



Homeward Bound Sluicing Claim, New Chum Hill, Kiandra, Kosciusko National Park.
Photo R Kaufman

AUSTRALIAN ALPS MINING HERITAGE CONSERVATION & PRESENTATION STRATEGY

LRGM - SERVICES

59 Mountbatten Avenue, Bright 3741
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to the

AUSTRALIAN ALPS LIAISON COMMITTEE



*Mining relics at the Monarch Mine, Alpine National Park: battery, wheels, steam engine.
Photos A Swift.*

30 April 2002

THE MINING HERITAGE OF THE AUSTRALIAN ALPS

In the heart of the high country, & cloaked by regrowing forest in the rugged ranges of south eastern Australia, these places bear mute witness to the most powerful European cultural influence of the mid 1800's to early 1900's, and a pioneering way of life now long gone.....



Maude & Yellow Girl Mine



Homeward Bound sluicing claim



Steam engine, Elaine Mine



Lonely graves, Kiandra cemetery



Quintet mine huts



Strongbox, United Miners Mine



Razorback Mine battery



Stamp battery, Monarch Mine

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for the

Cultural Heritage Working Group
Australian Alps Liaison Committee

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30 April 2002

INTRODUCTION

This report is a strategic assessment of mining heritage in the Australian Alps that begins with a thematic study. It has been a monumental task that can be considered begun, not completed, because mining has been such a complex and pervasive influence throughout the Australian Alps National Parks and attached Historic Areas.

The difficulty, of course, is in the definition of mining heritage. Other thematic studies, for example on huts of the Alps, have dealt with discrete objects. That is, there are only so many surviving huts, and the themed studies have had a beginning and an end. Thematic studies of the Snowy Mountains scheme and the skifields would be geographically constrained, relating to developments in particular topographies and altitudes within the Alps National Parks. While their local impact has been enormous, their influence does not touch the greater portion of the study area. Grazing and sawmilling have affected a larger area, but they are service industries that, in historical times, were greatly influenced by local and regional demand, a demand driven by the massive changes being wrought by gold to the demographics of Australia. Both were constrained by environmental factors – suitable high-altitude grasslands or wide lowland valleys for the former, and suitable lumber species & growth characteristics for the latter. Cattle grazing, in particular, was not labour intensive, and while the environmental influence may prove to be long-lasting, the cultural heritage is largely tied up in the legends of the relatively-few cattlemen, rather than deeply imprinted in the landscape.

Mining, on the other hand, is not constrained by topography, altitude or environment, nor is it influenced by regional or even national demand. There would not be a creek or river within the entire study area that has not felt the blow of a prospector's pick and the rattle of a gold pan some time in the last 150 years, nor a mountain range that has not echoed to the hoof beats of a prospector's pack-horse. Nearly a billion dollars worth of metals, principally gold, has been wrought from the Australian Alps, but this is only the tip of the iceberg. Metals production itself is limited by the existence of actual resources, but perversely, mining activity is not. An important cultural dimension operated - the lure of gold & other precious metals, and the promise of instant wealth, drove the level of activity in the early years.

A complex mining infrastructure was overlain on the Alps. A network of tracks, from blazed foot-trails to formed roads, connected the mining areas and individual mines to each other, adjacent towns & regional centres, criss-crossing the Alps. Mining settlements, from ephemeral camps to substantial townships, rose and died in the Alps, their fortunes inevitably tied to the supply of gold. Support industries such as grazing, cropping and sawmilling grew with arrival of the diggers in what had been at best lightly-settled uplands and at worst untracked wilderness, in European cultural terms. As mining became more sophisticated, a new network of water races, dams, tramways, tracks & treatment sites was added. But as resources dwindled and prices languished, mining in the Alps slowly strangled. The bush is reclaiming the land, and time dimming a fascinating page in the golden history of Australia.

The enormous individual contributions made to the mining heritage of the Alps sets it apart from other European cultural activities. The Alps mining heritage is not collective – it is tens of thousands of individual labours, each indelibly imprinted in the landscape because of the very nature of mining. For the vast majority of miners, their Alpine experiences were but brief episodes in their journeys of life. Yet in the Alps today, their efforts are still etched in the shallow shafts, tunnels and sluicing works, each holding its own unique story of hope, toil, frustration, desperation, disappointment or excitement, that in most cases will never be revealed.....

REPORT SUMMARY

Using This Report

This report presents an Alps-wide study of historical mining, and a conservation and presentation strategy. In any such detailed and wide-ranging study, it is inevitable that the final product will be bulky. To facilitate its use in the field, the more detailed information and discussion has been included in appendices, and can be accessed according to need or interest. The actual report is more user-friendly, and the Heritage Action Plan in section 9 provides the summary recommendations, and the references to assist in their accomplishment.

Influence of Mining

This report has confirmed the importance of mining as a cultural influence in the Australian Alps, and as the most important European cultural influence from the 1850's to the early 1900's. Mining in the Alps produced nearly a billion dollars worth of metals, and it was influential in:

- *First bringing significant numbers of Europeans into the Alpine environment;*
 - *Bringing colonial government action into the Alps;*
- *Stimulating regional service industries such as agriculture & sawmilling and developing regional economies;*
- *Overlaying an infrastructure on the Alps & surrounding areas, particularly towns, roads and tracks.*

Characteristics of Mining

Alps mining was primarily for gold, and all types of historical mining methods and technologies are represented. The ACT section has no historic mining, and the NSW section is overwhelmingly dominated by alluvial gold mining in Kosciusko NP. The bulk of production is from the broader Kiandra area. The NSW Alps outside Kiandra are characterised by numerous small isolated mines and diggings. In Victoria, significant production comes from both alluvial & reef gold sources, with reef mining dominating. Alluvial fields are long and linear, following the river valleys, and the reefing areas are extensive. Mining in the Alps has left no special signatures on the sites, because the mining methods are universal, related to orebody & topography rather than altitude. The special character of Alpine mining is given in its context, the Alpine environment.

Cultural Heritage Significance

Many important historic mining places and landscapes of high cultural heritage significance are identified within the Alps National Parks. These include a number of places of State significance, and two of National significance (Kiandra mining landscape and Red Robin Mine).

Protection of Heritage Values

There are many gaps in our knowledge of the mining heritage places of the Australian Alps, and the level of site recording is poor in spite of long-standing recommendations in the relevant Park management plans. Protection of cultural values is a chartered obligation of all Park management bodies, but is difficult to undertake without good knowledge of the heritage assets.

While mining sites lend themselves to management as ruins, requiring little management intervention, there are nonetheless a number of important places with fragile fabric that may

benefit from some level of special care. It is recommended that these places be recorded and assessed as a priority.

Presentation of Sites & Landscapes

Few mining sites or landscapes within the Australian Alps National Parks are interpreted and available to the public, in spite of the importance of mining as a cultural influence and the abundance of places available. To redress this deficiency, a Presentation Strategy is proposed that links presentation of mining heritage with regional tourism programs, and provides for care & maintenance through adaptive use.

Stage 1 recommends presentation of six sites throughout the Alps National Parks. Three are in NSW – Kiandra goldfield, Three-Mile Creek Battery and Thredbo diggings. The three in Victoria are the Monarch & Brandy Creek mines, and the Jokers Flat diggings. These places are strategically located, and together strongly present the principal characteristics of mining in the Australian Alps.

All places are easily accessible and adjacent or close to major strategic roads through the Australian Alps. Their development would assist regional tourism, as incremental contributors to the inventory of regional tourism attractions, and by enhancing the visitor experience through a better understanding and appreciation of the cultural heritage of the Australian Alps.

The Presentation Strategy provides a model for development on an Alps-wide basis, assessing the best or most instructive places at a strategic level. Within any Park, Unit, Reserve or Historic Area in the Alps National Parks, there may be strong reason, incentive, support or policy for development of local cultural sites, and the proposals outlined in no way prevent or discourage unilateral action in heritage conservation or presentation.

Heritage Action Plan

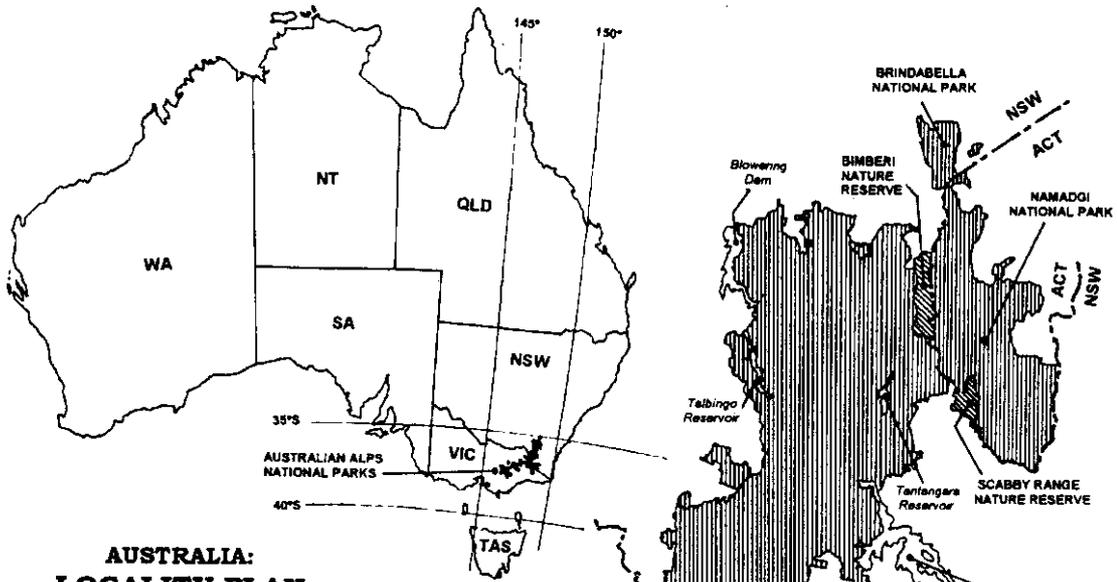
The report finishes with an Action Plan that summarises and prioritises the management and presentation recommendations on a unit-by-unit basis.

Appendices

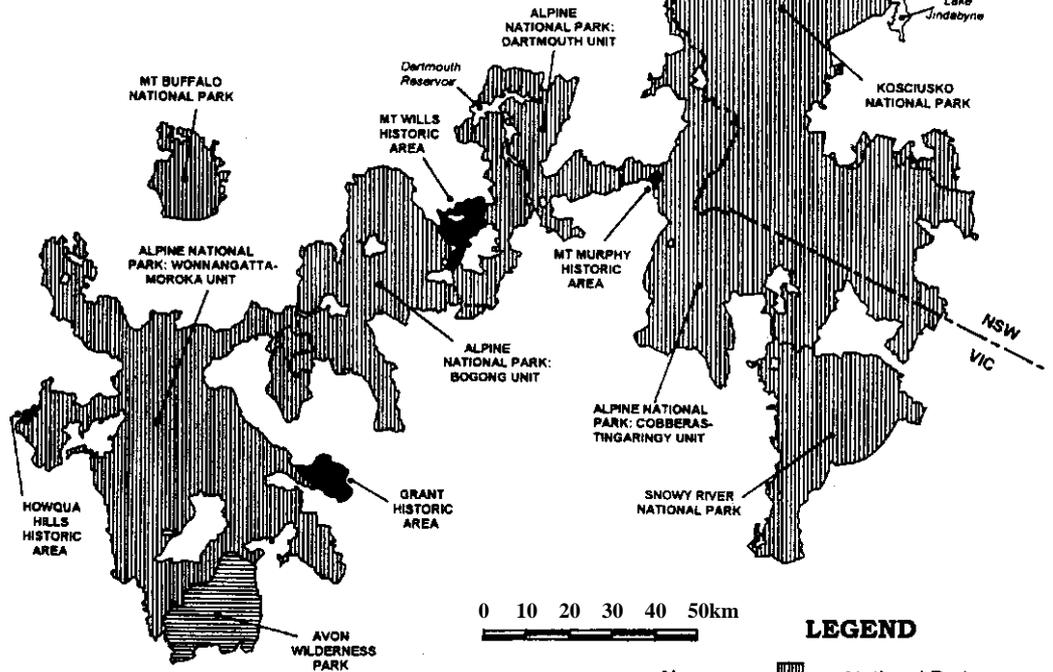
Eight sample Heritage Action Plans are included in the appendices, to provide guidance to the managers in both care and presentation of a variety of mining sites and landscapes. The appendices are extensive, providing a wide range of data and discussion.

Report files:

Alps Final Report.doc MS Word 97 file
Database attachments in MS Excel format



**AUSTRALIA:
LOCALITY PLAN**



**AUSTRALIAN ALPS
MINING HERITAGE
CONSERVATION &
PRESERVATION STRATEGY**

STUDY AREA



LEGEND

- National Park
- Nature Reserve
- Wilderness Park
- Historic Area
- Alpine NP Unit boundary
- State/Territory border

Revised Dec 2001, with park extensions

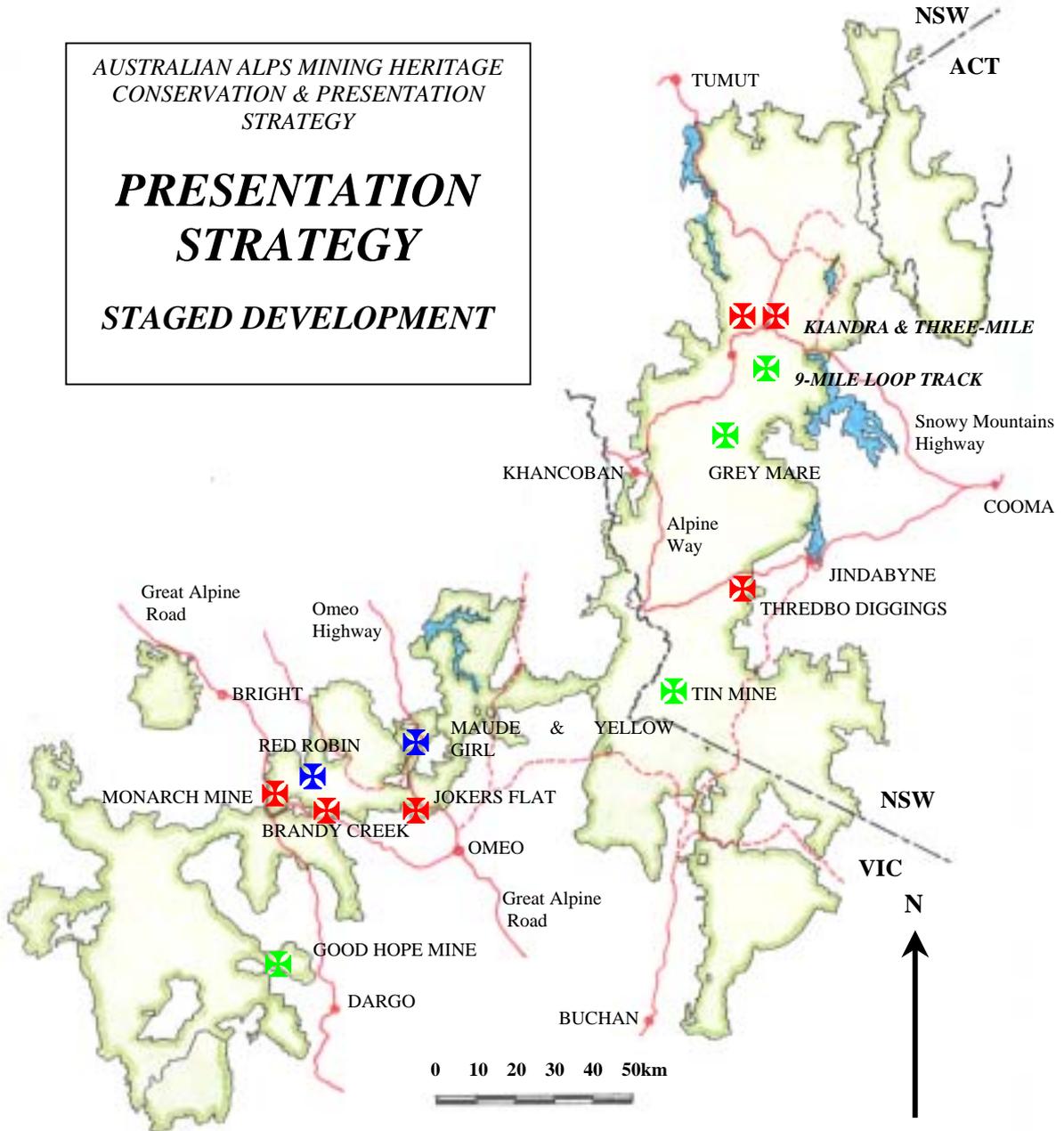
Boundaries based on *Australian Alps National Parks Touring Map*, AALC, 1999
 Drawn R Kaufman, LRGM - Services, May 2001

MAP 1

AUSTRALIAN ALPS MINING HERITAGE
CONSERVATION & PRESENTATION
STRATEGY

**PRESENTATION
STRATEGY**

STAGED DEVELOPMENT



STAGE 1

RECOMMENDATIONS



Monarch Mine, Vic
Brandy Creek Mine, Vic
Jokers Flat Diggings, Vic
Thredbo Diggings, NSW
Kiandra, NSW
3-Mile Creek Battery, NSW

STAGE 2

OPPORTUNITIES



Good Hope Mine, Vic
Tin Mine, NSW
Grey Mare Mine, NSW
9-Mile Diggings
Loop Track, NSW

