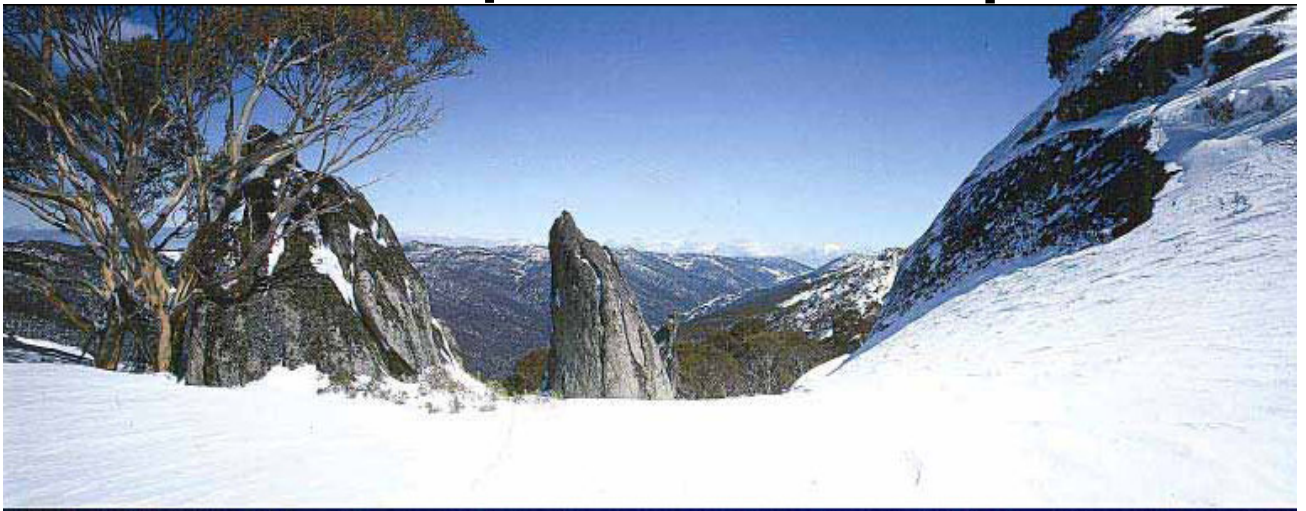




**NSW National Parks
and Wildlife Service**

Kosciuszko National Park Plan of Management (2006)

2009-2010 Implementation Report



**Environment,
Climate Change
& Water**

Contents

Executive Summary	3
Update on the Park values and development of key milestones	
Schedule 11 Plan Implementation Priorities	
Current Research	
1. Kosciuszko National Park Plan of Management	7
2. Amendments to Kosciuszko National Park Plan of Management	8
3. Integrated Monitoring and Evaluation Program	8
4. Update on progress of implementation of management actions	13
5. Update on progress of development of key milestones	14
6. Major planning processes, activities or developments during reporting period 2009-2010	17
• Repairing the Roof of Australia	17
• Heritage Tourism	18
• Huts Reconstruction	19
• Walking Tracks and Camping Areas	21
• Park Restoration	21
• The KNP Horse Management Plan	23
• Wild Dog Management	24
• Pest Management	24
• Hawkweed Control	24
• Fire Monitoring	25
• Tourism Promotion and Visitor Facilities	26
• Discovery Programs	27
• Protecting our Precious Wildlife	27
• Alpine Resort Areas	28
• Perisher Range resorts Infrastructure Upgrade Program	28
• Interpretation	29
• Environmental Management Systems	29
• Energy Audit	30
7. Current Research	
• Threatened frog Recovery Program (Spotted Tree Frog Recovery Project, Southern Corroboree Frog Project)	31
• Mountain Pygmy Possum	31
• Weed Research	32
• Dendroecology of the Mountain Pine (<i>Podocarpus lawrencei</i>)	33
• Alpine Ash (<i>Eucalyptus delegatensis</i>)	33
• Dogs in Space Australian Satellite Tracking Program	34
• Monitoring Spotted-tailed Quoll against Canid Control Operations	35
• Feral deer field Identification Guide	37
8. Conclusions	38

Executive Summary

The Kosciuszko National Park Plan of Management (the Plan) is available on line at:
<http://www.environment.nsw.gov.au/parkmanagement/KNPMgmtplan.htm>

This Implementation Report, a requirement under the Plan (Chapter 16) charts the trends in condition of the Parks values and the progress of the Plans implementation. This report covers the period from July 2009 to June 2010, four years since the plan was adopted and is intended for presentation to the Advisory Committee and key stakeholders.

The Plan identifies 15 key milestones (Section 4.4). Their implementation will set in place structures and processes to govern many of the efforts directed at protecting, maintaining or improving the significant values of the Park (Section 2.2). They will assist with the achievement of the Key Desired Outcomes (Section 4.3) for the Park. They will also provide a framework for the implementation of management objectives, policies and actions over the life of the Plan.

These key milestones are being delivered through a series of strategic projects. Their timely achievement does not negate the need to undertake ongoing park management tasks. The ordering of these projects relates to the priority for establishing the systems that will underpin the implementation of the Plan.

Some key milestones will be delivered through projects specific to the Park whilst others will be delivered via state-wide programs whose implementation will see the achievement of key milestones within the program.

Amendments to Kosciuszko National Park Plan of Management.

Amendments related to geotechnical and water management were adopted by the Minister for Climate Change and the Environment on 26th May 2010. The amendments were associated with *Section 10.2, Section 10.2.1.1 Section 6.6* and can be viewed online:
<http://www.environment.nsw.gov.au/parkmanagement/KNPMgmtplan.htm>

For further information on these five amendments, contact the Visitor and Business Services Section, NPWS, PO Box 2228, Jindabyne, NSW 2627 (phone 02 6450 5555).

Integrated Monitoring and Evaluation Program

The 2009 - 2010 assessment of the Condition of Values and Trends appears in Section 2. This is based upon information collated through the generic Key Performance Indicators template. This is the second report which details recent changes assessed against the values information that is contained within the Kosciuszko National Park Plan of Management (2006). Some changes have occurred to values, both positive (improved recreation) and negative (impact of horses to natural and historic values).

Update on progress of implementation of Management actions:

The management actions identified throughout the Plan are summarised in Schedule 11. These actions are given an implementation priority in the Plan. Of the 482 actions, 101 have a High priority, 191 Medium priorities, 17 Low priority and 173 as ongoing. The Kosciuszko Action Database allows the implementation of these actions to be tracked.

Update on progress of development of key milestones:

The following four key milestones are completed and being implemented in line with availability of resources and available funding:

Integrated Monitoring and Evaluation Program (which incorporates the Key Performance Indicators, Integrated Monitoring Program and Integrated Evaluation System key milestone projects as detailed in Chapter 16). The Integrated Monitoring and Evaluation Program has been developed and a summary report has been included in this current Implementation Report.

The Kosciuszko Action Database a component of the Integrated Monitoring and Evaluation Program is underway. This Database is used to assist with monitoring and evaluating the Plan, tracking the implementation of individual actions detailed in Schedule 11 and assist with meeting the reporting requirements detailed within Chapter 16 of the Plan;

Park Restoration Plan (Section 11.1). A Park Restoration Plan has been completed and is being implemented in line with available resources and funding. It can be viewed online at: <http://www.environment.nsw.gov.au>

Environmental Management Systems (Section 12.1) The Perisher Range Resorts Environmental Management System (PRREMS) has streamlined reporting to an annual on-line report system for lodges. Initial EMS Reports were received from Perisher Blue, Kosciuszko Thredbo, Selwyn Snowfields and Charlotte Pass Village. The outcomes from the individual reports will be combined with the PRREMS 'Whole of Lodges' Report and NPWS activities to provide an 'EMS Implementation Overview Report' in 2010/11. Information related to The Perisher Range Resorts Environmental Management System (PRREMS) including reports, background information and the Lodge Environment Manual are all available on line at <http://www.environment.nsw.gov.au/PRREMS/>.

Park Communication Plan (Section 13.1). A Draft Communication Plan has been completed. During 2010-2011 a small working group will review the priority actions detailed in the draft plan and following endorsement by the Kosciuszko Steering Committee it will be implemented in line with available resources and funding.

A further eleven key milestones (Section 4.4) have been identified in the plan to be completed or underway within five years of the plan's approval. Projects have commenced which will contribute to meeting some objectives of the eleven key milestones;

Significant Plant and Animal Management Regimes (Section 6.7 and 6.8). Development has commenced on the identification of appropriate management regimes for threatened plants and animal species and communities within Kosciuszko National Park. These regimes will assist with guiding management to protect those parts of the park where threatened species are found or likely to be found. A report identifying further work required is in preparation and will be presented to the Kosciuszko Steering Committee during 2010-2011.

Visitor Data System (VDS) (Section 8.1). Components of the Visitor Data System are being implemented across the Park.

Main Range Recreation Management Strategies (Section 9.1). The Waste Management Strategy is completed and is being implemented.

Huts Conservation Strategy (Chapter 7). The completed strategy is being implemented in line with available resources and funding. It can be viewed on line at:
<http://www.environment.nsw.gov.au>

Visitor Facility Strategies (Section 8.2). A state wide Park Facilities Manual has been completed and -is being implemented within the Park.

Management Partnerships (Chapter 7). The Southern and Northern Kosciuszko Aboriginal Working Groups are negotiating Memorandums of Understanding to ensure cultural sites are protected and appropriately interpreted within Park. The MOU's also provide opportunities for Aboriginal communities to have input into park management decisions and to provide training and employment opportunities.
All planning, maintenance and construction work on huts is completed in cooperation with the Kosciuszko Huts Association as detailed in the Memorandum of Understanding.

