



## Managing natural values in the Australian Alps

Protected area managers, policy makers and stakeholders now have a guide to management decisions that extends across landscapes and borders.

To do this, we:

- generated the first alps-wide vegetation classification and map using existing datasets from NSW, Victoria and the ACT.
- identified iconic landscape features, their associated biodiversity values, and the threats to their condition.
- used the MCAS-S decision-support tool, to combine maps of iconic features and their threats to pinpoint areas of high natural value under high and low levels of threat.

## Taking a landscape-scale view of natural values and threats

The Australian Alps is a large, complex and diverse landscape with outstanding biodiversity distributed across thousands of sites of high natural value.

The alps stretch across state borders, with three agencies responsible for making land management decisions. Effectively managing biodiversity across large areas requires land managers to take a landscape-scale approach, with shared goals and approaches to managing values and threats.

We present an alps-wide strategic approach to understanding the natural values of the region and the threats it faces. To do this, we developed the first alps-wide vegetation classification system, and identified seven iconic landscape features and nine key threats.

We show how information about biodiversity values and threats can be combined to explore their intersection and prioritise actions over large scales.

## A strategic and shared understanding

Effective and cooperative landscape-scale management of biodiversity requires at a minimum, a strategic and shared understanding of a region's core natural values and threats. This study was carried out to provide a pathway to a shared understanding of natural values and threats between the management agencies in the complex Australian Alps landscape. This approach could be applied in any landscape.

### No common datasets across state borders

The Australian Alps national parks comprise 11 protected areas spanning 1.6 million hectares across Victoria, New South Wales and the Australian Capital Territory. Each government agency respectively manages the park areas within its state borders. While interagency cooperation is achieved through the Australian Alps Liaison Committee, there is no single database that captures and stores information on the natural values and threats of the region.

The best available information to date is a relative index of sub-catchment condition from the '[Caring for our Australian Alps Catchments](#)' report.

### No consistent recording of values and threats

Cooperation across the alps currently relies on land managers talking to one another. However, the information, tools and techniques available to managers varies from state to state, meaning that management interventions are not necessarily coordinated or complementary. Any strategic assessment of values and threats is limited by three different, state-based, environmental management systems and datasets.

Vegetation classifications and lists of threatened and endangered species are recorded separately using state-based systems with different standards and criteria. State agencies also identify and categorise biodiversity values differently when developing management plans for the individual parks.

While there is a willingness to consistently define and manage threats across the states, there is no common system for recording threat presence and treatment.

## A landscape-scale information platform

Using existing information from the three agencies, we developed a system that provides a consistent approach to classifying and displaying values and threats across the Australian Alps landscape.

We identified seven iconic natural features of the alps landscape and nine major processes that threaten those iconic features, and used a catchment condition index to describe their current state.

An essential step was developing a standard vegetation classification system for the alps, producing the first alps-wide vegetation map.

We collated the new information into an alps-wide datapack for use with the decision-support tool MCAS-S (Multi-Criteria Analysis Shell for Spatial Decision Support). MCAS-S was developed by the Australian Bureau of Agricultural and Resource Economics and Sciences for non-GIS users to integrate spatial data and is freely available from:

[www.abares.gov.au/mcass](http://www.abares.gov.au/mcass)





## The first common vegetation classification for the Australian Alps

Fundamental information for biodiversity conservation is a map of native vegetation cover showing the composition and structure of major plant classes. While vegetation maps have been produced by the state governments of NSW, Victoria and ACT, no common classification system or map exists that recognises the special ecosystems types of the alps.

To fill this gap, we developed a common vegetation classification and generated a new map for the Australian Alps by integrating the Victorian vegetation classification system with NSW/ACT system. We did this by matching 73 NSW/ACT vegetation groups with 66 Victorian ecological vegetation classes to produce 18 new vegetation classes. The new classification and map provide a common cross-jurisdictional approach to identifying the distinctive vegetation types of the alps.

## Understanding a landscape through iconic natural features

Using an online survey (SurveyMonkey), we asked protected area agency staff and alps stakeholders to identify the key natural features of the alps. This produced seven iconic natural features as a focus for management. A subsequent survey identified nine key threats to these features. These showed close agreement with a condition assessment for one of the three jurisdictions (Victoria's State of the Parks Report, Parks Victoria).

We then created new cross-jurisdictional map layers for the icons and threats, and included these in a regional datapack for strategic planning.

## What did we learn?

### Qualitative—values analysis works

The landscape icons approach represents a holistic understanding of the core conservation values, as the icons integrate many elements of biodiversity and natural values that are typically considered in isolation, and often out of their ecological and geomorphological context.

We demonstrated that by using a qualitative survey to identify these iconic features, a big-picture view of bioregional landscapes is possible, despite complex cross-jurisdictional management arrangements.

### Common datasets support a landscape approach

Cooperation of agencies is fundamental to understanding values, condition and threats across a bioregional landscape.

We found it is possible to use existing datasets to develop a common set of spatial data across jurisdictions to make cooperation between management agencies simpler and more effective.