STAGE 3

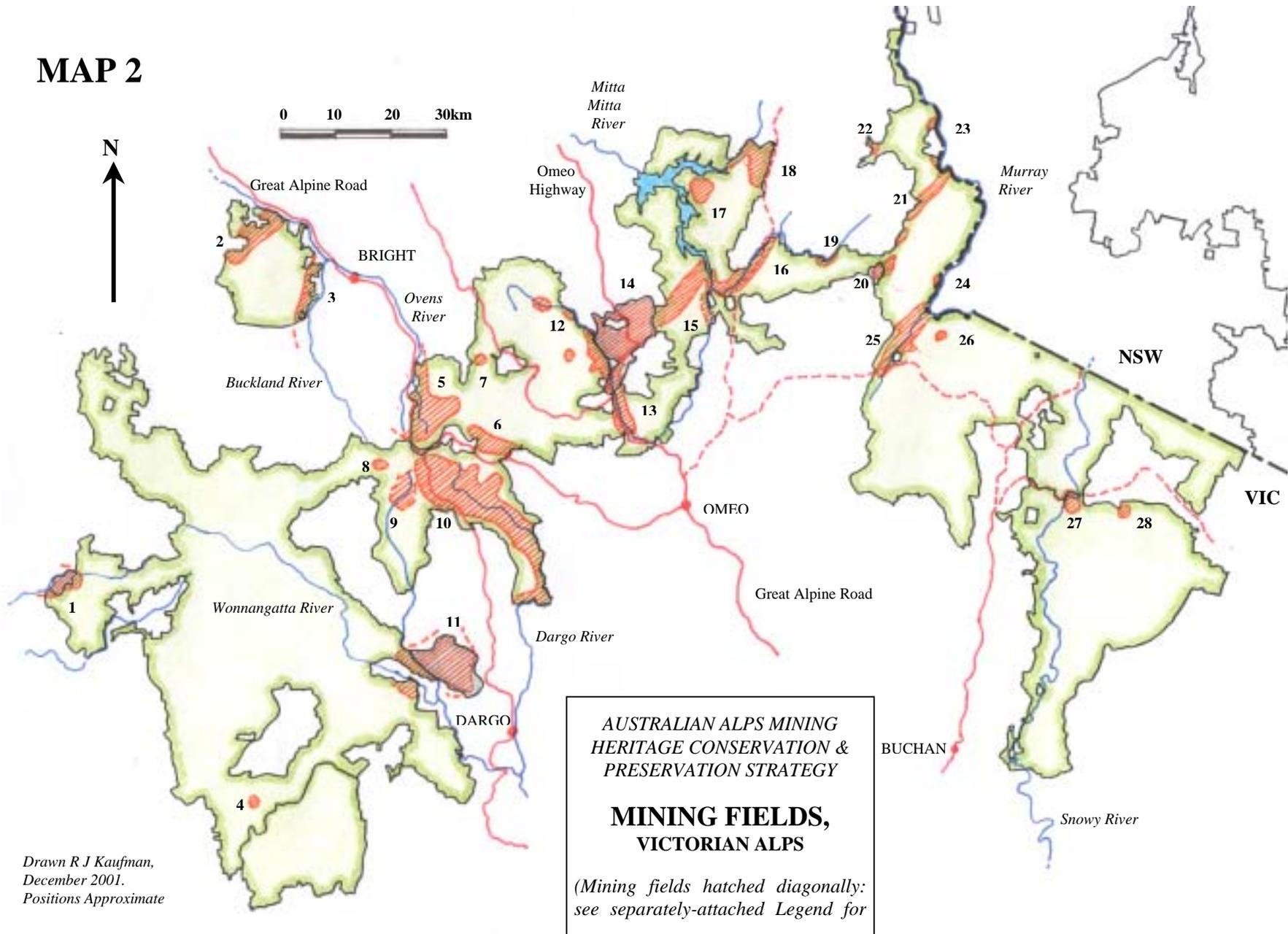
FUTURE PRESENTATIONS



Maude & Yellow Girl Mine, Vic
Red Robin Mine, Vic

Drawn R Kaufman, LRGM – Services, December 2001

MAP 2



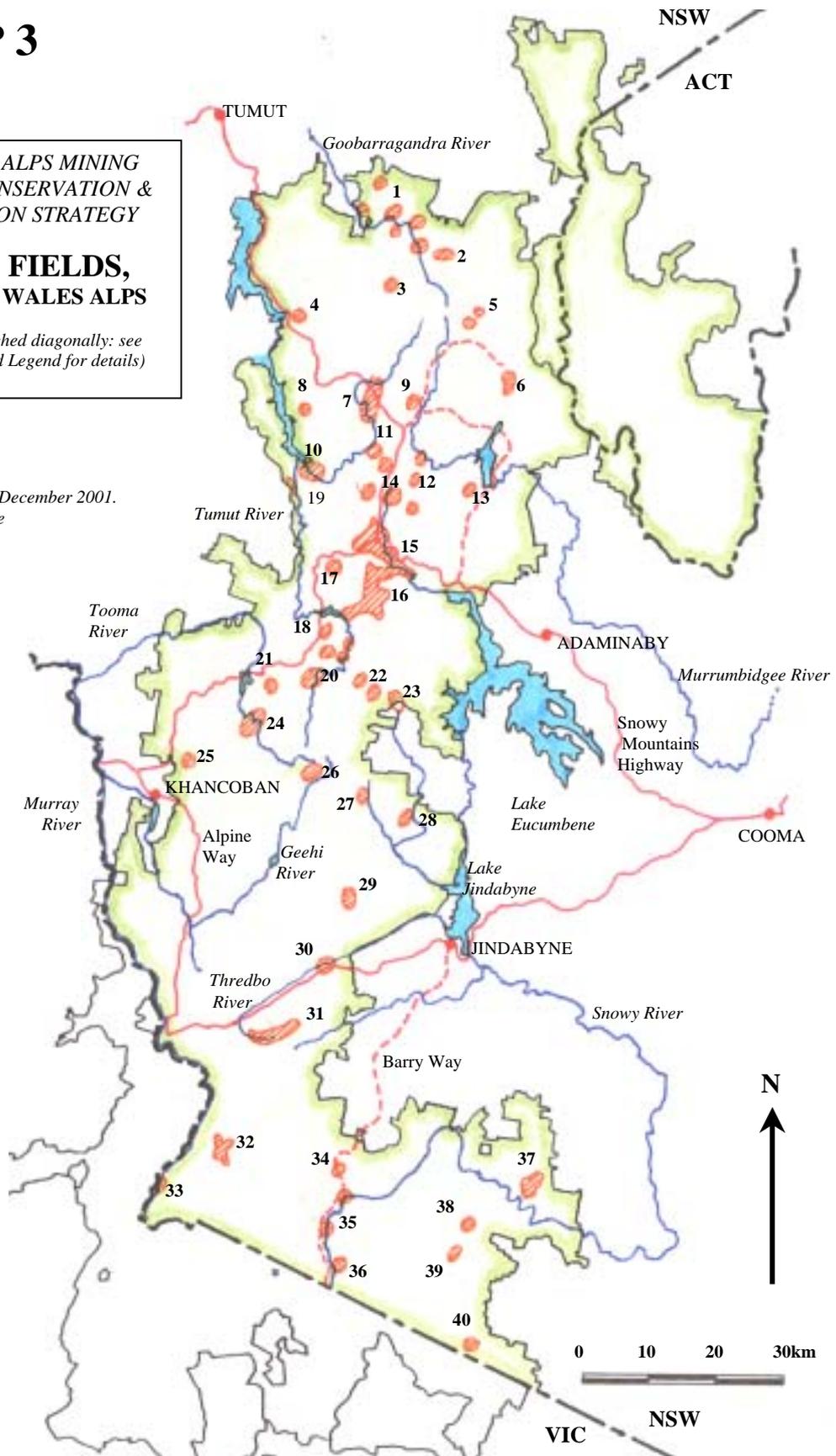
MAP 3

**AUSTRALIAN ALPS MINING
HERITAGE CONSERVATION &
PRESERVATION STRATEGY**

**MINING FIELDS,
NEW SOUTH WALES ALPS**

*(Mining fields hatched diagonally: see
separately-attached Legend for details)*

*Drawn R J Kaufman, December 2001.
Positions Approximate*



AUSTRALIAN ALPS MINING HERITAGE CONSERVATION & PRESENTATION STRATEGY

ATTACHMENT FOR MAPS 2 & 3

LEGEND:

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 Barry Range (reefing)
- 9 Wongungurra (position not known)
- 10 Upper Dargo Goldfield (inc high-level deep leads)
- 11 Grant – Crooked River goldfields
- 12 Upper Big River diggings (various)
- 13 Big River Goldfield
- 14 Mt Wills Goldfield (+ tin)
- 15 Wombat Creek Goldfield (+ silver/lead)
- 16 Gibbo River Goldfield (+ copper)
- 17 Greens & Larsens creeks goldfields
- 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 metals)
- 26 Cowombat Creek gold diggings
- 27 Mt Deddick silver/lead field
- 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 Jounama Creek (copper)
- 5 Peppercorn Hill gold diggings (2)
- 6 Cooleman Plains – copper, silver/lead
- 7 Yarrangobilly copper field (+ gold, silver/lead)
- 8 Lickhole 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 8-Mile Goldfield
- 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 Ck 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.

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Contents of complex appendices are given on each appendix title page....

ATTACHMENTS

Historic Mining Sites progress database (separately-bound)

1. INTRODUCTION

1.1 BACKGROUND

Mining has been identified as one of the important heritage themes within the Australian Alps national parks and adjoining historic areas. While there is considerable information available about the mining heritage, there has been no comparative assessment or co-ordinated management of historic sites across the parks & reserves.

The **purpose** of this project was to develop a consolidated understanding of the mining heritage of the Australian Alps, and recommend strategies for conserving and presenting a range of mining heritage places to the public. The report provides a framework and will be a guide for the on-going management of the historic mines and landscapes of the Australian Alps.

The project was funded by the Australian Alps Liaison Committee, and was managed by Parks Victoria. Project Manager was Ray Supple, Team Leader, Heritage Strategy, Parks Victoria. The Principal Consultant, Rob Kaufman, LRGM - Services, reported to a steering committee comprised of Ray Supple, Pam O'Brien (NSW National Parks & Wildlife Service) and David Foster (Parks Victoria).

1.2 PURPOSE

The project objectives were to:

- *Collate the available mining heritage information and identify gaps;*
- *Recommend a strategy for the conservation and management of the mining heritage of the Alps (to include Heritage Action Plans for a number of different sites as examples to guide conservation & management);*
- *Identify historic mining sites that might be suitable for presentation to the public;*
- *Identify opportunities to link the protection and interpretation of selected historic mining sites to regional tourism programs; and*
- *Recommend a staged and co-ordinated program for developing a representative set of historic mining sites for visitor use.*

1.3 LOCATION

The project study area includes all parks & reserves covered by the Australian Alps National Parks' Memorandum of Understanding, as well as four attached Historic Areas in Victoria. It covers an area of over 1.6 million hectares, stretching from Canberra and the Snowy Mountains of NSW, to the Victorian Alps, along the Great Dividing Range. The area is comprised of the following parks and reserves:

Australia Capital Territory:

Management body: ACT Parks & Conservation Service.

Namadgi National Park

New South Wales:

Management body: National Parks & Wildlife Service, NSW.

Bimberi Nature Reserve
Brindabella National Park
Kosciusko National Park
Scabby Range Nature Reserve

Victoria:

Management body: Parks Victoria

Alpine National Park
Avon Wilderness Park
Grant Historic Area
Howqua Hills Historic Area
Mount Buffalo National Park
Mt Murphy Historic Area
Mt Wills Historic Area
Snowy River National Park

1.4 ACKNOWLEDGEMENTS

The assistance of the following people is gratefully acknowledged:

- Ray Supple, Parks Victoria, Melbourne
- Pam O'Brien, National Parks & Wildlife Service, NSW
- Dave Foster, Parks Victoria, Mt Buffalo
- Janice Cawthorn, National Parks & Wildlife Service, NSW
- Andrew Swift, Bright, Victoria
- Ruth Lawrence, Latrobe University, Bendigo, Victoria
- David Bannear, Heritage Victoria, Bendigo
- Peter Jenkins, Parks Victoria, Bright
- Evan McDowell, Parks Victoria, Bright
- Danny Corcoran, NPWS, Jindabyne
- Russell Knutson, NPWS, Tumut
- Dave Pearce, NPWS, Tumut
- Jo Caldwell, NPWS, Tumut
- Rob Hunt, NPWS, Queanbeyan
- NPWS staff at Yarrangobilly Caves, Kosciusko NP
- Ronnie Beauchamp, Alpine Shire, Bright
- Nick Elliott & Anne Foster, Tourism Snowy Mountains Inc, Jindabyne

1.5 METHODOLOGY

The methodology has been relatively simple, and was designed to achieve the best possible results within the time-frame available.

The starting point was a review of secondary sources supplied to the project, followed by a review of a wide range of other secondary sources. The principal information gaps were defined, and an

examination of primary sources was instigated, including Mines Department records for both NSW & Vic. Comparative analysis data was also gathered.

Fieldwork was undertaken. In NSW, fieldwork was confined to Kosciusko National Park, and undertaken in mid-October by Rob Kaufman and Lorraine Thompson, LRGM - Services. The condition of tracks and the attending weather conditions severely limited access to remote sites, but sufficient sites were visited to develop a overall view of mining in the Park, and record major sites in the Kiandra district and several other areas. In Victoria, several key mining sites/areas were visited and recorded, with additional assistance from Andrew Swift, Bright, Vic.

The project was done in four stages according to the Project Brief, each separately presented for comment. These individual reports were edited and re-organised for the final report.

The general format of a Conservation Management Plan was used to prepare the final report. That is, sufficient histories and descriptions were generated, along with comparative data, to assess significance. This was then used to formulate general policies and guidelines for conservation and management of mining heritage. The report finishes with specific actions for presentation of selected historic mines & landscapes, and detailed recommendations for mining heritage management on a unit-by-unit basis.

Extensive appendices follow, and a separate database has been included with the final report. Historical data generated during the project has been collated on a unit-by-unit basis, and is presented in a series of binders as resources for local management use.

2. ANALYSIS OF THE AUSTRALIAN ALPS – COMPONENT PARTS & SETTINGS

2.1 INTRODUCTION TO ALPINE MINING

2.1.1 UNIQUE ALPINE MINING CHARACTERISTICS

Mining in the highest parts of the Australian Alps offers mining landscapes that exist nowhere else in Australia, in their presentation of the particular conditions under which mining was carried out.

However, there are no uniquely-Alpine mining characteristics within the study area, and all the mining types, techniques and technologies are well-represented outside the study area. Similarly, there are no uniquely-Alpine orebodies, that may otherwise have produced unique signatures in the historic mining sites of the area¹.

Generally, the influence of the Australian Alpine environment on mining has been to seasonally restrict it, rather than modify it. In this sense it is different to, say, Alpine architecture, which may adapt its form to favour high-pitched roofs, halved doorways or elevated entries for snowdrift conditions, etc.

2.1.2 MINING ABOVE THE SNOWLINE

The amount of mining undertaken in high altitude areas in Australia (subject to snow-cover in winter) is limited, as would be expected with the small area of landmass involved². Alpine areas are confined to the south-east portion of the continent, and Tasmania.

A cursory survey of Tasmanian mining fields did not reveal any mining in the higher parts of the Tasmanian Alps, although mining in mountainous areas to the west was often carried out in harsh conditions³. No mining fields appear to be present in the higher areas of the Cradle Mountain - Lake St Clair National Park. To the east, extensive tin mining was carried in the Ben Lomond region, where the Ben Lomond Plateau lies at about 1300m, with peaks rising to 1527m at Stacks Bluff (formerly Ben Lomond)⁴. It has not been established whether any mining on the primary lodes occurred at altitude in this area.

In the study area, the mines/fields above the snowline are generally at altitudes of at least 1400m, and range to heights in excess of 1700m. The principal fields found are:

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

¹ Cf Clutha field in New Zealand, where auriferous lateral & terminal moraines (glacial deposits) have been mined.

² 2% of continent above 1000m, 0.3% with Alpine environment - J Lennon, "The International Significance of the Cultural Values of the Australian Alps", 1999 (AALC).

³ "A History of Goldmining on the Tasmanian West Coast", H Julen, 1981.

⁴ Information from "Tasmanian Minerals Industry", Tasmanian Minerals Council, web-published 2000. No mention of historic mining was found in national park information available at Tasmania's Parks & Wildlife Service web-pages.

Some of the very highest mining sites at Mt Wills and Mt Hotham are outside the study area (in Sunnyside Education Area & Mt Hotham Alpine Resort respectively). Many other fields at lower altitudes receive regular winter snow, but not winter snow cover. Yet other fields within the study area are situated in deep valleys of relatively low altitude, and have milder climates.

The highest altitude mine workings located within the study area to date are those of the Government Grant Extended, which cross the Razorback Spur in the Alpine NP, Bogong Unit, at an altitude of just over 1700m. However, unlocated minor workings at Mt Jagungal (Big Bogong) in Kosciusko NP may be at an elevation in the vicinity of 1800m.

Outside the study area, gold workings (reef mining) existed at an altitude of about 1750m, at Mt Hotham, Vic (now in Mt Hotham Alpine Resort).

2.1.3 MOUNTAIN GOLDFIELDS

The mining fields of the Parks are generally typical of mountain goldfields, and the heritage features we see reflect this. Few major mining fields within the Alps National Parks occur in the high, above-snowline tablelands of the Alps, with the notable exception of Kiandra.

The mountain areas of southern New South Wales and eastern Victoria have produced enormous quantities of gold and minerals. On the Victorian side, the mountain goldfields are numerous and important, and in many cases the study area includes the upper portion of these significant goldfields. For example, the portions of the Upper Ovens Goldfield that extend into the Alpine & Mt Buffalo National Parks would be responsible for about 5% (100,000 ounces) of the estimated 2 million ounce production.

The Walhalla-Woods Point belt, in high country straddling the main divide and outside the study area, has four mines with individual production in excess of 400,000 ounces of gold. One of these, the Long Tunnel, has gold production in excess of a million ounces. The Beechworth Goldfield, in foothill country to the north and with a production in the vicinity of four million ounces, is also outside the study area. Similarly, economically important reefing and alluvial fields in the Omeo/Cassilis/Tambo Valley are not included.

On the New South Wales side, Kiandra is the only major mining field that is fully contained within the Australian Alps reserve system. The remainder of the NSW section is characterised by a large number of small, isolated occurrences of gold and base metals. Surrounding the Parks and Reserves are major goldfields such as Tumut/Adelong and Tumbarumba to the west, and Braidwood, Araluen and the Shoalhaven River to the east. The region also includes some important metal mines, most notably at Captain's Flat (Lake George).

2.1.4 CHARACTERISTICS OF MINING

Gold overwhelmingly dominates mineral production in the Australian Alps, and any examination of regional mining characteristics is essentially an examination of gold mining characteristics. The characteristics have been determined by:

- The types of orebody (quartz reef, buried lead, surface alluvial etc);
- The scale of the orebodies (volume, thickness etc);
- The nature of the orebodies (refractory ore, surface enrichment etc);
- The topography (hilly, flat etc);
- Availability of water.

2.1.5 CHARACTERISTICS BY REGION

(Detailed discussion on regional characteristics is included in parts F & G of Appendix 9)

There are clear regional differences within the study area, and these are tabulated below, in summary.

NORTHERN HALF, KOSCIUSKO NP	SOUTHERN HALF, KOSCIUSKO NP	COBBERAS-TINGARINGY & WONNANGATTA-MOROKA UNITS, ALPINE NP	DARTMOUTH & BOGONG UNITS, ALPINE NP AND ATTACHED HISTORIC AREAS
Mining is a strong theme	Mining theme not as strongly developed as northern half, KNP	Mining is not a strong theme	Mining is a strong theme
Alluvial gold mining, of various types, dominates	Alluvial gold mining, of various types, dominates	Few gold workings - some base metals mining in far east	Alluvial and reef gold mining
Alluvial diggings are limited in extent	Alluvial diggings are limited in extent	-	Alluvial diggings are linear, and extend for considerable distances along rivers
Most productive alluvial diggings are at high altitude, consistent with position of remnant basalt-covered leads	Most productive alluvial diggings are at high altitude	-	Most productive alluvial diggings are at lower altitudes, in the base of deep river valleys
Quartz mining poorly developed, with no production of consequence	Quartz mining poorly developed, with only one mine of consequence	Quartz mining poorly developed	Quartz mining strongly developed, with large numbers of productive mines
Quartz mines isolated	Quartz mines isolated	-	Large, productive quartz mining fields
Only basic quartz mining technology represented	Only basic quartz mining technology represented	-	Sophisticated quartz mining technology represented, including cyanidation, chlorination, roasting furnaces, large mills, assay works etc
Early mining settlements/camps collapsed after rapid exhaustion of rich surface alluvial deposits	Few early mining settlements/camps - those that existed collapsed after exhaustion of alluvials	Characterised by ephemeral government-sponsored prospecting camps in east	Many early mining settlements/camps survived for decades as focus switched from alluvial to reef gold
Mining track networks complex, lightly-imposed and ephemeral, relating to widely-distributed, small, short-lived alluvial diggings	Mining track networks complex, lightly-imposed and ephemeral, relating to widely-distributed, small, short-lived alluvial diggings	Principal mining track networks relate to government-sponsored track cutting to stimulate prospecting in remote areas	Mining track networks substantial and ingrained, relating to on-going materials supply to quartz mining townships & areas, and government-stimulated prospecting in remote areas
The large bulk of gold production occurred in the 1860's, with only minor yields (often from part-time work & fossicking) since	The majority of gold production occurred in the 1860's (Crackenback, Snowy Plain etc) with only minor yields (often from part-time work & fossicking) since. Toolong & Bogong diggings were the only post-1860's finds of any consequence	-	Significant commercial production occurred from the 1850's to the mid-twentieth century

2.1.6 ALPINE MINING ADAPTATIONS

(Detailed discussion on adaptations is included in part D of Appendix 9)

World-wide, the development of thawing techniques for the mining of frozen gravels was probably the only new technology developed for high altitude/latitude mining. Even this was followed by conventional mining. All other adaptations were minor environmental responses that represented alterations necessary to make existing mining and mineral processing technologies work.

Seasonal work variations are not confined to the Alps. In some early diggings on the drier central Victorian goldfields, mining and stockpiling ('dry-stacking') was often carried out over summer, with processing undertaken with the arrival of winter rains. Similar operations were undertaken at remote, arid NSW goldfields such as Mt Browne and Tibooburra. The dry northern Australian goldfields could show the corollary, with processing awaiting the arrival of the summer "wet"⁵.

Summer-only mining in Alpine conditions cannot be regarded as an Alpine adaptation. Rather, this indicates that the mine operators were unwilling or unable (for economic reasons etc) to adapt their operations to the Alpine environment.

Also open to question is the degree to which winter snowfall and cold conditions did in fact restrict mining in the higher parts of the Australian Alps. At Kiandra, the largest high altitude field, up to 2000 people over-wintered in 1860, and this is probably a fairly accurate reflection of the state of depletion of the resources. That is, those miners who were on gold stayed to work as best they could, while the prospectors and unsuccessful diggers moved out. This pattern repeated itself the next year on a smaller scale. Certainly the historical record contains many examples of larger, later mines closing down over winter (eg Red Robin & Brandy Creek, Alpine NP), but there are many that record the trials of struggling through winter (including, strangely, the Red Robin & Brandy Creek). Significantly, winter closing does not appear to be mentioned at the Mt Wills field.

For the later generation of grazier/miners in Kosciusko NP for example, there is no doubt that advantage was taken of milder summer conditions to mix mining with summer grazing.

The development of Alpine adaptations in Australia and New Zealand could be expected to be limited, compared to the high cordilleras of the USA, or the sub-Arctic fastnesses of Siberia, Alaska and Canada. This is because of the combination of two factors:

- The relatively small-scale of the mineral resources involved (in many cases suiting operation by individuals), and
- The small size of the Australian and New Zealand Alps, which meant that more temperate lowland areas were generally accessible within a day or two's ride.

In the other places, access to the mining areas could involve incredible hardship on journeys of hundreds of kilometres, lasting several months. Under these conditions, summer-only mining was not an option, and miners were forced to adapt to the conditions⁶. Of course, the immense value of some of the resources discovered guaranteed that economic imperatives would dictate the operations of the relevant mines, regardless of the harsh environments.

In general, Alpine adaptations will not interpret well in the historic fabric, unless the site is exceptionally well-preserved, with remnant plant, equipment and infrastructure. For the overwhelming bulk of historic mining sites in the Australian Alps, a distinctive Alpine character will be demonstrated in their context, not their fabric.

⁵ Refer "Prospecting for Gold", I Idriess 1931, Chapter XI, "Dry-Stacking".

⁶ Refer "Klondike, The Last Great Gold Rush 1896-1899", P Berton 1972, for excellent descriptions of the hardships of travel into the Klondike field.

2.2 BRIEF HISTORY

(Global & Australian context histories are included in Appendix 10)

2.2.1 SUMMARY HISTORY

Prelude

There were three important precursors to mining in the Australian Alps. The first of these was the sparse European settlement established in lands in and adjoining the Alps. Graziers occupied land around the Australian Alps from the early 1820's in NSW, and it was their quest for good grazing lands that brought settlement in the mid-1830's to the Omeo area, geographically central to the Victorian Alps. The thin European presence brought progressive exploration of the high country, and gradually the wildernesses were penetrated.

