky surveyed highest peaks of Snowy Mountains and made plant collections with detailed habitat descriptions

1835 William Herbert and Thomas Chippendale squatting at Naas

George MacKillop's journey to the south-west Monaro and Omeo

James MacFarlane establishes a cattle run at MacFarlane's Flat

William Wyse establishes Mungabareena run (taking in land from Albury to the Mitta Mitta)

Wyse establishes Bonegilla run at the junction of the Kiewa and Murray Rivers

1836 Change to land laws provide increased security of tenure for squatters – encouraging many absentee landlords to move onto their runs

William Herbert establishes Orroral Station (Brindabella's)

Mary McEvoy the first white woman to cross the Snowy River

James McEvoy takes up Wollondilly Run in the Thredbo Valley

1837 John Lambie appointed Commissioner of crown Lands in the Monaro

Pendergast and Livingston running cattle at Omeo

Edward Buckley at Woolway Station (near Dalgety)

	Edmund Buckley grazing cattle in the headwaters of the Tambo River (East Gippsland)
1838	Walter Mitchell finds a route through to the Tambo
	Lachlan Macalister hires Angus McMillan who takes cattle to the Monaro
1839	Boboyan run established
	McMillan's first journey south to Omeo in May
	McMillan discovers good grazing country at Numbla Mungee on the Tambo River
	Drought prompts Murray (owner of Yarralumla station) to open routes through the Brindabella Ranges to high pastures
1840s	Stuart Ryrie builds a flour mill on the Snowy River after acquiring Jindobin Station from the Badgery family
1840	McMillan takes Macalister's cattle through to Numbla Mungee
	Count Paul Strezlecki names Mt Kosciuszko after Polish patriot Thaddeus Kosciuszko
1841	McMillan explores country south of the Tambo and discovers Port Albert
1843	John Mitchell's journey to the Bogong High Plains
1845	Gudgenby (Brindabella's) run officially taken up
1845	Majority of grazing land in the upper Murray (Ovens, Mitta Mitta and Kiewa valleys) taken up
1846	Thomas Townsend, NSW Government Surveyor, surveyed upper peaks in ascertaining the source of the Murray River to delineate the Victorian boundary
1851	Reverend W B Clarke commences a geological survey of Alps - discovering gold at many places, including near Jindabyne and Round Mountain (NSW), and Omeo and Gibbo River (Vic)
	Victoria established as a separate colony
	Black Thursday bushfires (13.2.1851)
	Gray takes up the first grazing license at Cobungra Station (west of Omeo)
	Gold discovered at Omeo and a few small diggings opened
	Brown and Wells of Cobungra Station open a track form Cobungra to the Ovens Valley via Mount Hotham
1852	Rich gold found at Beechworth and large numbers of miners move into north-east Victoria
	Crown Land Commissioner Smythe attempts to find route from the Ovens valley to Omeo, but is turned back
1853	Gold discovered in Buckland valley, with a rush of 6000-8000 miners.
	Miners from Buckland valley move into upper Ovens valley
	Baron Ferdinand Mueller, Victorian government botanist, commences the first of five journeys into the Alps, collecting plants and recording their

	habitat and geographic distribution
1854	Miners regularly traversing high country between Ovens valley and Omeo
	Harrietville gold diggings begin, and first mining occurs
1855	Gibbo River gold diggings begin
	Gold discovered at Tumbarumba
	Increasing use of the high country pastures as a refuge from drought
1856	Touring party visits Mount Buffalo
1857	Gold discovered at Adelong
1858	Cobungra River gold diggings begin, leading to the headwaters
	Artists Eugene von Guerard and Nicholas Chevalier explore the Baw Baw Ranges
1859	Gold discovered at Kiandra
	Gold found and worked in Upper Dargo River
	McKeahnie's at Gudgenby provisioning miners on their way to Kiandra
	At the urging of Angus MacMillan MP, the Victorian Government votes to sponsor gold exploration in the headwaters of the Dargo and Mitchell Rivers
1860s	Orroral Homestead built for Archibald McKeahnie
	Development of 'snow shoe' sports at Kiandra
	Rumors that cattle thieves were using high county pastures (inc. "Bogong Jack")
	Crackenback goldfields opened up
1860	Great Kiandra rush – about 10,000 diggers
	A W Howitt leads gold prospecting party to Wentworth and Wonnangatta Rivers area – payable gold found at Good Luck Creek and Crooked River
	Gold found at Crooked River, leading to a rush
	Gold found and worked in Big Four
	Visit by Clarke to the only karst areas in Australian Alps, Cooleman and Yarrangobilly (NSW)
1861	Snow-shoe and skiing sports at Kiandra reported in the Sydney Morning Herald (28.7.1861)
	Baron Ferdinand Mueller climbs Mt Baw Baw, - scatters blackberry seeds to feed future travellers
	700 miners at Crooked River diggings
	Wombat Creek goldfield opened up
	The Robertson Land Act introduced in NSW to break the squatters hold on land
1862	Gold discovered and worked at Mt Fainter
1863	A W Howitt appointed Police Magistrate at Omeo

	upper Dargo rushed
	Kiandra Snowshoe Club formed
1864	Grant / Crooked River reefing field discovered
1866	Howqua River goldfield discovered and rushed
1867	Bogong moths mentioned in Sydney as a public nuisance (p.89)
1868	Gold diggings started on upper Murray River
1869	Victorian 1869 Land Act allows selectors to access land held by squatters
1870s	James Stirling, district surveyor at Omeo, observed Alps geography, geology, botany, meteorology, and harmful effects of stock on high plains
1870	Alexander Black and Alexander Allen survey the Victorian-NSW border
1871	Early cold snap kills large numbers of cattle and sheep in the high country
1874	Copper lode at Lobb's Hole opened
	Dart River alluvial goldfield opened
	New Maragle goldfield opened
1875	Bogong High Plains licensed to Ensay Station (near Omeo)
1875	Stream tin discovered at Mt Pilot
1880s	Summer grazing in the Victorian high country an established pastoral practice
	James Stirling led geological survey into country west of Mitta Mitta (Victoria)
1881	Greens Creek reefing field opened
1884	NSW Surveyor-General, P F Adams, proposed that the Snowy River be diverted (near current Island Bend Dam) and a canal constructed across Great Dividing Range to lead water to irrigation waters on the Murrumbidgee River (Pearson and Marshall 2000: 15)
	Victorian 1884 Land Act reclassifies high country into smaller pastoral allotments available for annual lease (does not come into operation until 1887)
1885	Robert Lendenfeld, geologist undertakes a major survey of Kosciuszko area, collecting plants; also worked with Stirling in Victoria
1887	James Stirling attributes the disappearance of the showy anemone buttercup from Victoria's mountains to grazing
	Bright Alpine Club formed
	Toolong goldfield discovered
1888	Mt Wills tinfield discovered and mined
1889	Silver / lead deposits discovered on Coolamine Plains
	Members of the Bright Alpine Club lead the first winter ascent of Mount Feathertop
	Dr J H Maiden and Richard Helms studied Snowy Mountains flora and soils, identifying degraded catchments from grazing and burning