Visual Management System (Section 11.6). There are currently visual management strategies being implemented across the park. For example the NPWS Rehabilitation Guidelines for the Resorts of the Park. It can be viewed on line at:
<http://www.environment.nsw.gov.au>

Current Research

During this reporting period there were a variety of research and monitoring projects underway in Kosciuszko National Park including:

- Spotted Tree Frog recovery project.
- Southern Corroboree Frog recovery project.
- Alpine ash (*Eucalyptus delegatensis*) monitoring.
- "Dogs in Space": Australian Satellite Tracking Program.
- Monitoring Spotted-tailed Quolls against Canid Control Operations.
- Mountain Pygmy Possum
- Broadtooth Rat
- Ongoing Alpine monitoring programs.
- Orange Hawkweed research and monitoring.
- Horse impact monitoring.
- Feral Deer Field Identification Guide.

Conclusion:

The challenges for the next year include:

- Updating, staff training and distribution of the Kosciuszko Action Database a component of the Integrated Monitoring and Evaluation Program.
- Preparation of 5 year review process for the Kosciuszko National Park Plan of Management.
- Continuing the range of research and monitoring programs as per the Regions Research Monitoring Strategy.
- Implementation of the Regional Operations Plan.
- Continued implementation of the horse control and impact monitoring program.
- Continuation of the infrastructure improvement program at Yarrangobilly.
- Continuation of stage 2 of the Thredbo-Bullocks shared use trail.
- Continue to implement PAS and Recovery actions for threatened species.
- Continue to implement the Hawkweed Control program and review methodology/results in 2011.
- Continue providing/upgrading visitor facilities and experiences.

Kosciuszko National Park Plan of Management (2006)
2009-2010 Implementation Report

- Investigate key sites for expansion of the Visitor Data System now running successfully at a number of sites in the park.
- Work closely with Tourism Snowy Mountains and FORTO to develop the very best year round campaigns that assist in meeting the State plan requirements for a 20% increase in visitation to parks.
- Continue the development of efficient and cost effective waste reduction and recovery in the Perisher Range Resorts including implementation of a waste collection strategy and construction of a waste transfer facility.
- Ongoing implementation of operational and equipment upgrades to the Perisher Sewage treatment plant to further environmental performance and ensure public and employee safety.
- Continued implementation and construction of the road network in the Perisher Range Resorts to increase visitor safety, resort amenity and reduce pollution and other environmental impacts by traffic in winter.
- Update accommodation listing in June of any accommodation establishments that have increased/decreased bed numbers or created as a result of new developments.
- Accommodation Compliance – Ongoing audit programme of lessees and compliance with their overnight bed numbers within the Lease. Development of new programs to ensure compliance of self-contained apartments.
- Continue to work with Perisher Blue Pty Ltd in the development of the first Perisher Ski Resort Rehabilitation Plan.
- Implement Perisher Creek Rehabilitation Project.
- Implementation audits of Perisher, Thredbo, Selwyn and Charlottes Pass Alpine Resort EMSs – note this will commence in 10/11 and continue throughout winter 2011 which is in 11/12.
- Development of a common template and quantitative reporting indicators for Alpine Resort Environmental Reporting.
- Undertake gap analysis of NPWS park management policies and procedures against Kosciuszko National Park Plan of Management EMS requirements.
- Investigate and plan with new technology available a park use fee system that is partnered where possible with stakeholders as a one stop shop product.
- Tourism and Visitor Services Unit has a key responsibility in revising and delivering the actions within the Kosciuszko National Park Communications Plan.
- Research the effects of salt leachate from roads in alpine bogs.
- Research the biology of alpine skinks and the influence of landscape changes.

1. Kosciuszko National Park Plan of Management

The New South Wales *National Parks and Wildlife Act 1974* requires that a plan of management be prepared for each national park. A plan of management is a statutory document that outlines how an area will be managed in the years ahead. The Kosciuszko National Park Plan of Management 2006 (the Plan) establishes the scheme of operations for Kosciuszko National Park (the Park) in accordance with Section 73B of the *National Parks and Wildlife Act 1974*.

The Plan is available on line at:

<http://www.environment.nsw.gov.au/parkmanagement/knpgmtplan.htm>

The Plan details a statement of significance, overarching principles, key desired outcomes, key milestones, management objectives, policies and actions to guide the long-term management of the broad range of natural, cultural and recreational values the park protects. The actions identified in the plan are being undertaken by the National Parks and Wildlife Service (NPWS) and other organisations building upon the legacy of the past six decades of conservation management.

The Plan requires the preparation of a report produced on an annual basis that charts the trends in condition of the park's values and the progress of the plan's implementation (see Chapter 16 "Monitoring, Evaluation and Reporting"). This is the fourth of those reports covering the period from July 2009 to June 2010. The report can be viewed on line at <http://www.environment.nsw.gov.au/NationalParks/parkHome.aspx?id=N0018>.

Kosciuszko National Park (including the NSW ski resorts –Thredbo, Perisher and Mt Selwyn) is the largest national park in NSW and lies entirely with the Visitor and Business Services Section (VBSS) and Southern Ranges Region (SRR) of the Parks and Wildlife Group, NSW Department of Environment, Climate Changes and Water.

The information contained in this report is intended for presentation to the Advisory Committees and key stakeholders. The Southern Ranges Region (SRR) is an amalgamation of the former South West Slopes Region (based in Tumut) and the former Snowy Mountains Region (based in Jindabyne). The amalgamation was formalised on 30 March 2010. For more detailed information please contact the Park Managers.

1. Southern Ranges Region and Visitor and Business Services Section Office
Kosciuszko Road Jindabyne NSW 2627
P.O Box 2228 Jindabyne NSW 2627
Phone: 64505500
2. Additional information is also available through the Australian Alps National Parks Cooperative Management Program by viewing <http://www.australianalps.environment.gov.au/>

2. Amendments to Kosciuszko National Park Plan of Management.

Five Amendments (PoM Section 10.2, Section 10.2.1.1, Section 6.6 Policies 6.6.1.9, 6.6.1.15, 6.6.1.16,) related to geotechnical and water management were adopted by the Minister for Climate Change and the Environment on 26th May 2010. These amendments can be viewed online:

<http://www.environment.nsw.gov.au/parkmanagement/knpgmtplan.htm>

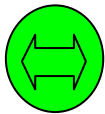



For further information on these five amendments, contact the:

Visitor and Business Services Section,
NPWS, PO Box 2228, Jindabyne, NSW 2627
(Phone 02 6450 5555).


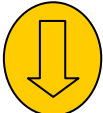
3. Integrated Monitoring and Evaluation Program

It is a requirement of the plan of management that the values of the park are assessed. This assessment occurs through the Integrated Monitoring and Evaluation Program. This program has been evolving over a number of years using existing programs and information as it becomes available during the year which is then summarised into the one report. The 2009-2010 assessment of the Condition of Values and Trends appears in the Table below. This is based upon information collated through the generic Key Performance Indicators template. The comments associated with any recent change are assessed against the report produced from the 2008-2009 reporting period and the values information that is contained within the Kosciuszko National Park Plan of Management (2006).







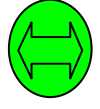

2009-2010 Summary-Assessed Condition of Values and Trends

Value	Indicator /Trend	Assessed change since last report (2008-2009)
Rocks and landforms		No significant change across much of KNP although in Byadbo Wilderness Area landscapes are increasingly showing terracing from feral deer and horse impacts.
Karst		Management improvements to some karst areas were undertaken. Continued increasing threats from feral horses requires further management and monitoring. Climate change has the potential to impact due to drier conditions reducing water inflows through karst areas.
Soils		Improvement to soil condition expected since ground cover improved post 2003 fires across KNP, although Byadbo Wilderness Area showing terracing from increasing horse and feral deer impacts. There are also impacts recorded in creeklines and wetlands from horses in the Pilot Wilderness and Long Plain areas. Due to recent monitoring of feral horse impacts across KNP, the trend has been revised from improving to declining.
Rivers and Lakes		Some improvement expected as ground cover improved across their catchments since 2003 fires. Willow control continues. Continued regeneration of catchments expected but further monitoring required. Environmental flows still to be implemented. AALC catchment report highlighted significant work needed to improve catchment condition and monitoring in many of 100




Kosciuszko National Park Plan of Management (2006)
2009-2010 Implementation Report

		subcatchments to improve future assessment of this value. Project trialled to assist this monitoring has recorded impacts in creeklines and wetlands from horses in the Pilot and Long Plains areas. Alpine Lake condition improving for Blue Lake and Lake Albina (with phosphorus levels declining due to reduced impacts from camping etc).
Native Plants		<p>8 new temperate rainforest species recorded that were not previously known from KNP.</p> <p>Regeneration still proceeding since 2003 fires. Alpine Sphagnum Bogs and associated fens are now listed as EEC under EPBC Act. Bog rehabilitation worked commenced but held over pending review and funding. Threats from grazing by increasing numbers of feral horses and deer and potential spread of hawkweed identified. Hawkweed control program underway. Climate change impacts and inappropriate fire regimes identified.</p> <p>Further work to map vegetation, understand changes, conserve species and EECs and minimise threats is required. Eg Impact of horses on threatened plants in northern KNP generally not known.</p>
Native Animals		<p>Species such as Corroborree Frog, Mastacomys and Burramys are still under threat. The Corroborree Frog under treat from chytrid fungus. Mastacomys and Burramys are under treat from horse damage, foxes, cats and Climate Change. Burramys may require captive populations within 2 years under current conditions.</p> <p>Corroborree frog breeding and reintroductions have been successful and need to continue to maintain species as the Southern Corroboree Frog is in critically low abundance (fewer than 100 adults remain in the wild) and it is likely that the Southern Corroboree Frog will be extinct in the wild within the next ten years if recovery efforts are unsuccessful.</p> <p>An annual monitoring program for the endangered Spotted-Tailed Quoll in the Byadbo Wilderness Area and adjacent Merriangah Nature Reserve indicates that the species continues to persist in catchments subject to aerial 1080 baiting. The level of activity of the species, as adjudged from presence of distinctive latrine sites, has remained relatively stable over the past three years. Catchments were aerial 1080 baiting has not been carried out and there has been an emergence of feral deer there has been a decrease in frequency of quoll latrine sites recorded. Feral deer control will be necessary to reverse this trend.</p> <p>Broad toothed rat (Mastacomys) numbers have still not returned to figures before the crash in 1999, with the 2003 fires having a severe impact and a series of early thaws reducing the ability of the animal to bounce back.</p> <p>Guthega skink numbers at the largest population at Smiggin Holes have not returned to pre-fire conditions but the Charlotte Pass population appears healthy.</p> <p>Continued work to understand changes, conserve species and minimise threats is required.</p>