The second important precursor was the discovery of payable gold in NSW in 1851, that started the first gold rushes, and the subsequent Victorian discoveries that triggered the global rushes. These demonstrated that the continent (or at least NSW and the newly-created colony of Victoria), could produce unheard-of wealth from the ground, and the rate of new & widespread discoveries in itself demonstrated that this wealth was not localised, but could occur anywhere.

The third important precursor was the discovery of major goldfields adjacent to the Alps, that drew large numbers of miners and prospectors to the foot of the Alps. In Victoria, the key discoveries were Beechworth in 1852, where thousands of miners rushed to north-east Victoria, and Omeo in 1851. In NSW, the key discoveries were to the west, at Tumbarumba in 1855, and Adelong in 1857 - these followed earlier discoveries in the coastal ranges to the east, Araluen and Braidwood in 1851.

Gold & Other Metals

The diggers who were attracted to Beechworth, in north-east Victoria, wasted no time in prospecting the surrounding country. Yackandandah was quickly opened, and a party of prospectors led by the American, Pardoe, prospected up the Ovens River to its source in the Alps, in 1853. They then followed the Buckland River downstream, until they found rich gold, and the ensuing rush attracted six to eight thousand miners. While the earliest, richest diggings were upstream of the boundary of the present Mt Buffalo National Park, it is possible that the first diggings within the study area were undertaken here on the Buckland River, because all available ground was taken up for many miles along the valley floor.

The spillover of late-comers to the Buckland spread along the upper Ovens River, establishing Bright (Morses Creek) by the end of 1853, and reaching Harrietville, at the junction of the East and West branches of the Ovens, by 1854. The small number of miners worked both branches at this period, and this is the first digging definitely attributable to the study area.

On the Omeo side, the early 1851 diggings that had been abandoned were revitalised in 1854, and prospectors moved out to open up a series of rich alluvial goldfields, the first of these within the study area being the Gibbo River in about 1855. Miners from Omeo opened the Cobungra diggings in 1857, and gold was quickly traced to the headwaters, now within the Alpine NP. Miners moving up from the Upper Ovens crossed over Mt Hotham, and the first gold diggings in the Upper Dargo were opened in about 1858.

In NSW, the Rev W B Clarke had explored the Snowy Mountains area in 1851-52 and reported traces of gold from various localities, but his valuable work appears to have been little-used. In 1859 the Pollock brothers, accustomed to bringing sheep to the high country for summer grazing, and undertaking a little prospecting themselves, discovered the rich gold deposits of Kiandra. They reported their find in the established gold mining town of Tumbarumba, and the greatest rush the Alps

has seen began. Estimates of the numbers involved in early 1860 varies from five to fifteen thousand, but is commonly reckoned at ten thousand. Adjacent diggings in Victoria and NSW were rapidly depleted, as phenomenal yields were gained from the early surface workings. Nuggets of up to 400 ounce-weight were found, and fortunes were won from small claims. Miners from north-east Victoria joined the throng, but the advent of winter severely reduced numbers. Government officials saw Kiandra as a possible saviour in solving an economic crisis, and drawing populations away from the Victorian goldfields, thus ending their dominance. They drew up plans for coping with an unprecedented rush after the winter, computing that there would be about 150,000 men in the area. The rush never occurred - the gold-bearing areas were limited, the richest patches were quickly worked out, and the discovery of gold at Lambing Flat to the north drew diggers away.

However, the events of 1860 continued to have an effect on the Snowy Mountains. Many other gold-bearing deposits were opened up in the district, most of them, like Kiandra, confined to outwash areas of tertiary gravels (deep leads under basalt). Further away south, fields were opened up on the Crackenback (Thredbo) River and the upper Mowamba, attracted small rushes. Prospecting continued over a long period of time. The New Maragle field was opened in 1874, Toolong in 1887, and Bogong Lead in 1894. Toolong attracted 250 miners in 1895. To the south, diggings near Mt Pilot yield gold and tin in 1875.

Interest was shown in metals other than gold. A copper lode was worked in 1874 at Lobb's Hole, an old resting place on the road from Tumut to the Kiandra diggings. This was the first base metal mine to operate within the study area. This area reached its peak in the first decade of the 1900's, but had folded by 1920. Other copper and silver/lead lodes were opened at Yarrangobilly and Yarrangobilly Caves, and in 1889, silver/lead and copper lodes were discovered at Coleman Plains.

In Victoria, the osmosis away from Omeo opened other goldfields within the study area - Wombat Creek in 1861, Dart River in 1874, Greens Creek in 1881, Mt Wills in 1888, and Limestone Creek by the late 1890's. Discoveries were assisted by government-sponsored prospecting parties based in Omeo.

In the Dargo area, the Crooked River diggings were opened in 1860, and discoveries continued on streams to the north, up onto the Dargo High Plains, and into the Upper Dargo, which was rushed in 1863. Closer to Crooked River, rich reefs were discovered during government track-cutting in 1864, and caused a short rush to the field.

As in NSW, attention in Victoria also turned to other metals. Mt Wills was opened as a tinfield in 1888, but its life was short, and the gold-bearing reefs were its mainstay from 1891. In 1890, a wolfram lode was discovered at Mt Murphy, and the Mt Deddick silver/lead field started with a rush in 1896. Several base-metal lodes were opened in the early 1900's on Limestone Creek, but proved disappointing.

The Decline

The heydays of most of the mountain goldfields was short, though none matched the spectacular rise and decline of Kiandra. Many towns that were hastily built on new fields such as the Crooked River and Upper Dargo crumbled with the exhaustion of the alluvial deposits, and the failure of the reefs to deliver their early promise. Efforts by the Victorian Mines Department to stimulate mining in the late 1890's were largely unsuccessful. Bucket dredging was introduced in the early 1900's. It was successful in many goldfields surrounding the Alps, but its use and success were limited within the study area.

By 1920, mining had virtually ceased on all fields, with the notable exception of Mount Wills, and to a lesser degree the East Branch of the Ovens River. This reflected the general state of mining in the country, which had been affected by manpower shortages during World War I, and post-war materials

shortages & rising costs. However, it would be fair to say that in the Australian Alps, it was more than anything due to the depletion of the mineral resources.

Gold price rises in the 1930's stimulated a resurgence in small-scale mining activity on most fields, but there were no new finds of any significance. In 1941 the last major find in the Alps, the Red Robin Reef near Mt Hotham, was announced, and a rush followed that saw most of the surrounding high country pegged out. The first crushings from the reef yielded over 100 ounces to the ton of ore. But no other finds surfaced.

The 1950's, with stagnant gold prices and rising costs, saw the end of the largest gold producing mine in the study area, the Maude & Yellow Girl at Mt Wills, and effectively ended larger scale mining in the Alps.

The chain of Alps reserves essentially completed in 1989 with the declaration of the Alpine National Park in Victoria has ended mining in the Australian Alps, with the exception of the Red Robin, which has been permitted to continue its operations.

2.2.2 CHRONOLOGY OF DISCOVERY

TIMELINE:

- c5000 BP Possibly first consistent occupation of the valleys of the high country by aborigines.*
- 1821 First European observation of Snowy Mountains, by Joseph Wild.*
- 1821 Pendergast family settle near Jindabyne.*
- 1834 John Bowman discovers Yarrangobilly Caves.*
- 1835 KcKillop & party find good grazing land at Omeo.*
- 1835-6 McFarlane & Pendergasts settle at Omeo.*
- 1837 Upper Ovens valley settled by graziers.*
- 1839-41 McMillan crosses Alps to Gippsland.*
- 1840 Strzelecki ascends Mt Kosciusko.*
- 1846-47 Deputy Surveyor General Townsend begins mapping Snowy Mts.*
- 1851 (Wells & Brown cut trail over Mt Hotham)*
- 1851-2** Geological survey of mountains by Rev Clarke, who notes gold at many places, including near Jindabyne & Round Mountain (NSW), and Omeo & Gibbo River (Vic).
- 1851 Gold discovered at Omeo, and a few small diggings opened.*
- 1851 Gold discovered at Braidwood & Araluen.*
- 1852 Rich gold found at Beechworth, and large numbers of miners move into north-east Victoria.*
- 1852** Crown Lands Commissioner Smythe attempts to find route from the Ovens valley to Omeo, but is turned back by snow.
- 1853** Gold discovered in Buckland valley, with rush of 6000-8000 miners. Possible mining within study area.
- 1853 Miners from Buckland valley move into upper Ovens valley.*
- 1854 Miners regularly traversing high country between Ovens valley & Omeo.*

- 1854** Harrietville gold diggings begin, and first mining occurs definitely attributable to study area.
- c1855** Gibbo River gold diggings begin.
- 1855 *Gold discovered at Tumbarumba.*
- 1857 *Gold discovered at Adelong.*
- 1857** Cobungra River gold diggings begin, leading to the headwaters.
- c1858** Gold found and worked in Upper Dargo River.
- 1859** Gold found at Kiandra by Pollock brothers.
- 1860** Great Kiandra rush - about 10,000 diggers.
- 1860** Gold found in Crooked River, leading to a rush.
- 1860's** Crackenback goldfields opened up.
- 1860** Gold found and worked in Big River.
- 1861** Wombat Creek goldfield opened.
- 1861 *First recreational skiing at Kiandra recorded.*
- 1862** Gold discovered and worked at Mt Fainter.
- 1863** Upper Dargo rushed.
- 1864** Grant/Crooked River reefing field discovered.
- 1866** Howqua River goldfield discovered and rushed.
- Late 1860's** Buffalo Creek reefing field opened.
- 1868** Gold diggings started on upper Murray River.
- 1874** Copper lode at Lobb's Hole opened - first base metal mining in study area.
- 1874** Dart River alluvial goldfield opened.
- 1874** New Maragle goldfield opened.
- 1875** Stream tin discovered at Mt Pilot.
- 1881** Greens Creek reefing field opened.
- 1887** Toolong goldfield discovered.
- 1888** Mt Will tinfield discovered and mined
- 1889** Silver/lead deposits discovered on Cooleman Plains.
- 1890** Mt Murphy wolfram deposit discovered.
- 1891** Quartz mining begins on Mt Wills.
- 1894** Bogong lead discovered and worked.
- 1890's** Limestone Creek and other Upper Murray diggings opened.
- 1896** Mt Deddick silver/lead field opened.
- 1897 *First winter ascent of Mt Kosciusko.*
- 1897** Gold found at Everard Flat, Khancoban Creek.
- 1898 *Mt Buffalo National Park declared.*
- 1906 *Snowy Mountains National Chase declared.*
- 1941** Red Robin Reef discovered, triggering last gold rush to high country.

- 1944 *Kosciusko State Park Act proclaimed.*
- 1960's *Rapid development of NSW & Vic ski resorts.*
- 1979 *Series of National Parks declared in Victoria's high country.*
- 1989 *Alpine National Park declared.*
- 2001** Red Robin Mine the only operating mine in the study area.

2.2.3 PHASES OF MINING

The development of mining fields throughout Australia can be broken down into distinct phases, which characterised mining on the fields at a particular period. Most major Victorian Alps goldfields underwent the transition from alluvial to quartz mining, with various degrees of success. Outside this, mining phases are poorly developed in the Alps, although many fields show operations were reflective of phases that were well-developed in major goldfields adjacent to the Parks.

At Grant, the reef mining was generally too early and short-lived to benefit from new, later technologies and changing company & finance structures. Mt Wills was too late to see many of the changes wrought to reef mining from 1860-1890. It had a capitalised, company-base from its inception. Mining in the East Branch, Ovens River, was always varied, and while it saw the early company formation, later English capital, the introduction of cyanidation and the advent of bucket dredging, none of these ever 'characterised' mining in the basin. At Kiandra, the first few years saw most of the production, and alluvial mining always dominated. It saw the introduction of large-scale hydraulic sluicing in the 1880's, and bucket dredging in the 1900's, but the level of activity & production was so low that it is difficult to assign 'phases'.

Further discussion is given in part A of **Appendix 9**.

3. PHYSICAL EVIDENCE

3.1 MINING FIELDS OF THE ALPS NATIONAL PARKS

The table below provides a very brief outline of mining fields/occurrences within the study area. **A more comprehensive outline of all known mining fields/occurrences within the study area is supplied in part A of Appendix 8.**

PARK/UNIT	FIELD/AREA	METAL
Bogong Unit, Alpine National Park	Big River, Cobungra River, East Branch Ovens River, Fainter, Hotham Heights, Middle Creek, Mt Feathertop, Upper Big River, Upper Dargo, White Horse Creek, Wongungurra River	Gold
Cobberas-Tingaringy Unit, Alpine National Park	Buckwong Creek, Buemba Flat, Cowambat Creek, Delicknora Creek, Limestone Creek, Murray River, Shady Creek, Tom Groggin	Gold & base metals
Dartmouth Unit, Alpine National Park	Big River, Buemba Flat, Dane's Creek, Dart River, Gibbo River, Green's Creek, Larsen's Creek, Mitta Mitta River, Wombat Creek	Gold & base metals
Wonnangatta Unit, Alpine National Park	Barry Range, Crooked River, Dolodrook Creek, Howqua, Jamieson River, Moroka River, Wonnongatta River	Gold (chromium at Dolodrook Creek)
Avon Wilderness Park	-	-
Bimberi Nature Reserve	Mt Franklin	Gold
Brindabella National Park	-	-
Grant Historic Area	Crooked River, Grant	Gold
Howqua Hills Historic Area	Howqua	Gold
Kosciusko National Park	Goobarragandra River, Goodradigbee River, Jounama Creek, Cooleman Plains, Lickhole Creek, Yarrangobilly, Yorkies, Lobbs Hole, Upper Murrumbidgee, Kiandra, New Maragle, Upper Tumut River, Adaminaby, Mulligan's Creek, Bolton's Hill, Crook's Racecourse, McGregor's Creek, Big Bogong, Toolong, Bogong Lead, Everard's Flat, Gungarlin River, Piper's Creek, Thredbo/Snowy River junction, (Mt Kosciusko), Little Thredbo, Upper Mowamba, Crackenback, Murray River, Mt Pilot, Southern Snowy River, Delegate area	Gold & base metals
Mt Buffalo National Park	Back Creek, Buckland Valley, Buffalo Creek, Eurobin Creek, Ovens River	Gold
Mt Murphy Historic Area	Mt Murphy, upper Buckwong Creek	Wolfram, gold
Mt Wills Historic Area	Mt Wills	Gold, tin
Namadgi National Park	-	-
Scabby Range Nature Reserve	-	-
Snowy River National Park	Mt Deddick, Accommodation Creek, Snowy River	Base metals

3.2 TYPES OF MINING

Mining of a number of different types, and utilising a number of different technologies, was undertaken within the Australian Alps. The following table outlines the types of deposits in the Alps, the mining methods used, and some typical heritage features generated, as well as representative examples. Detailed analysis is included in part E of **Appendix 9**.

DEPOSIT	METHODS	HERITAGE FEATURES	EXAMPLES
Gold: Quartz reef (steep topography)	Adits (horizontal tunnels).	Sites horizontally layered as working depth increases – line of adits & mullock dumps downhill; trenching/ stopes at outcrop.	Red Robin Mine, Alpine NP; Good Hope Mine, Grant HA
Gold: Quartz reef (flat topography)	Shafts	Shafts & mullock dumps; trenches along outcrop	Reefs near 3-mile Creek, Kosciusko NP
Gold: Quartz reef – treatment plants	Stamp batteries used for crushing; gold recovered with mercury-coated copper plates. Later recovery technologies included chlorination & cyanidation	Relic batteries or machinery foundations; water races; waterwheel pits; relic steam plant; furnace remnants; benched platforms & hut sites	Monarch Mine, Alpine NP; Lorna Doone and Grey Mare Mines, Kosciusko NP; Maude & Yellow Girl Mine, Mt Wills HA
Gold: Recent alluvial deposits	Surfacing & shallow sinking;	Close-spaced shallow shafts & small mullock dumps; low remnant earth banks & shallow cuttings; shingle heaps & spreads.	Yorkies Diggings, Kosciusko NP
	Ground sluicing;	Low-high remnant earth faces; complex tail races; stacked shingle; complex low-level water races.	Joker's Flat diggings, Alpine NP
	Hydraulic sluicing;	High remnant earth faces; substantial tail races; strips of stacked shingle; substantial high-level water races.	Buffalo Hydraulic Co's Workings, Mt Buffalo NP
	Bucket dredging	Remnant dredge ponds; hummocked, rocky tailings; cable	Buckland River, Mt Buffalo NP
Gold: Deep lead deposits	Hydraulic sluicing;	High remnant earth faces; substantial tail races; strips of stacked shingle; substantial high-level water races.	Empress Mine, Kosciusko NP
	Tunnelling.	Tunnel entrances into wash; mullock heaps; downhill shingle spread.	Morris's workings, Boiler Plain, Alpine NP

DEPOSIT	METHODS	HERITAGE FEATURES	EXAMPLES
Gold: Stranded leads	Sluicing/hydraulic sluicing	Long open-ended excavations high on hillsides; downhill shingle spreads; long high-level water races.	New Zealand Hydraulic Co's workings, Alpine NP
Base metals: primary lode	Shaft or tunnel mining, depending on topography; treatment by crushing followed by gravity concentration process; smelting rarely undertaken at small mines	Mining features as for gold-bearing quartz reefs; treatment plants rare at small mines of the Alps - furnace, battery & concentration machinery remnants are known.	Lobbs Hole Copper Mine, Kosciusko NP; Accommodation Creek Copper Mine, Snowy River NP; Mt Murphy Wolfram Mine, Mt Murphy HA
Tin: alluvial	Sluicing/hydraulic sluicing.	Features as for alluvial gold.	Tin Mine Creek, Kosciusko NP

3.3 ASSOCIATED MINING INFRASTRUCTURE

(Refer detailed analysis, part C of Appendix 9)

The imprint of mining in the Alps goes beyond the actual mining sites themselves. Infrastructure associated with mining includes roads & tracks, towns & settlements, other occupation sites (including huts), roadside supply stations, hospices & shanties, lonely graves, water reticulation systems, etc.

While Kiandra, with an estimated peak population of 10,000 people, and Grant, with an estimated peak of 500 people, were two of the better-known townships, many others existed. Most of the New South Wales Alps townships were associated with the Kiandra rush, and many were short-lived. In Victoria, the towns that sprang up in the wilderness in the early alluvial rushes often survived for extended periods, with the conversion to reef mining. Towns commonly included stores, hotels, churches, post offices, and sometimes schools.

By the very nature of our Parks system, embracing Crown Land, only failed townships can be included in this study. In Australia, there are not yet any integrated cultural heritage management systems available to encompass the significant relationships that extend beyond the Crown Land boundaries. In the Alps, the mining fields frequently have strong relationships that extend to townships beyond the Park boundaries. Two obvious examples are Little Thredbo diggings & Jindabyne, and East Branch, Ovens River & Harrietville.

Mining tracks are abundant and important, and many of today's roads and Park management tracks follow the routes of the miners. Most of the mining tracks in Kosciusko NP were laid down in the early years of mining. In Victoria, where major discoveries occurred over a long period, the track system was constantly being extended. With the dominance of quartz mining, substantial roadwork was often required to get heavy machinery in remote, rugged areas. In the late 1800's – early 1900's, the Mines Department financed the cutting of over 500 mining tracks in Eastern Victoria, many of which are within the Australian Alps National Parks.

3.4 MINING CULTURAL LANDSCAPES

Mining is an important historical theme in Australia, and mining cultural landscapes exist around the continent. Outstanding mining landscapes are numerous, and include those of Broken Hill, NSW, Kalgoorlie, WA, the central Victorian goldfields, the 'moonscapes' of Coober Pedy, SA, etc.

Cultural landscapes exist throughout the Alps, and reflect the hand of man in the environment. No integrated Alps-wide studies of cultural landscapes have yet been undertaken⁷, and the identification of mining-related cultural landscapes has been very limited to date.

Mining was a strong modifying influence in the Alps, imposing roads, tracks, diggings, mining infrastructure and settlements on the landscape, and requiring resources such as timber and water for its mines, and sustenance for its workers. In general, this study has found that recognisable and interpretable mining landscapes within the Alps national parks are very rare. They exist in very few environments, and are restricted to the very highest part of the Alps (open, grassy, lightly-treed areas), or to the wider, low-lying river valleys. In between, the regrowing forest now cloaks the mining features, and viewlines are interrupted by the rugged topography.

No outstanding quartz mining landscapes have been located, and this is in part attributable to the fact that larger scale operations are horizontally-layered in mountainous terrain. Consequently, the worked levels may be some distance apart, and the processing plant may be situated well away from the workings. Occupation sites may be close to workings or plant, but may be nucleated in mining camps that serve a quartz mining area.

In tall, dense, natural or regrowing forest, there will be few opportunities to establish viewlines that convey the broader aspects of a single operation, let alone its relationship and linkages to associated cultural heritage features. While mining-related cultural landscapes are immediately visible in areas such as Kiandra, in other abandoned mining areas they can be cryptic, and their cloak of vegetation (albeit altered) minimises their value as interpretable cultural landscapes. **Integrity, relating to visibility of the features, is the key factor in assessing cultural landscapes.**

For instance, the East Branch of the Ovens River (Bogong Unit, Alpine National Park) contains an abundance of mining features. There is extensive ground and hydraulic sluicing, abundant large and small-scale reef mining, settlement sites, linear features including water races, level & inclined tramways, a network of mining roads, two Department-financed mining tracks etc. However, views over the valley reveal none of this. The hills that were once stripped bare of timber appear as a seamless pristine wilderness to the untrained eye, and they have neither value for broad-scale interpretation nor requirement for landscape-related management action.

