Chapter 23
findings and recommendations

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This chapter brings together the findings and recommendations of the Independent Scientific Committee (ISC) arising from the chapters on the individual values and overview aspects.

1 Major recommendations and findings of the ISC

1.1 Conservation of significant values

Finding

The values of the Kosciuszko National Park identified in this report are fundamental to the purpose of its reservation as a protected area.

Recommendation

The park's values identified in the ISC report should be recognised in the park's plan of management, which should incorporate strategies for their conservation.

1.2 Knowledge base for the park's values

Finding

The knowledge base for the park's values is core knowledge for management, and cannot be left to research institutions to address in an unstructured or opportunistic way.

Recommendation

A structured program of research and knowledge management, which will require leadership and commitment by New South Wales (NSW) National Parks and Wildlife Service (NPWS), must continually update the knowledge base for the park's values.

1.3 Conservative sustainable management

Finding

The values of the park will degrade unless the pressures that contribute to degradation are recognised and addressed before degradation occurs.

Recommendation

The park should be managed conservatively and sustainably to ensure that its values are not degraded and that pressures that might contribute to the degradation of values are recognised and managed before serious degradation occurs. Adaptive management is needed to ensure that management strategies can be changed if they are contributing to degradation of the values.

"The values of the Kosciuszko National Park should be recognised in the park's plan of management, which would incorporate strategies for their conservation."

1.4 Monitoring of the park's condition

Finding

Monitoring of the park's condition is essential for effective management. It is noted that some values have existing data sets on which to build, but for others, there is no existing reliable information.

Recommendation

Monitoring of the condition of the park's values should be a programmed activity with a reliable budget. Monitoring should address agreed indicators, and the results should be reported publicly.

2 Findings and recommendations on the condition of values

2.1 Conservation of significant values

Finding

The terms of reference required the ISC to identify, describe and report on the condition and trend in condition of the natural, cultural, recreational, economic and social values of Kosciuszko National Park. The values of the park are very diverse and there are different ways of expressing their condition. While some values have become degraded, or are threatened with degradation, others are in good condition or improving. Therefore it is not possible to make a meaningful overall comment on condition, and trend in condition, of the park's values. However, all of the parks values need to be conserved to retain their significance.

Recommendation

Monitoring of the condition of the values is essential to allow early detection of degradation trends.

3 Findings and recommendations on pressures on the park's values

3.1 Capacity to manage pressures

Finding

The park's natural heritage values underpin the majority of its other values; thus, the pressures on its ecosystems and fundamental ecological processes such as increased development, fire management and introduced species have the greatest potential to affect the values of the park.

The impacts increase in severity when these pressures are overlaid with increase in visitor use and intensification of regional development.

While all parts of the park are affected by individual or cumulative pressures, the alpine and subalpine areas are the most vulnerable, and increased pressures from tourism and recreation activities and facilities are of particular concern.

Recommendation

The pressures on the park's values demand adequate capacity within the NPWS and the understanding and support of the community to effectively manage the full range of the park's values.

3.2 Climate change

Finding

Climate change is a pressure beyond the ability of the park to manage directly, but will have profound impacts on some values.

Recommendation

The Kosciuszko National Park Plan of Management needs to recognise the implications of the climate change as a pressure on the park and to incorporate a planned management response based on conservation of the park's values.

3.3 Development

Finding

There will be increased pressure on the park's values if there is expansion of development within the park for increased access and tourism infrastructure, both for summer and winter facilities and services. Most demands will be motivated by commercial reasons, and there may also be commercial pressure to expand snowfields resort areas. Development for infrastructure also affects the park's values.

Recommendation

Management of all development needs to give priority to conservation of the core values of the park, on which sustainable tourism and high quality visitor experience depends

3.4 Visitor use in alpine and subalpine areas

Finding

Increasing visitor use has widespread implications for loss or degradation of the park's values; in particular, the increase in visitors in the alpine and subalpine areas in summer is of concern.

Recommendation

The pressure of increase in visitors in the alpine and subalpine areas in summer needs to be addressed by management as a high priority

3.5 Park management

Finding

The process of park management can itself be a pressure on the park's identified values.

Recommendation

The park will need to institute a program of continuous development and retention of appropriate and adequate skills, knowledge, competencies and resources to manage the park's values.