### MCAS-S is the practitioner's tool

The decision-support tool MCAS-S is an effective platform to combine, visualise and analyse spatial datasets. Using MCAS-S on desktop computers, alps managers can easily combine maps of the landscape icons and their threats with existing datasets to inform their coordinated, landscape-wide decisions.

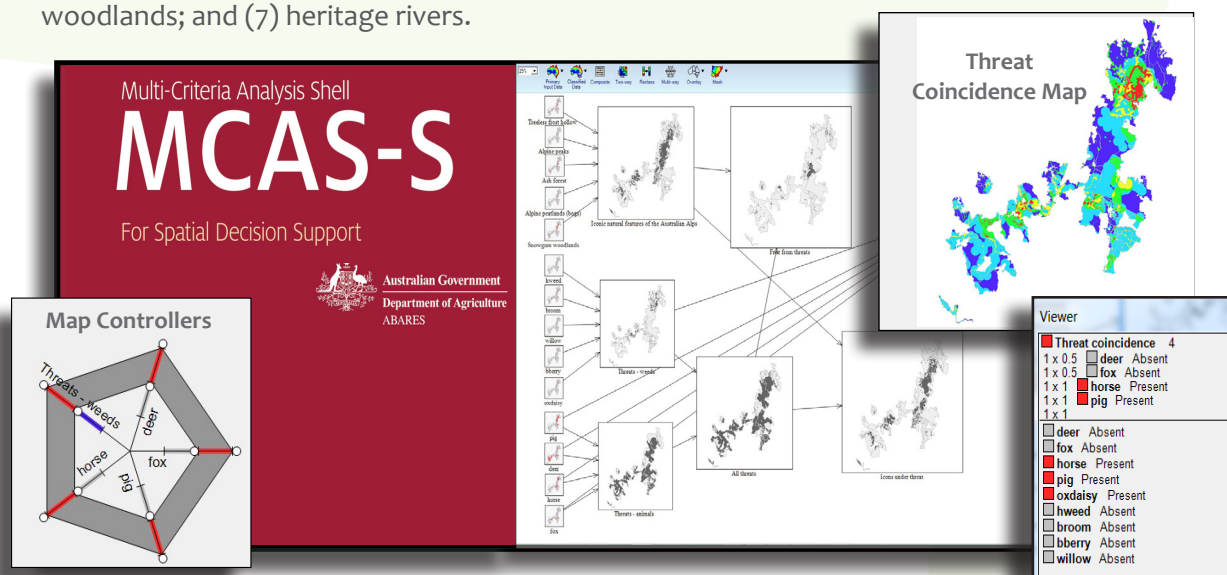
MCAS-S enables managers to interrogate data layers and pose management questions for a multi-jurisdictional landscape answer.

### Iconic natural features

(1) alpine peaks; (2) treeless high plains and frost hollows; (3) alpine wetlands; (4) sub-alpine woodlands; (5) tall wet forests; (6) rain-shadow woodlands; and (7) heritage rivers.

### Key threats

(1) feral horses; (2) deer; (3) pigs; (4) foxes; (5) English broom; (6) hawkweeds; (7) willows; (8) blackberries; and (9) ox eye daisy.



## What does this mean for alps managers?

### Capturing knowledge

A great deal of information and knowledge about conservation values and threats to biodiversity resides with experienced practitioners and stakeholders. We found that this knowledge could be readily accessed through simple, targeted online surveys.

### MCAS–S can combine qualitative and quantitative data

We have shown that it is possible to combine qualitative and quantitative information to assess biodiversity values using the landscape icon approach.

Integrating iconic landscape features with existing datasets helps us understand the big picture drivers of change. This informs effective decision making across complex landscapes, helps prioritise resource allocation and supports funding proposals.

### Where to from here?

The Australian Alps Icon and Threats MCAS–S Datapack includes the new map layers and a tutorial to demonstrate how to use the application. The Australian Alps Liaison Committee and Reference Groups are currently assessing the tool's potential to improve cooperative and strategic management of biodiversity.

### Who are the lead researchers?

Mr Peter Jacobs



Peter spent most of his 37-year park management career in and around the Australian Alps. In November 2013, he retired from Parks Victoria and is now a protected area consultant.

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Sonia is a GIS Analyst at The Australian National University. She is part of the Bioregional Futures Team pioneering the use of the MCAS–S tool to support landscape-scale biodiversity conservation.

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### Who else is involved?

Luciana Porfirio and Lauren Carter (The Australian National University), Brendan Mackey (Griffith University) and Gill Anderson (People in Nature)

### Further reading

Worboys GL & Good RB (2011) *Caring For Our Australian Alps Catchments: Summary Report For Policy Makers*. Department of Climate Change and Energy Efficiency, Canberra.

## About the NERP Landscapes and Policy Hub

The Landscapes and Policy Hub is one of five research hubs funded by the National Environmental Research Program (NERP) for four years (2011–2014) to study biodiversity conservation.

We integrate ecology and social science to provide guidance for policymakers on planning and managing biodiversity at a regional scale. We develop tools, techniques and policy options to integrate biodiversity into regional-scale planning.

The University of Tasmania hosts the hub.

[www.nerplandscapes.edu.au](http://www.nerplandscapes.edu.au)



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