1890s	Thomas Oldfield builds Cotter Hut on the eastern banks of the Cotter
	Limestone Creek and other Upper Murray diggings opened
1890	Mt Murphy wolfram deposit discovered
	A B (Banjo) Patterson's *The Man From Snowy River* published in the Bulletin (26 April 1890)
1891	Quartz mining begins on Mt Wills
1891	Melbourne and Metropolitan Board of Works established and shortly after increasingly closed access to the headwaters and catchments of rivers supplying water to Melbourne, such as the Thompson River
1893	Helms observed Bogong Moths in the Snowy Mountains and amplified earlier accounts of Aboriginal feasts
1894	Mountain Pygmy Possum first discovered as a Pleistocene fossil in Wombeyan Caves, NSW
	Leigh and Etheridge visited karst areas
	Bogong lead discovered and worked
1896	Mt Deddick silver / lead field opened
1897	Photographer Charles Kerry leads the first winter ascent of Mount Kosciuszko
	Gold found at Everard Flat, Khancoban Creek
1898	Clement Wragge establishes a meteorological observatory on summit of Mt Kosciuszko - taking readings half-hourly and four-hourly intervals
	1160Ha at Mount Buffalo provisionally reserved as National Park
	Stuart McAllister skis from Kosciuszko to Kiandra
1899	W R Gainford rides his bicycle to the summit of Mount Kosciuszko
	Road opens from Bright to Bairnsdale via Harrietville and Omeo
1900s	Hedley, a zoologist involved in dredging for bottom dwelling fauna at Blue Lake
1900	Victorian Legislative Assembly votes to allocate funds for the improvement of roads to, and facilities at, Victoria mountain resorts
1901	Edgeworth David, Helms and Pittman described glacial landscapes in the Kosciuszko area (Helm's Moraine, David Moraine, Spencers Creek)
	Edgeworth David, Richard Helms, E Pitman attempted to estimate absolute age of glacial features at Railway Embankment, seen as a moraine on the pass above Lake Albina (KNP), estimating it as between 3000 and 10,000 years, now seen as a good estimate and 'one of the finest attempts at an absolute age anywhere in the world'
	Yarrangobilly Caves House built
1903	David Brayshaw house constructed (Brayshaws Hut?)
	Wheeler's Hut (original) built
1906	Snowy Mountains National Chase declared

	Construction of Kosciuszko Road commences
1908	Kosciuszko Hotel opens
	Road to the top of Mount Buffalo opens
1909	Construction of Kosciuszko Road completed
1910	Mount Buffalo Chalet built
1911	Formation of the Federal Capital Territory
	Use of Kiewa River for water power first suggested by private syndicate, which applied to State Rivers and Water Supply Commission for a license to use Kiewa River head waters - nothing done
1913	Cotter Valley resumed to protect Canberra's water supply
	After Canberra area selected as national capital in 1908, Cotter River Catchment identified for water supply and Dr J H L Cumpston in charge of Commonwealth Quarantine Service, clearing catchment of stock on public health grounds
1914	Jack Riley dies (often cited as a candidate for the inspiration of A B Patterson's poem *The Man From Snowy River*)
	Arboreta established in Canberra by Weston
1919	Hume Dam construction begun on the Murray River up-stream from Albury
1920	William Corin of the NSW Department of Public Works, proposes construction of hydro-electric power station on Snowy River downstream of Jindabyne
1921	State Electricity Commission (SEC) Victoria formed
1924	Ski Club of Victoria formed
1926	T W Keele, Metropolitan Water Sewage and Drainage Board, Sydney, suggests diverting Snowy River water by tunnels to Canberra and Sydney
1928	Ski Club of Victoria hold first championships at Mount Buller
1929	SEC proposed Kiewa development of 82 400-kilowatt-capacity scheme; did not eventuate until further survey work and drilling
	Seaman Memorial Hut (Seaman's Hut) built
1930s	Cotter Hut moved to the western banks of the Cotter River
1930	The Chalet at Charlottes Pass opens
1931	Foresters Charles Lane Poole and Baldur Byles, recognise the degenerate state of forested catchments and survey soil erosion in Snowy Mountains - Byles noting rapidly deteriorating alpine ecosystems and documenting widespread erosion attributed to grazing and inappropriate fire regimes
1935	snow record maintained in Victoria from this date at SEC's Rocky Valley snow-course
1936	William Corin's idea's influences the formation of Snowy Mountains Hydro-electric Development League to promote hydro-electric power to assist development of Monaro and South Coast of NSW

1937 Four Mile Hut built for Bob Hughes

Comprehensive report on Kiewa proposal to Victorian Government

Report for NSW Government suggests hydro-electric station in the Snowy Mountains only viable if to provide water to Sydney and recommended scheme in much the same location as Corin's proposal

1938 Mount Franklin Chalet built

The Chalet at Charlottes Pass destroyed by fire

1938 Kiewa Scheme - proposal for Kiewa Hydro-electric Scheme approved

1938 NSW Soil Conservation Service established as a result of Byles' report

1939 "Black Friday" bushfires – Friday 13th January

Rebuilt Chalet at Charlottes Pass opens

Alpine Hut built

Lyndsay Pryor used dendrochronology techniques on snow gums and alpine ash near Bulls Head in Brindabella Range (ACT) finding dramatic increased in fire frequency from 1860, understood to be first application of this technique in Australia

1940 Soil Conservation Board (SCB) formed in recognition of need to provide reliable silt-free water to irrigation and power generation schemes at Hume and Kiewa catchments

1941 Maisie Fawcett hired by SCB, her research led to theory that erosion gullies in foothills result of grazing at higher altitudes, plus fire

Red Robin Reef discovered, triggering last gold rush to high country

1942 NSW Premier William McKell visits the upper Snowy

Department of Post War Reconstruction established

1944 Kosciusko State Park declared

Commonwealth and States Snowy River Committee established to look at various opposing proposals for use of the Snowy River

1945 Fawcett and Professor John Turner (University of Melbourne) established the Rocky Valley and Pretty Valley plots to research this theory, and adapted the 'Levy point method' of sampling to the Bogong High Plains. This research tradition has continued, with inclusion of community in annual Alpine Ecology Course, LaTrobe University and (former) Department Natural Resources and Environment, Victoria. Fawcett's work influenced later scientists such as David Ashton, Alec Costin.

1946 Report by O T Olsen, State Electricity Commission, Victoria, recommended both hydro-electricity generation as well as irrigation, resulting in diversion of Snowy to west

Commonwealth Department of Works and Housing and Post-War Reconstruction investigate Olsen report proposal.