3.6 Pressures on ecological processes

Findings

Pressures caused by disturbance of catchments, the managed fire regime, and by introduced plant and animal species are causing substantial impacts on the park's biodiversity and the natural ecological communities by disturbance of the ecological processes on which their conservation depends.

There are major pressures on the ecological integrity of the park caused by catchment and hydrological pressures, invasive introduced species and inappropriate fire regimes that interrupt the natural ecological processes.

Recommendation

Some pressures on ecological processes need the understanding of the community and there is need for a program that builds the community's involvement and knowledge of the issues.

3.7 Regional land use

Finding

The regional setting of the park brings pressures as intensified land use and new developments, some stimulated by the existence of the park itself, potentially isolate the park as a natural area, and create edge impacts on the boundary areas of the park.

Recommendation

Pressures caused by changes in regional land use require an inclusive regional management approach by the park.

3.8 Cumulative effects of pressures

Finding

Most values are experiencing more than one pressure.

Recommendation

The cumulative effect of pressures on the park's values needs to be considered in management.

3.9 Values as pressures

Finding

Some pressures have been identified that might also be related to, or part of, other values of the park.

Recommendation

Pressures that are also values will need careful consideration and management.

4 Findings and recommendations on knowledge gaps

The ISC makes the following findings and recommendations in respect of knowledge gaps concerning the park's identified values.

4.1 Knowledge management

Finding

The park needs a system that would make existing knowledge available, incorporate and disseminate new knowledge as it becomes available, and record advice on existing and new knowledge needs of the park.

Recommendation

The Kosciuszko National Park Plan of Management should establish a protocol for knowledge management for the park.

4.2 New knowledge of values

Finding

The park's values are not fully known or understood.

Recommendation

The values of the park should be reviewed from time to time to incorporate new knowledge and understanding. This process should not be dependent on a review of the plan of management, but should be a periodic and systematic procedure.

4.3 Systematics (taxonomics and molecular genetics) advances

Finding

Since the original Plan of Management for Kosciusko National Park (1982) there have been many dramatic advances in systematics and the scientific tools derived from the study of molecular genetics and systematic analysis have profound implications for understanding of the park's values and their management. Many new taxa have been recognised, several of which are alpine endemics.

Recommendation

Systematics (taxonomics and molecular genetics) offers a most valuable new tool for Park management and should be incorporated into future research plans.

4.4 Sharing knowledge with other Australian Alps national parks

Finding

The cooperative management and liaison arrangements established for the Australian Alps national parks offer opportunities to share knowledge about the Alps.

Recommendation

The cooperative management and liaison arrangements established for the Australian Alps national parks should be encouraged and strengthened.

4.5 Collaborative research

Finding

The ISC recognises (and regrets) the continuing reduction in in-house resources devoted to research by the NPWS.

Recommendation

Opportunities for collaborative research between the NPWS and other organisations should be pursued.

4.6 Maintenance of in-house expertise

Finding

With continued reductions in specialist personnel, there will be loss of understanding of essential knowledge areas and diminished and inadequate ability to translate this knowledge into appropriate management responses to conserve the park's values (eg fire ecology and research).

Recommendation

The NPWS must maintain a high level of expertise in all of the park's value areas.

4.7 Filling knowledge gaps through plan of management

Finding

The plan of management is an appropriate vehicle for ensuring that the knowledge needed for management is acquired and used effectively.

Recommendation

The knowledge gaps about the Kosciuszko National Park identified by the ISC should be addressed systematically in conjunction with the implementation of the plan of management.

5 Findings and recommendations on indicators and monitoring of values

5.1 Additional indicators

Finding

The World Commission on Protected Areas framework provides indicators that would benefit the plan of management.

Recommendation

As part of the process of completing the management plan, the ISC recommends that the NSW NPWS add additional indicators relating to the other elements of the World Commission on Protected Areas framework. Specification of some of these indicators will have to await the completion of a draft of the management plan, as they will relate to the specifics of objectives and strategies in the plan. However, the general nature of these indicators can be outlined now.

5.2 Indicators for condition and pressures

Finding

This report identifies the significant values of the area and the pressures (threats) acting on these values.

Recommendations

The status and trend, both of the condition of values and the pressures on them, should be monitored as part of the outcomes component of the monitoring program.