David Bannear, in his draft "*Conservation Plan for Historic Gold Mining Sites*" (1996, DNRE), tacitly acknowledges this poor landscape integrity in regrowing forested areas:

*"Themes evoked by sites in regrowing forests are about adventurousness, hardship and isolation of mining life. Coupled with the physical effort of getting to a site today, these images make a powerful experience. **The experience is generally quite site specific** with the surviving mining relics alongside regrowing forest combining to give the place a strong evocation of abandonment, decay and a way of life now gone."*

A number of Alps mining landscapes are identified and described in section 4.8 of this report.

⁷ "Australian Alps Cultural Landscape Management Guidelines", Jane Lennon & Associates, 1996, p34.

3.5 SITE NETWORKS

Cultural landscapes are instructive in demonstrating the relationship between different cultural features, and between cultural features and their environment. In broad landscapes, relationships may show in the pattern of settlements, distribution of farming lands and native forest, road connections etc. In open country, even relatively limited landscapes can provide a range of cultural features that interpret the human occupation of the area.

Most of the land within the study area is heavily forested, and in general, discernible and meaningful mining cultural landscapes that demonstrate relationships are rare. These relationships nonetheless do exist, and certainly in terms of the impact of historic mining within the Alps, it would be far more useful to adopt the concept of **site networks** than to grapple with cryptic landscapes. These networks do not have an overall viewing point – rather, the hidden landscape is experienced by moving through it.

A site network relates to real physical features that may now be cloaked in regenerating forest, and would in essence be a catalogue of places that share common bonds. Examples of landscapes and site networks are included below:

Example 1 - Cultural Landscape at Kiandra:

In the open landscape of Kiandra we can see the places where miners worked (the hummocked sluicing workings & open-cut scars), where they lived (hut sites, chimney remnants), where they were buried (cemetery), the roads they travelled (Snowy Mountains Highway, other roads, tracks & scars), etc. In a broader sense, we cannot see from Kiandra the impact the discovery had on small settlements and agriculture in the region, its impetus to further prospecting and development in the region, etc.

Example 2 - Site Network for Grant, Victoria:

In Grant Historic Area in Victoria, the development of the township of Grant and its sustenance from mining cannot be interpreted in viewable landscapes, because of the regrowing forest and rugged mountainous terrain. However it can be interpreted from a **site network** consisting of:

- The Crooked River diggings (which brought large numbers of miners to the vicinity);
- McMillans Track (where the first quartz reefs were opened during construction);
- Various early reef mines (which Grant was created to service);
- The site of Grant (an open area with traces of former house sites, traces of former streets, trees, mine workings etc);
- Grant cemetery;
- Former mining tracks (which accessed the workings);
- The Good Hope Mine (which sustained a smaller Grant after the early failure of most other mines).

The network would be linked by McMillan's Track (Grant-Talbotville road), which passes in close proximity to the features listed above.

Site networks are identified in the Site Gazetteers for some of the more culturally significant or strategically important historic mining sites in the Australian Alps (refer Appendix 1). Networks can be useful in planning walking tracks that reveal features and their relationships in hidden landscapes.

4. CULTURAL HERITAGE SIGNIFICANCE

4.1 COMPARATIVE ASSESSMENTS

Data and comparisons at a global level are included in Appendices 10 & 11. Comprehensive comparative data for assessments at a National level are not available, but sufficient data has been gained to make some assessments (Australian production, fields, important places etc). At a State level, Victorian comparative data is comprehensive, thanks to the State-wide Victorian Goldfields Project. In NSW, the data is not as comprehensive. Comparative sources are identified by reference in this section, or in the Appendices.

4.2 SIGNIFICANCE

4.2.1 ASSESSMENT AGAINST CRITERIA

The "Mining Heritage Places Assessment Manual", Pearson & McGowan, 2000 (AHC & National Trust) has been used for the heritage assessment of mining places at a National Level. This report lays out an assessment procedure relating to Australian Heritage Commission criteria for assessment of cultural heritage significance.

The criteria of the Heritage Council, Vic⁸, and the State Heritage Office, NSW, have been used for the heritage assessment of mining places at a State level in Victoria and New South Wales respectively.

4.3 INTERNATIONAL SIGNIFICANCE

Global context histories for four similar areas around the world have been presented in Appendix 10 attached to this report, and for three of these (Klondike, Siberia, Rocky Mountains), strong historical themes of global importance are indicated. The Australian Alps do not appear to contain similarly significant mining heritage values at a universal level.

4.4 NATIONAL SIGNIFICANCE

4.4.1 INTRODUCTION

Places of National cultural heritage significance are defined as "outstanding examples of aesthetic, historical, scientific or social significance or other special values at a National level".

4.4.2 IDENTIFIED NATIONAL VALUES

Kiandra:

The Kiandra goldfield demonstrates National cultural heritage significance values in relation to the conditions under which mining was undertaken. This is social significance, under the general historical theme "Struggling with remoteness, hardship & failure" (Australian Historic Themes

⁸ Adopted pursuant to Sections 8(c) & 8(2) of the Heritage Act 1995.

Framework, Theme 3.16). In this sense, it is not the mining itself but the context that is important. Significance is indicated under Criteria C.2, A.3 and B.2 (AHC).

This National significance is most dramatically interpreted in the Kiandra **landscape** rather than at individual sites. That is, it is outstanding and unparalleled in its combination of a range of mining-associated cultural features within an Alpine natural environment (refer section 4.8 for description).

Mining Sites:

Any individual mining sites of State cultural heritage significance are worthy of examination for National values. In general, the individual sites that have been assessed as of State cultural heritage significance (refer section 4.5 below) have values relating to their best-expression of the technologies they display and their archaeological potential, rather than strong historical or social themes. Therefore assessment for National values would require better site comparative data than is presently available.

Within the NSW section of the study area, no individual mining sites have been assessed as containing outstanding values at a National level, notwithstanding the paucity of comparative data.

The Red Robin gold mine in the Bogong Unit of the Alpine National Park has demonstrable claims to National heritage significance. This is based on its intactness, its existence above the snowline, and the adaptations shown to the Alpine environment. Within the study area the Red Robin is the stand-out mine in regard to its intactness (a working quartz mine using antiquated processes, with a variety of extant machinery, huts etc). It is also the only mine to show in its fabric a range of adaptations to the Alpine environment.

Elsewhere, the Good Hope mine in the Grant Historic Area is arguably the best site in the Victoria for the range of early mining & processing technologies it shows, including batteries, boilers, portable steam engine, grinding pans, reverberatory furnace, tramways, mine workings etc. Assigning National value would require a considerably greater amount of comparative data than presently exists.

4.4.3 SUMMARY

National cultural heritage values are indicated for:

- **The Kiandra mining landscape, Kosciusko National Park, NSW;**
- **The Red Robin Mine, Bogong Unit, Alpine National Park, Vic.**

4.5 STATE SIGNIFICANCE

4.5.1 STATE SIGNIFICANT FIELDS

Victoria:

While the mountains of eastern Victoria had goldfields with production of State economic importance (eg Beechworth 4 million ounces, Upper Ovens 2 million ounces, Walhalla-Woods Point est 3-4 million ounces), these are outside the study area. The largest producer within the study area, the Mt Wills goldfield with some 220,000 ounces, is relatively minor.

Some of the historical themes that may be of State importance (eg the large numbers of Chinese miners on the North-East Victorian diggings, and the Buckland Riots of 1857) are represented within the study area, but have their best expressions outside the Parks system.

Mining of metals other than gold has been carried out within the study area. While undoubtedly some of the best expressions in the State of the various types lie here (eg wolfram at Mt Murphy, primary tin lodes at Mt Wills), base metals mining is a very minor historical theme in Victoria, in sharp contrast to New South Wales. For example, total recorded Victorian copper production to 1993 was only 1925 tonnes⁹.

There are no mining fields within the Victorian section of the study area that have outstanding cultural heritage value at a State level.

New South Wales:

State significance for the Kiandra field is indicated in the following areas:

- It best represents one extreme of conditions under which mining was carried out in New South Wales, and carries in its landscape and Alpine climate strong evidence of living and working conditions. The other extreme is probably best-represented by the Mt Browne goldfield, near Tibooburra in far-western New South Wales.

NSW Heritage Office Criteria:

* The place possesses rare aspects of NSW's cultural history;

- * The place is important in demonstrating the principal characteristics of a class of NSW's cultural places and cultural environments.

- It has significant historical themes relating to the importance attached to the discovery by the government of New South Wales, and the hopes and infrastructure invested in the field as a potential solution to the State's economic woes and to ending the dominance of the Victorian goldfields. This infrastructure included police stations, lock-ups and stables at regular intervals along major routes to the diggings, government infrastructure in Kiandra, and the Willis customs post on the NSW-Vic border to the south. While Kiandra itself proved a failure, it nonetheless heralded a gold-led recovery of the NSW economy, that was then carried on by subsequent larger discoveries.

NSW Heritage Office Criteria:

* The place is important in the course of NSW's cultural history;

- * The place has the potential to yield information that will contribute to an understanding of NSW's cultural history.

The Kiandra goldfield is the only mineral field within the New South Wales section of the study area with any production of note. However, its estimated 180,000 ounce aggregate production is small in State terms, and is relatively small even in terms of regional goldfields. To the north-west of the Kosciusko National Park, the Adelong field has produced just under 700,000 ounces, while to the east, the Araluen field produced almost 500,000 ounces and Braidwood over 650,000 ounces¹⁰. Even in Kiandra's first and peak year (1860), it only produced 17.6% of New South Wales' gold, and approximately 2.5% of Australian gold production. New South Wales and Victoria were the only significant gold producers in that year, with Victoria dominating. In 1861, this dropped dramatically to 3.6% and 0.6% respectively. These figures in turn plummeted further in following years¹¹.

4.5.2 STATE SIGNIFICANT SITES

Victoria

Nine mining sites within the study area have been assessed as of State cultural heritage significance during the Victorian Goldfields Project, and been included in the Victorian Heritage Register (VHR). These sites have legislative protection under Part 4 of the Heritage Act 1995 (Vic). They are:

⁹ "Mineral Notes, Copper", Roger Buckley, May 2000 (EMV, Note Series No MNM0006, ISSN 1443-3583).

¹⁰ Figures taken from MinFact sheets No 54, 55 & 56, NSW Department of Mineral Resources, 1996.

¹¹ Percentages calculated from official production figures of New South Wales & Victoria, quoted in "Select Documents in Australian History", Manning Clark, 1955 (pp48-50 in 1977 paperback edition).

NAME	VHR No	LOCATION	ERA	KEY FEATURES
Jungle Creek Falls Diversion Sluice	H1258	Grant Historic Area	1860's or 1870's	Alluvial mining. Excellent example of river diversion cut adjacent to original channel, to gain access to bed of Jungle Creek.
Dart River Gold Battery	H1267	Dartmouth Unit, ANP	1880's	Reef mining. Has 5-h battery, boiler in stone setting, horizontal steam engine, mine workings etc.
Good Hope Mine (& Good Hope Consolidated)	H1268	Grant Historic Area	1860's - early 1900's	Reef mining. GH has 8-h battery, in situ boiler, horizontal steam engine, grinding pan, furnace, adits, inclined tramway, hut sites, etc. GHC has 5-h battery, portable steam engine, ore trucks, adit & mine workings, etc.
Greens Creek Battery	H1271	Dartmouth Unit, ANP	1880's	Reef mining. Has standing (restored) 10-h battery, steam engine, pump, and two boilers.
Monarch Mine & Battery	H1273	Bogong Unit, ANP	1890's - 1930's	Reef mining. Has standing 10-h battery, portable steam engine, oil engine foundations, plate tables, ruins of battery shed, ruins of blacksmith's shop, ore truck, adits & underlay shaft, hut sites & chimney ruins, etc.
La Mascotte Treatment Works	H1276	Dartmouth Unit, ANP	1890's	Reef mining. Has brick-lined iron furnace, battery site, boiler site, etc.
Glengarry Battery & Chlorination Works	H1278	Dartmouth Unit, ANP	Not known	Reef mining. Has standing 5-h battery, gal iron water tank, oil engine, Wilfley table, roasting furnace, cyanide works, hut sites, adit etc.
Howqua United Gold Treatment Works	H1279	Howqua Hills Historic Area	1880's - 1916	Reef mining. Has open cut with haulage adit, inclined tramway, diversion tunnel/water race, battery site, roasting furnace with tall brick chimney stack, etc.
Young Australian Treatment Works	H1761	Dartmouth Unit, ANP	1880's, 1930's	Reef mining. Has 10-h battery, oil engine, cyanide works, mine workings, and mining camp.
Red Robin Mine	H1881	Bogong Unit, ANP	1940's - present	Reef mining. Has complete mining infrastructure, including 5(10)-head stamp battery & associated treatment plant, machinery sheds, accommodation huts of 3 eras, site buildings, adits & shafts, track networks, sand dams, earlier hut & battery shed ruins, etc.

In addition, the following sites were provisionally assigned State cultural heritage significance in the Victorian Goldfields Project, but have not yet been proposed to the Victorian Heritage Register:

NAME	LOCATION	ERA	KEY FEATURES
Upper Dargo Diversion Sluice	Bogong Unit, ANP	Not known (19 th C)	Alluvial mining. Has 4m deep rock-lined channel through massive pebble dump. This dump is some 20m wide and has several dumping lines.
Golden Ridge Mine	Bogong Unit, ANP		Reef mining. Has battery, vertical boiler, mine workings, etc.
Maude & Yellow Girl Mine, 1931 & 1941 plants	Mt Wills Historic Area	1930's - 1950's	Reef mining. Has 20-h battery, slurry plant, Pelton wheels, mine buildings, hut sites, engine beds, dams, mine workings, etc
Mount Moran Battery	Mt Wills Historic Area	1890's - early 1900's	Reef mining. Has 10-h battery, portable steam engine, ore trucks, etc.

A number of machinery sites, and more particularly a number of extant pieces of machinery, at mines in the Victorian section of the study area have been assigned high significance during previous

industrial archaeological surveys¹². This significance was principally for their scientific values, including the evidence they contained of rare machinery, the development of Victoria's heavy manufacturing industry, and various mining/processing techniques. These sites were later assessed on a statewide basis by the Victorian Goldfields Project, and significance assigned on a broader basis according to more recently developed criteria.

Brandy Creek Mine in the Bogong Unit, Alpine NP, needs further assessment for possible state values. It is a very large hydraulic sluicing hole, and water is fed through an impressive water race that is at times cut through solid basalt. A most unusual feature is extensive ground sluicing of a large spur, hillside and gully below the mine, which has produced an enormous area of low, windrowed heaps of mixed rounded-shingle and broken, angular country rock. Archaeological evidence of a former mining settlement (including hotel & store), and the stamp battery that was installed were not located during a brief site inspection.

New South Wales:

Of the mining and mining-associated places in the Kosciusko National Park, only the Kiandra Courthouse/Chalet has so far been listed in the NSW State Heritage Register, as of State significance¹³.

No comprehensive state-wide survey of historic mining sites has been undertaken in New South Wales, and therefore comparative data is limited.

It is probable that the following tabulated sites, all within the Kosciusko National Park, have heritage values of State significance as:

- Outstanding examples of the type of mining involved; and/or
- An outstanding range of extant structures/artefacts (eg buildings, machinery etc) representing either the mining/processing technologies used, or the living & working conditions at the sites.

Their cultural heritage significance under NSW State Heritage Office Criteria principally relates to:

- **Importance in demonstrating principal characteristics of a class of NSW's cultural places;**
- **Possession of uncommon or rare aspects of NSW's cultural history.**

NAME	LOCATION	ERA	KEY FEATURES
New Chum Hill	Kiandra Historic Area, at Kiandra		<i>Within a relatively small area on the south face, it contains a variety of outstanding features relating to deep lead mining under basalt.</i> These include 3 impressive sluiced open-cuts, deep tail races, large head race, numerous tunnels, early ground sluicing on lower hill slopes, hut sites, blacksmiths shop sites (2 at least, including hearths & scrap),
South Bloomfield	Kiandra Historic Area, south of Kiandra, on the Alps Walking Track		<i>Contains a variety of outstanding features relating to deep lead mining under basalt, and includes two adjacent sites linked by a short track.</i> Site 1: South Bloomfield sluice hole - large open cut & deep tail race, water race, rock-walled dam, earth dam etc; Site 2: Elaine Mine - tunnel, mullock dump & up-hill shafts. Hut ruins, timber lathe stacks, portable steam engine, boiler, piston pumps, box trucks, abundant machinery artefacts, sluice box riffles, scrap metal, etc.

¹² Milner's reports on Mount Wills, Dart River etc.

¹³ Listing No 00994, 02 April 1999, Database No 5014099, State Heritage Office, NSW.

NAME	LOCATION	ERA	KEY FEATURES
Empress Mine	Kiandra Historic Area, south of Kiandra, on the Alps Walking Track		<i>Outstanding visual site that conveys the large scale of the hydraulic sluicing undertaken.</i> Shows large open cut, dam with partly-rocked wall, incised tail race, remnant water races, rock stacks, early ground sluicing near base of cut, etc.
Grey Mare	Jagungal Wilderness Area, on the Alps Walking Track	1890's-1950's	<i>Not visited, but has strong potential provide an outstanding example of the relationship between alluvial & reef mining, because the limited alluvial deposits worked have a single point (line) of origin, from the erosion of the Grey Mare (Bogong) Reef. Significance is assisted by the range of artefacts, evidence of living conditions (hut & hut sites), and different eras of working.</i> Complex site, where recent reports have focussed on miner's hut, and relatively modern machinery remains associated with reef workings. The historical record points to several early workings at different sections along the reef, as well as alluvial workings in gully below (Bogong diggings).
Tin Mine	Pilot Wilderness Area, on the Alps Walking Track		<i>Not visited, but can provide outstanding evidence of living and working conditions in a very remote and rugged part of the Australian Alps.</i> Complex site, where recent reports have focussed on the huts, which are a strong part of the Tin Mine area's significance. However, there are also a network of water races and various nearby alluvial tin workings that give context to the huts' existence. There are also primary tin lode workings that have not been described in recent times.

There are several well-preserved machinery/mining technology sites at other mines in the Kosciusko National Park. These include the Lorna Doone Mine, Broken Cart mine, and 3-mile reefs (Kiandra). In Victoria, these sorts of sites only exist within sections of the eastern highlands, and only the most outstanding have been recommended to the Victorian Heritage Register. Some dozens of machinery sites, the only ones out of hundreds that previously existed in the study area, have survived. In consequence of their geographic distribution within the State being limited to the mountains of eastern Victoria, it is not surprising that a few within this elite group are located within the study area.

In New South Wales, numerous well-preserved machinery sites covering a variety of mining types and technologies exist in a range of environments and geographical locations (cf Victoria). In Kosciusko National Park, the mining fields that exist are overwhelmingly alluvial, and the bulk of the work has been carried out by simple hand methods such as ground sluicing, which requires no machinery. The reef mines that do retain machinery are very small scale, and only very basic technologies (stamp-crushing, plate amalgamation) are featured, technologies that are well-represented at other sites. No evidence has been produced to indicate that many of the well-preserved battery & machinery sites present any outstanding features *at a State level*.

Nonetheless, these sites are valuable for the evidence they contain of previous operations, and only a very small percentage of all former machinery sites retain any substantial amount of their original fabric. As for most relic machinery sites in the Victorian part of the study area, the Kosciusko sites would be ranked as Regional in significance.

4.6 REGIONAL SIGNIFICANCE

Regional cultural heritage significance has been generally applied to mines that:

- Have contributed significantly by their size, production, longevity, associations, employment etc to the regional economies or communities; or
- Retain in their fabric extant machinery, equipment or buildings that are relatively rare at historic mining sites, but are not outstanding at a State level; or
- Are good examples of the types of mining that are characteristic of the regions.

It has also been applied to some mining associated places, such as some mining township sites, for their archaeological potential & regional influence, and some mining tracks, that were major regional thoroughfares.

Sites of regional significance are identified in the databases that are attached to this report.

4.7 LOCAL SIGNIFICANCE

All other mining/prospecting sites in the study area are assigned local cultural heritage significance. It should be noted that some of these sites may also be part of networks associated with more significant sites, and this should be recognised in their management.

4.8 ALPS MINING LANDSCAPES

The Kiandra landscape has been assessed as having national values, and is the outstanding mining landscape within the Alps National Parks. The landscape contains numerous internal viewpoints that amplify various of the cultural features of the place, and their connections:

PLACE	LOCATION	VIEWPOINT	KEY CULTURAL FEATURES	KEY NATURAL FEATURES
Kiandra	Kiandra Historic Area, Kosciusko National Park	Township Hill, up hill opposite Lodge: 634630E, 6028770N. (~240° vista, N)	Township: - Introduced trees - House sites - Yans store chimneys - Some buildings - Main road New Chum Hill: - Large scars (hydraulic sluicing) Pollocks Creek, behind township: - Highly visible sluicing (stone heaps include quartz boulders) Surface Hill: - Water races - Scarring (surface) - Track traces Township Hill (foreground) - Cuttings & pebble heaps Roadways (former mining tracks), including Snowy Mountains Highway	Eucumbene River valley Tributary creeks, gullies Extensive grasslands (probably some cultural modification) High-level treed areas Long view to north

The following table describes some 'limited' mining cultural landscapes that were identified during the project. Most have scenic natural backdrops that foster an understanding of the environment under which mining had taken place. None could be considered as outstanding cultural landscapes.