1947 Rock Creek Lodge built by the Kosciuszko State Park Trust

First ski lodge built at Falls Creek by the Skyline Ski Club

	Premiers' Conference decide that a Commonwealth / States Technical Committee should pursue proposal, which despite the Snowy-Murray scheme being viewed the most cost-effective and useful, resulted in a political decision to combine the Snowy-Murray and the Snowy-Murrumbidgee schemes, to balance state rivalries
	Kiewa Scheme doubled in size with the approval for an increase in catchment areas supplying water to Rocky Valley and Pretty Valley by extensive aqueduct system
1947	170,000 Displaced Persons came to Australia from post-war Europe, triggered by request from UN Relief and Rehabilitation Administration, agreeing to two years' work in government-nominated positions. 60,000 European Displaced Persons and migrants directly recruited in Europe by the Snowy Mountains Authority or found way to Snowy Scheme
1948	Mount Buffalo National Park declared
	Early ski runs cleared at Mount Buller
	Final Snowy Mountains Scheme plan presented to Commonwealth / States Technical Committee
1949	Commonwealth / States Technical Committee recommends approved - although NSW reluctance results in the Commonwealth invoking defence powers to put through legislation to give it total control over the alpine headwaters and the scheme's development.
	Robert Menzies, leader of Opposition is opposed to the scheme as he does not believe the Commonwealth has the powers it exercised.
	Prime Minister Ben Chifley describes the Snowy Mountains Scheme as 'the greatest single project in our history'
	Snowy Mountains Hydro-electric Power Act passed 7 July 1949, bringing into being the Snowy Mountains Authority (SMA)
	Commencement of the Snowy Mountains Scheme
1950s	Friction between unions and the Snowy Mountain Authority continued with unions not recognising migrants' overseas qualifications, often forcing tradesmen to work as unqualified labourers.
	Regular incidents of violence between former enemies in the European World War II conflict belies image of 'totally happy multiculturalism' of Snowy scheme promoted at the time and since.
1950	The labour force on the Kiewa Scheme comprised recently arrived migrants from Europe, 1200 being accommodated at the SEC village at Mt Beauty
1950	State governments could not ignore evidence and grazing was removed from Mounts Hotham, Loch, Feathertop and Bogong in Victoria, and from Kosciuszko State Park above 1370m in NSW; long term studies set up on recovery from grazing
1951	Kosciuszko Hotel destroyed by fire
	Lake Albina Lodge built by the Ski Tourers Association
	Royal Military College Duntroon Ski lodge at Mount Ginini

Works commence on Guthega Power Station, the smallest component of Snowy Mountains Hydro-electric Scheme built by Norwegian construction firm I F Selmer, completed 1955; this project was 'fast-tracked' to demonstrate an early success for the Scheme

West Kiewa Power Station works commenced.

In March there were 3459 personnel working on the Kiewa Scheme, many of them post-World War II migrants. Many workers left after a severe shortage of loan monies restricted and slowed construction

1952 Commonwealth Government dismisses the Department of Public Works for slow progress on Snowy Mountains Scheme, citing union work policies.

Completion of the Scheme out to tender; successful bidder is US consortium Kaiser-Walsh-Perini-Raymond.

Appointment of new contractors results in strike over new work practices - entire workforce is dismissed and rehired with new tougher work conditions.

Kunama Lodge built by the Ski Tourers Association

1953 Alec Costin recruited to head Research Division of Victoria's Soil Conservation Authority (former SCB), documented widespread destruction of *Spaghnum mossbeds*.

beginning of Kosciuszko records from SMA's Spencer's Creek snow-course

1954 Walter Bryant, Soil Conservation Service, NSW investigated trends in recovery at Long Plain, Kiandra and Plains of Heaven, showing grazing suppressed snow gum seedling growth, grazing on herbs opened grasslands to erosion and that after post-grazing most shrubs declined in favour of grass and herbs.

1955 Guthega Power Station completed - this project was 'fast-tracked' to demonstrate an early success for the Scheme

Prime Minister Robert Menzies, opened the first power station at Guthega.

Snowy Mountains Authority's budget for soil erosion control was £200,000, demonstrating concern about potential damage to the environment from outset, including erosion into dams, native fish protection, and the tourism potential of the mountains.

Alec Costin, appointed head of the CSIRO's Alpine Ecology Unit at Island Bend, NSW (within KNP), beginning a NSW effort in alpine science inspected Snowy Mountains and recommended elimination of high altitude grazing, along with effective fire prevention and more conservation work by the Snowy Mountains Authority, calling for a CSIRO field station for catchment research

Raeder-Roizsch and Phillips investigated relationship between fire and soil erosion in the upper Tooma River catchment (NSW), this and other studies limited by insufficient older trees

Snowy-Tumut development commenced

1956 West Kiewa Power Station completed

Kunama Lodge destroyed by avalanche with one fatality

1957 101 buildings 'relocated' from old Adaminaby moved to the new town

Large townships created to re-house those displaced by dam construction at Adaminaby and Jindabyne, and as centres for Authority at Cabramurra, Khancoban and Talbingo.

Costin and Turner summarised damage caused by domestic stock in an Australian Academy of Science report on high mountain catchments in NSW and Victoria, drawing attention to the recovery of grassland in the Pretty Valley exclosure.

1958 NSW Government accepts the findings of a report by the Catchment Areas Protection Board not to renew grazing leases for areas above 4500 feet

1959 Peak of construction of Snowy Scheme - 7300 people employed

Wimbush and Costin select six small subalpine catchments in Kosciuszko to commence a 20 year research project on stream bank erosion thought to be due to grazing damage,

1960 Snowy Mountains Authority fitted seat belts in vehicles and made their use compulsory, because of the hazardous nature of road construction, reputedly the first organisation in the world to do so

Agreement between the USA and Australia to co-operate in spacecraft tracking and communications for USA's National Aeronautics and Space Administration (NASA) space research program

1961 Kiewa Scheme completed

1962 Work commenced on Snowy-Murray component of Snowy Mountains Hydro-electric Scheme

1963 Bendora Dam built

Jennings and Costin commence interdisciplinary research on periglacial processes, especially on snow moved stones at Mt Twynam (KNP), showing snow mass sliding can have similar effects on moving stones as glaciers

1964 Present Gudgenby Homestead built for the Bootes family

1965 Canberra Deep Space Communication Complex at Tidbinbilla opened to monitor spacecraft on planetary explorations missions

Orroral Valley satellite tracking and data acquisition station opened

Joe Jennings commences a 25 year study of the Coolamine karst, resulting in some 100 papers on karst, making the Coolamine the most researched karst area in Australia with both national and international research significance, and illustrating a facet of the complex interrelationship of karst and cold climate geomorphology.