Kosciuszko National Park Plan of Management (2006)
2009-2010 Implementation Report

Wilderness		No significant change to status of wilderness although impact of CTO policy changes may require future monitoring.
Ecosystem processes		Climate change impacts identified through local studies such as Alpine and TS monitoring and NSW Climate Impact Profile. Landscape Function Analysis and enclosures to quantify feral horse impacts may assist identifying condition of ecosystem processes better. Further work to minimise threats from pests, weeds and inappropriate fire regimes as well as further monitoring is required.
Aesthetic		No significant change across Main Range post fire and expected to improve as regeneration proceeds. Visitor facilities to protect aesthetic values have been built.
Aboriginal		The Indigenous Discover Country photographic display opened at The Rocks and has been displayed at the Tumut and Jindabyne Visitor Centres. The Aboriginal partnership program funding – mentoring program for discovery trainees continues. MOU development with communities is nearer to completion. Further involvement of Aboriginal groups and heritage surveys eg Family history research etc.
Pastoralism		No significant change.
Huts		Reconstruction of huts after 2003 fires completed with implementation of Huts Conservation Strategy. Significant fire damage occurred to Whites River Hut during 2010 winter and roof will need to be replaced and other sections substantially repaired.
Mining		No significant change.
Water Harvesting		Snow melt and soil moisture has reduced due to drier climatic conditions over the last decade reducing water inflows to the Snowy Hydro Scheme and for downstream users. Inflows likely to remain lower under predicted hotter, drier climate change scenarios. AALC Catchment project report indicated: “Present catchment condition and natural water storage capacity (e.g. in bogs and soils) in the Australian Alps national parks are less than optimal...and... Under future climate change scenarios, water yield from the Australian Alps catchments is projected to decline. Significant investment is required to halt degrading processes and restore degraded catchments and enhance natural water storage capacity, in order to maximise future water delivery to the major rivers flowing from the Australian Alps and to protect species.” Hotter, drier conditions continued in 09-10 further reducing flows.

Kosciuszko National Park Plan of Management (2006)
2009-2010 Implementation Report

Scientific Research		Research effort is difficult to quantify and needs further work to identify research priorities and projects through a proposed Research and Monitoring strategy. AALC strategic plan focussed on priority issues. Extra NPWS resources and projects are already focussed on priority issues of values and impacts of fire regimes, climate change and pest/weed control.
Tourism and Recreation		No significant change to values. Significant improvements to facilities and promotion have been made. The Australian Alps is recognised as an Australian iconic National Landscape through Tourism Australia (with DECCW as an Executive Board member of the Australian Alps National Landscape INC and the AANL tourism plan which is being implemented) and National Heritage Listing. Further work to recognise and promote tourism and tourism journeys is being developed through membership of Tourism Snowy Mountains with KNP featured through key activities such as Indigenous programs and Discovery programs and Sydney Melbourne Touring through the stakeholder managed, Kosciuszko Alpine Way project which will help market the region and KNP to domestic and international markets.
Utilitarian Functions		<p>Rehabilitation of Snowy Hydro Scheme sites continues to improve these affected sites. Resorts/infrastructure environmental improvements underway. Snowy Hydro Ltd cloud seeding trial continues with first efficacy results released. Snowy Hydro Ltd and Transgrid both contributing significantly to park weed control programs. Environmental Management System implemented for Resorts.</p> <p>Rehabilitation of some sites underway. Significant change with over \$14 million dollars spent on rehabilitating former Snowy Scheme Sites between 2002 – 2010, including over \$5 million spent during FY 2009/10. The program has included rehabilitation (ecological and structural stabilisation) works on over 100 sites.</p>

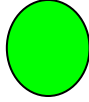

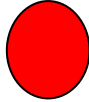



In conclusion, of the 17 groups of significant values identified in the KNP Plan of Management (2006):

- 10 values are assessed as in acceptable current condition (green) and current management regimes are suitable, with 4 of these assessed as having a stable trend in condition, 5 improving trend in condition and 1 (soils) with a decreasing trend in condition identified due to recent information on horse and deer impacts in some areas.
- 7 are assessed as their current condition is of concern (orange) and adaptive management actions are required, with 1 stable, 2 improving and 4 with a declining trend in condition (i.e. native plants, native animals, ecosystem processes and water harvesting).
- Those values assessed as having a condition of concern (orange) and the trend assessed as decreasing under current management regimes (i.e. native plants, native animals (especially TS), ecosystem processes and water harvesting) are likely to be assessed in coming years as under current threat and immediate management action will be required to reverse the trend, reduce the threats and protect the value.

- Rivers and Lakes are assessed as having a condition of concern (orange) and an improving trend with various positive and negative impacts identified. As further information becomes available it might be likely this trend will be assessed in future as decreasing under current management regimes along with soils, ecosystem processes and water harvesting due to similar threats.
- Karst values are identified as having a condition of concern (orange) and stable trend due to positive management actions to protect karst areas. However increasing threats from feral horses and climate change /dry conditions require further monitoring and management actions to improve their condition.

Significant management actions e.g. ongoing weed control programs, hawkweed control;, Threatened Species recovery actions for Corroboree frog, Kosciuszko National Park Huts Conservation Strategy, are underway that are holding many core values from a faster decline in condition. However, in the face of various increasing / ongoing threats it will require a significant focus on improving management response to positively effect change in the condition of those values of concern (from orange to green). As partially identified in the Alps Catchment Report, significant ongoing investment in effective management of such core values (equal to that provided to visitor infrastructure and services) are required to improve condition and trends.

Key

Symbol	Definition
	Condition of value – acceptable current condition and current management regime suitable.
	Condition of value – current condition of concern and adaptive management actions required
	Condition of value – value is under current threat and immediate management action is required to reverse the trend, reduce the threats and protect the value.
	Trend in condition - trend is stable under current management regimes.
	Trend in condition - trend is improving under current management regimes.
	Trend in condition - trend is decreasing under current management regimes.

4. Update on progress of implementation of Management actions:

The Kosciuszko Action Database (a requirement of the Kosciuszko National Park Plan of Management (2006)) tracks the implementation of individual actions detailed in Schedule 11 of the Kosciuszko National Park Plan of Management (2006). The Database is the location where all historical information relating to the key performance indicators is stored. The reports produced through the Database inform progress on the implementation of the Plan. The Action Database was upgraded during 2009-2010 to take account of the creation of Southern Ranges Region and facilitate updating and distribution during 2010-2011.

The management actions identified throughout the Plan are summarised in Schedule 11. These actions are given an implementation priority in the Plan. Of the 482 actions, 101 have a High priority, 191 Medium priorities, 17 Low priority and 173 as ongoing. The Tables below detail the implementation status of each of the Schedule 11 High, Medium and Low Priority Actions.

2008-2009, 2009-2010 Actions Implementation Status (%).

Implementation Status	Percentage of HIGH priority actions implemented		Percentage of MEDIUM priority actions implemented 2008-2009		Percentage of LOW priority actions implemented 2008-2009	
	2008-2009	2009-2010	2008-2009	2009-2010	2008-2009	2009-2010
Not Commenced	29.7%	20.8%	36.6%	27.7%	29.4%	0%
Commenced	47.5%	30.7%	37.2%	19.9%	64.7%	17.6%
Completed	8.9%	13.9%	2.6%	3.2%	0%	0%
Ongoing/policy	13.9%	34.6%	23.6%	49.2%	5.9%	82.4%

2008-2009, 2009-2010 Actions Implementation Status (number).

Implementation Status	Number of HIGH priority actions implemented 2008-2009		Number of MEDIUM priority actions implemented 2008-2009		Number of LOW priority actions implemented 2008-2009	
	2008-2009	2009-2010	2008-2009	2009-2010	2008-2009	2009-2010
Not Commenced	30	21	70	53	5	0
Commenced	48	31	71	38	11	3
Completed	9	14	5	6	0	0
Ongoing/policy	14	35	45	94	1	14
TOTAL	101	101	191	191	17	17

5. Update on progress of development of key milestones:

The Plan identifies 15 key milestones; these are detailed in Section 4.4 of the plan. Their implementation will set in place structures and processes to govern the management effort directed at protecting, maintaining or improving the significant values (Section 2.2) of the Park. Some of the functions and characteristics of the key milestones include:

- They will assist with the achievement of the Key Desired Outcomes for the park detailed in Section 4.3. ;
- They will also provide a framework for the implementation of management objectives, policies and actions over the life of the Plan;
- These key milestones will be delivered through a series of strategic projects.
- the ordering of these strategic projects is not an indication of priority;
- Their timely achievement does not negate the need to undertake ongoing park management tasks; and
- The ordering of these projects relates to establishing the systems that will underpin the implementation of the plan.

Some key milestones will be delivered through projects specific to the Park whilst others will be delivered via state-wide programs whose implementation will see achievement of key milestones within the Park.