5.3 Planning context indicators

Finding

The planning process provides an opportunity to review the park's design and its planning context

Recommendations

As part of the preparation of the management plan, the adequacy of existing general protected area legislation and policy should be assessed. Similarly, the plan should contain an assessment of the strengths and weaknesses in the design of Kosciuszko National Park. Any deficiencies in design can then be addressed through acquisition, or adoption of relevant management strategies. This design assessment should be conducted in relation to the major park values identified in this report. The new management plan should also assess current issue-oriented planning documents and identify requirements for development or review of subordinate plans.

5.4 Monitoring resource inputs to management

Finding

Resourcing the implementation of the new plan of management needs to be systematically addressed.

Recommendations

As a minimum, a structure should be developed for monitoring the allocation of resources (staff and funds) to major aspects of park management. Ideally, there would also be a parallel process for identifying needs in relation to each aspect of management, so that some assessment of adequacy of resourcing can be undertaken.

5.5 Evaluation of management processes

Finding

Evaluating the appropriateness of management processes requires that relevant management standards be prepared as a basis against which assessment can be made. The preparation of the management plan provides an ideal opportunity for establishing such a set of standards.

Recommendations

Existing consultative mechanisms set up for the plan's preparation could be considered to obtain stakeholder input to the standards. Evaluation could be undertaken by scoring current management practices against the ideal standards, with assessments repeated every 1–2 years to track progress in management practices.

5.6 Monitoring outputs

Finding

The preparation of the management plan provides an opportunity to develop a system for monitoring implementation of the plan.

Recommendations

Monitoring implementation of the new plan should be done using a simple database that lists the policies and actions proposed in the plan, and provides for annual recording of the status of implementation of each. Indicators of key program outputs should also be monitored. Preference in selection of attributes to be monitored should be given to those management activities that relate to the maintenance of park values or the abatement of threats. Other output indicators that should be monitored include those which reflect external demands placed on the staff managing the park (eg visitor numbers).

5.7 Monitoring outcomes

Finding

The new plan provides the opportunity to monitor its outcomes with respect to the status of values and the abatement of threats.

Recommendations

Indicators for monitoring the status of identified values and the abatement of threats are specified in Table 22.2. Additional monitoring of key management plan objectives should also be undertaken, indicators for which will need to be specified as part of, or following the development of, the management plan.

6 Findings and recommendations on fire

6.1 The natural fire regime

Finding

The natural fire regime has been a feature of the development of the region's vegetation structure for millennia; it is a major determinant of vegetation and its seral stages across the Australian landscapes and affects the spatial and temporal availability of habitat for fauna. Present vegetation distribution is an expression of past fire regimes.

Recommendation

Fire management of the park should be based on an assessment of vegetation systems and fuel structures, applying the principles of combustion physics to ensure that desired outcomes are valid and achievable.

6.2 Focus of fire management

Finding

Fire management influences the capacity to implement other management strategies and achieve planned management outcomes, and the occurrence and distribution of vegetation communities and certain species. Fire can have deleterious impacts on Kosciuszko National Park soils, particularly the organic soils of the alpine and subalpine zones (alpine humus and transitional alpine humus soils).

Recommendation

A focus of fire management should be to minimise the impact of high-intensity fire on natural and human assets. The dominant objectives regarding should be to achieve a more representative range of succession, including areas of old growth vegetation (representing the end result of environmental stability) and to address the needs of fire dependent threatened species through ecologically-based fire regimes. Fire management practices should not be undertaken if, on balance, they detract from an objective of catchment protection.

7 Findings and recommendations on threatening processes

7.1 Climate change

Finding

Alpine environments are a key area for research and monitoring climate change. The park is important as a biodiversity refugium and a better understanding of the ecological functions at the systems level is needed; present habitats must be as robust and healthy as possible to maximise resilience.

Recommendation

Preparation for climate change requires: more detailed study of the implications for the park of enhanced climate change effects and the appropriateness of "solutions" such as cloud seeding and planning of regional-scale corridors across landscapes outside the park and integration adjacent land uses to maximise biodiversity conservation.