PLACE	LOCATION	VIEWPOINT	KEY CULTURAL FEATURES	KEY NATURAL FEATURES
Ravine (eastern copper mining areas) VIEW 1	Northern Region, Kosciusko National Park	Adjacent to former meteorological station: (~90° vista, E)	Introduced trees (poplars in middle-distance) Mullock dumps partly visible (middle-distance) Disturbed ground - bare earth around rehabilitated shafts (foreground) Hillside bare of trees (foreground) Weed infestations (foreground)	Yarrangobilly River (foreground) High, forested ranges (middle-long distance) Prominent horizontally-bedded rock band around hillsides Striking rock formation in Cave Creek
Ravine VIEW 2	Northern Region, Kosciusko National Park	From Ravine Road, overlooking Ravine: (180° vista, N)	"Postage stamp" of cleared ground, where Ravine and its associated copper mines were situated Steep, narrow dirt road winding down into valley (a former major access route to Kiandra) Sense of remoteness and isolation	Rugged, forested ranges Limestone 'bands' showing on distant hillsides Gap between hills indicating course of Tumut River far below.
Empress, 9-Mile	Kiandra Historic Area, Kosciusko National Park	Top rim of open cut, beside Alps Walking Track: 633910E, 6018780N (~90° vista, W)	Large open cut with steep sides & exposed walls Piles of basalt boulders on floor of open cut Strip-heaps of piled stone from earlier ground sluicing, extending out of base of open cut Orange-walled cutting of tail race from open cut Various mining works visible in Scotch Gully below (exposed faces, mullock etc)	Trees along top rim of open cut, and revegetating walls Scotch Creek, below open cut Rugged, forested ranges in middle distance High (snow-capped in October 2001) ranges in distance
Brandy Creek	Bogong Unit, Alpine National Park	South-east corner of sluice hole: 517480E, 5904170N (180° vista, N)	Sluice hole Gravel piles Bare shingle piles, including those near tail race Bare bedrock jutting from floor of sluice hole Track through workings Ponds within sluice hole Slumping of high faces	Basalt scree at top end of sluice hole; Surrounding forest Regrowth within workings View over Cobungra River valley to Bogong High Plains
Talbotville Crooked River	Grant Historic Area/ Wonnangatta-Moroka Unit, Alpine NP	From Grant road, immediately above Talbotville flat and immediately below cemetery (360° vista)	Wide grassy flat (former Talbotville township site), with Crooked River at rear Front fence of cemetery behind Grant road (McMillan's Track) (from flat: rock walls, house sites, introduced trees, fords across river, and tracks upstream & downstream, valley of Crooked River to north and south)	Densely-forested ranges rising in front and behind Crooked River (course but not water visible)
Grant township site	Grant Historic Area	From Dargo High Plains Road, north of Grant Historic Area turn-off (90° vista, S)	"Postage stamp" of cleared land (Grant township site) in distance, near top of high, forested ridge, that drops precipitously to the west, into the Crooked River. Dargo High Plains Road	Regrowing forest in foreground (after logging) Rugged, forested, deeply-dissected mountain ranges

PLACE	LOCATION	VIEWPOINT	KEY CULTURAL FEATURES	KEY NATURAL FEATURES
Buckland River dredging & sluicing	Mt Buffalo National Park	On access track, below Buckland River road, approx 1km north of Buckland Bridge (360° vista along track)	Shingle heaps from sluicing Uphill 'canyons' from sluicing of gutters Low, hummocky ground surface, from dredging Red cliff faces, representing the limits of sluicing & dredging Linear swamp on south-eastern ('uphill') limit of dredging	Tree & scrub regrowth Buckland River Mt Buffalo - rock faces and vegetation

4.9 SUMMARY OF SIGNIFICANT VALUES AT A PARK LEVEL

4.9.1 AUSTRALIAN CAPITAL TERRITORY

Namadgi National Park:

No significant mining heritage values have been located within Namadgi National Park.

4.9.2 NEW SOUTH WALES

Bimberi Nature Reserve:

No significant mining heritage values have been identified within Bimberi Nature Reserve.

Brindabella National Park:

No significant mining heritage values have been identified within Brindibella National Park.

Kosciusko National Park:

Significant mining heritage values have been identified within the Kosciusko National Park.

National Significance Cultural Landscape:

Kiandra

State Significant Goldfield:

Kiandra

State Significant Sites:

New Chum Hill

South Bloomfield/Elaine mine

Empress Mine

Grey Mare mines/Bogong diggings

Tin Mine area

Numerous sites/diggings of regional significance have been identified within the Park.

Scabby Range Nature Reserve:

No significant mining heritage values have been identified within Scabby Range National Park.

4.9.3 VICTORIA

Alpine National Park:

Significant mining heritage values have been identified within the Alpine National Park. Most mining heritage values occur within the Dartmouth & Bogong Units.

Nationally Significant Site:

Red Robin Mine

State Significant Sites:

Monarch Mine

Red Robin Mine

Upper Dargo Diversion Sluice
Golden Ridge Mine
Greens Creek Battery
Dart River Gold Battery
La Mascotte Treatment Works
Glengarry Battery & Chlorination Works
Young Australian Treatment Works
(Brandy Creek Mine)

Mining heritage is varied & widespread, and numerous sites are of regional significance.

Avon Wilderness Park:

No significant mining heritage values have been identified within the Avon Wilderness Park.

Grant Historic Area:

Significant mining heritage values have been identified within the Grant Historic Area.

State Significant Sites:

Good Hope Mine
Jungle Creek Falls Diversion Sluice

Large numbers of other sites exist, including some of regional significance.

Howqua Hills Historic Area:

Significant mining heritage values have been identified within Howqua Hills Historic Area.

State Significant Sites:

Howqua United Gold Treatment Works

Other sites exist, one of regional significance (Mountain Chief).

Mount Buffalo National Park:

Mining heritage exists on the periphery of Mount Buffalo National Park, but no sites are of State significance.

Mt Murphy Historic Area:

Mining heritage values of regional significance occur in the Mt Murphy Historic Area (Mt Murphy Wolfram Mine).

Mt Wills Historic Area:

Significant mining heritage values have been identified within Mt Wills Historic Area.

State Significant Sites:

Maude & Yellow Girl Mine
Mt Moran Battery

Large numbers of other sites exist, including some of regional significance.

Snowy River National Park:

Mining sites of regional significance occur within the Snowy River National Park (Accommodation Creek, Mt Deddick).

4.10 ALPS MINING AS A REGIONAL INFLUENCE

(Refer part E of Appendix 11 for more detailed discussion)

4.10.1 INTRODUCTION

Historic mining has exerted a powerful influence in the Australian Alps, assisted by the following factors:

- Mining activity has astonishing productivity for its relatively short productive period, commonly orders of magnitude above grazing and other historical economic pursuits for that same period;
- Mining is a widespread activity independent of topography, altitude & environment, that deeply imprints itself on the landscape, not only in the workings, but in the towns, tracks and roads, etc;
- Historical mining was labour intensive (for example, some 10,000 miners may have produced Kiandra's 67,000 ounces of gold in 1860, while a modern mine with that annual production may have as little as a few dozen employees);
- Mining acquires complex support infrastructure, including administrative (government regulatory control - wardens, commissioners, surveyors, inspectors, police etc), financial (banks, assay offices, company offices, gold buyers, gold escorts etc), and materials supply (timber - fuel & mine props, building materials, machinery, equipment, mining supplies, carriers). This is in addition to the normal housing, supply, road and 'entertainment' infrastructure associated with any settlement or concentration of population.
- The level of mining activity was not limited by economic imperatives, but was strongly influenced by cultural and human factors (hence "gold rushes");
- Major mining activity within the study area began at periods when European presence in the region had been at best sparse, and in places absent.

For such a powerful modifier, actual mining activity has only affected a very small proportion of the land area of the Alps National Park, and in this sense it is similar to the rest of Australia. In Kosciusko National Park, for instance, the area of land directly affected (ie mined) would be several square kilometres out of an area of 6900 square kilometres, or, say, 0.1% of the Park. In contrast, the proportion of land that has been grazed (directly subject to agriculture) is high.

4.10.2 SUMMARY OF MINING INFLUENCES

- Within the study area, mining was the activity that originally brought significant numbers of Europeans into the Alpine and sub-alpine environments. The numbers involved were not approached again until the Snowy Mountains Scheme was undertaken in NSW (1950's - 60's), and the modern, commercial ski industry was developed in NSW and Victoria (1960's-present).
- Mining brought government into the Alps for the first time, to administer the early goldfields, and provide infrastructure such as roads, schools, courthouses, post offices, police barracks, etc.
- Mining also stimulated the development of support industries, including logging & sawmilling, the intensification of grazing, and the development of intensive agriculture in peripheral areas.

In examining the influence of cultural activities, it is relatively easy to assess impact while particular conditions applied. Summary local histories for areas within and around the Alps are littered with compartmentalised views of Alps history. That is, there was the Aboriginal phase, followed by the squatting/exploration phase, followed by the mining phase, followed by the grazing phase, etc etc. The real measure of influence is cumulative – how different would a place be today if a certain cultural influence had not applied? For the Alps, this brings forward a plethora of questions that to date do not appear to have been addressed in any great detail, or with appropriate rigour.

The key to understanding the influence of gold mining is acknowledging what sets it apart from other European cultural (economic) activities in the Alps. Gold was a global commodity, absolutely independent of local, regional and national demand. The other activities were, in historical times, strongly tied to (and limited by) local and regional demand. Mining was the activity that created the local & regional demand, that enabled the other activities to develop and flourish. The rapid establishment of large mining-based regional population centres has pre-determined the pattern of development in the Alps, and in this sense the influence of mining extends well beyond the mining era, into the present day.

5. RECOMMENDED STRATEGY FOR CONSERVATION AND MANAGEMENT

5.1 CONSERVATION

5.1.1 CONSERVATION OBJECTIVES

The conservation objectives that apply to mining cultural heritage in the Alps are:

- Protect and preserve historic mining sites and landscapes within the Alps, using the principles and guidelines of the Burra Charter;
- In general, conserve the mining sites within the Alps as ruins, where their sense of abandonment is given by their condition and the surrounding regrowing forest;
- Where adequate conservation & protection measures can be applied, use mining sites and landscapes for the appreciation of visitors and as a resource for cultural research and education;
- Assist conservation, by promoting further investigation into both the history of mining in the Alps, and the mining cultural assets of the Alps.

5.1.2 CONSERVATION PROCESSES

(Terms as defined in the Burra Charter)

Preservation

(Maintaining the fabric of the place in its existing condition and retarding deterioration)

Preservation will be the main conservation process applied to historic mining places in the Alps. Because most sites will be managed as ruins, the objective will be to retard the deterioration of the places. For generic alluvial diggings, reef mining workings, tracks etc, this will simply involve avoidance of management practices that would otherwise cause damage (eg inappropriate trackwork etc). For more complex or fragile sites with machinery and huts, it may involve specific and minor interventions, such as removal of a destabilising influence (eg a particular tree). Rarely, for presented sites or highly significant artefacts, it may involve application of preservative processes (eg rust-proofing etc).

Restoration

(Returning the existing fabric of a place to a known earlier state, by reassembling components or removing accretions, without the introduction of new materials)

Restoration will not be a major focus of conservation of historic mining sites and landscapes in the Alps. The principal use of restoration may be as a response to any future damage at presented sites, resulting from vandalism, accidental damage or natural events. It would be confined to restoration of machinery, huts & other structures, etc, if appropriate in the particular case.

Reconstruction

(Returning a place as nearly as possible to a known earlier state of the fabric)

Reconstruction will not be a major focus of conservation of historic mining sites and landscapes in the Alps. Maintenance of existing values through preservation will generally apply, and reconstruction, as defined in the Burra Charter, will be limited to activities such as mining hut maintenance (re-roofing, replacing bearers etc) where required.

Adaptation

(Modifying a place to suit a proposed compatible use)

The nature of National Parks as conservation areas will ensure that the only adaptation of use will be for the introduction of tourism. This will require introduction of new elements such as pathways, signage, interpretations, risk & protective works etc. This must be done in a manner that is sympathetic to the heritage values of the place.

Examples of the application of conservation processes are given in the sample Heritage Action Plans in Appendix 2.

5.1.3 CONSERVATION WITHIN MANAGEMENT UNITS

To address conservation of mining sites proposed for development in section 8.3 or other sites that may require protection in the normal management of the Parks, the following process is recommended:

- 1. Refer to Historic Sites Database (separately attached to this report) for site information;**
- 2. If not recorded, then follow guidelines for recording (section 5.2.9);**
- 3. Identify type of site, and refer to sample Heritage Action Plans for examples of treatment of similar sites;**
- 4. Develop own Heritage Action Plan for site, or if complex, seek funds and engage consultant;**
- 5. Use Heritage Action Plan to obtain funding for recommended conservation works.**

5.2 MANAGEMENT

5.2.1 PREVIOUS REPORTS

Several previous reports have been used to assist in formulating general management guidelines for historic mining sites and landscapes in the Alps. Acknowledgement is given to:

- A Report on the Mining History & Remains in the Northern Half of Kosciusko National Park, M Pearson, 1979 (NPWS);
- Draft Conservation Plan for Historic Mining Sites, D Bannear, 1996, (Heritage Victoria);
- Cultural Landscape Management, J Lennon & S Matthews, 1996 (AALC)

Reference has also been made to the relevant park management plans.

5.2.2 MANAGEMENT RESPONSIBILITIES

NSW National Parks & Wildlife Service:

The NPWS is one of the premier historic heritage conservation bodies in Australia, and has an important role in, and legislative responsibility for, protecting historical heritage within the Park system. The responsibilities of the NPWS for historic heritage management on the NPWS Estate is set out in the NSW National Parks and Wildlife Act 1974. The Act establishes the following key components¹⁴:

¹⁴ Extracted from NPWS web pages, www.npws.nsw.gov.au/culture/hsheritg.htm

- The protection and management of historic places should be considered as part of the plan of management process for all categories of reserve;
- As historic places occur within all Service areas they are also protected by the Service's other corporate obligations, such as requirement to comply with government directives regarding asset management &c.

As well as general 'historic places', the Act provides for definition of Historic Sites as places that can be gazetted for their national importance as historic places or monuments. Kiandra would be an example of such an Historic Site within the study area.

The 1995 Land Management Regulation establishes that historic heritage can include:

".... any deposit, object or material evidence relating to the settlement or occupation of New South Wales or a part of New South Wales (not being Aboriginal settlement or occupation) where the deposit, object or material evidence is more than 25 years old" (at date of interference &c).

Parks Victoria:

Parks Victoria has management responsibility for the natural & cultural heritage that exists within Victoria's Parks system. Within their stated Purpose, they acknowledge that a prime function is to conserve, protect and enhance environmental and cultural assets.

Their estate covers approximately 16% of Victoria, managed under the Parks Victoria Act 1998, and a Management Services Agreement with the Secretary of the Department of Natural Resources & Environment, the Minister for Environment & Conservation, and Melbourne Parks & Waterways.

Parks Victoria manage a large number of important conserved & interpreted historic mining sites in the State, but only one within the Alps National Parks (Greens Creek Battery).

5.2.3 MANAGEMENT RECOMMENDATIONS

The hand of man is visible throughout the Alps, in former and current grazing areas, historical logging & sawmilling operations, former townsites, roads, tracks, hydroelectric power infrastructure, skifield developments, mining sites/areas, etc. Mining had a major impact on the Alps, not so much because of the actual area mined, but because of the intensiveness of the historic operations. Mining brought large numbers of people into the Alps at a time when they were sparsely settled or unexplored, and provided considerable impetus to infrastructure development (roads etc), regional supply & service industries (farming, sawmilling etc), and the fledgling towns of the region.

The sites, mining areas and landscapes left by the miners are scattered throughout the Alps National Parks. Many are interesting places of high cultural significance, and all of them bear witness to a way of life that has disappeared.

The management of mining cultural heritage places in the Alps is not an onerous task. These places, within their environment, lend themselves to management as ruins, and protection for the vast majority is more a matter of ensuring that they are not unwittingly exposed to non-environmental damaging influences, than costly interventions in their actual materials (fabric).

Management of the vast majority of mining sites/areas as ruins, however, does not sanction wholesale decision making. That is, sites and landscapes should be assessed individually for values that may require special management, and only in the absence of such values should a decision to manage as a ruin be made.

Effective protection of mining cultural heritage features cannot occur without knowledge of those features and their locations, just as rare and endangered species cannot be managed without knowledge of their distribution and special requirements. This project has found that historic mining sites/areas/landscapes within the study area are little recorded, and awareness of historic mining assets at a local management level is generally (but not always) correspondingly poor. Little authoritative site recording has been carried out, and in Kosciusko NP none since the Plan of Management recommended an on-going program in 1982¹⁵.

Purely for cultural heritage protection purposes, the various park managers need to gather knowledge of these assets, and the information they contain. *Specific recommendations are made in Section 9.4.*

Summary:

- 1. Mining sites will generally be managed as ruins, unless there is specific reason for management intervention;**
- 2. Knowledge of mining heritage assets needs to be upgraded to enable decision-making on general management to occur.**

5.2.4 RECONCILING NATURAL & CULTURAL VALUES

Forested Areas:

Most mining sites/areas within the Alps National Parks occur in forested settings. In his draft “Conservation Plan for Historic Mining Sites”, David Bannear (Heritage Victoria, 1996) proposes that:

“Themes evoked by sites in regrowing forests are about the adventurousness, hardship and isolation of mining life. Coupled with the physical effort of getting to a site today, these images make for a powerful experience. The experience is generally quite site specific with the surviving mining relics alongside regrowing forest combining to give the place a strong evocation of abandonment, decay and a way of life now gone.”

This acknowledges that the regrowing forest is a vital part of these sites. Mining heritage is particularly compatible with natural heritage, because the natural environment is an essential part of these places, contributing to their significance, and visual & experiential qualities.

As a corollary, mined areas can offer a range of micro-environments for flora & fauna, ranging from sheltered depressions to exposed, rubbly slopes. In the field, it is commonly noticed that the diversity of plant species is greater within certain mined areas than surrounding hillsides (this does not generally apply to hydraulic-sluiced or dredged areas). Mine tunnels are known to provide habitat for bats and other animals.

The Kiandra-Tabletop Historic Area is a management unit within Kosciusko National Park, and the park management plan¹⁶ states that within this area, the protection of historic features will be emphasised over other objectives. The plan also states that elsewhere in the park there are numerous other cultural features of sufficient significance to justify managing them as ‘historic places’ where protection of historic values will take be emphasised over other objectives.

In Victoria, management of the four attached Historic Areas (and two included Historic Zones) is addressed in the management plans of the relevant Units of the Alpine National Park. Protection

¹⁵ Plan of Management, 1982, NPWS, p30.

¹⁶ Kosciusko National Park Plan of Management, 1982, NPWS.

of archaeological, historic & cultural features is given higher priority than other management objectives in these areas¹⁷.

While the division of the Alps National Parks into zones with varying management priorities works at a general level, it falls down at a specific level. For instance, a rare and endangered plant species listed under the Fauna & Flora Guarantee Act that exists within an Historic Area should always receive the highest management priority. A State-significant cultural site that exists within a 'natural' zone should also receive the highest management priority. *Assigned priorities have the potential to promote a misunderstanding that protection of the natural environment and protection of the cultural environment are somehow mutually-exclusive.*

5.2.5 MANAGING FLORA, FAUNA & FIRE AT HISTORIC MINING SITES/AREAS

Forested settings:

For mining sites in forested settings, the surrounding remnant and regrowing forest should be retained, except where significant fabric may be under threat. Interventions for protection of significant fabric will generally be minor and very specific – eg removal or pruning of a tree that is pushing over a piece of machinery (*poison, but never grub stumps*), or a shrub that is destabilising a rock wall. The main issue for forested sites is not overall visibility, but maintaining the strong, evocative experience.

Open Areas:

Mining sites/areas in open settings are relatively rare within the study area, and largely confined to high areas of the northern half of the Kosciusko NP, NSW, where extensive snow-grass plains exist. Even in open areas, the low, regrowing vegetation provides evidence of the abandonment of the mining places, and a sense of completion. The vegetation can also assist in recognition of features. Further elaboration is contained in section 5.2.6, below.

All places:

Non-indigenous vegetation: Guidelines for the management of exotic vegetation at cultural sites are included in Part 6 of Jane Lennon & Associates' "Cultural Landscape Management" report (1996). At cultural heritage places, non-indigenous vegetation may occur around occupation sites, and provide important information. Such non-indigenous vegetation is not a common feature at mining sites/areas, because of the transient nature of mining and the personnel involved. Where they occur, flowers and fruit trees around a mining hut site may indicate that it was more a 'home' than a hut, with extended occupation. This tells of some stability in the operation, and possibly in personnel.

