

A statement for the purposes of approved conservation advice  
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

**Approved Conservation Advice for**  
**the Alpine *Sphagnum* Bogs and Associated Fens ecological community**

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

**Description**

The Alpine *Sphagnum* Bogs and Associated Fens ecological community is usually defined by the presence or absence of *Sphagnum* spp. on a peat substratum. *Sphagnum* is not always a major floristic component, and there are some sites in the community where *Sphagnum* has become depleted or been lost as a result of disturbance. In these cases, the site may still be considered part of the community if other key species are present (see Table 1) and a peat substratum is evident. While most examples are situated within national parks, this community consists of highly fragmented, isolated remnants, and its present geographic extent is restricted.

**Conservation Status**

The Alpine *Sphagnum* Bogs and Associated Fens ecological community is listed as **endangered**.

This ecological community is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) because its geographic distribution is restricted and the nature of its distribution makes it likely that multiple demonstrable threats could cause it to be lost in the near future. In addition, the reduction in community integrity and functionally important species is severe. Components of the Alpine *Sphagnum* Bogs and Associated Fens ecological community are also listed under a range of state legislation, as follows:

- “Alpine Bog Community”, “Fen (Bog Pool) Community” and “*Caltha introloba* Herbland Community” are listed as threatened in Victoria under the *Flora and Fauna Guarantee Act 1988* (FFG Act);
- “Montane peatlands and swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions” listed as an endangered ecological community in NSW under the *Threatened Species Conservation Act 1995* (TSC Act); and
- “Sphagnum peatland” listed as 'Rare' in Tasmania under the *Nature Conservation Act 2002* (NC Act).

The Alpine *Sphagnum* Bogs and Associated Fens ecological community also includes the Ginini Flats Wetland and Blue Lake, which are listed under the international Ramsar Convention on Wetlands.

**Distribution and Habitat**

The Alpine *Sphagnum* Bogs and Associated Fens ecological community is found in small pockets across alpine, subalpine and some montane areas of Tasmania, Victoria, New South Wales (NSW) and the Australian Capital Territory (ACT). This ecological community occurs within the ACT, Murray, Murrumbidgee, Southern Rivers, North East Victoria, East

Gippsland, West Gippsland, Northwest Tasmania, North Tasmania and South Tasmania Natural Resource Management Regions.

### **Threats**

The main identified threats to the Alpine *Sphagnum* Bogs and Associated Fens ecological community include fire, exotic weed invasions, grazing and trampling by non-native animals, tourism and increased human infrastructure. *Sphagnum* harvesting is also an issue in Tasmania. These threats all severely impact on the structural and functional integrity of the ecological community, as well as its already limited geographic extent.

The other significant threat to the Alpine *Sphagnum* Bogs and Associated Fens ecological community is climate change. Australia's alpine and subalpine regions face growing pressure as a result of warmer temperatures. Even a small increase in mean ambient temperature is likely to result in the loss of more bogs and fens due to changes in snowfall and snowmelt regimes (Pickering et al., 2004).

### **Research Priorities**

Research priorities that would inform future priority actions include:

- Design and implement long term monitoring programs to determine condition and trends for flora and fauna, particularly any impacts on aquatic fauna;
- Identify and map the current extent of the Alpine *Sphagnum* Bogs and Associated Fens ecological community; and
- Collate all existing data on alpine and subalpine bog and fen communities, thus creating a centralised database that will provide a timeline for decline and recovery processes. This will greatly improve understanding of the ecological community and how it responds to change.

### **Priority Actions**

Priority recovery and threat abatement actions required for the Alpine *Sphagnum* Bogs and Associated Fens ecological community are below. However, the greatest threat to this ecological community is climate change. This means that the effectiveness of all actions proposed is contingent on definitive steps being taken to arrest global climate change.

#### **Habitat Loss, Disturbance and Modification**

- Develop and implement appropriate management regimes to prevent further loss of functionally important species and community integrity;
- Where the community has been damaged or degraded as a result of wildfire or the impact of grazing and trampling, monitor recovery and reflect such activities in relevant management and planning documents;
- Monitor known occurrences to identify key threats or the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary;
- Identify sites of high conservation priority;
- Ensure that any development or maintenance activities in areas where the Alpine *Sphagnum* Bogs and Associated Fens ecological community is known to occur do not result in adverse impacts;
- Prevent or minimise any changes or disruptions to hydrology and water flows which may result in changes to the water table levels, increased run off or sediment; and
- For those occurrences of the Alpine *Sphagnum* Bogs and Associated Fens ecological community not in national parks, encourage landholders to adopt appropriate land

management practices. Also facilitate formal conservation arrangements such as covenants or conservation agreements where desirable.

#### Invasive Weeds

- Eradicate or at least control weed infestations within the ecological community using appropriate methods, especially at sites where new threats (e.g. *Salix* spp. willows) are currently becoming established; and
- Appropriately manage known occurrences of the Alpine *Sphagnum* Bogs and Associated Fens ecological community to prevent introduction of new invasive weeds, which could become a threat.

#### Trampling, Browsing or Grazing

- Prevent grazing pressure at known occurrences of the Alpine *Sphagnum* Bogs and Associated Fens ecological community on leased crown land through exclusion fencing or other barriers;
- Maintain fencing to control domestic stock and prevent access to national parks from private lands and State Forests; and
- Implement existing management plans for the control and eradication of feral non-native animals in alpine and subalpine regions.