Main Range Kosciuszko National Park. Photo: DECCW



Snow gums near Charlotte Pass. Photo: DECCW

The following four key milestones are completed and being implemented in line with availability of resources and available funding:

Integrated Monitoring and Evaluation Program (incorporates the Key Performance Indicators, Integrated Monitoring Program and Integrated Evaluation System key milestone projects as detailed in Chapter 16). The Integrated Monitoring and Evaluation Program has been developed and a summary report has been included in Section 3 of this current Implementation Report. This is also linked to the State-wide State of the Parks Reporting Program completed every three years which is due to be completed during 2010.

The Kosciuszko Database, a component of the Integrated Monitoring and Evaluation Program, is underway. This Database is used to assist with monitoring and evaluating the Plan, tracking the implementation of individual actions detailed in Schedule 11 and assist with meeting the reporting requirements detailed within Chapter 16 of the Plan;

Park Restoration Plan (Section 11.1). A Park Restoration Plan has been completed and is being implemented in line with available resources. It can be viewed online at: <http://www.environment.nsw.gov.au>

Environmental Management Systems (Section 12.1) The Perisher Range Resorts Environmental Management System (PRREMS) has streamlined reporting to an annual on-line report system for lodges. Initial EMS Reports were received from Perisher Blue, Kosciuszko Thredbo, Selwyn Snowfields and Charlotte Pass Village. The outcomes from the individual reports will be combined with the PRREMS 'Whole of Lodges' Report and NPWS activities to provide an 'EMS Implementation Overview Report' in 2010/11. Information related to The Perisher Range Resorts Environmental Management System (PRREMS) including reports, background information and the Lodge Environment Manual are all available on line at <http://www.environment.nsw.gov.au/PRREMS/>.

Park Communication Plan (Section 13.1). A Draft Communication Plan has been completed and is awaiting endorsement by the Kosciuszko Steering Committee to implement in line with available resources.

A further eleven key milestones (Section 4.4) have been identified in the plan to be completed or underway within five years of the plan's approval. Projects have commenced which will contribute to meeting some objectives of the eleven key milestones.

Significant Plant and Animal Management Regimes (Section 6.7 and 6.8).

Development has commenced on the identification of appropriate management regimes for threatened plants and animal species and communities within Kosciuszko National Park. These regimes will assist with guiding management to protect those parts of the park where threatened species are found or likely to be found. A report identifying further work required is in preparation and will be presented to the Kosciuszko Steering Committee during 2010-2011.

Visitor Data System (VDS) (Section 8.1). Components of the Visitor Data System are being implemented across the Park. Visitor Data System (VDS) counters are installed and fully operation at three locations in southern Kosciuszko National Park: Kosciuszko Road park entrance, Alpine Way Visitor Entry Station, and Bradney's Gap (Khancoban to Cabramurra Road). The counter at Geehi on the Alpine Way is currently under repair and a new data logger is being installed.

The Kosciuszko Road and Alpine Way Entry Station counters were downloaded on a weekly basis throughout winter 2010 allowing close monitoring of visitation compared to revenue, and visitation compared to last year. Data is uploaded weekly to the Parks and Wildlife Group Visitor Management System database so the counts are able to be integrated with data collected in northern Kosciuszko and elsewhere in the state.

Main Range Recreation Management Strategies (Section 9.1). The Waste Management Strategy is completed and is being implemented.

Huts Conservation Strategy (Chapter 7). The completed strategy is being implemented in line with available resources and funding. It can be viewed on line at: <http://www.environment.nsw.gov.au>

Visitor Facility Strategies (Section 8.2). A state wide Park Facilities Manual has been completed and is being implemented within the Park.

Management Partnerships (Chapter 7). The Southern and Northern Kosciuszko Aboriginal Working Groups are negotiating Memorandums of Understanding to ensure cultural sites are protected and appropriately interpreted within Park. The MOU's also provide opportunities for Aboriginal communities to have input into park management decisions and to provide training and employment opportunities.

All planning, maintenance and construction work on huts is completed in cooperation with the Kosciuszko Huts Association as detailed in the Memorandum of Understanding.

Visual Management System (Section 11.6). There are currently visual management strategies being implemented across the park. For example the NPWS Rehabilitation Guidelines for the Resorts of the Park. It can be viewed on line at:

<http://www.environment.nsw.gov.au>

6. Major planning processes, activities or developments during Reporting period 2009-2010

The following sections highlight some of the projects that contribute to meeting the Key Desired Outcomes identified in Section 4.3 of the Plan and includes projects funded by the Towards Centenary Fund undertaken in 2009-2010. This does not represent a full list of all management actions completed during 2009-2010.

Repairing the Roof of Australia

(On park Ecological Conservation/visitor infrastructure)

The long term upgrade and reconstruction project of the high use walking tracks near Mt Kosciuszko continued. Much of this work is being done in conjunction with the rehabilitation of Rawson Pass where the track paving and new signs have now been installed and complement all the revegetation and track work.



Rawsons Pass March 2009 interpretations area. Photos: DECCW



Rawsons Pass March 2009 interpretations area. Photos: DECCW



Rawsons Pass March 2009 interpretations area. Photos: DECCW

Heritage Tourism (Heritage/Visitor infrastructure)

Major works have occurred in securing and finalising planning documents for the refurbishment of the two story section of the historic Yarrangobilly Caves House (constructed in 1917). The new accommodation will supplement the single story section which was opened to the public in October 2007. This has proved most popular and is exceeding occupancy and revenue estimates. In addition, the reinstatement of the historic street lights improves both the visitors experience and provides ambience.

Re-lighting the South Glory Cave has taken two years to complete. The work incorporates state of the art technology (which also reduces the environmental impact of light and energy on the speliothems) and seamless back up/security lighting unique to the show caves; new stainless steel hand rails have been installed to minimise environmental impacts and enables improved visitor flow, OH&S and experience while minimising the amount of infrastructure. Security cameras and emergency phones (via fibre optics) have been installed which will be linked to the main office. Visitor counters have been installed to monitor caves access and use.

For information on accommodation at Yarrangobilly Caves House bookings please phone Tumut Visitor Centre on (02)69477025 or email tumutv@environment.nsw.gov.au for cave tour and general information ring the Yarrangobilly Caves centre on 02 64549597.

Stage 1 Refurbishment of the 1890 Kiandra Courthouse has been completed (May 2010). Works included the reinstatement of basalt walls, window installation, restoration of interior courtroom hip and gable roof and repair of the internal walls of both the courtroom and the chalet room. The most notable feature reinstated is the front verandah. Contextual architectural plans plus the scope of works have been developed for the next stage of building which will enable improved mobility for impaired access, amalgamation of the two major eras (courthouse and chalet) of the building (ie 1890 and 1960 fabric). Photos of the Kiandra Courthouse can be found on the link below:

<http://www.flickr.com/photos/thekiandraproject/sets/72157624250205778/>



Front of Kiandra Courthouse before Stage 1 Photos: DECCW



Front of Kiandra Courthouse following completion of works Photos: DECCW

The New Chum walking track has been completed which explores the gold extraction and Snowy Mountains Hydro Electric Authority works for sand extraction. The walk commences at the Stamper battery car park and covers approximately 2.4km.

Significant works have been completed at Currango Homestead Precinct: all buildings historic buildings have been painted (inside and out), all floor-coverings replaced in Daffodil cottage and the Pines, removal of dangerous trees, letting of caretaker contract and printing of walking track interpretation booklet and visitor guide.



Installing new flooring Pines Cottage Currango Homestead. Photo: Megan Bowden DECCW

Huts Reconstruction (Heritage/Visitor infrastructure)

All planning, maintenance and construction work on huts is conducted in cooperation with the Kosciuszko Huts Association (KHA). Volunteers associated with the Kosciuszko Huts Association assisted with the rebuilding, reconstruction and maintenance of these huts. NPWS have been working with KHA on a oral history recording program. This year the rebuilding of Pretty Plain Hut was completed (logistically challenging due to size, construction and location). The works were completed by NPWS builders-in-charge and staff an external contractor and involved over 50 volunteers from Queensland to Tasmania. Over 200 people attended the opening on 13th March 2010. The reconstruction of Dr Forbes Hut was also completed. NPWS carpenter and staff, external contractor and 10 volunteers were involved. Over 80 people attended the opening on 14th May, 2010. This now completes the hut rebuilding/reconstruction program which was triggered by the loss of many huts in the 2003 bushfires. Maintenance and extensive repair programs will be ongoing across the extensive network of mountain huts.



Opening of Pretty Plain Hut. Photo: Craig Smith DECCW



Peter Scobie dressing a slab, Pretty Plain Hut rebuilds. Photo: Megan Bowden DECCW



Gary McDougal & volunteer reconstructing Dr Forbes hut. Photo: Megan Bowden DECCW

The following heritage projects have been undertaken:

- Coolamine Homestead – reconstruction work was undertaken to Campbell's house and the cheese hut and repairs to the fence as per the Conservation Management Plan
- Long Plain and Schofields Huts - installation of a new roof
- Brayshaws Hut- restump
- Bill Jones- drainage improvements and repairs to weatherboards
- Major repairs to Cascades Hut in the Pilot Wilderness area;
- Planning commencement for Schlink, Disappointment Spur, Mackays, Daveys, CSIRO, Botherum Plain and Cesjacks huts;
- Engagement of a consultant to complete HAS's for the remaining huts in the Park with the documents to be finalised in late 2009;
- Finalisation of fire protection installation and painting of Seaman's Hut.