7.2 Introduced grazing herbivores

Finding

The individual and combined grazing pressure of introduced species (rabbits, hares, horses, pigs, deer and goats) is substantial. Populations of these introduced herbivores are affecting vegetation and sensitive areas such as bogs. The alpine area is highly vulnerable, particularly under changing population sizes and climate change; unchecked invasion by some of these herbivores is likely to change the structure of the alpine vegetation and move it away from the present insect-dominated system. In the absence of natural enemies (predators, parasites) or control, these species represent a major threat to the natural integrity of the park. According to the ecological concept of "trophic cascades", the suite of exotic herbivores current present in the park may represent a major problem that is not visible or at least perceived at present.

Recommendation

Re-establishment of the pre-European predator system should be incorporated into control measures for introduced grazing herbivores. Control of these herbivores within an adaptive experimental management framework should be a major management program of the park.

7.3 Introduced species

Finding

It is critical to prevent the establishment of further new introduced species, and to make every effort to eliminate any new introductions identified.

Recommendation

Strategies are needed to ensure early identification of non-native species into the park.

7.4 Exotic diseases and pathogens

Finding

The flora and fauna populations of the park may be vulnerable to exotic diseases and pathogens. Exotic diseases have the potential to have long-term detriment to the parks native species. In the national sense, the Australian Quarantine Inspection Service is the first line of defence, and park managers have powers to stop deliberate release.

Recommendation

Park staff must take active responsibility and remain vigilant in their surveillance and reporting and management of unusual events, with the objective of preventing the establishment of new diseases and pathogens.

8 Findings and recommendations on ecological research

8.1 Strategic ecological research

Finding

An overall framework for strategic research in Kosciuszko National Park will provide the information needed for effective management. Incorporating many of the research projects into a program of adaptive experimental management is arguably the most rewarding. In the recent past, threatened species have attracted a substantial research effort. This has been worthwhile, but a more wholistic landscape approach may prove more productive.

Recommendation

There is a need to establish an overall framework for strategic research in Kosciuszko National Park based on a wholistic landscape approach. Establishment of an external advisory group on research should be considered to assist in this task.

8.2 Ecological research beyond the park boundaries

Finding

For some ecological aspects (eg nutrient cycling, large owls, predation, health of system, and subterranean biodiversity) the major drivers could well be outside the park system.

Recommendation

Ecological research within Kosciuszko National Park should be linked to other areas outside the park.

8.3 Long-term vegetation and soil transects

Finding

The location and history of long-term vegetation transects in the alpine and subalpine zones have been documented. There are also various photographic records of soil conditions and other features made many years ago and some of these should be located and repeated at regular intervals to yield information on trend in condition.

Recommendation

The long term transects must be continued not only for the information they provide on vegetation trends but also for information on the soils. There is a good case for a professional 'ecological archivist' on the park's staff to coordinate re-photography of sites for which there is a useful photographic record.

9 Findings and recommendations on the park's future status

9.1 Biosphere Reserve status

Finding

Kosciuszko National Park is a Biosphere Reserve, a status conferred in 1977 by UNESCO. Biosphere Reserves are areas of protected ecosystems where solutions to reconcile the conservation of biodiversity with its sustainable use are promoted. Collectively, Biosphere Reserves form a world network within which exchanges of information, experience and personnel are encouraged. To date, the Biosphere Reserve concept has not been utilised to the advantage of Kosciuszko National Park. This listing also brings the park into the ambit of the *Environment Protection and Biodiversity Conservation Act.*

Recommendation

The Biosphere Reserve status of Kosciuszko National Park should be reviewed and utilised as a means of incorporating regional landscape perspectives, management and planning in conjunction with neighbouring authorities and the regional community.

9.2 Ramsar Wetland of International Importance - Blue Lake

Finding

The listing of Blue Lake and its surrounding area as a Wetland of International Significance is an important recognition. This listing also brings the site into the ambit of the *Environment Protection and Biodiversity Conservation Act.*

Recommendation

Blue Lake, as a Ramsar Wetland of International Significance, should be specifically addressed and protected in the Plan of Management.

9.3 National Heritage Listing of Australian Alps

Finding

Kosciuszko National Park is significant in its context as part of the Australian Alps A National Heritage Listing of the whole of the Australian Alps would be appropriate, to be initiated under the new Commonwealth heritage legislation.

Recommendation

A National Heritage Listing of the whole of the Australian Alps should be pursued through pooling and coordination of the knowledge held by each of the Alps protected area management authorities.