Non-indigenous vegetation may, however, be well developed at former mining towns within the study area, and retention is desirable within the guidelines referred to above. The spring flowering of daffodils at the Kiandra cemetery is a particularly evocative example showing the value of retaining significant exotic species. Weeds can be a strong feature at mining sites, but are derivative, taking advantage of disturbed soils. Their removal is recommended where part of on-going programs, or at sites to be presented to visitors. For some vulnerable sites (eg where small artefacts abound), temporary maintenance of weed cover (particularly blackberries) can afford protection. This is not recommended as a management principle to be adopted.

Fauna: Guidelines for management of animals are also given in Part 6 of Jane Lennon & Associates' report. For mining sites/areas, the principal concerns are burrowing animals (eg wombats and rabbits), which may destabilise standing machinery, rock walls, foundations etc. Because most

¹⁷ Alpine National Park Management Plans (4), 1992, DCE – points rating 1-3.

mining sites are in forested settings and not subject to regular observation, it is not likely that, say, relocation of the particular animals (wombats) would be effective. Strategies such as laying wire-mesh netting over the ground are likely to produce better results. Animal diggings would not generally significantly affect the heritage values of broader, robust mining features such as diggings, shafts, mullock dumps, tunnels etc, and action would rarely have to be undertaken.

Fire management:

Non-durable historic fabric such as timber constructions, as well as some more durable fabric such as cast-iron machinery, will be under threat by wildfire in forested settings. **It is not practical to expect managers to be able to sustain any substantial protection of such features at historic mining sites in the study area, except at those that are presented & often-visited, or for huts with an adapted use that must be maintained.** Even in these cases, vegetation management will generally be specific to the particular feature – eg removal of vegetation in actual contact with the walls or floor of a hut – rather than broad, and offer little protection against intense fires. Provision of adequate protection would involve radical alteration to the sites in their settings (eg removal of all trees and shrubs within a designated buffer zone), adversely affecting natural, cultural & experiential values. This level of intervention is consequently not recommended, regardless of available resources.

Given that fire is part of the natural cycle in forested areas, recording of ‘fragile’ sites should become a priority. This will ensure that while physical fabric may be lost in wildfire, the evidence and information this fabric contained will not.

5.2.6 CULTURAL LANDSCAPE MANAGEMENT – GENERAL PRINCIPLES

Jane Lennon & Associates have provided the Australian Alps Liaison Committee with cultural landscape management guidelines¹⁸, and this remains the authoritative management document.

The broader, open mining landscapes that exist in the Australian Alps are confined mainly to the higher parts of Kosciusko National Park, and the reason for their existence is basically climatic. That is, these landscapes exist because the climate excludes the tree growth that is characteristic of lower altitudes within the study area. In other parts of Australia, the desert mining landscapes are similarly climate-controlled, but the aridity is the factor that inhibits regrowth.

In places such as the central Victorian goldfields, the open landscapes are often maintained by on-going use – farming etc. In considering landscape management, it is important to differentiate between the landscapes on the basis of their controlling factors. For the Alps, the landscapes that are open are likely to remain open for as long as the present climatic conditions persist. If those climatic conditions change, it is unlikely that any management intervention would be able to retain the existing broad visual aspects.

Therefore, there is no compelling need or real purpose in intervening on any large scale in Alps mining landscapes, either now or in the future. As long as they exist, they should be presented and interpreted, and should the visual aspects radically change in the future, the features of the landscape will revert to individual sites to be presented and interpreted, as appropriate.

However, there may be minor management interventions required to maximise appreciation of the landscapes. These are:

1. Site management - looking after the places that constitute the cultural features of the landscape;

¹⁸ “Cultural Landscape Management – Guidelines for identifying, assessing and managing cultural landscapes in the Australian Alps national parks”, J Lennon & S Mathews, 1996 (AALC).

2. Vegetation management. This does not require major intervention, and treatments that may be required will be specific;
3. Ensuring that management and other infrastructure that may be developed from time to time does not significantly erode the landscape values.

Vegetation is an important feature of the mining cultural landscapes around Kiandra, and in many cases assists in recognition of features. For instance, water races along Bullocks Head Creek at Kiandra are emphasised by the line of shrubs that have taken advantage of the water-collecting properties and protection of the channels. Similarly, vegetation on side-cut tracks and flat hut sites has competitive advantages, from the lower profile to the wind and the interruption to natural run-off. Patches of shrubs and bushes will take advantage of hollows within disturbed, mined ground, but surrounding hillsides will remain bare.

As well as emphasising features, the regrowing vegetation also evocatively conveys the abandonment of the diggings – that what is being viewed represents a former way of life, now long gone.

5.2.7 ASSESSMENT FOR RISK

Public risk is a common issue at mining sites because of the nature of mining, that often leaves steep or unstable slopes, and open workings. The level of risk tends to diminish over time, as natural forces such as erosion and structural decay work to lower slope angles and close workings. Each managing body within the Alps National Parks has its own development risk assessment guidelines, but at a local level there may not necessarily be a great understanding of the particular risk issues that apply to historic mining sites, and the range of solutions.

Flow charts to guide decision-making on intervention (including risk assessment & conservation) at historic mining sites are included in Appendix 3, attached. They give typical treatments that have been used in other historic mining areas, and may be useful in addressing presentation of historic mining sites and landscapes in the Australian Alps. *They are not intended to supplant the relevant Parks services' own guidelines.*

In undertaking risk mitigation works, managers also need to be aware of legislative requirements in regard to alteration of archaeological places. In Victoria, a consent process under Part 6 of the Heritage Act 1995 applies to all archaeological sites, which include mining sites. In NSW and Victoria, a permit process applies to all non-exempted works proposed at places on the relevant State Heritage Registers.

5.2.8 CONSTRAINTS ON CONSERVATION WORKS

Financial constraints

In a practical sense, it is acknowledged that funding and other resources for mining heritage protection, conservation and presentation will be limited.

For conservation/protection purposes, the application of available resources would be on a needs basis (ie where intervention is essential), and allocation would generally be weighted as follows:

1. National significance
2. State significance
3. Regional significance
4. Local significance

Managers may have special legal and policy obligations for definition and protection of sites of National and State significance. Use only significance assessments that have examined full site and network values. Do not use existing ‘themed’ assessments (eg ‘huts’, ‘machinery’, etc).

For example, the Red Robin mine huts (Alpine NP) were assessed in isolation as of Regional cultural heritage significance in a thematic hut study (Butler, 1996). A later full-site assessment assigned Victorian State significance to the mine, with the huts part of the Registered state-significant fabric. While the huts in themselves do not exhibit any ‘outstanding’ architectural or design features, their contribution to the story of the place is outstanding.

Clearly, the whole may be greater than the sum of the parts, and this should also be taken into account in consideration of site networks, where sites that may be of low significance themselves contribute to the better understanding of more significant sites. A good example of this is the tracks that link small, generic quartz mines to the Greens Creek battery in the Dartmouth Unit, Alpine NP. These tracks, and the small mines, provide the main physical evidence of the purpose and actual historic use of the battery, as a public crushing machine.

Other Constraints:

Refer section 6.3.

5.2.9 RECORDING HISTORIC MINING SITES

Parks Victoria and the National Parks & Wildlife Service have a chartered obligation to protect cultural heritage, and knowledge of cultural assets is the first step to their protection. This project itself, through attached gazetteers and databases, will provide in an accessible form further knowledge of these assets, but field work has been limited by project constraints.

Further recording of cultural sites receives a high priority in a number of Park management plans (for example, it is acknowledged as early as 1982 in the Kosciusko National Park Plan of Management), and there are opportunities to enlist community assistance for site recording programs.

In Victoria, this process is likely to have stronger local support than in New South Wales, because local communities on the peripheries of the parks have often retained a strong connection to the mining areas due to earlier family involvement or special interest. Places such as Dargo, Bright and Omeo have a number of keen amateur mining historians who already devote a considerable amount of spare time to visiting old mines and mining areas.

In New South Wales, these connections have often been lost, because the workings had been done at a very early time, and because of the relative isolation of most diggings (including Kiandra) from population centres.

For management purposes, it is important that any information passed on to the Parks services is in a standard form. The basic information required of community-based projects would be:

1. A location, preferably AMG co-ordinates using a GPS, but at least a point marked on a 1:25,000 map;
2. A basic site plan (sketch plan) at an appropriate scale (simple compass-and-tape, or stepped survey), with heritage features marked (tunnels, shafts, dumps, dams, tailings dams, water races, tail races, limits of sluicing, tracks, hut sites, engine beds, machinery etc);
3. A brief inventory of artefacts (relics), including machinery, and a general statement of condition;

4. Site photography, showing general views, and specific shots of features of interest (say, 4-5 photographs in total).

More detailed site recording guidelines and information is contained in the “Mining Heritage Places Assessment Manual”, M Pearson & B McGowan, 2000 (National Trust & AHC).

Encouragement of community-based site recording is recommended. However, the Parks services should regard them as cooperative projects, and must be prepared to contribute materially. This may include assistance with access, including use of MVO tracks where required. In certain instances the Parks services should also be prepared to loan maps, GPS units, tape measures, digital cameras etc, and even provide interested personnel on occasions.

6. PRESENTATION

6.1 INTRODUCTION

Mining is an important cultural influence in the Australian Alps, and the strongest European cultural influence from the mid-1850's to the early 1900's. The mining sites and landscapes that survive are evidence of that influence, and their presentation will provide visitors with a better understanding of the cultural forces that helped shape the Alps, and an appreciation of the hardships of living and working in a difficult and harsh environment. Presentation will also assist in long-term conservation of sites and landscapes, through development of a sustainable use.

The Australian Alps National Parks cover a geographically large area, and are physically, environmentally and culturally diverse. Mining is a common thread in the history of most of the Alps parks, and park literature, information boards and even heritage trails acknowledge this historic activity. However, the Greens Creek battery in a very remote part of the Dartmouth unit of the Alpine NP is the only actual mining site within the study area has been conserved and interpreted.

6.2 OPPORTUNITIES

Development of mining sites & landscapes that showcase the mining heritage of the Australian Alps would provide a number of valuable opportunities for the managers. These opportunities include:

- Attending to chartered obligations of both cultural heritage protection and public education;
- Forging relationships & partnerships with local communities in the presentation of cultural heritage, to assist the development of regional tourism for mutual benefit;
- Building a stronger skills & knowledge base within the relevant Parks services, by providing local staff with hands-on experience in cultural heritage presentation & management, and the attending issues;
- Providing real support for State programs of heritage presentation (eg Victorian Heritage Strategy, 2000).

In addition, a co-ordinated approach to heritage conservation and presentation is likely to achieve better grant funding outcomes.

6.3 CONSTRAINTS ON DEVELOPMENT

The principal management constraints are:

- Operational – mustering sufficient resources for development & on-going maintenance;
- Protection – some mining heritage places are ‘fragile’, and development for visitor use may expose the fabric to damage or theft. Burra Charter principles should be used in development planning;
- Public Risk – mining sites, because of the historical excavations, should be considered as relatively high risk areas until proper risk assessments can be undertaken. However, the passage of time has often considerably reduced the public risk (eg through collapse of

workings, slumping of steep cliff faces, breaching of dams etc). In some places, the necessary risk works may have the potential to compromise both the visual (aesthetic) values, and the historic fabric;

- Topographical/geographical – many mining sites are in rugged or remote areas, with poor existing access facilities. This limits the level of management that can be applied. At a site level, the rugged topography can limit disabled circulation within the site, even where suitable road access may exist;
- Legislative - places included in the NSW and Victorian State Heritage Registers are subject to a permit system for non-exempted works. Places on the Victorian Heritage Inventory are subject to a consent system for works, and all archaeological places in Victoria have legislative protection (the NSW State Heritage Inventory listings are non-statutory). There may also be specific obligations under the Flora & Fauna Guarantee Act that could constrain development.

The retention of natural heritage values at mining heritage places in the Alps is not generally seen as a constraint, because of the strong compatibility of the natural and cultural values at mining places (refer sections 5.2.4 & 5.2.5).

6.4 PRESENTATION & INTERPRETATION GUIDELINES

Presentation and interpretation of historic mining sites/areas/landscapes within the Alps will vary with the type of site, special characteristics and site constraints. Some general guidelines are outlined below. With all interpretations, connecting visitors to the places is essential to appreciation, and the human dimension of activities should not be ignored. Development of understandable themes such as the lure of gold or the particular hardships can be useful.

Quartz reef (& primary base metal) mining sites – Forested Areas:

Many quartz mining sites in the Alps are particularly well-preserved, because of their remoteness and the absence of later cultural influences that may otherwise have diminished heritage values.....

Access: Usually do not allow public vehicle access into sites, and never into those with substantial relic machinery (risk of pilfering or removal). Road access removes the sense of discovery generally associated with these sites, and provision of walking track entry need not preclude visitation by the handicapped or otherwise physically impaired, including the very young and very old;

Interpretations: Should communicate brief history & significance. Flow of materials through these sites is a key to understanding, as well as the processing technologies used. Therefore at complex sites, use of a number of small interpretations boards adjacent to various features may be required;

Pathways: May use existing tracks within site, linking various features.

Risk: Major risk factors are open workings.

Alluvial diggings – Forested Areas:

Access: Vehicle access may be provided to actual site, if feasible.

Interpretations: Communicating the labour-intensive nature and scale of individual effort is the key to understanding alluvial diggings.

Pathways: Pathways through intensive alluvial diggings present challenges because of uneven surfaces and other risk factors. Therefore, pathways may be peripheral to diggings, linking a series of viewpoints. Along river diggings, these pathways may also present outstanding

scenic river valley views. Water races may provide level pathways, but should not be radically altered (eg by bulldozing).

Risk: Major risk factors are open shafts (generally shallow) and uneven ground surfaces. Position pathways to avoid unsafe areas. Fencing or mesh-capping open shafts is an option where shaft workings are to be interpreted, or viewing barriers may be installed.

Alluvial mining sites (hydraulic sluicing) – Forested & Open Areas:

Access: Road access may be provided to base of sites, where feasible.

Interpretations: These sites may be interpreted in a similar fashion to landscapes – that is, at the best vantage points that convey the scale of the operations. These may be overlooking the workings, or looking up into them. The large scale of workings and the relationship to the mining method are the key to understanding and appreciating these sites.

Pathways: Pathways should avoid skirting along the tops of cliff faces. Paths to viewing points overlooking workings should approach at right angles where possible, to a fenced (safe) viewpoint.

Risk: The major risk relates to high, steep banks at the limit of sluicing.

Cultural landscapes:

Interpretations: These should be provided at the best overall vantage point/s that is/are available, within reasonable access. The history of the landscape, principal features and connections should be communicated, and use can be made of available historical photographs (‘then-and-now’) to reinforce appreciation.

Pathways: Pathways should be a loop that provides several vantage points for viewing, where available, and can incorporate sites that may be separately interpreted.

7. TOURISM

7.1 TOURISM OVERVIEW

The Australian Alps are well known for their winter attractions, with the ski-fields of southern Alps of NSW, and in the Alpine Shire, Victoria. Tourism booms in the winter months, but falls off in summer, when tourism facilities are under-utilised. Conversely, the lower valleys experience peak tourism in the summer months.

In fulfilling their chartered role to protect cultural heritage, there may be opportunities for the relevant managers, Parks Victoria and the National Parks & Wildlife Service, to incrementally assist regional tourism programs with the conservation and presentation of some of the rich mining cultural heritage of the Australian Alps.

7.2 STRATEGIC DOCUMENTS

7.2.1 NEW SOUTH WALES

Regional Tourism Strategies

Regional tourism strategies for the various New South Wales tourism regions have been developed by Price Waterhouse Coopers, on behalf of Tourism New South Wales. They are yet to be released.

Tourism Snowy Mountains have been operating with the "**Snowy Region Tourism Masterplan**" (Manidis Roberts Consultants) since October 1996. An updated version of the masterplan for the next 5-year period (2001-2006) was released on 15 October 2001, but was not immediately available in print.

The previous version flagged low summer usage of existing facilities and catering to a narrow market (ie "adventure" - snow) as important issues to be redressed. It identified the following three major market sectors that make up tourism in the region:

Adventure: This segment was already catered for, with winter snow activities, adventure hiking etc;

Discover Myself: (= *Discover-for-myself*): This segment was already making up a large proportion of the family and "empty nest" visitors to the region. These people value ideas and education, enjoy nature and the outdoors, seek an understanding of the region - its history and its people, value the authentic and use walking trails;

Cultural: This segment enjoys lifestyle product, experiencing what is new, fashionable and part of the "good life". They enjoy consuming experiences, beyond an interest in galleries and exhibitions, and shy away from exertion or adventure in the physical sense. This segment was bypassing the region.

In assessing heritage product development within the NSW parks, the relevant market segment would be the "Discover Myself". Points raised in regard to attractions and promotion included:

P3: "A major focus for contemporary imagery associated with the region is snow and snow sport - something that is vitally important, but has a narrow market appeal. The Snowy Region is also synonymous with specialised sports such as fishing which also have a narrow market appeal."

P9: "Given the range of cultural attractions available (*in the Snowy Mountains*), there have been limited attempts to network or further develop these attractions. There are several historic buildings, townships and villages which could reveal much of the region's colourful past including earlier mining, bushranger and cattle rustling activity".

P11: "There is potential for rural, cultural and heritage products to be further developed." "The majority of the region's products are based on the natural environment."

These points indicate that tourism and tourism promotion in the Snowy Region was too focussed, and that there was a need to develop a broader product and attraction base, including cultural heritage.

Tourism Snowy Mountains identified the **National Parks & Wildlife Service** as a key organisation in tourism leadership and management, and outlined its role as follows:

P12: (*The NPWS*) "Promotes appropriate tourism within Kosciusko National Park, administers private sector tourism operations within the Park, and liaises with other government organisations and local communities regarding tourism within and adjacent to the Park."

7.2.2 VICTORIA

Regional Tourism Development Plans, 1997

These 5-year plans were undertaken to provide a framework for strategic development of Victoria's tourism regions, and expire in 2001 (this year). The two that related to the study area are:

"Legends, Wine & High Country":

This acknowledged the rich history and legends of the region, and identified the high country as the region's most important physical feature and principal tourism asset. Its strategies included development of the Great Alpine Road "to provide the physical basis for an expansion of a summer experience product which will benefit the entire region..."

"Lakes & Wilderness":

This also acknowledged the importance of the Great Alpine Road as a link between regions, and a window into the high country.

Alpine Region Tourism and Destination Marketing Strategy, September 2000

This plan was prepared by Urban Enterprise Pty Ltd on behalf of the Alpine Shire, and was developed to build on the work of the Alpine High Country Tourism Strategy Plan 1995 (IER Pty Ltd) and the AAHCT Business Plan 2000/2001.

The strategy recommends a continued strengthening of the Great Alpine Road as a tourism icon for the region. It proposes "close relationships with Parks Victoria and support of Parks Victoria initiatives relating to the Great Alpine Road. Parks Victoria have indicated that the Great Alpine Road and associated touring loops are a key tourism interest and has recently submitted a funding bid for regional tourism infrastructure to improve sites along the way¹⁹." This acknowledges that feeder roads to and from the Great Alpine Road are also strategically important.

It also identified seasonal visitation fluctuations, with a summer low-season in the high country.

7.3 RELATED STRATEGIES

7.3.1 GOLD ERA ASSETS STRATEGY (DRAFT), 2000

This is a statewide strategy prepared by Parks Victoria, and proposes a strategic blueprint for the regional development of Victoria's gold era assets. In eastern Victoria, Walhalla and Beechworth are

¹⁹ Confirmed by Evan McDowell, Parks Victoria, Bright, Oct 2001. First bid failed, now applying for federal funding - picnic area upgrades.

proposed for development as gateways to regional goldfields. Neither is within the study area, nor on major entry routes to the study area.

7.3.2 VICTORIAN HERITAGE STRATEGY, 2000

This document is a 5-year strategic plan, and was prepared by Heritage Victoria. The strategy envisions a network of places that provide optimum access to Victoria's rich cultural heritage. It proposes to explore options for strengthening links between heritage and tourism to achieve mutual benefits from the sustainable use of appropriate heritage assets.

7.3.3 CULTURAL SITES NETWORK - A GUIDE (DRAFT), 1998

This document was prepared by the Historic Places Section, Department of Natural Resources & Environment, Vic, to establish a representative system for departmental management of historic sites on public land with the state. Gold mining is identified as a state-level historic theme of high relevance, and the report proposes that management should encourage active, sustainable use of assets, and provide economic and/or tourism opportunities.

7.3.4 NEW SOUTH WALES

No plan comparable to the Victorian Heritage Strategy has been prepared by the State Heritage Office, and NPWS policies specifically dealing with gold era assets have not been examined.

7.4 LINKS TO TOURISM DEVELOPMENT STRATEGIES

There are opportunities to link heritage conservation & presentation with regional tourism strategies.

In Victoria, site development in association with the Great Alpine Road and its associated loops (Dargo High Plains Road & Omeo Highway) could be linked to the Alpine Region Tourism & Destination Marketing Plan. Outside of these areas, site development has little to offer to regional strategies, but of course may have high local value.

In New South Wales, site development could be linked to the Snowy Region Tourism Masterplan, on the basis of expanding the region's inventory of cultural heritage attractions, and assisting in broadening the market appeal of the region. Development would only assist the Masterplan if undertaken in accessible areas, near strategic roads or tracks.

Within the Australian Alps National Parks, there are a number of historic mining sites and landscapes whose conservation could assist regional tourism and related strategies.