The Kosciuszko National Park Huts Conservation Strategy outlines how the park's huts will be conserved and is available online at <http://www.environment.nsw.gov.au>

Walking Tracks and Camping Areas

(Visitor infrastructure)

Thredbo Valley Track, a shared use track for mountain bikers, walkers and disabled access in some sections will provide an opportunity for visitors to explore from Thredbo Village to Bullock's Flat. The track works from Bullocks Flat to the Diggings picnic area have been completed. The section from Thredbo to the first river crossing has commenced and will be completed before the end 2010-2011 financial year. This will include the construction of up to three suspension bridges across the Thredbo River.

With the increasing demand for mountain biking facilities in the region this project has considerable community interest and support and will provide increased tourism opportunities for Kosciuszko National Park.

Work has also progressed on improving the safety on the steel mesh walking track from Thredbo Resort to the Rawson Pass. The track has developed issues with slippery surfaces due to wear on the steel mesh tread. A risk reduction strategy aims to replace the worn surfaces over a period of 10 years to reduce this risk.

Work continued on the Mount Stillwell Walking Track. The stone paving and crushed granite track now extends from Charlotte Pass turning circle to the top of the Charlotte Pass Chairlift in Kosciuszko National Park. The improved surface will eventually continue to Mt Stillwell.

Following consultation with user groups and key stakeholders campgrounds upgrades were undertaken (improvement to yards, new toilets, and separate day use areas) where horses are permitted at Long Plain and Cooinbil in northern Kosciuszko National Park.

Park Restoration

(on park ecological)

The Kosciuszko National Park Restoration Plan has been completed and is being implemented in line with availability of resources and available funding. The Kosciuszko National Park Restoration Plan is available online at <http://www.environment.nsw.gov.au>

The Restoration Plan identifies priority sites, integrated management and future direction for restoration within the Park, including:

- Strong partnerships continue between NSW, ACT and Victoria to manage pest animals and plants across the Australian Alps, Snowy Hydro Limited, Transgrid, the Roads and Traffic Authority and volunteers such as Talbingo and District Bushwalking Group have worked cooperatively to reduce weeds. Weed control programs are undertaken in target catchments, along roads, high visitation recreation areas and areas where certain threatened species are vulnerable from weed invasion. Significant financial contributions from Utility stakeholders Snowy Hydro and Transgrid are aiding weed control programs.

- A long term cooperative program with the Southern Rivers CMA Snowy River Restoration Project to remove willows from the Snowy River was completed this year. The Region will now embark upon a long term maintenance program which aims to ensure that the Snowy River in the southern most section of the Park remains relatively free of willows. NPWS will also aim to reduce the impact of invading blackberry which have become a problem since removing willows from the river banks. The Regional Pest Management Strategy is available on line at: <http://www.environment.nsw.gov.au> The Pest Management Strategies will require updating due to the amalgamation of South West Slopes Region and Snowy Mountains Region into Southern Ranges Region.
- The Blowering Foreshores replanting is a Memorandum of Understanding arrangement with GreenFleet. Plantings have involved local Aboriginal community members. To date approximately 350 hectares has been site prepared and planted in previously cleared ex agricultural sites resumed by the government in the late 1960s and 1970s along the Blowering Foreshores. A joint operation between DECCW and Greenfleet has provided funding for this project. In total approximately 2,000 hectares of native forest was cleared for agriculture and is available for replanting. Slow natural regeneration plus weed infestation and a continual requirement for weed control has prompted the move to more intensive re-forestation. Ripping has been completed for a further 50 hectares of new planting to occur in spring 2010.

The rehabilitation of former Snowy Mountains Hydro Electric Scheme construction sites continues. The Assets Roads and Rehabilitation Unit (ARRU) in Southern Ranges Region continues to plan and remediate Former Snowy Scheme Sites within Kosciuszko National Park. Works conducted during 2009-10 include:

- Stabilisation and reshaping Bourkes Gorge Number 1 Spoil Dump. This project involved the movement of over 80,000 cubic metres of spoil material, stabilisation of the toe of the slope in Bogong Creek and establishment of the Cascade Creek drainage line.
- Phase 1 rehabilitation works at Deep Creek Spoil Dump included establishment of access to site and movement of approximately 70,000 cubic metres of spoil material to stabilise the stockpiled material.
- Establishment and augmentation of vegetation on the sites – Jindabyne Valve House, Bourges Gorge Number 2 Spoil Dump, Geehi Quarry, Tantangara Quarry and Khancoban Tip sites. This involved the establishment of over 100,000 plants.
- Continued rehabilitation and maintenance of over 350 minor sites across the Park.

A major rehabilitation site, the Snowy Adit Spoil Dump, occupies approximately 11.25 ha and is situated approximately 3 kilometres down stream of Island Bend Pondage on the northern bank of the Snowy River. Snowy Adit was formed during construction of the Snowy Mountains Hydro Electric Scheme with rock coming from the excavation of the Eucumbene-Snowy Tunnel and the Snowy-Geehi Tunnel. Since being formed, the site has been a source of rock for use in road and track building in the park as well as facing rocks for building in the Resorts.

Restoration works including reshaping and revegetation will reduce sedimentation to the Snowy River and remove scrap metal as well as integrating the site into the surrounding ecology. The spoil dump will remain a testament to the massive earth moving and tunnel building achievements of the Snowy Scheme. A lasting legacy of the spoil dump will be an on-going supply of rock of varying sizes for infrastructure projects in Kosciuszko National Park and for facing rock on ski resort buildings.



Snowy Adit Rehabilitation works. Photo DECCW



Rehabilitation works at Snowy Adit. Photo DECCW

The Kosciuszko National Park Horse Management Plan (on park ecological)

The Kosciuszko National Park Horse Management Plan was prepared by an advisory group consisting of representatives from the Regional Advisory Committee, National Parks Association, horse riding groups, RSPCA and the Aboriginal community. The plan which was adopted in 2008 outlines the methods of control which will be undertaken in an attempt to exclude feral/wild horses from key areas such as alpine and karst environments. The Kosciuszko National Park Horse Management Plan is available on line at: <http://www.environment.nsw.gov.au>.

Since 2008 up to 350 horses have been removed from the park on an annual basis. Aerial surveys undertaken in August 2009 estimated that 4,200 horses (\pm approx 25%) exist in KNP and this represents an annual increase of approximately 20% p.a since the 2003 bushfires. Passive trapping has been the accepted method of removing horses from the park. However the number of horses that can be re-homed has been limited and to date approximately 85% of the horses removed have ended up at knackeries. During November 2010 NPWS has sought expressions of interest from the public to see if the number of horses re-homed can be increased. There are concerns that the current control techniques will not keep pace with the natural increase in horse numbers and other techniques such as mustering need to be trialled.

Wild Dog Management (on park ecological)

Southern Ranges Region is a key stakeholder in 11 cooperative wild dog management plans. There is extensive cooperation and support between DECCW and the South East, Tablelands and Hume LHPA's in order to coordinate wild dog (and other pest animal) control activities in the area. The primary wild dog control technique utilised in Southern Ranges Region is that of soft-jaw trapping by experienced operators. Ground baiting with 1080 wild dog meat baits is closely integrated into the trapping programs and aerial baiting occurs within 5 of the wild dog plan areas. The use of 1080 M44 ejectors is also being gradually integrated into the control programs. There has been a high level of success in reducing stock loss in Southern Ranges Region since the adoption of the "nil-tenure" planning methodology to promote cooperative wild dog control and the associated investments by the key stakeholders to implement the control programs.

Pest Management

The distribution and abundance of introduced animal species found in the park are reduced and populations are eradicated wherever feasible. The *Perisher Range Pest Management Strategy* has been developed to address impacts in and around alpine resorts from rabbits, foxes, cat and dogs.

Hawkweed Control (on park ecological)

Both Orange Hawkweed (*Hieracium aurantiacum*) and King Devil Hawkweed (*Hieracium praealtum*) are emerging weeds that pose a serious threat to the ecosystems of the Australian Alps. Hawkweed's are listed as noxious weeds in NSW and as such are required to be controlled. There are currently control programs underway to eradicate known populations. There are two main populations of Orange Hawkweed in the Park, these are both located approximately 28 kilometres north-east of the town of Khancoban. Pictures of Orange Hawkweed have been posted at heads of walking tracks to encourage visitors to identify the weed and be aware of its existence.

The first co-ordinated Orange Hawkweed (*Hieracium aurantiacum*) eradication program was conducted in Kosciuszko National Park in 2009/10. The invasive threat of Orange Hawkweed is evident from its establishment history in both America and New Zealand and there are potentially significant impacts on ecosystems and threatened species resulting from it establishing in Kosciuszko National Park. Research into the processes of Orange Hawkweed invasiveness has established that it inhibits the growth of other grassland species. The eradication program utilised the resources of volunteers, contractors and staff to survey, map, record and treat Orange Hawkweed. Fifty one new sites were identified outside previously identified infestation areas and many other smaller sites located in the area surrounding the original known locations. It is highly likely further surveys will locate additional Orange Hawkweed populations in the Park however the original infestation areas are still considered to pose the most significant threat. Maintenance of the program is critical to the control of this weed.



Volunteers participating on Hawkweed surveys within park. Photo: DECCW



Orange Hawkweed (*Hieracium aurantiacum*). Photo: DECCW

Fire Monitoring

(on park ecological/fire)

The Australian Alps fire ecology vegetation monitoring system is a long established key program in the Alps. Initially established in 1997, the system was designed to monitor the effects of fire on species diversity and composition before and following fire in the Australian Alps parks. A project was funded to review the last 10years of data and update the existing vegetation database. A report has been prepared and will be available soon. The results demonstrate that following fire, there is a decrease in the number of species, followed by an increase in the next three years. After five years, the number of species is roughly the same as it was prior to the fire. This type of response is similar to other environments in SE Australia. There is too much variability in the data to make strong statements about the effects of fire on different vegetation types.