1966 Mountain Pygmy Possum (*Burramys parvus*) discovered as a living species in the University Ski Club lodge at Mt Hotham, Victorian Alps

1967 Honeysuckle Creek station opened to support manned space flights

Royal Military College Duntroon Ski lodge at Mount Ginini closed

1968 Dating research on block-streams reveals dates to 35,000BP with evidence of Southern Beech (*Nothofagus* sp.) present on the Australian mainland at the time.

1969 Grazing banned throughout Kosciuszko National Park

Honeysuckle Creek central in communications for the Apollo 11 mission which made the first crewed landing on the moon in August 1969

1970 Major tunnel collapse on the Snowy Scheme

1971 Costin publishes Carbon 14 dates at Munya, Island Bend and Geehi (Kosciuszko NP, NSW) to 31,000-34,000 BP dating the onset of colder periglacial periods causing widespread slope instability in Snowy Mountains.

1972 Banks major fire-history study of tree rings from Thredbo ski slopes and old growth trees revealed fire-free interval of 50 years, and at Schlink's Pass of 140 years, much longer than in Brindabella's; suggesting possibility that fire in alps rare before European settlement

Sue Barker sampled snow gum woodland in now Jagungal Wilderness Area, documenting 100 years of burning for pasture improvement, showing loss of original open woodland and loss of old growth snow gums, concluding it may take several centuries largely free of fires before a woodland of single stems trees returns

J A H Brown records hydrological impact of severe bushfire in northern Kosciuszko in 1965, showing it took 5 years for hydrological functions to return to pre-fire level, results replicated by Good in the Geehi and Swampy Plains River catchments (KHA) as a result of the severe Grey Mare Fire summer 1972-73

1973 Tumut-3 Power Station completed

Land Conservation Council, Victoria asked to investigate case for a national park in the Victorian Alps

Piccadilly Fire Ecology Plots, with NT Top End sister study, longest running fire ecology experiment in Australia, possibly the world, established by Phil Cheney, CSIRO to investigate effects of fire on subalpine vegetation

1974 Snowy Mountains Hydro-electric Scheme completed (16 major dams, 150km of tunnels, seven power stations, total generating capacity of 3.74 million kilowatts)

1976 Dane Wimbush and John Leigh, CSIRO, established plots at Kiandra, to investigate effects of two experimental low intensity fires and/or grazing by rabbits and native grazers, resulting in evidence that low intensity fires does not reduce wildfires, exposing soil to erosion and promoting rabbits

1978 Dartmouth Dam on Mitta Mitta River to provide water for irrigation and to ensure supplies to South Australia under the terms of River Murray Waters Agreement.

1979 Land Conservation Council recommends the establishment of four national parks in the Victorian Alps

Gudgenby Nature Reserve declared

1980s Water from Lake Catani and Rocky Valley Reservoir used for snow-making at Mt Buffalo and Falls Creek alpine resorts

Ongoing research on grazing impacts - Williams concluded that grazing impacts were severe on sub-alpine vegetation in Victoria, especially fen/bog system and snow-patch herbfields

1980 Only experimental high-intensity burn undertaken in Australian Alps undertaken in Bushranger's Creek Catchment, Brindabella Range, ACT by CSIRO Forest Research Division, but apart from research in hydrology, insufficient follow-up research in other disciplines

1981 Four national parks gazetted in the Victorian Alps

1983 Clarke found fire essentially absent from alpine/subalpine wetlands with Gudgenby Fire (Namadgi NP) burning the Sphagnum of Rotten Swamp for the first time in 10,000 years

1984 Victorian Alpine Resorts Commission formed

Namadgi National Park

1985 First landscape-scale wildfire since 1939 burned 11,000ha at Mt Buffalo; pre-fire comparisons at reactivated study sites shows that the fire was more severe in drainage lines and complete incineration of Sphagnum, cautioning against use of fire as management tool on assumption that moss beds do not burn, and that fire-free periods of at least 20 years needed for recovery of treeless subalpine vegetation; importance of Mt Buffalo study sites for pre-fire data

1988 Victorian Government purchases Wonnangatta Station on basis of Land Conservation Council recommendations and cattle grazing therefore excluded from it and Howitt Plains leases

1989 Alpine National Park declared (Victoria)

1991 Second generation Victorian grazing impact sites established at Holmes and Wellington Plains

1992 Victorian Government implements Land Conservation Council recommendations to exclude cattle from parts of Bogong High Plains, the Bluff, Avon Wilderness and Wabonga Plateau

1994 Analysis of some 50 years of (Fawcett) Carr's research published by Wahren, Papst and Williams confirming spread of tall non-palatable shrubs in grazed areas at expense of herbs, grass and smaller palatable shrubs, confirming that the woody shrubs die away after 40-50 years free of grazing, leading to Victorian government's decision to remove further areas from grazing

1996 47 Australian Alps Vegetation Fire Response Monitoring Plots established in a variety of vegetation types, districts, altitudes with a variety of fire histories (28 in NSW, 10 in Victoria, and 9 in ACT); a further 9 plots

established in Kosciuszko NP by NSW

1998 Caledonian Fire burnt large areas of montane and subalpine forest in the southeast of Alpine NP and subalpine heathland, grassland and wetland with second generation Victorian grazing impact sites established in 1991 in Holmes and Wellington Plains and others established after Fire presenting opportunity to study various issues related to post-fire generation and management and predictive framework

Sarah Broomhall impact of atmospheric ozone depletion, showing severe depletion of Alpine Tree Frog

1999 Fences established to exclude cattle from Wellington Plains Exclusion Zone and Home Plains Exclusion Zone, to protect fire affected bogs in areas damaged by Caledonia fire in January 1998

2000 Rochelle Richards used Piccadilly Fire Ecology Plots and Banks Brindabella work to show that vast majority of low intensity fires do leave fire scars on snow gums concluding no evidence of Aboriginal burning of Brindabella's

2001 Red Robin Mine the only operating mine in the study area

Victorian research on grazing impacts at sites established in 1945 shows regenerative processes at alpine/subalpine bogs, concluding that only takes less than five years to damage bog but 50 to >100 to recover. Impetus for research not as strong in NSW given exclusion of stock in Kosciuszko National Park in 1969, although provides baseline for future trends and impacts

New dating techniques using Cosmogenic isotope shows an Early Kosciuszko single glacial advance before 59,000 years ago, and a Late Kosciuszko phase of three advances: 32,000, 19,000 and 16,800 years ago

CRC for Freshwater Ecology used the Australian Rivers Assessment Tool to gather baseline data form 79 reference sites throughout Australian Alps, enabling the formation of a predictive model for the number and type of macroinvertibrate species likely in undisturbed aquatic ecosystems.

2002 NSW, Victorian and Commonwealth Governments agree to increase environmental flows in the Snowy River to 28 per cent of its pre-scheme flows.