Mining places, landscapes and associated infrastructure are distributed throughout the study area, and in consideration of adding value to conservation of historic mining sites through tourism, access provisions are paramount. Many interesting sites and diggings, including some of State significance, are in very remote areas. While there are management implications in the charters of the relevant government management agencies for protection of such sites (and indeed for cultural heritage in general), there appear to be no compelling reasons to consider presentation of these places as a contribution to regional tourism. In fact, presentation of these places would:

- Require addition of costly access infrastructure (roads, tracks) and on-going maintenance;
- Expose the fabric of the places to damage, in a situation where monitoring regimes would be minimal;
- Not guarantee visitation.

Therefore, the first consideration must be for presentation of places that are adjacent to, or relatively easily accessed from, the existing road and track networks of the various Parks and reserves within the study area.

7.5 INTERPRETATIONS CENTRES

7.5.1 VICTORIA

Parks Victoria's Gold Era Assets Strategy identifies five foci of gold heritage in the State. Two of these are in the eastern half of the Victoria - Walhalla and Beechworth. They are proposed for development as gateways to regional mining heritage, based on their wealth of assets and particular themes. Any development of mining interpretations centres would have greater strategic value in these places, and consequently would not be recommended within the Victorian Alps.

7.5.2 NEW SOUTH WALES

Kiandra is the only place in the NSW Alps that would merit development of an interpretations centre, based on its strategic location, wealth of assets, and high cultural heritage significance. Development of such a centre would involve considerable infrastructure and support development, not the least of which (under the present circumstances) would be construction and staffing of a new NPWS office. Construction would be constrained by heritage considerations, and operations would be constrained by environmental conditions. It is therefore not considered feasible to provide a staffed, cultural interpretations centre at Kiandra, in the short-medium term. Long-term options may include use of the former courthouse if it becomes available, but the concept is too nebulous to provide recommendations as part of this Strategy.

7.5.3 GENERAL

Notwithstanding the above, inclusion of further mining cultural heritage interpretations at existing Park information centres would be valuable, to connect visitors to this important aspect of the rich cultural heritage of the Australian Alps. For instance, presentation of the copper-mining history of the Yarrangobilly area at the caves information centre would be a logical development, given that a number of copper mines exist in remote locations within the Caves Reserve, and that it is central to the local copper mining industry. This was strongly recommended by Pearson (1979), but not acted on.

The information presented should also connect visitors to the actual sites/landscapes that will be presented as part of this Strategy.

8. CO-ORDINATED PROGRAM

8.1 SITES WITH POTENTIAL FOR DEVELOPMENT

8.1.1 PREAMBLE

In a practical sense, it is acknowledged that funding and other resources for mining heritage presentation will be limited, and selection of sites needs to be carefully considered.

For presentation purposes, significance as a rule-of-thumb selection guide does not necessarily apply. That is, some sites that may present outstanding features at a State level may not strongly present the story of mining in the Alps. Conversely, some sites of Regional/Local significance may be key parts of the story. Particularly (and naturally), sites of Regional significance would be expected to contribute to the story of mining in the region.

Examples of State-ranked sites that may not strongly present the story of mining in the Alps could include some of the 'technological' quartz-mining sites in the Dartmouth Unit of the Alpine NP. However the regionally-significant Thredbo diggings in Kosciusko NP is a key part of the story of mining in the Alps, because of its early role in bringing significant numbers of people into that part of the Alps, and its impetus to the early development of Jindabyne.

8.1.2 CRITERIA

The prime criterion for assessment of sites with potential for development is that they must present the characteristics of mining in the Alps.

The second criteria to be used is that the site/area must contribute to regional tourism programs. In practical terms, this means that the site/area must:

- Be close to a main road, popular walking track or camping area, to ensure that the facility is well-patronised;
- Present interesting features for interpretation, and offer good visual aspects (cultural & natural).

The third criteria used will be cultural heritage significance, which may be used to sift similar sites. It will also enable attention to chartered & legislative obligations, and assist with relevant State heritage strategies.

These criteria have been used to assess the sites tabulated below to determine a final list of places to be developed in a staged program (Presentation Strategy).

8.1.3 AVAILABLE SITES

A. NSW - KOSCIUSKO NATIONAL PARK

ROAD/TRACK*	MINING SITES**	LOCATION
Alpine Way	Thredbo Diggings	Along Thredbo River, from Little Thredbo River to Bulls Creek
Australian Alps Walking Track	Tantangara (12-mile?) Diggings Kiandra Creek Diggings	Junction of Tantangara Creek and Murrumbidgee River Junction of Kiandra Creek and Tantangara Creek

²⁰ According to route shown on Map 12, "Australian Alps Walking Track Map Guide", Australian Alps National Parks, undated (on sale at visitor centres, Oct 2001). These diggings are not on route shown on CMA Tourist Map of the Snowy Mountains, 1999 (Land Information Centre).

ROAD/TRACK*	MINING SITES**	LOCATION
	<p>Kiandra</p> <p>Access to North Bloomfield/Four Mile Diggings</p> <p>Access to South Bloomfield/Elaine Mine</p> <p>Nine Mile Diggings/Empress Mine</p> <p>Crooks Racecourse/McGregors Creek²⁰</p> <p>Grey Mare Hut & Mine/Bogong Diggings</p> <p>Access to Crackenback Diggings</p> <p>Tin Mine (Charlie Carter's Huts)</p>	<p>Junction of Alps Walking Track & Snowy Mountains Highway</p> <p>South of Kiandra, Tabletop Track</p> <p>South of Kiandra</p> <p>South of Kiandra</p> <p>Jagungal Wilderness Area</p> <p>Jagungal Wilderness Area</p> <p>South of Alpine Way, east of departure point from Thredbo River</p> <p>Near Mt Pilot, Pilot Wilderness Area</p>
Barry Way	<p>Minor Snowy River gold localities</p> <p>Jacobs Creek copper prospect (minor works)</p>	<p>Junctions of Pinch & Jacobs River with Snowy River</p> <p>Lower reaches of Jacobs River</p>
Bicentennial National Trail	(Possible nearby minor gold workings)	Tumut River crossing
Cabramurra Road (Kiandra to Khancoban)	<p>Kiandra</p> <p>Three Mile Dam</p> <p>"Goldseekers Track" battery & mine workings)</p> <p>8-mile diggings</p>	<p>Junction of Cabramurra Road with Snowy Mountains Highway</p> <p>West of Kiandra</p> <p>West of Kiandra</p> <p>North-east of Cabramurra</p>
Hume & Hovell Trail	Waterfall Creek minor shaft workings	Waterfall Creek, a tributary of Goobarragandra Northern Region
<i>Long Plain Road, Blue Waterholes</i>	<p>Yorkies Diggings</p> <p>Access to Black Mountain Mine</p> <p>Hancox's Workings</p> <p>Peppercorn Hill diggings</p>	<p>On Yorkies & Taylors Creeks, north east of Long Flat Hut</p> <p>South of Blue Waterholes</p> <p>Straddles Cave Creek, below Blue Waterholes</p> <p>West of road, north east of Peppercorn Hill</p>
<i>Ravine</i>	Lobbs Hole Coppermine (and others)	East of old Ravine township site
Snowy Mountains Highway	<p>Kiandra</p> <p>(Rules Point battery site?)</p> <p>Batty's Shafts (copper)</p>	<p>Junction of Cabramurra Road with Snowy Mountains Highway</p> <p>Rules Point</p> <p>Beside highway, south of Yarrangobilly</p>

* **Bold text:** Major strategic routes; Normal text: Other major roads/tracks; *Italics:* Popular camping areas & minor roads

** **Bold text:** State-significant sites, places.

B. VICTORIAN PARKS ETC

ROAD/TRACK*	MINING SITES**	LOCATION
Australian Alps Walking Track	<p>Mt Murphy wolfram mine</p> <p>Buenba Flat diggings</p> <p>Mt Wills quartz mining sites</p> <p>Access to Red Robin Mine (loop)</p> <p>Access to Razorback mines</p> <p>(Barry Range - possible minor reef workings)</p>	<p>Mt Murphy Historic Area</p> <p>Dartmouth Unit, Alpine NP</p> <p>Mt Wills Historic Area</p> <p>Bogong Unit, Alpine NP</p> <p>Bogong Unit, Alpine NP</p> <p>Wonnangatta-Moroka Unit, Alpine NP</p>
<i>Benambra-Corryong Road</i>	Dart River goldfield & reef mining sites	<p>Dartmouth Unit, Alpine NP</p> <p>Dartmouth Unit, Alpine NP</p>
Bicentennial National Trail	<p>Mt Murphy wolfram mine</p> <p>Limestone Creek base metal mines</p> <p>Grant township site</p> <p>Good Hope mine</p> <p>Crooked River diggings</p>	<p>Mt Murphy Historic Area</p> <p>Cobberas-Tingaringy Unit, Alpine NP</p> <p>Grant Historic Area</p> <p>Grant Historic Area</p> <p>Grant Historic Area</p>
Buckland River road	Buckland River sluicing & dredging sites	Mt Buffalo National Park
Dargo High Plains Road	<p>Access to Grant Historic Area (Grant, Good Hope mine etc)</p> <p>Upper Dargo reef/town sites (Evening Star, Verdun, Mammoth etc)</p> <p>Access to some Upper Dargo deep lead workings (eg Ryan's North)</p>	<p>Grant Historic Area</p> <p>Bogong Unit, Alpine NP</p> <p>Bogong Unit, Alpine NP</p>
<i>Deddick River road</i>	<p>Accommodation Creek</p> <p>Mt Deddick silver field</p>	<p>Snowy River NP</p> <p>Snowy River NP</p>

ROAD/TRACK*	MINING SITES**	LOCATION
Great Alpine Road	Access to Buckland River alluvial mining sites Access to East Branch, Ovens River dredging & sluicing areas (north end), via Dredge Holes Reserve East Branch, Ovens River reef workings (various) Monarch Mine (Track access to Razorback mines, Red Robin Mine) Brandy Creek mine & diggings (+ access to Boiler Plain, Tabletop deep leads)	Mt Buffalo NP Bogong Unit, Alpine NP Bogong Unit, Alpine NP Bogong Unit, Alpine NP Bogong Unit, Alpine NP Bogong Unit, Alpine NP
McMillans Walking Track	Mayford town site Upper Dargo river diggings Crooked River diggings & township sites (particularly Talbotville) (possible Wonnangatta River diggings - minor)	Bogong Unit, Alpine NP Bogong Unit, Alpine NP Grant Historic Area/ Wonnangatta-Moroka Unit, Alpine NP Wonnangatta-Moroka Unit, Alpine NP
Omeo Highway	Mt Wills reef mines Mt Moran Mine Sunnyside township site Glen Wills cemetery Glen Wills & Glen Valley townsites Maude & Yellow Girl mine Jokers Flat diggings (alluvial & reef)	Mt Wills Historic Area Mt Wills Historic Area Dartmouth Unit, Alpine NP
<i>Snowy River Road (Barry Way in NSW)/Benambra road</i>	Access to some Limestone Creek mines	Cobberas-Tingaringy Unit, Alpine NP

* **Bold text:** Major strategic routes; Normal text: Other major roads/tracks; *Italics:* Minor roads

** **Bold text:** State-significant sites.

The listed sites/areas represent all of those that could feasibly be developed (presented), without the addition of considerable access infrastructure.

The sites listed do largely represent the regional characteristics of mining in the Alps. High-level alluvial mining sites (deep lead & ground-sluicing) are well-represented in the NSW section, and mountain quartz mining in Victoria.

Victorian alluvial diggings along rivers are, however, poorly represented along major (strategic) routes in the parks.

8.2 STAGED DEVELOPMENT

At present, the Kiandra and Grant township sites are interpreted, but the only mining site among the thousands that exist in the Alps National Parks that has been substantially conserved and interpreted is the Greens Creek battery site, in remote and relatively inaccessible country near the Dartmouth Dam, Victoria.

To redress this deficiency, it is recommended that six sites throughout the Alps (3 in NSW and 3 in Victoria) be developed or improved for public access, as Stage 1 (highest priority) of this Presentation Strategy. These sites together present all the principal characteristics of gold mining in the Australian Alps.

All places are easily accessible and adjacent or close to major strategic roads through the Australian Alps. Their development would assist regional tourism, as incremental contributors to the inventory of regional tourism attractions, and by enhancing the visitor experience through a better understanding and appreciation of the cultural heritage of the Australian Alps.

This Presentation Strategy provides a model for development on an Alps-wide basis, assessing the best or most instructive places at a strategic level. Within any Park, Unit, Reserve or Historic Area in the Alps National Parks, there may be strong reason, incentive, support or policy for development of local cultural sites, and the proposals outlined here in no way prevent or discourage unilateral action in heritage conservation or presentation.

8.3 STAGE 1:

8.3.1 GENERAL

In Victoria, the presentation recommendations cover:

- An important mountain quartz mining site (conservation & presentation of the **Monarch Mine**);
- An important high-altitude hydraulic sluicing site (presentation of **Brandy Creek**);
- Some very accessible river alluvial diggings (interpretation of **Jokers Flat** diggings).

In New South Wales, the recommendations cover:

- An important mining landscape & high-altitude alluvial mining area (extension of interpretations at **Kiandra**);
- A very accessible high-altitude quartz mining site (some conservation works & an upgrade of interpretations on the **Goldseekers Track**);
- Some very accessible river alluvial diggings (installation of low-level interpretations at **Thredbo Diggings**).

In addition, a comprehensive Heritage Action Plan is recommended for the **Mt Wills Historic Area**, to address conservation, management and presentation requirements. Mt Wills goldfield is the highest producing field in the Alps National Parks, and contains some highly significant sites. Presentation of at least one quartz mining site would be seen as a desirable development, and a logical outcome of the Heritage Action Plan.

8.3.2 DEVELOPMENTS

KIANDRA, KOSCIUSKO NATIONAL PARK

Kiandra is the most important mining area in the New South Wales Alps. The town site is interpreted along a short walking track, and general history is included on information boards. However, there have been no attempts to connect the visitor to the actual diggings and mines that were the reason for the town's existence, nor to the broader aspects of the nationally-significant landscape.

The recommendations for Kiandra are:

1. Short extension of the town heritage walk to a suitable viewing point on Township Hill, where landscape elements can be indicated and interpreted;
2. Short extension of the town heritage walk to a suitable viewing point overlooking intensive ground sluicing workings on Pollocks Creek, behind the former courthouse;
3. Provision of a walking track & interpretations on New Chum Hill (recommended by Pearson, 1979, but not acted on).

An abbreviated Heritage Action Plan is included in the samples appended to this report (Appendix 2).

MONARCH MINE, BOGONG UNIT, ALPINE NATIONAL PARK

This mine is adjacent to the Great Alpine Road, the most important strategic highway in the Victorian section of the Australian Alps. It is arguably the most accessible of the State-ranked relic machinery sites in Victoria, as well as being one of the best in terms of its visual qualities.

Recommendations are for construction of carparking and access infrastructure, limited conservation works, and installation of interpretations. A brief Heritage Action Plan is included in the samples appended to this report (Appendix 2).

THREDBO DIGGINGS, KOSCIUSKO NATIONAL PARK

These are very accessible streamside alluvial diggings, showing typical features such as ground sluicing, shallow sinking, water race, diversions etc. The diggings are largely overgrown, but nonetheless remain visible from the picnic area and the established walking track.

The site is very important in presentation terms, because it is the only place in the southern NSW Alps where the casual or passing visitor can connect with mining heritage of the area – other mining areas, some including highly significant cultural sites, are remote from the main roads.

Recommendations are for basic information to be included on an information board at the picnic ground.

BRANDY CREEK MINE, BOGONG UNIT, ALPINE NATIONAL PARK

This mine best-presents the features of deep-lead hydraulic sluicing that is a common feature of mining at high-altitude in the locality. Other workings in the area occur at Boiler Plain (in a Reference Area), Tabletop and the Dargo High Plains.

Recommendations are for basic signage and historical interpretations. The site will require a more comprehensive survey than that appended to this report (see Sundry Plans in Appendix 2), especially to locate former occupation sites and other features of interest. Access is via a short track from the Great Alpine Road. The first section of this track is outside the Park, in the Alpine Resorts area, and arrangements for entry may need to be resolved. Opportunities for partnerships with Alpine Resorts, or private operators at Dinner Plain or Mt Hotham, may exist in the presentation of this site.

BATTERY AT THREE-MILE CREEK, KOSCIUSKO NATIONAL PARK

This is the most accessible of the authentic and in-situ battery sites in the NSW section of the study area. It shows a range of features, including a standing battery, mine workings (shafts, trenches & mullock dumps), hut sites & ruins, etc. The use of shafts for working the reefs is typical of high-altitude tableland workings, where there is insufficient hill slope to use adits. The features are very similar to those found at small reef workings in lower, flatter goldfields (eg many areas in central Victoria), and dissimilar to reef mines characteristic of the deeply-dissected, mountainous areas of the Alps (especially in Victoria).

The site is under active management as part of the Goldseekers Track, a short walking/cross-country skiing trail near 3-mile Dam, Kiandra. Presently, the quartz mining and processing undertaken here is very poorly interpreted in track brochures. The following is recommended:

1. Change the name of the track to “Battery Track”. “Goldseekers” conjures images of the early diggers at Kiandra, but the mining visible on the track does not relate at all to this theme;
2. Undertake stabilisation works on the battery, to maintain it as a standing unit in the longer term, and reduce potential risk environment;

3. Provide signed interpretations that interpret the full range of features at the site, including the workings, battery, hut sites etc.

Site plans of the battery & workings have been appended to this report (see Sundry Plans in Appendix 2).

JOKERS FLAT ALLUVIAL DIGGINGS, DARTMOUTH UNIT, ALPINE NATIONAL PARK

Alluvial gold diggings, consisting mainly of sluicing workings, are very common features along the rivers of the goldfields of the Victorian Alps. Selecting a representative area for presentation has some difficulties. Some well-preserved diggings with excellent visual properties are too remote (eg Upper Dargo, Wombat Creek, East Branch of the Ovens River, Cobungra River etc), and provision of suitable access would not be feasible. Other good areas are accessible, but only by 4WD vehicle, limiting their general availability (eg Crooked River, Dart River etc). Those on the Buckland River, Mt Buffalo NP, are “poor cousins” of surrounding sites outside the Park, and the best sites on the Gibbo River are on the opposite side of the river to the road, posing access difficulties. At Mt Wills HA, the extensive alluvial diggings (including hydraulic sluicing) near Glen Valley do not relate well to the principal historic theme of the Historic Area, quartz mining.

Heritage developments at Jokers Flat were proposed in the Dartmouth Unit Management Plan (1989). This site has several advantages, in that it is situated on a major strategic road through the Victorian Alps (Omeo Highway), and that the area is already actively managed by Parks Victoria for camping/picnicking. Installation of basic interpretations is recommended, and a brief Heritage Action Plan is included in the samples appended to this report (Appendix 2).

MT WILLS HISTORIC AREA

Prepare a Heritage Action Plan that:

1. Undertakes a comprehensive inventory of heritage values within the Historic Area;
2. Establishes management policy;
3. Identifies urgent conservation requirements;
4. Details conservation & presentation of at least one important & accessible quartz mining site;
5. Provides for information shelter/s on the Omeo Highway.

8.4 STAGE 2

8.4.1 GENERAL

Stage 2 for the presentation of the mining heritage of the Australian Alps identifies several opportunities for expanding mining cultural interpretations, should sufficient funding and interest be available.

In NSW, these continue the strong alluvial mining themes at Kiandra, and extend to two other important sites in more remote areas, but adjacent to the Australian Alps Walking Track. In Victoria, presentation of the Good Hope Mine (Grant HA) would continue the strongest theme of mining in the Victorian Alps - reef mining for gold.

Again, it should be stressed that the proposals outlined here in no way prevent or discourage unilateral action in mining heritage conservation or presentation, based on current programs or policies. Some local opportunities are identified in the Action Plan that follows the Presentation Strategy.

8.4.2 PLACES FOR DEVELOPMENT

NINE-MILE DIGGINGS TRACK, KOSCIUSKO NATIONAL PARK

The Tabletop Mountain Track from Kiandra provides access to some of the most impressive and important mining sites in the region. These include the giant Empress hydraulic sluicing hole, the Elaine mine, the North & South Bloomfield hydraulic sluicing works, the 9-Mile diggings, and the 4-mile hut & diggings. Directions for access to some of these places is given in several popular walking guides, and they are routinely but not heavily visited. A visitors book has even been provided at the Elaine Mine. This had been replaced by scraps of paper, noted during site visit in Oct 2001, with about 17 names for the year to that date. Provision of marked access to the Elaine mine was canvassed by Pearson (1979), but no action has been taken.

Development of a “diggings track” (Goldseekers Track?) would be a desirable development in the medium term. Ideally, this loop track from Kiandra would follow the Tabletop Mountain Trail (part of the Australian Alps Walking Track) from Kiandra to the 9-Mile diggings & Empress Mine, and return via South Bloomfield sluice hole, Elaine Mine, Bloomfield Creek, and 4-mile hut & diggings. From here the track could rejoin the Tabletop Mountain Trail, or follow 4-Mile Creek downstream to the Eucumbene River and thence upstream to Kiandra.

Heritage Action Plans for some sites are included in the samples appended to this report (Appendix 2).