Tourism Promotion and Visitor Facilities (Visitor Services/infrastructure)

Two tourism projects which have involved partnerships with industry and key stakeholders are aimed at increasing visitation to Kosciuszko National Park:

- **National Landscapes**
The Department of Environment, Climate Change and Water is a member of the Steering Committee which is made up of a cross section of organisations from across the Australian Alps and are responsible for the management of this project. The National Landscapes program is a partnership between Tourism Australia and Parks Australia, developed to identify and promote up to 20 of Australia's best natural and cultural landscapes. The program aims to achieve conservation, social and economic outcomes for Australia and its regions via the promotion of superlative nature based tourism experiences. The Australian Alps is one of these National Landscapes. A Tourism Masterplan has been released for the Australian Alps National landscape and Tourism Australia is supporting the landscapes in international marketing.

See Link: http://www.tourism.australia.com/en-au/marketing/5651_national-landscapes-program.aspx

- **Kosciuszko Alpine Way**
The Kosciuszko Alpine Way (KAW) Touring Route Development Steering Committee was formed in 2008. A memorandum of understanding was signed between local tourism operators, shire councils, Tourism Snowy Mountains, and DECCW to work together to promote the route, which travels through Kosciuszko National Park. The route was invited to join the successful Sydney to Melbourne Touring Group in 2010. This group is also supported by Tourism NSW and Tourism Victoria and represents and promotes the member touring routes internationally.

See Link <http://www.alpineway.com.au>



Bike Riders at Thredbo Photo DECCW

Discovery Program (Community/Education)

Since early 2009, the Discovery program in Tumut, in conjunction with landscape photographer Murray van der Veer, have run a photographic workshop entitled “Shot in the Snowys”. The three day program was available to all photographers from beginner to experienced. In May 2010, a photographic exhibition entitled ‘Discovering Country’ held at the Rocks in Sydney, show cased photos from the workshop. Proceeds from the exhibition contribute towards providing further training and employment opportunities for Aboriginal people in the local area.

See Link: <http://discoveryphoto.org/dpj/>

Tumut Visitor Services Team Discovery Programs have grown over the last four years to now deliver programs to over 5000 participants per year with a major focus on Aboriginal Discovery and building tourism partnerships with private Tourism operators. The Aboriginal Discovery Program received funding from the Aboriginal Partnerships Program to undertake an Aboriginal Tour Guide Training and Mentoring Program. The program has two years to run and is resulting in increased opportunities for Aboriginal people to work with DECCW to develop career paths in the Tourism and Interpretation sector through accredited training and traditional learning to assist Aboriginal people to reconnect and work on country.



Adults and students participating in discovery programs in the Park. Photo: DECCW

Protecting our precious wildlife (On Park ecological conservation)

Wildlife projects, including wildlife rehabilitation and research and monitoring focusing on some of the threatened species found within the park including:

- Financial support continues to assist the work of wildlife carer groups, e.g. Looking After our Kosciuszko Orphans (LAOKO);
- Spotted tree frog, southern corroboree frog, spotted - tail quoll and mountain pygmy – possum research and monitoring continue. Information on threatened species can be viewed on line at <http://www.environment.nsw.gov.au/threatenedspecies/>;
- Monitoring and assessing the impacts of Climate Change in the Snowy Mountains continues. The alpine area (the area above the tree line) has been identified as one of the most susceptible ecological communities in Australia to Climate Change; and
- Results from quoll monitoring undertaken annually over a period of 8 years in the Jacobs Creek and Byadbo Wilderness Area has indicated that their numbers remain healthy despite the continues use of 1080 for wild dog and fox control including aerial baiting. This monitoring will continue to ensure that priority pest programs do not impact on endangered species.

Alpine Resorts Areas (Visitor Infrastructure)

Australian Alps National Landscape. DECCW has been involved directly with AANL as an Executive Board member of the AANL including the management team and was very much a part of the development of the AANL Tourism Plan which has now been adopted and is being implemented. DECCW has worked closely with Tourism Snowy Mountains as a partner and Board member to achieve a huge result through co-operative marketing campaigns to maintain domestic tourism levels in a current climate which has seen other tourism areas register declines. DECCW through Tumut Region Visitor Centre has seen the launch of the Indigenous Discover Country photographic display which was successfully launched at the Rocks and has been shown in many other locations.

DECCW is a key member of the key industry led tourism route Kosciuszko Alpine Way which has achieved membership of the significant organisation, Sydney Melbourne Touring which when fully in place will help market the Region and KNP to domestic and International markets.

Perisher Range Resorts Infrastructure Upgrade Program

The Alpine resorts provide for a range of principally snow-based recreational opportunities that promote enjoyment, understanding and appreciation of the natural and cultural values of the park including:

- Closure of the Sawpit Creek Landfill has been completed. The work involved capping the landfill with layers of soil and a high density polyethylene membrane. The membrane is welded at the edges to an underlying membrane to ensure that all waste is securely enclosed. Leachate will be removed from the cell and treated at the Sawpit Creek sewage treatment plant. An application to surrender the Environment Protection Licence for the former landfill has been submitted to the EPA and is currently being progressed. A plan is being prepared to establish the rehabilitated site as a native grass nursery.
- Ongoing sewer pipeline rehabilitation works were completed over 2009/2010 with new lines installed or existing lines upgraded in Smiggin Holes. These works are designed to ensure the ongoing integrity of the sewer reticulation network by reducing leaks from the sewer system and reducing water infiltration into the system. This will provide savings in energy consumption and sewage treatment costs, with evidence following a rainfall event in September 2010 that there is reduced infiltration into the system and a lower risk of flood event discharges from the sewage treatment plant.
- The construction of concrete roads has continued with Candle Heath Road and Billy Button Place (Perisher Valley) and Farm Creek Place (Guthega) completed, and a further 100m of Wheatley Road completed.
- Consultation with lessees and other stakeholders was undertaken in 2009/2010 and continues for the proposed Perisher Services Precinct development. This proposal consists of new NPWS Office and Workshop buildings, a waste transfer station and a concrete loop road to enable access.
- Work is continuing with commercial operators looking at expanding and improving the network of snowshoe trails around Perisher Valley and Smiggin Holes.
- Planning and design was finalised on a new balance tank in Perisher Valley to assist with the operation of the sewage treatment plant. Subject to planning approval, the tank will be constructed in 2010/2011 and will provide additional storage of sewage during peak flows.
- The rollout of the Department wide Asset Maintenance System (AMS) has continued with significant effort from staff to utilise the system and update the system with the

thousands of assets managed by the Southern Ranges Region and visitor and Business Services Section.

- The construction of a storage shed at Waste Point was completed. This new facility is to store materials and consumables needed for the Unit's year round operations.
- Resort wide revegetation projects are continuing with several thousand shrubs and trees planted to add to several previous years of similar planting rates. The plantings are to compensate for minor losses associated with the resort roads construction and to rehabilitate previously degraded areas.

Interpretation

The Charlotte Pass Management Unit is managed so as to provide opportunities for visitors to enjoy, understand and appreciate the values of the park on ways that minimise adverse impacts. An interpretation panel for the Mt Stillwell viewing platform at Charlottes Pass has been developed.



An Interpretation panel for the Mt Stillwell viewing platform at Charlotte Pass has been development. Photo DECCW

The Perisher Range Management Unit is managed so as to provide opportunities for visitors to enjoy, understand and appreciate the values of the park on ways that minimise adverse impacts. An interpretation panel for the Blue Cow viewing platform has been developed.



An Interpretation panel for the Blue Cow viewing platform has been developed. Photo DECCW

Environmental Management System (EMS)

The Service, operators and visitors demonstrate a commitment to improve environmental standards and are accountable for minimising the impact of their activities. The Perisher Range Resorts Environmental Management System (PRREMS) has streamlined reporting to an annual on-line report system for lodges. The advantage of the on-line report is that a 'Whole of Lodges' report can be compiled from the annual individual reports. The 'Whole of Lodges' report provides feedback to lodges and NPWS on implementation of the EMS and areas where targets need to be adjusted.

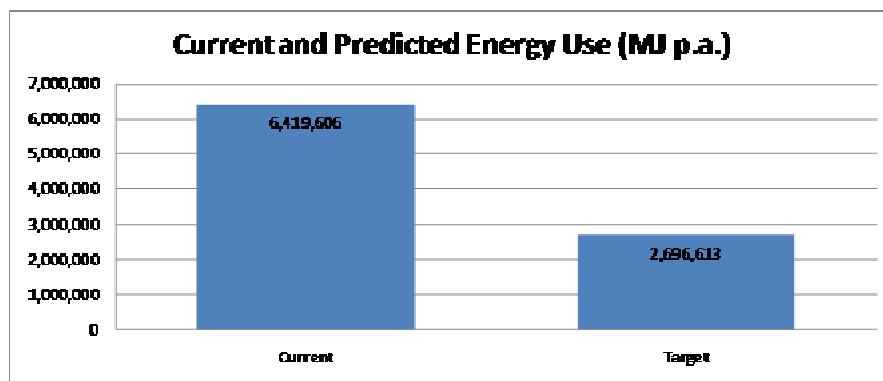
An environmental audit of Selwyn Snowfields was carried out by NPWS. This provided baseline description and condition assessment of the environment within the Snowfield lease area. It was a precursor to the development of an EMS. Environmental Management Systems for Perisher Blue, Kosciuszko Thredbo, Charlottes Pass Village and Selwyn Snowfields have been desk top audited by NPWS and endorsed. This ensures that environmental issues in the resorts are recognized and addressed by controlling actions. Initial EMS Reports were received from Perisher Blue, Kosciuszko Thredbo and Selwyn Snowfields. The Charlotte Pass Village report was due in August 2010 and has since been received. The EMS Reports will be reviewed and advice will be provided by the report operators on where refinements and enhancements can be made to the report and environmental management. In addition, the outcomes from the individual reports will be combined with the PRREMS 'Whole of Lodges' Report and NPWS activities to provide an 'EMS Implementation Overview Report' in 2010/11.