2003 January major bushfires burnt 1,127,000ha, of Australian Alps national parks, being 68% of their area

2006 Commonwealth Government backs down from plans to privatise the Snowy Mountains Hydro-electric Scheme

APPENDIX 2

Scientific Research Sites in the Australian Alps

List of Sites, General location, References

Item(s)	Reference(s)
Rocky Valley and Pretty Valley Plots on the Bogong High Plains , ANP, Vic	Griffiths and Robin 1994:37; RFA 1999:71; Macdonald and Haiblen 2002a:34-35
Mt Higginbotham Mountain Pygmy-possum (Burramys parvus) population monitoring site; 'Tunnel of Love', ANP, Vic,	Griffiths and Robin 1994:43; RFA 1999:71; Macdonald and Haiblen 2002a:92
Trout Cod (*Maccullochella macquariensis*) population monitoring site at Seven Creeks, ANP	RFA 1999:71
Ryans 1 and 2 billabongs of Ryans Lagoon (nationally important wetland), near Bonnegilla, ANP	RFA 1999:71
Special Protection Zone - 162 [in 1992] small areas of significant flora / fauna species / sites of particular archaeological, geological and landscape significance ANP, Vic, 39 Bogong, 63 Cobberas-Tingeray, 17 Dartmouth, 43 Wonnangatta-Moroka,	DCE 1992a,b,c,d
10 of 29 flora species type localities indicative NE; 2 of 3 fauna species type localities indicative NE	RFA 1999:68-72, and Map 28
14 flora species type localities indicative NE; 1 of 4 fauna species type localities indicative NE	RFA 2000:66-69, and Map 27
Reference Areas – 17 [note some of these may be included above], ANP, Vic; 6 Bogong, 3 Cobberas-Tingay, 4 Dartmouth, 4 Wonnangatta-Moroka	DCE 1992a:74; b:83; c:73; d:81
22 reference areas indicative NE, 7 already RNE	listed at RFA 2000:68-69

Geological & Geomorphological Sites

Item(s)	Reference(s)
ANP, Vic; 12 Bogong, 16 Cobberas-Tingay, 4 Dartmouth, 18 Wonnangatta-Moroka	DCE 1992a:76; b:86; c:76; d:85
Carruthers and Twynam ridges transects, KNP, NSW	ISC 2004:154
Dainers gap, KNP, NSW	ISC 2004:154
Hotel Kosciuszko site, KNP, NSW	ISC 2004:154; Macdonald and Haiblen 2002a:76
Guthrie saddle glacial site, KNP, NSW	Griffiths and Robin 1994:39;ISC 2004:154; Macdonald and Haiblen 2002a:69
David Moraine glacial site, KNP, NSW	Griffiths and Robin 1994:39; ISC 2004:154; Macdonald and Haiblen 2002a:69
Perisher Creek exposure glacial site, KNP, NSW	Griffiths and Robin 1994:39; ISC 2004:154
Railway Embankment' moraine glacial site, KNP, NSW	Griffiths and Robin 1994:40; ISC 2004:154; Macdonald and Haiblen 2002a:70
Costin's carbon-14 sites, KNP, NSW	Griffiths and Robin 1994:40; ISC 2004:154; Macdonald and Haiblen 2002a
Clement Wragge's weather observatory on Kosciuszko summit, KNP, NSW	Griffiths and Robin 1994:41; ISC 2004:154; Macdonald and Haiblen 2002a:82; Higgins 2002
Long Plain 1950s Soil Conservation Service plots, KNP, NSW	Griffiths and Robin 1994:37; ISC 2004:154; Macdonald and Haiblen 2002a:36
Kiandra plots (work of John Leigh, Dane Wimbush et al), KNP, NSW	Griffiths and Robin 1994:38; ISC 2004:154; Macdonald and Haiblen 2002a:26-37
Rock movement monitoring sites on Mount Twynam, KNP, NSW	Griffiths and Robin 1994:37; ISC 2004:154
Cooleman Plain karst area monitoring sites, KNP, NSW	Griffiths and Robin 1994:41; ISC 2004:154; Macdonald and Haiblen 2002a:70
Yarrangobilly Caves karst area monitoring sites, KNP, NSW	Griffiths and Robin 1994:41; ISC 2004:154; Macdonald and Haiblen 2002a:70
Slatyer's Thredbo Valley tree line monitoring sites, KNP, NSW	Griffiths and Robin 1994:43; ISC 2004:154; Macdonald and Haiblen 2002a:100

Pulsford's sites in the lower Snowy, KNP	NSW, ISC 2004:154
Border markers delineating the boundaries of NSW, Victoria and the ACT and associated cadastral information, KNP, NSW	ISC 2004:154
alpine and subalpine areas of Brindabella Range and the Upper Cotter Catchment, NNP, ACT	Environment ACT 2005:127-129
Alpine Botanic Gardens on summit of Mt Gingera [also related to revegetation in KNP see Conservation / Rehabilitation section], NNP ACT	Environment ACT 2005:127-129
Bendora Arboretum, NNP, ACT, only one surviving after 2003 bushfires of formerly 28 former rural arboreta for forestry and garden city tree planting in 1972	Chapman and Varcoe 1984:17 for Bendora; others pp.10-32, Map detailed planting lists and map references
Lower Cotter Catchment hydrology stations (16), in northern Namadgi, NNP, ACT	Environment ACT 2005:127-129
Bushranger Catchment high temperature burn, NNP, ACT	Environment ACT 2005:127-129
near Piccadilly Circus Series of 20m x 20m fire ecology plots, NNP, ACT	Environment ACT 2005:127-129
Brindabella Bird-banding sites at New Chums Road, Bushrangers Creek and Old Mill Road, NNP, ACT	Environment ACT 2005:127-129; Macdonald and Haiblen 2002a:92
Rock art sites archaeological research sites , NNP, ACT	Environment ACT 2005:127-129
Scabby Range archaeological survey area, NNP, ACT	Environment ACT 2005:127-129
46 survey locations post-2003 fires, NNP, ACT	Environment ACT 2005:127-129

Conservation / Rehabilitation

Examples of historic early nature conservation work - for example soil conservation and restoration works on Mount Twynam and Mount Carruthers [see Conservation / Rehabilitation section], KNP, NSW, ISC 2004:154

Numerous examples of conservation management infrastructure and activity throughout the Park [see Conservation / Rehabilitation section], ,

Destruction of or damage to parts of the park's cultural heritage fabric with the aim of restoring the natural environment [see Conservation / Rehabilitation section], ,

Geology

Item(s)	Reference(s)
Five geological / geomorphological sites were also identified as describing particular aspects of North-East Victoria's regional geo-diversity - Wooragee Glacials; Brandy Creek Quarry gravel deposit; Cope Creek periglacial deposits	RFA 1999:67, and Map 27
Sites identified in the Gippsland Regional Forest Agreement	
Twelve of fifteen geological / geomorphological sites were also identified as describing particular aspects of North-East Victoria's regional geo-diversity, of which three were already in the Register of the National Estate	RFA 2000:63-64, Map 26

Mining Sites in the Australian Alps

summary description and history is given for each of the following 68 mining fields found in the Alps or the Historic Areas abutting the Alps in LRGM (2002:93-111), listed at Appendix 2., with more extensive lists of known historic sites and landscapes in LRGM 2002:112-118).