GOOD HOPE MINE, GRANT HISTORIC AREA

The Good Hope Mine was the largest quartz-mining operation in the Crooked River goldfield. It has one of the best inventories of relic machinery and evidence of changing technologies in the State. In presentation terms, however, it provides the best opportunity to showcase the largest of the reef mining operations that built Grant. This relationship should be interpreted at the site, along with the sequencing of operations and the historical processing technologies represented.

Upgrading of road & walking track access should accompany presentation of the site, to permit greater public appreciation of the Good Hope Mine.

TIN MINE, KOSCIUSKO NP

The Tin Mine is situated beside the Australian Alps Walking Track, in remote country in the southern part of the NSW Alps. The Kosciusko National Park Plan of Management (1982) has identified Charlie Carter’s Hut & the Tin Mine Barn as historic places, and their maintenance is already addressed. These huts (and the ruins of others at the site) are only one part of a site network that includes several alluvial tin (and gold) workings, water races, tracks, former hut sites, etc, stockyards etc that together provide the story of the place. In addition, there are also workings on primary tin lodes (shafts, trenches etc) in the area. Historic themes go beyond mining, to exploration (Rev Clarke etc), brumby running, scientific research (Snowy Mountains Authority) and personalities of the Australian Alps (Charlie Carter).

Survey of the unrecorded elements of the network, their visual aspects and their accessibility is a necessary pre-requisite to identifying opportunities to present this story. It is unlikely that any part of the fabric other than the remnant huts will require active intervention for conservation purposes.

Any visitor infrastructure (tracks, interpretations etc) for the Tin Mine should be low-maintenance, minimal, and low-key in the landscape, so as not to impact on the broader wilderness experience. Pamphlet-based interpretation, combined with directional signage, remains an option.

GREY MARE MINE, KOSCIUSKO NP

This remote site is adjacent to the Australian Alps Walking Track. The Grey Mare Hut and the ruins of the Grey Mare Diggings Hut have been identified as Historic Places in the Kosciusko Plan of Management (1982). The former is to be maintained, and the latter managed as a ruin. At present, there is a tendency to view the huts and the remnant mining machinery as the historic fabric of the Grey Mare.

However, the historical record suggests that there is considerably more to the Grey Mare than this. These workings are easily the highest reef-gold producers in the NSW Alps, with most of the production in the first decade of the twentieth century. Several mining operations were carried along the line of the 'Bogong Reef' (as it was originally called), after gold was traced uphill from the Bogong alluvial diggings. It is probable that an earlier machinery site exists near the main early workings (which are separate from the later workings for which the extant machinery was brought to the site), as well as associated tracks and a number of unrecorded hut sites.

Any future interpretations should connect the visitor to the relationship between the alluvial and quartz reef gold deposits. Any visitor infrastructure (tracks, interpretations etc) for the Grey Mare Mine should be low-maintenance, minimal, and low-key in the landscape, so as not to impact on the broader wilderness experience. Pamphlet-based interpretation, combined with directional signage, remains an option.

8.5 STAGE 3:

Stage 3 identifies two important historic gold mining places in the Australian Alps that are not under the management of the relevant Parks service at present, but will be at some time in the future.

RED ROBIN MINE, BOGONG UNIT, ALPINE NP; MAUDE & YELLOW GIRL MINE, MT WILLS HISTORIC AREA

These are two important historic gold mining places in the Victorian Alps that are subject to current Mining Licences, the Red Robin Mine (Bogong Unit, Alpine National Park) and the Maude & Yellow Girl Mine (Mt Wills Historic Area). Both of these places have been assessed as of State cultural heritage significance, although the Maude is yet to be nominated to the Victorian Heritage Register.

Their significance derives partly from their outstanding state of preservation & the range of features they display, compared to other mountain quartz mines in Victoria that exist largely as archaeological fabric. The built and machinery assets of the mines are privately owned, but the Registered items at the Red Robin have legislative protection under Part 4 of the Heritage Act, 1995. Assuming successful Registration of the Maude, an as yet undetermined number of these assets are likely to become property of the Crown on relinquishment of the licences, and come under the management of Parks Victoria.

Both these places can be considered outstanding for presentation purposes, not only for their individual features and historical significance, but for their ability to offer information and understanding of more poorly preserved quartz mines & treatment sites. The Red Robin (upper & lower sites) is situated on a popular loop walking track (Mt Loch carpark – Machinery Spur – Red Robin – Dibbins Hut – Swindlers Spur), and is accessed from the Great Alpine Road. The Maude sites (No 5 adit, 1939 plant, 1941 plant) are only a short distance off the Omeo Highway in each case.

Whether these two places are presented or not, Parks Victoria will have a special obligation to actively care for them on behalf of the people of Victoria, because their cultural heritage significance revolves around fabric that will not survive without active management. Parks Victoria therefore needs to be prepared to take over management of these two mines.

9. HERITAGE ACTION PLAN

9.1 RECORDING & CONSERVATION

Most mining places and landscapes consist of robust mining features (dumps, shafts, sluicing workings etc) that require no management intervention in their protection. However the Alps have some exceptional places of regional, state & national significance that contain fragile features left over from the historic operations. These are principally aging machinery relics, equipment & structures that provide physical evidence of mining technologies. Some pieces are well in excess of 100 years of age, and have suffered long exposure to weather conditions in the Alps. There may be simple actions that can be taken to help prolong the survival of deteriorating, significant fabric.

Care of these places is consequently a priority in discharging the chartered obligation of protecting cultural values. Because this study has found that mining heritage assets are generally poorly recorded in the Alps, *any planned recording programs should be targetted towards these sites.*

The following sections of this report should be referred to for guidance in recording historic mining sites:

- Section 5.2.9 – basic requirements;
- Appendix 1 – sample Site Gazetteers;
- Appendix 2 – sample, basic site plans, contained in Sample Heritage Action Plans. Also Sundry Site Plans packaged at end of Appendix 2.

The following sections of this report can be referred to for guidance in protection works:

- Appendix 3 – Flow Charts for the process of decision-making at historic mining sites;
- Section 5.1 – General policy for protection & conservation of historic mining sites;
- Section 5.2.5 – General guidelines for flora, fauna & fire management at historic mining sites;
- Section 5.2.6 – General guidelines for mining cultural landscape management;
- Appendix 2: Sample Heritage Action Plans – contain specific examples of conservation works that are applicable to a variety of types of mining sites & landscapes, with a variety of extant fabric. Reference to the introductory page of Appendix 2 should be used to select places that are similar to those under consideration for future protection works.

9.2 PRESENTING HISTORIC MINING PLACES & LANDSCAPES

Strategic presentation of selected historic mining sites & landscapes in the Australian Alps National Parks ensures that the importance and principal characteristics of mining in the Alps can be interpreted to the public in authentic and widely-accessible locations. It also attends to protection of the heritage values of those places, and ensures maintenance through adaptive use.

The following sections of this report can be referred to for details of the recommended presentations and guidance in their development:

- Sections 8.3 to 8.5 – Recommendations for presentations;
- Appendix 2 – Some sample Heritage Action Plans for sites recommended for presentation are included. Basic site plans for some others are packaged in Sundry Site Plans at the end of Appendix 2.
- Appendix 1 – Some basic site gazetteers for sites recommended for presentation are included.

9.3 STAGE 1 – ALPS-WIDE PRESENTATION OF HISTORIC MINES & LANDSCAPES

Actions:

1. Overarching responsibility for Stage 1 presentations should be assigned. Parks Victoria's Heritage Strategy section should be considered, because of their experience and expertise in presentation of historic mining sites/landscapes;
2. Each involved unit (Kosciusko National Park Northern & Southern Regions, Alpine National Park Bogong & Dartmouth Units) should undertake planning for presentation of their sites/landscapes, in consultation with the responsible co-ordinators, per 1. above, and their own PV/NPWS heritage sections. Some presentations are relatively simple, but others may require additional funding for heritage planning;
3. Costings should be produced, sufficient to prepare a joint grant funding application;
4. Relevant permits or consents under each State Heritage Act should be obtained for non-exempted works.

9.4 UNIT-BY-UNIT RECOMMENDATIONS

9.4.1 INTRODUCTION

This section summarises mining cultural heritage on a unit by unit basis in the Alps National Parks and adjoining Historic Areas, and provides directions for the managers of the cultural assets. Parks & reserves with no known mining heritage values are identified, but no recommendations are made. These areas may still have some potential to show evidence of prospecting or mining activities.

For all units, managers are encouraged to undertake, facilitate or foster further investigation and site recording of historic mining sites, diggings & landscapes within the Park, in line with recommendations in their Management Plans. Direction is given for some units, to maximise the benefits of any site recording undertaken.

9.4.2 AUSTRALIAN CAPITAL TERRITORY

NAMADGI NATIONAL PARK

No historic mining sites are known within this Park, although prospecting for gold has been referred to. Copper mines & prospecting works occur just outside the Park.

9.4.3 NEW SOUTH WALES

The major concentrations of mining cultural heritage in the New South Wales section of the study area occur exclusively in the Kosciusko NP, and the management recommendations outlined below reflect this.

BIMBERI NATURE RESERVE

Some mining cultural heritage values may occur within this Reserve, but none have been located to date. Of some interest may be the Mt Franklin Mine, if it exists within the Reserve, because there are some indications that machinery, including a stamp battery, may have been used at the site.

BRINDABELLA NATIONAL PARK

Some mining cultural heritage values may occur within this Reserve, but none have been located to date.

KOSCIUSKO NATIONAL PARK

This Park contains virtually all known mining heritage values in the NSW Alps National Parks. All types of gold mining are represented, but the bulk of production is from alluvial gold. Mining heritage features are distributed throughout the Park. Copper and other base metal mining is widespread, on a relatively small scale. The Kiandra goldfield, in the Northern Region of the Park, is the largest and most important alluvial gold mining area in the Alps National Parks.

Little site recording has been done in the Park, and many outlying or remote fields have not been described. Of some interest among these are the Crackenback diggings (where a Chinese grave has been reported), the various Goobarragandra diggings, the copper mine/deposit near Blue waterholes (geological site), the Toolong diggings, Peppercorn Hill diggings (2), various diggings on the fall to the Gungahlin River, 8-Mile & 15-Mile Creek diggings (Kiandra), Tantangara Creek diggings (3) etc. Locations for a number of mines/diggings referred to in the historical record are unknown.

Recommendations are:

1. Undertake site/landscape presentations, per Stage 1 of the Presentation Strategy, at Kiandra & Thredbo;
 2. Examine feasibility of further presentations, per Stage 2 of the Presentation Strategy;
 3. Examine opportunities to present more information on the mining cultural heritage of the Park at the various NPWS information centres;
 4. Direct any programs of site recording towards producing a mining cultural assets inventory of relic machinery sites within the Park (eg Lorna Doone, Broken Cart, Blue Creek & Horseshoe mines). These are likely to be the only places where management intervention may be required, in the form of simple conservation actions that can assist in the survival of the aging fabric.
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SCABBY RANGE NATURE RESERVE

No mining cultural heritage values have been located in this Reserve.

9.4.4 VICTORIA

The major concentrations of mining heritage in the Victorian section of the study area occur in:

- *The Bogong Unit of the Alpine NP;*
- *The Dartmouth Unit of the Alpine NP;*
- *Mount Wills Historic Area;*
- *Grant Historic Area.*

All other Parks/Units/Historic Areas contain mining cultural heritage values of varying significance, except the Avon Wilderness Park.

ALPINE NATIONAL PARK, BOGONG UNIT

The Bogong Unit of the Alpine NP is rich in mining heritage, and all types of gold mining are represented. Its inventory of in-situ relic quartz-mining machinery, contained in the Upper Dargo and extending out of the Park into the broader Upper Ovens Goldfield, is probably unmatched in Victoria. It includes numerous stamp batteries, boilers, steam engines, Pelton wheels, mining equipment such as ore trucks etc. The Upper Goulburn – Walhalla belt is the only other place in the state that may approach this inventory. Not all of the sites have been well-recorded, and high potential remains for others to be found. In general, these sites are in rugged, remote country, which is the major reason the machinery has not been salvaged.

The Unit contains virtually all of Victoria's high-altitude alluvial (deep lead) workings, and within the Alps National Parks, its quartz mining is second only to that in Mt Wills Historic Area. The most productive mines were in the East Branch of the Ovens River, and were an extension of the Upper Ovens field that produced about ¾ million ounces of reef gold, or about 3½ times the production of Mt Wills.

The Unit is traversed by the Great Alpine Road, strategically the most important road crossing the Victorian Alps.

Recommendations:

1. Undertake presentation of 2 mining sites, per Presentation Strategy, at the Monarch Mine and Brandy Creek;
2. Prepare for a seamless transition in management of the Red Robin Mine, and identify end use of the place;
3. Direct any programs of site recording at producing a mining cultural assets inventory of relic machinery sites within the Unit (perhaps as a sub-set of Parks' Cultural Assets Register). These are likely to be the only places where management intervention may be required, in the form of simple conservation actions that can assist in the survival of the aging fabric;

ALPINE NATIONAL PARK, COBBERAS-TINGARINGY UNIT

Mining heritage values are distributed widely, but sporadically, within this Unit, but there has been no site recording undertaken. Of some interest are the gold and base metal workings on Limestone Creek and its tributaries, and the gold workings on the Upper Murray, including Dead Horse Creek. While it is unlikely to contain sites of State heritage significance, the various mines, diggings, mining tracks, races etc may nonetheless offer evidence of exploration and development in this very remote region of Victoria.

ALPINE NATIONAL PARK, DARTMOUTH UNIT

The Dartmouth Unit of the Alpine NP is rich in mining heritage, and contains evidence of all types of mining for gold. Of particular interest are important technological sites in the Dart River and Greens Creek Historic Zones, as well as former mining townsites in remote areas such as the Dart and Wombat Creek. Some base metals mining has been carried out.

Recommendations:

1. Undertake presentation of mining site, per Presentation Strategy, at Jokers Flat;
2. Direct any programs of site recording at producing a mining cultural assets inventory of relic machinery sites within the Unit (perhaps as a sub-set of Parks' Cultural Assets Register). These are likely to be the only places where management intervention may be required, in the form of simple conservation actions that can assist in the survival of the aging fabric;
3. Examine options for presentation of basic goldfield history at an appropriate place in the Dart River.

ALPINE NATIONAL PARK, WONNANGATTA-MOROKA UNIT

The only highly significant mining heritage values known in this unit occur at its junction with the Grant Historic Area, and this section should be managed as an extension of the Grant Historic Area. Similarly, minor extensions of the Howqua goldfield into this Unit should be managed as part of the Howqua Hills Historic Area. The so-called Chromite Mine should be managed as a geological rather than a cultural site.

However, several mining tracks cut by the Victorian Mines Department traverse the Unit, and there are a number of areas where mining heritage values may exist. While location of these heritage assets is not seen as a high priority in the management of this Unit, there may be opportunities to facilitate or encourage surveys, using interested people or organisations.

AVON WILDERNESS PARK

No mining heritage values have been located within this Park, and it is highly unlikely that any exist. Any that may be located in the future should be recorded, but no management action is recommended, in keeping with the Park's special status as a wilderness, unless there are overriding heritage implications.

GRANT HISTORIC AREA

Grant Historic Area has an abundance of mining heritage assets, but only the Grant township site is significantly interpreted. Presentation of the Good Hope Mine would be desirable, and provide context for the existence of Grant. Strong historic themes also exist in the Crooked River town sites, diggings and mines.

There is strong local interest in the mining heritage of Grant HA, and there are opportunities to further develop partnerships in the recording and presentation of this heritage.

Recommendations:

1. Examine options for presentation of Good Hope mining site, per Stage 2 of Presentation Strategy;
2. Direct any programs of site recording at producing a mining cultural assets inventory of relic machinery sites (perhaps as a sub-set of Parks Victoria's Cultural Assets Register). These are likely to be the only places where management intervention may be required,

- in the form of simple conservation actions that can assist in the survival of the aging fabric;
3. Examine options for presentation of basic goldfield history at an appropriate place in the Crooked River (eg former townsite, adjacent to alluvial workings).

Mining is still a permitted activity within the suite of Historic Areas in Victoria, and detailed knowledge of cultural assets in these places is an essential pre-requisite to making good management decisions on permit conditions, in the event of title applications. These decisions should not be made on an *ad hoc* site-by-site basis, but on policy backed by a comprehensive cultural assets inventory.

HOWQUA HILLS HISTORIC AREA

No recommendations are made with respect to the Howqua Hills Historic Area, for which a comprehensive Heritage Action Plan has recently been completed.

Mining is still a permitted activity within the suite of Historic Areas in Victoria, and detailed knowledge of cultural assets in these places is an essential pre-requisite to making good management decisions on permit conditions, in the event of title applications. These decisions should not be made on an *ad hoc* site-by-site basis, but on policy backed by a comprehensive cultural assets inventory.

MOUNT BUFFALO NATIONAL PARK

Mt Buffalo is an unusual case, where mining heritage exists principally on the periphery of the Park (with the exception of the so-called Chinese Wall), away from the management focus of the Buffalo Plateau. Along the eastern edge of the park lie some of the better dredging and low-altitude hydraulic sluicing landscapes in the Alps National Parks. However, presentation is not recommended for the main reason that much better sluicing and dredging landscapes exist on nearby Crown Land in the Buckland Valley (and other areas of the Upper Ovens), outside the boundaries of the Mount Buffalo National Park.

While mining is not generally considered an important historic theme because of the management focus on the plateau, it is interesting to note that the proportion of land directly affected by gold mining in the relatively-small Mt Buffalo NP is probably the highest of all the Alps National Parks, and would be comparable to the Grant and Mt Wills Historic Areas. There has been no formal site recording of historic mining places in the Park.

Recommendations:

1. The “Chinese Wall” (wall of storage dam for hydraulic sluicing) may be interpreted – interpretation does not have to be on-site, and could be included on information boards, brochures etc as part of a wider cultural interpretations program. The wall is part of a site network that includes the workings & water races of the Buffalo Hydraulic Sluicing Co in the Buckland valley. This network is largely contained within the Mt Buffalo National Park.

MOUNT MURPHY HISTORIC AREA

The heritage values of the Mount Murphy Historic Area derive principally from the Mt Murphy Wolfram Mine. Presentation of this site is not seen as a high priority in the short term, because of its remoteness, and the difficulty of providing an adequate level of security and maintenance. Early gold workings may exist in the head of the Buckwong, on the eastern side of the Historic area.

Mining is still a permitted activity within the suite of Historic Areas in Victoria, and detailed knowledge of cultural assets in these places is an essential pre-requisite to making good management decisions on permit conditions, in the event of title applications.

Prioritised recommendations:

1. Record both sites (site plan, photography & inventory) at the Mt Murphy Wolfram Mine;
2. Undertake an assessment of threats to the extant relics, sufficient only to devise simple actions to help prolong their survival.

MOUNT WILLS HISTORIC AREA

Mount Wills Historic Area has been reserved because of its concentration of heritage features relating to historic mining (particularly quartz mining), but nowhere within the area are interpretations of its history and heritage available to the public. Heritage features include mining & treatment sites, mining township sites, cemetery, roads & tracks, water races, tramways etc. State cultural heritage significance has been assessed at two mines, but they have yet to be nominated to the Victorian Heritage Register. A number of others are of Regional significance.

Development of interpretations is seen as a priority, but these should be planned as part of a comprehensive Heritage Action Plan, recommended as a priority in the Presentation Strategy, above.

Mining is still a permitted activity within the suite of Historic Areas in Victoria, and detailed knowledge of cultural assets in these places is an essential pre-requisite to making good management decisions on permit conditions, in the event of title applications. These decisions should not be made on an *ad hoc* site-by-site basis, but on policy backed by a comprehensive cultural assets inventory.

SNOWY RIVER NATIONAL PARK

The most important sites in the Snowy River NP are the Accommodation Creek Copper Mine and the Mt Deddick silver-lead field. Isolated sites along the Snowy River to the south (eg New Guinea, Betts Creek) are essentially deposits that have been opened but not mined, and are unlikely to contain significant heritage features.

The Accommodation Creek Copper Mine is the largest copper mine in the Victorian section of the Alps National Parks. It is the only mine in the Snowy River NP with substantial fabric of its former operation retained at the site (battery, shed & machinery remnants). It is just inside the Park boundary, and accessed from Deddick via dirt track. Its location does not recommend it to development or interpretation, but it should be adequately recorded. Its maintenance (at least a low-level monitoring program for changes to the site) should form part of management.

The Mt Deddick silver-lead mines are an interesting group, and were opened with a rush that saw some 60 sq km of country pegged out. The only equivalent event (ie base metals rush) in the State occurred at the Mt Wills tin field. These rushes in their infancy were similar in most respects to those at Broken Hill, Thackaringa (NSW) etc, but lacked the mineral resources to sustain an industry. The important themes revolve not so much around the mining operations themselves (which were generally failures), but around the rush to this remote area, the “company” basis of this rush, and the early hopes invested in this field.

The Mt Deddick silver field is accessed via the Silvermine Walking Track, from McKillops Bridge. Small-scale workings occur sporadically over a large area, and the remains of a log hut near the overnight camping area appears to be associated with the diggings. Recording of the mining sites and associated track & occupation sites is a priority, before assessing options for further interpretation.

Prioritised recommendations:

1. Record mining sites & associated infrastructure at Mt Deddick Silver Field;
2. Record Accommodation Creek Copper Mine site, and institute low-level monitoring regime (at least an annual site visit & assessment). Block any vehicular entry into actual site, to inhibit theft;

3. Examine options for installing historical interpretations along the Silvermine Walking Track.
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