Energy Audit

An energy audit was carried out on the Perisher Sewerage Treatment Plant (STP). The STP treats sewage from Perisher and Smiggin Holes and caters up to 20 000 people on busy winter weekends in an extreme climate (temperature, snow and wind). Tertiary treated effluent is returned to Perisher Creek and then diverted to Guthega Dam, where it is used in the Snowy Mountains Hydro- Electric Scheme. See photo Perisher Sewerage Treatment Plant.



The audit suggested that substantial energy savings could be achieved by recovering heat via heat pumps, changes to lighting and effluent aeration. Some of the recommended changes, such as lighting and aeration, could be achieved within the current works program and funding. Other recommended changes, such as heat pumps, will require feasibility investigations as well as modest, less than \$100 000, capital funds. The recommended changes had payback periods of less than two years. See chart below for an indication of the recommended savings.



6. Current Research:

During this reporting period there was a variety of research and monitoring projects underway in Kosciuszko National Park including:

Threatened Frog Recovery Programs.

There were significant achievements for threatened frog recovery programs in the Park over the 2009/2010 period. Most notable was the extensive breeding of the re-established Spotted Tree Frog (*Litoria spenceri*) population in the Geehi Valley (Photo). The high levels of post-release survivorship since the first captive bred frogs were released in 2005, and now successful breeding, provides much hope that this program will achieve it's longer term goal of re-establishing the Spotted Tree Frog in the Park. There were also promising signs for the Southern Corroboree Frog (*Pseudophryne corroboree*), as high survivorship was attained to metamorphosis for the eggs released into artificial pools in the field (Photo). Furthermore, Taronga Zoo successfully bred their captive population of Southern Corroboree Frogs, and the majority of eggs were used to bolster recruitment in wild populations.



Mating in the wild for Spotted Tree Frogs that were bred in captivity, and released back into KNP where this species historically occurred. Photo: David Hunter, DECCW



**Juvenile Southern Corroboree Frog
Photo: David Hunter, DECCW**



**Southern Corroboree Frog showing unique belly markings.
Photo: David Hunter, DECCW**

Mountain Pygmy Possums

Mountain Pygmy-possum populations have been monitored at the end of November each year on four sites in the Kosciuszko National Park alpine area since 1987 (2 in ski resorts Blue Cow and Charlotte Pass and 2 outside resorts - Paralyser and Summit Road), and less frequently on Mt Kosciuszko, Mt Townsend and other remote area sites. Populations in the resorts (originally around 30 females at each site) began to decline in the late 1990's and reached critically low levels in 2004. A slight recovery occurred in 2005-06 but numbers have declined again over the last 4 years. The smaller populations in the 2 sites outside resorts have remained relatively stable since monitoring began. However, declines have recently been seen on the other 2 'large' populations on Mt Kosciuszko and Mt Townsend.

Reasons for the declines are being investigated but are likely to involve interactions between early snow melt and low winter snow cover compromising the survival of hibernating possums, changes in food supply and increased predation by feral cats and foxes, especially in the ski resorts where these predators are concentrated and high summer temperatures. For details of current population trends and hypotheses for declines see:

http://www.fnpw.org.au/ForSupporters/PAWS/PAWS_Spring2010.pdf

Four Ph D student projects are currently investigating relationships between Pygmy-possums, climate change and interactions with other species. Infra-red cameras are being used to monitor the relative numbers of foxes and cats across the range of the possum. Plans are under way to increase cat and fox control efforts in the resorts this summer, using new types of traps and funding from the PWG 'find it and fix it' fund to employ an expert at predator control.

Due to the substantial declines in the four 'large' sub-populations (greater than 25 females) in Kosciuszko National Park (ranging from 38-77% over the last 3-10 years) we are also planning to establish a captive breeding program for the Kosciuszko National Park possums. See:

http://www.fnpw.org.au/OurProjects/Plants_Wildlife/Mountain_Pygmy_Possum.htm



**Mountain Pygmy-possum trapped at the Paralyser, November 2008.
Photo by Rebecca Plum and Char Corkran.**

Weed research

Papers prepared as part of the Mountain Invasion Research Network (MIREN) on patterns of alien species in Australia and overseas are close to publication. A global database of mountain plant invasions has been developed in conjunction with Eidgenössische Technische Hochschule Zürich. A prototype of the database is available online:

<http://www.miren.ethz.ch/database/index.html>

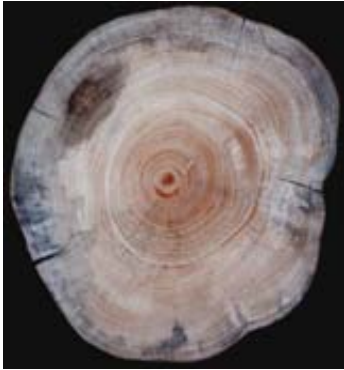
One of the papers referred to is in press: McDougall KL, Alexander JM, Haider S, Pauchard A, Walsh NG, Kueffer C (2010) Alien flora of mountains: global comparisons for the development of local preventive measures against plant invasions. Diversity and Distributions (in press) but can already be downloaded on the journal web page.

A report prepared by the Global Mountain Biodiversity Assessment and launched at the recent 10th Conference Of the Parties in Nagoya, Japan can be downloaded at

<http://www.cde.unibe.ch/>.

Dendroecology of the Mountain Plum Pine (*Podocarpus lawrencei*)

Dendrochronological studies on the mountain plum pine (by DECCW in association with ANU) have been extended, with funding from the Australian Alps Liaison Committee, into Victoria and the ACT. Following the review of the first paper on this work will then be submitted for publication. The overall aim is to describe the climate of the Alps for the past 300 years (and detect whether the current climate has precedent in that time). A full progress report about the Podocarpus project is available.



Podocarpus cross section. This section (11 cm in diameter) is about 135 years old.

Alpine Ash (*Eucalyptus delegatensis*)

Alpine Ash is a tall forest tree that grows on the Southern Tablelands of NSW, in Victoria and also in Tasmania. In monospecific stands, and in association with several other Eucalypts, alpine ash occupies around 105,000 hectares of NSW, with about 90,000 hectares being in the Park. Most stands occur between 900-1400 metres, with rainfall at these altitudes varying from about 1000-1500 mm per annum. The species is fire sensitive, and is likely to die if the crown is severely scorched or consumed by fire. Lower intensity fires are tolerated as the crown is often unharmed, although survival of regeneration or saplings is dependant on the local fire intensity

An assessment and monitoring program has been established in the Park. About 65,000 hectares of Alpine Ash in the Park were burnt in the fires of January 2003 and fire severity mapping produced after the fire shows that around 36,000 hectares of Ash were killed, and 29,000 hectares survived. Survey has shown there is abundant regeneration of ash from seed over most of the area killed in 2003. In other sections of the park the survey found Alpine Ash more than 1.5 metres in diameter, indicating that there have not been crown fires for at least 200 years.

An additional 14 monitoring sites (bringing total to 74 sites) were placed in alpine ash in the summer of 2009/10 to ensure that stands of alpine ash in the eastern sections of the park were adequately represented in the monitoring program. Data entry and analysis of the whole dataset is underway.



Unburnt Alpine Ash stand in the northern section of the Park
Photo: DECCW

Dogs in Space: Australian Satellite Tracking Program

Between 2004 and 2010, DECCW coordinated a major research project investigating the spatial ecology of a problematic carnivore, the wild dog (feral dogs, (*Canis lupus familiaris*); dingoes, (*Canis lupus dingo*); and hybrids of the two). Wild dog management is highly controversial. On one hand, landholders desire greater control of wild dogs within the boundaries of public lands such as national parks, to lessen or prevent economic losses from dog attacks on their livestock. On the other hand, DECCW has a public responsibility to conserve existing populations of dingoes because they are now regarded as a native species in NSW (or at the least a naturalised species). This also includes prevention or reduction of hybridisation between dingoes and wild dogs. Wild dog management plans attempt to meet these dual objectives.

To assist wild dog management planning, further insight into the ecology of wild dogs was necessary. Despite previous research efforts, the way in which wild dogs utilise habitat within and adjacent to conservation reserves in southern NSW was poorly known. From inception the primary aim of the Dogs in Space project was to describe home range size, habitat preferences, movement patterns and spatial organisation of wild dogs across select reserves in south-eastern mainland Australia; and to use this information to better tailor control and management efforts. Overall, more than 20 wild dogs were collared and tracked as part of the program in five key reserves across south-eastern mainland Australia, including in the northern and southern sections of Kosciuszko National Park.

The overwhelming finding of the tracking work was the discovery that wild dogs ranged over much larger home range areas than previously suspected, around 10,000 ha on average. While ranging so far, these animals mostly remained loyal to public tenure, particularly in the absence of control operations. For the most part, individuals maintained stable home ranges within which regular movement patterns were observed. Since wild dogs range much further than previously suspected, existing control efforts are more likely to impact over a greater landscape than presumed. In effect, a case for intensive control works at the periphery of public lands is firmly supported. Also, genetic assay of the animals tracked indicated that very few could be considered as 'pure' dingo, instead being mostly dingo with minor infusion of domestic dog genes. Again, managing against further hybridisation by targeting control efforts at the edge of public lands likely offers the best hope of preserving those dingo genes that remain.