Key studies where detailed information is available, including descriptions and site plans are to be found in:

- NSW – Pearson 1979; LRGM 2002
- Victoria - Bannear 1998; 1999; undated database; Butler 1997, 1999; LRGM 2002; 2005
- Online details of Victorian gold mining sites in north east Victoria can be found at the Heritage Victoria website on http://www.heritage.vic.gov.au/page.asp?ID=124 (11/2/2005)

The following list of mining fields are in the Alps (LRGM 2002:Maps 2, 3):

Map 2 – Victoria

1 Howqua Goldfield
2 Back Creek, etc, reefing field
3 Buckland River Goldfield
4 Chromite Mine (Dolodrook Creek)
5 Upper Ovens – Hotham Heights goldfields
6 Brandy Creek – Cobungra River goldfields
7 Fainter Goldfield
8 Range (reefing)
9 Wongungurra (position not known)
10 Upper Dargo Goldfield
11 Grant – Crooked River goldfields
12 Upper Big River diggings (various)
13 Big River Goldfield
15 Wombat Creek Goldfield (+ silver/lead)
16 Gibbo River Goldfield (+ copper)
17 8-Mile Goldfield
18 Dart River Goldfield
19 Buenbah Flat
20 Mt Murphy (wolfram)
21 Buckwong Creek (gold)
22 Mt Pinnibar (gold – position not known)
23 Tom Groggin (gold – position not known)
24 Upper Murray gold workings (various)
25 Limestone Creek Goldfield (+ base metal)
26 Cowombat Creek gold diggings
27 Mt Deddick silver/lead field

14 Mt Wills Goldfield (+ tin)

28 Accommodation Creek copper workings

Map 3 – New South Wales

1 Goobarragandra River gold workings (various)
2 Broken Cart Mine & Never Never Ck diggings
3 Horseshoe diggings
4 Lickhole Creek (copper)
5 Peppercorn Hill gold diggings (2)
6 Cooleman Plains – copper, silver/lead
7 Yarrangobilly copper field (+ gold, silver/lead)
8 Jounama Creek (Pethers Lode – copper)
9 Yorkies gold diggings
10 Lobbs Hole (Ravine) copper field
11 Blue Creek copper
12 Tantangara Creek gold diggings (3)
13 Nungar Creek gold diggings (position not known)
14 6-Mile Goldfield (+ other outlying diggings)
15 Kiandra Goldfield (town, New Chum Hill etc)
16 Kiandra Goldfield (4-mile, 9-mile etc)
17 Greens & Larsens creeks goldfields
18 15-Mile Goldfield
19 New Maragle Goldfield
20 Tumut River gold diggings (Sam's, Gulf, etc)
21 Ogilvie's Creek gold diggings
22 Bolton's & Mulligan's Creek gold diggings
23 Crooks Racecourse & McGregors Creek diggings
24 Toolong Goldfield
25 Everards Flat gold diggings
26 Bogong (Grey Mare) mines & gold diggings
27 McDonald's gold diggings
28 Diggers Creek gold diggings (+ others in area)
29 Pipers Creek gold diggings
30 Thredbo (Little Thredbo) gold diggings
31 Crackenback Goldfield
32 Mt Pilot tinfield (+ gold)
33 Upper Murray gold diggings (various)
34 Jacobs River copper workings
35 Pinch & Jacobs River gold diggings
36 Mt Trooper copper prospect
37 Base metal mining & prospects (various)
38 Black Jack Mountain molybdenum & gold
39 Stockyard Flat Creek gold reef
40 Jerry Collins Gap gold prospecting works

Various other small mines, diggings & prospects occur throughout the Alps National Parks. Not all positions have been located.

Water Sites in Australian Alps

Not all of these are in Australian Alps national parks.

Tunnels - 13, Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000: Attachment 1; from SMHA 1972; Collis 1998)

Power Stations -7, Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000: Attachment 1; from SMHA 1972; Collis 1998)

Pumping Stations - 2, Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000: Attachment 1; from SMHA 1972; Collis 1998)

Dams – 16 (6 Concrete Gravity dams; 5 Rock-fill dams; 3 Earth-fill dams; 2 Concrete Arch dams) Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000: Attachment 1; from SMHA 1972; Collis 1998)

Aqueducts – 20, Snowy Mountains Hydro-electric Scheme (Pearson and Marshall 2000: Attachment 1)

Switching Stations – 8, Snowy Mountains Hydro-electric Scheme (Pearson and Marshall 2000: Attachment 1)

Stream Gauging Stations – 18, Snowy Mountains Hydro-electric Scheme (Pearson and Marshall 2000: Attachment 1)

Weather Stations – 18, Snowy Mountains Hydro-electric Scheme (Pearson and Marshall 2000: Attachment 1)

Snow Courses – 14, Snowy Mountains Hydro-electric Scheme (Pearson and Marshall 2000: Attachment 1)

Camps, Townships and Worksites – 120 / 127 Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000:21, 127 listed at Attachment 1; McHugh 1999:172 plan of location of 120 camps)

Huts and Shelters – 6 (Canal (Perisher Range) Hut, Opera Hut, Schlinks Hilton Hut, White River Hut; Disappointment Spur Shelter, Jagungal Shelter), Snowy Mountains Hydro-electricity Scheme (Pearson and Marshall 2000:Attachment 1)

Butler in his study of North East Victoria forested areas notes several sites related to the Kiewa Hydro-electricity and power supply), whilst filling gaps in this theme, he notes that it has not been adequately researched (1997 Volumes 1 and 2). Again not all these sites may be in the Australian Alps:

The following list drawn from Butler's study:

- Big Hill Bench (No 5) and Aqueduct (Kiewa Hydro-E scheme)
- Bogong Creek Aqueduct ANP
- Bogong Creek Huts ANP
- Bogong Jack Saddle Hut ANP
- Bogong Village (Kiewa Hydro-e scheme)
- Cairn Creek SEC Hut ANP
- Charlie Creek Hut ANP
- Clover Dam
- Clover Flat Arboretum (Kiewa HES)
- Clover Flat Dam & Bogong Village (part hydro group)
- Clover Power Station (KHES)
- Cope Saddle SEC Refuge Hut ANP
- Junction Dam, Lake Guy
- Langford Gap SEC Refuge Hut
- Langfords Aqueduct (KHES)

- McKay Creek Power Station (KHES)
- Pole line, SEC Wallace's Hut to Falls Creek (KYES)
- Pole lines, SEC Pretty Valley to Mount Cope (KHES) ANP
- Pondage – ANP
- Pretty Valley Pondage (KHES) ANP
- Pretty Valley SEC Hut site ANP
- SEC Hut, Big River
- SECV No 3 Development workshop
- West Kiewa Power Station (part hydro-electricity group)
- Young's Top SEC Survey Hut ANP

APPENDIX 3

Huts & Homesteads in the Australian Alps with Social Value

Huts in Namadgi National Park assessed as significant, in part for their social values (Truscott *et al* 2004a-e; Environment ACT 2005; Appendix 6; ACT Heritage Council):

- Max and Bert Oldfield's Hut - associated with pastoralism and past lifestyles, links with particular families well known in the region
- Bendora Hut – associated with the establishment of arboreta in the Brindabella's by the Forestry and Timber Bureau (the Bendora Arboretum is also registered)
- Brumby Yards (several) – tangible link with the folklore and bush culture of brumby running in the high country
- Horse Gully Hut – associated with pastoralism in the high country, a place of high aesthetic and cultural landscape values, and valued by a range of community user groups
- Demandering Hut – associated with pastoralism and past lifestyles, links with particular families well known in the region
- Waterhole Hut - associated with pastoralism and past lifestyles, links with particular families well known in the region
- Rowleys' Rendezvous Creek Hut - associated with pastoralism and past lifestyles, links with particular families well known in the region
- Frank & Jack's Hut – associated with pastoralism in the high country, connections with past lifestyles; valued by a range of community user groups
- Hospital Creek Hut - associated with pastoralism and past lifestyles, links with particular families well known in the region
- Pryor's Hut – built for the Alpine Botanic Garden, and named after a significant person in Canberra's landscape history
- ACT Forest Hut/Boboyan Hut – associated with forestry and with the activities of the KHA community group which has maintained it
- Brandy Flat Hut Precinct - associated with bushwalking and horse riding recreation in the high country, with high aesthetic and cultural landscape values; valued by a range of community user groups
- Cotter Hut Precinct – built on the site of an earlier pastoral structure for rangers and used for water catchment activities, now a base for the Bimberi Wilderness Area (social values assessed as unclear by Truscott *et al* 2004)

Huts in Kosciuszko National Park assessed as significant, in part for their social values (GML 2005):

- Bill Jones' Hut – associated with high country grazing and recreation
- Bradley's Hut – expresses links to high country past
- Brayshaw's Hut – associated with pastoral uses, community and family identity

- Cascade Hut – iconic high country hut and symbol of mountain traditions, associated with the Silver Brumby story, symbol of mountain traditions
- Cesjack's Hut – associated with high country grazing and recreation, a place of family connections
- Circuit's Hut – associated with past lifestyles and traditions and high country grazing
- Cooinbil Hut – associated with high country grazing and recreation, a community meeting place
- Coolamine Hut – symbol of high country grazing history and multiple layers of history, a place of family connections
- Davey's Hut – associated with gold mining and grazing, a place with community and family connections
- Doctors' Hut – associated with fishing
- Four Mile Hut – an 'archetypal' hut, associated with gold mining history
- Gavel's Hut – associated with past lifestyles and traditions and high country grazing
- Grey Mare Hut – a community meeting place, associated with mining
- Hain's Hut – associated with pastoralism, a place of community and family connections
- Hainsworth Hut – associated with pastoralism and recreation, a place of family connections, a place associated with caretakers
- Happy's Hut – a landmark, associated with remoteness and sense of arrival, provides a connection to the past
- Horse Camp Hut – associations with the Snowy scheme and education-based recreation, a place associated with caretakers
- Keebles Hut – associated with fishing and local family connections
- Kells' Hut – associated with alpine grazing and family connections
- Kidman's Hut – archetypal stockman's hut associated with alpine grazing, past lifestyles, a place of family connections
- Long Plain Hut – associated with alpine grazing and past lifestyles, a place of family connections
- Love Nest in the Sallees – an interesting hut, with a distinctive name and story
- Mawson's Hut – associated with recreation, a place associated with caretakers
- Old Currango Hut – an iconic symbol of the past, associated with pastoralism and recreation, a place with family connections
- Oldfield's Hut –associated with pastoralism, recreation and sense of loss, a place of family connections
- Peden's Hut – associated with alpine grazing, a place of family connections
- Pocket's Hut – associated with alpine grazing, a place of family connections
- Sawyer's Hut – a travellers rest, a place of family connections
- Schlink Hut – a community meeting place for walkers and skiers, located on a key route

- Schofield's Hut – associated with past lifestyles and high country grazing
- Seaman's Hut – photographed landmark and memorial, associated with tragic event and hazards, symbolises the challenges of alpine environments
- Teddy's Hut – associated with alpine grazing, a place of family connections
- Tin Hut – associated with past lifestyles, grazing and skiing history
- Tin Mine Barn – associated with alpine grazing, tin mining, Snowy scheme, forestry and science
- Tin Mine Charlie Carter's Hut – associated with alpine grazing, mining and recreation, a place of family connections
- Townsend Hut – a community meeting place, associated with fishing and horse riding, a place associated with caretakers
- Valentine's Hut – associated with the Snowy scheme, a community meeting place for walkers and skiers
- Vickery's Hut – hut of archetypal design and log construction
- Wheeler's Hut – iconic/symbolic example, associated with past lifestyles and alpine grazing, a place of family connections
- Whites River Hut and SMA Annexe – a meeting place for skiers.
- Witz Hut – associated with alpine grazing, an iconic example known for its traditional construction and design

Huts in Kosciuszko National Park damaged or destroyed in the 2003 fires, and assessed as having social significance in their current (destroyed) condition (GML 2005:Table 9.1):

- Bolton's Hut – associated with pastoralism and remote country experiences
- Boobee Hut – a classic 'tin hut', associated with pastoralism, mining and recreation
- Brook's Hut – classic stockman's hut, associated with pastoralism, the Snowy scheme and recreation, a place associated with caretakers
- Delaney's Hut – accessible hut, regarded as a typical example of a cattleman's hut
- Diane/Orange Hut – possible social values arising from associations with the Snowy scheme and recreational uses
- Dr Forbes' Hut – associated with fishing, a place of family connections
- Geehi Hut – accessible hut, associated with fishing and educational uses
- Grey Hill Café – possible social values arising from associations with pastoralism and the Snowy scheme
- Happy Jack's Hut - associated with pastoralism, a place of family connections
- Jounama Homestead - associated with pastoralism, demonstrating past lifestyles
- Old Geehi Hut - associated with the Snowy scheme and recreation
- O'Keefe's Hut - associated with pastoralism, ski touring, recreation and refuge