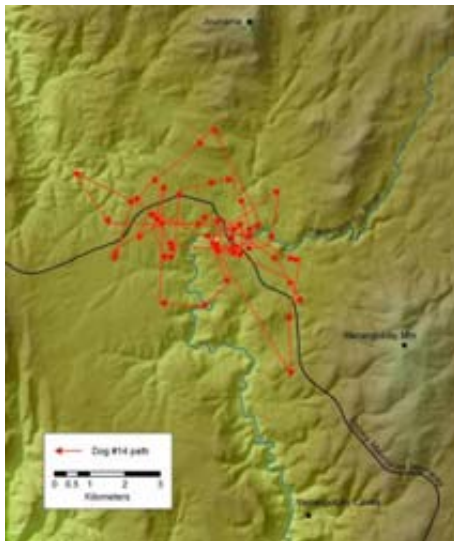
Major findings from the first phase of Dogs in Space were presented at various forums, including Wild Dog Planning Groups, who comprise private landholders, members of the NSW Farmers Association and the Livestock Health and Pest Authority of NSW. In

addition to these presentations, papers summarising the tracking work have been published in the scientific journal *Forest Ecology and Management* and a concise statement about the relevance of the work to wild dog management published in a review paper in *Ecological Management and Restoration*. A major report was prepared for the Australian Alps Liaison Committee, a financial contributor toward the research. Finally, results from the work were also promoted in various media-related activities including newspaper articles and live-to-air radio interviews.

In the past year *Dogs in Space* has entered a second phase. In collaboration with geneticist Dr Alan Wilton from UNSW, an investigation has commenced into aspects of the social structure of wild dogs using DNA obtained from scats. In particular, the project is interested to see whether individual wild dogs can be identified from DNA present in scats, allowing for better population estimates to be made without the need to entrap animals. A secondary aim is to try and assess the degree of hybridisation of those individuals. An initial batch of wild dog scats of different ages were collected from northern section of the Park during 2009. Dr Wilton attempted to extract DNA from these samples, with relatively limited success. A second batch of samples was collected in April 2010, again from northern Kosciuszko. Dr Wilton is currently using alternative methods to try and obtain useful DNA samples. If successful, this information will prove further useful in wild dog management forums.

Further Information is available in the Australian Alps Fact sheet “Dogs in Space Tracking Initiative at:

<http://www.australialps.environment.gov.au/publications/general/factsheet-dogs-in-space.html>



Dogs in Space: Australian Satellite Tracking Program Photo: DECCW

Monitoring Spotted-tailed Quolls against Canid Control

Wild dog and fox control is a key management activity for DECCW. Wild dogs can cause severe damage to the livestock industry, particularly on sheep farms adjacent to conservation reserves such as Kosciuszko National Park. In turn, foxes are a major predator of many native ground-dwelling animals, including threatened species such as the Mountain Pygmy Possum. Presently, the most cost-effective method for wild dog and fox control over large areas is baiting using the toxin sodium monofluoroacetate (1080). In inaccessible areas, 1080 baits are distributed across forested country aerially. While 1080

is particularly effective in the control of wild dog and foxes, it is also toxic to a broad range of native vertebrates given a sufficient dose.

In the first stage of this research non-toxic baits laced with a biomarker were used to measure exposure risk to quolls in a field situation. Following this work, which established that not all quolls within a known population would take baits, a toxic trial (i.e. using baits with 1080) was then undertaken. Of note, while the toxic trial again indicated that quolls ate baits, those that did survive bait consumption. The mechanism(s) of survival remain unclear but, from a management perspective, there was good enough evidence to allow resumption of aerial baiting operationally across limited reserve areas in southern NSW.

Landscape-scale monitoring have been established for quolls in areas of the southern part of the Park now routinely subject to aerial baiting. This monitoring involves measuring the persistence and relative activity levels of quolls based on frequency of scat deposits left at so-called "latrine sites". Latrine sites are generally flat surfaces, such as washed rock, where individual quolls deposit scats for communication purposes. The frequency with which scats are left on latrines usually increases through the winter period, which coincides with the annual breeding cycle. In southern Kosciuszko, a network of transects have been established in drainage lines with and without annual aerial baiting. These are walked routinely at the end of each winter and the number and position of quoll scats recorded. Further ongoing evidence of quolls is being obtained through the use of infrared digital cameras, which are routinely set in the same landscapes.

The goal within the next year is to examine trends in quoll scat evidence over successive monitoring events and report on the status of the species in relation to canid control works by way of scientific publications and reports. Thus far, the monitoring has indicated that quolls are widely distributed across the southern half of the Park, and persist in catchments with and without recent histories of aerial baiting. This monitoring work will continue for the foreseeable future to ensure that pest control programs do not impact negatively upon quolls.

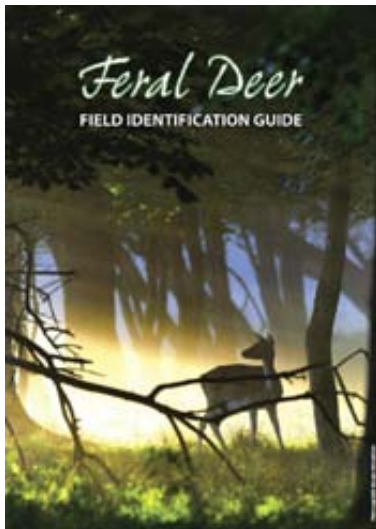
Elsewhere across the park, evidence of quolls has been harder to obtain, likely because populations of the species are at lower density. Further infrared camera-based surveys for the species are planned during the next 12 months in the northern section of the Park, including areas where annual aerial baiting is also carried out.



Image of a Spotted Tail Quoll. Photo copyright: DECCW

Feral Deer Field Identification Guide

Feral deer are recognised as a major and widespread introduced species'. They have an unknown but potentially large impact on the landscapes they now inhabit. In New South Wales, "Herbivory and environmental degradation caused by feral deer" is listed as a key threatening process on Schedule 3 of the Threatened Species Conservation Act 1995. This listing is based principally upon research undertaken in Royal National Park where Rusa Deer have been found to have a major impact on vegetation floristics and structure, including on threatened flora species. In Kosciuszko National Park, both Sambar Deer and Fallow Deer are widespread and have most likely increased in abundance since the major wildfires of the summer of 2002-3. In recognition of the emerging management issue of feral deer, a field identification guide has been prepared to raise DECCW staff awareness and improve general knowledge. The guide is divided into three major sections. In the first section profiles of each of the six species of deer either known or presumed to occur in south-eastern New South Wales are presented. These profiles summarise information about the morphology, ecology and reproductive biology of each species. The second section of the guide examines the potential ecological impacts of feral deer on fauna and flora, particularly threatened species. Finally, the third section details ways in which the presence of feral deer at a site can be inferred, through direct or indirect signs. Finally, a list of useful references and website links about aspects of feral deer biology is also provided. The field guide was printed in early 2010 and has since been circulated to relevant DECCW staff. In addition to the field guide, DECCW are also currently working on better ways to detect and attract feral deer in the wild, including the use of infrared digital cameras and feeding stations.



Front cover of Feral Deer Field Identification Guide. Photo copyright: DECCW

7. Conclusion

During 2009-2010 a great deal of progress has been made in implementing the strategic and on ground actions of the Plan. The sheer range of activities and outcomes achieved during the year are evident in this report. The involvement of stakeholders, resort operators, park visitors and indigenous communities is an ongoing and important component to support management of the Park.

The challenges for the next year include:

- Updating, staff training and distribution of the Kosciuszko Action Database, a component of the Integrated Monitoring and Evaluation Program.
- Preparation of 5 year review process for the Kosciuszko National Park Plan of Management.
- Continuing the range of research and monitoring programs as per the Regional Research and Monitoring Strategy.
- Research the effects of salt leachate from roads in alpine bogs.
- Research the biology of alpine skinks and the influence of landscape changes.
- Implementation of the Regional Operations Plan.
- Continued implementation of the horse control and impact monitoring program.
- Continuation of the infrastructure improvement program at Yarrangobilly.
- Continuation of stage 2 of the Thredbo-Bullocks shared use trail.
- Continue to implement PAS and Recovery actions for threatened species.
- Continue to implement the Hawkweed Control program and review methodology/results in 2011.
- Continue providing/upgrading visitor facilities and experiences.
- Investigate key sites for expansion of the VDS system now running successfully at a number of sites in the park.
- Work closely with Tourism Snowy Mountains and FORTO to develop the very best year round campaigns that assist in meeting the State plan requirements for a 20% increase in visitation to parks.
- Continue the development of efficient and cost effective waste reduction and recovery in the Perisher Range Resorts including implementation of a waste collection strategy and construction of a waste transfer facility.
- Ongoing implementation of operational and equipment upgrades to the Perisher Sewage treatment plant to further environmental performance and ensure public and employee safety.
- Continued implementation and construction of the road network in the Perisher Range Resorts to increase visitor safety, resort amenity and reduce pollution and other environmental impacts by traffic in winter.
- Update accommodation listing in June of any accommodation establishments that have increased/decreased bed numbers or created as a result of new developments.
- Accommodation Compliance – Ongoing audit programme of lessees and compliance with their overnight bed numbers within the Lease. Development of new programs to ensure compliance of self-contained apartments.
- Continue to work with Perisher Blue Pty Ltd in the development of the first Perisher Ski Resort Rehabilitation Plan.
- Implement Perisher Creek Rehabilitation Project.
- Implementation audits of Perisher, Thredbo, Selwyn and Charlottes Pass Alpine Resort EMSs – note this will commence in 10/11 and continue throughout winter 2011/2012.

Kosciuszko National Park Plan of Management (2006)
2009-2010 Implementation Report

- Development of a common template and quantitative reporting indicators for Alpine Resort Environmental Reporting.
- Undertake gap analysis of NPWS park management policies and procedures against Kosciuszko National Park Plan of Management EMS requirements.
- Investigate and plan with new technology available a park use fee system that is partnered where possible with stakeholders as a one stop shop product.
- Tourism and Visitor Services Unit has a key responsibility in revising and delivering the actions within the Kosciuszko National Park Communications Plan.