- Opera House – landmark in a beautiful and remote location, associations with the Snowy scheme and with refuge
- Paton's Hut – an interesting and evocative example, associated with pastoralism, the Snowy scheme and recreation
- Pretty Plain Hut – unusual example demonstrating past lifestyles and skills, associated with pastoralism and recreation
- Pugilistic Creek Hut – possible social values arising from family connections
- Broken Dam Hut, Kiandra – landmark, typical example, associated with mining, pastoralism and recreation, a place associated with caretakers

Huts in the Alpine National Park assessed as significant, in part for their social values (Butler 2005; Truscott 2002a-d):[12]

- Blair's Hut, Snake Valley, Alpine National Park – associated with alpine grazing
- Bluff Hut, Alpine National Park – associated with alpine grazing
- Cleve Cole Memorial Hut, Camp Valley – alpine ski refuge
- Cope Hut, Mount Cope – associated with alpine tourism
- Country Roads Board Refuge Hut, Dinner Plain – alpine refuge, with associations with the CRB
- Edmonson's Hut, Mount Nelse – associated with alpine grazing, a place of frequent use, including educational uses
- Gantner Hut, Macalister Springs – alpine refuge
- Gardner's Hut, Tunnel Spur – associated with alpine fishing
- Guy's Hut, Bryces Plain – rare type, associated with alpine grazing, valued by walkers
- Howitt Plains Hut – associated with alpine grazing
- Kelly's Hut, Marm Point – alpine refuge, associated with the activities of the SECV
- Kelly's Hut, Holmes Plain – well known destination point, associated with alpine grazing and recreation, a place with family connections
- McNamara's Hut, Dinner Plain – associated with alpine grazing, a place with family connections
- Melbourne University Mountaineering Club Hut, Mount Feathertop – alpine refuge, associated with the alpine walking club
- Miller's Hut, Mount Wellington Track – symbolic of high plains grazing, associated with alpine tourism
- Moroka Hut, Racecourse Plain – associated with alpine grazing

[12] This list includes huts assessed as meeting the threshold for regional or state significance by Butler (2005). The national threshold does not appear to have been considered in the study, with 'state' significance being the highest threshold of assessment. Butler does not address the threshold for each criteria, so these places are those where criterion (g) is given as one of the relevant criteria in the assessment. Some of these places were assessed as having at least regional significance for their social values by Context (1997,1999).

- Tawonga Huts, Mt Niggerhead – associated with alpine grazing, the SECV, skiing, and place with family connections
- Treasure's Huts, Mt Ewan – associated with alpine grazing, demonstrating bush skills, a place with family connections
- Wallace's Hut – well recognised rare early symbol, associated with alpine grazing
- Weston's Hut, Mt Jim – well recognised early example, associated with alpine grazing, a place with family connections
- Wonnangatta Station Hut – alpine grazing

Five further huts located outside the Alpine National Park assessed as significant, in part for their social values (Butler 2005):

- Boggy Creek CRB Hut – alpine refuge, associated with recreation and the activities of the CRB
- Fry's Hut, Howqua Hills Historic Area – associated with alpine forestry
- Limestone Hut, Limestone Creek – well known hut associated with alpine grazing
- Spargo's Hut (Mt Loch), Mount Hotham Resort – associated with alpine grazing recreation (skiing) and mining, links with the cattlemen, and family connections.
- Upper Jamieson Hut (Fred Fry Hut), Mt Darling – associated with alpine forestry and recreation, hut construction/bushcraft, and associations with Fred Fry.

Huts in the Victorian high country assessed as regional/state significance before their destruction in the 2003 fires (Butler 2005; Context 1997, 1999):[13]

- Bon Accord Hut – associated with alpine tourism
- Davies Plain Hut – associated with alpine grazing
- Honeymoon Hut, Bogong High Plains – associated with alpine grazing and links with cattlemen
- Horsehair Hut, Horsehair Plain – associated with alpine grazing
- McNamara's Hut, Buckety Plain – associated with alpine grazing
- Roper's Duane Spur Hut – symbolic of alpine grazing
- Wilkinson Memorial Lodge, Wallace Gap – an alpine refuge associated with recreation uses, and the activities of the SEC

Huts in the Victorian high country huts assessed as above threshold for the Register of the National Estate by Context (1997, 1999), but subsequently assessed to be of lesser significance by Butler (2005):

- Bindaree Hut, Alpine National Park. Butler (2005) identifies the primary theme for this hut as 'alpine forestry' and comments on errors in the assessment by Context Pty Ltd (1997). It was assessed as local significance by Butler (1996).
- Craigs Hut, near Merrijig. This hut was built as a film set, and has become a popular and readily recognised visual symbol and recreation destination. It was assessed as local significance by Butler (2005). A contrasting assessment in relation to social values is provided by Context (1997) and Truscott (2003).

[13] Butler (2005) did not assess these sites for their significance following the destruction of the huts.

- Dibbins Hut, Bogong High Plains. This hut is of recent construction and has associations with alpine refuge and with memorialising loss. It was assessed by Butler as below threshold (1996), but was assessed by Context (1997) as above threshold for the Register of the National Estate for its social values.
- Fitzgerald's Hut, Bogong High Plains. This hut is of recent construction and has generated debate about the appropriate levels of building construction within the Alpine National Park. It is negatively perceived by some user groups, and has some symbolic historic values for others, along with the esteem often associated with community involvement in the rebuilding of huts. It was assessed by Butler as below threshold (1996), but was assessed by Context (1997) as above threshold for the Register of the National Estate for its social values.
- Lovick's Hut – This hut is of recent construction. It has some associations with alpine grazing and recreation. It was assessed by Butler as below threshold (1996), but was assessed by Context (1997) as above threshold for the Register of the National Estate for its social values.

Homesteads significant as symbols of the early post-contact settlement of the high country, stories of the mountains and connections to past lifestyles (Context 1997, 1999; Truscott 2002d; GML 2005; ACT Heritage Council):

- Mitchell's Homestead Site and Gorge[14], Victoria
- Wonnangatta Station, Victoria
- Currango Homestead, NSW
- Brayshaw's Homestead & Environs, ACT – surviving example of early 20th Century rural settlement in remote and harsh setting with continuing connections to the Brayshaw family
- Westerman's Homestead & Environs, ACT – early surviving pastoral home, reflecting a past way of living
- Tennent Homestead, ACT – pastoral property, acquired by the Commonwealth for national capital purposes
- Orroral Homestead & Ploughlands, ACT – rare surviving slab buildings, an example of an isolated rural homestead, associated with the permanent post-contact settlement of the region and with past pastoral lifestyles; valued by the community for its aesthetic qualities as a rural homestead in a pastoral landscape.

Also: Treasures Plain & Homestead, Victoria, was assessed by Context (1999) as having potential social values (yet to be assessed).

[14] Assessed as local significance by Butler (1996)