#### Fire

- Develop and implement suitable fire management strategies to prevent further loss of functionally important species and community integrity from the Alpine *Sphagnum* Bogs and Associated Fens ecological community.

#### Conservation Information

- Increase public awareness of and appreciation for the Alpine *Sphagnum* Bogs and Associated Fens ecological community.

#### Restoration and Regeneration of Degraded Sites

- Undertake trials to determine the requirements for successful re-establishment of *Sphagnum*; and
- Implement appropriate restoration and translocation protocols if human intervention in the recovery of degraded sites is considered necessary and feasible.

#### Existing Plans/Management Prescriptions that are Relevant to the Ecological Community

Numerous management plans have been developed for each of the national parks where the Alpine *Sphagnum* Bogs and Associated Fens ecological community is found. The majority of these contain similar directives and strategies relating to access and activities in or near bogs and fens. These plans also provide overall management direction for bog and fen vegetation. Threat Abatement Plans, Recovery Plans and other specific management strategies relevant to the ecological community are also in place across each of the national parks. Plans and strategies that may be useful in the conservation of the Alpine *Sphagnum* Bogs and Associated Fens ecological community are listed in Table 2.

This list does not necessarily encompass all actions that may be of benefit to the Alpine *Sphagnum* Bogs and Associated Fens ecological community, but highlights those considered to be of highest priority at the time of preparing the conservation advice.

**Table 1.** *Typical native plant species found in alpine sphagnum bogs and associated fens*

This list is only indicative of plant species common to alpine bogs and fens, and as such, is not comprehensive. The plants identified below may not occur in every alpine bog, and other species may also be present. (Ashton and Williams, 1989; Kirkpatrick, 1989; Whinam et al., 2001; Harris and Kitchener, 2005; VDSE, 2005; McDougall and Walsh, 2007).

Component	Species Name by Life Form	
	Mainland sites	Tasmanian Sites
<b>BOG</b>	<p><b>Shrubs</b>  <i>Baeckea gunniana</i>  <i>Baeckea utilis</i> s.l  <i>Callistemon ptyoides</i>  <i>Epacris</i> spp.  <i>Olearia algida</i>  <i>Oxylobium ellipticum</i>  <i>Richea continentis</i></p> <p><b>Herbs</b>  <i>Asperula gunnii</i>  <i>Brachyscome</i> spp.  <i>Caltha introloba</i>  <i>Celmisia</i> spp.  <i>Epilobium gunnianum</i>  <i>Erigeron paludicola</i>  <i>Gentianella</i> spp.  <i>Gonocarpus micranthus</i>  <i>Nertera granadensis</i>  <i>Oreomyrrhis ciliata</i>  <i>Ranunculus</i> spp.</p> <p><b>Grasses, Sedges, Rushes</b>  <i>Astelia alpina</i>  <i>Baloskion australe</i>  <i>Carex appressa</i>  <i>Carex gaudichaudiana</i>  <i>Carex</i> spp.  <i>Carpha nivicola</i>  <i>Empodisma minus</i>  <i>Isolepis</i> spp.  <i>Luzula modesta</i>  <i>Oreobolus distichus</i>  <i>Poa costiniana</i>  <i>Poa</i> spp.  <i>Restionaceae</i> spp.</p> <p><b>Ferns</b>  <i>Blechnum penna-marina</i></p> <p><b>Mosses</b>  <i>Sphagnum cristatum</i>  <i>Sphagnum novozelandicum</i></p>	<p><b>Shrubs</b>  <i>Baeckea gunniana</i>  <i>Callistemon viridiflorus</i>  <i>Callistemon</i> spp.  <i>Epacris</i> spp.  <i>Ozothamnus hookeri</i>  <i>Ozothamnus rodwayi</i>  <i>Richea gunnii</i>  <i>Richea scoparia</i>  <i>Richea</i> spp.</p> <p><b>Herbs</b>  <i>Acaena novae-zelandiae</i>  <i>Asperula gunnii</i>  <i>Brachyscome</i> spp.  <i>Celmisia asteliifolia</i>  <i>Celmisia saxifraga</i>  <i>Gunnera cordifolia</i></p> <p><b>Grasses, Sedges, Rushes</b>  <i>Astelia alpina</i>  <i>Baloskion australe</i>  <i>Empodisma minus</i>  <i>Gahnia grandis</i>  <i>Gymnoschoenus sphaerocephalus</i>  <i>Isolepis</i> spp.  <i>Juncus</i> spp.  <i>Luzula</i> spp.  <i>Oreobolus pumilio</i>  <i>Poa labillardierei</i>  <i>Schoenus</i> spp.</p> <p><b>Ferns</b>  <i>Blechnum penna-marina</i>  <i>Gleichenia alpina</i></p> <p><b>Mosses</b>  <i>Sphagnum australe</i>  <i>Sphagnum cristatum</i>  <i>Sphagnum falcatulum</i></p>

**Table 1** (continued)

<b>FEN</b>	<p><b>Herbs</b></p> <p><i>Brachyscome obovata</i>  <i>Deschampsia caespitosa</i>  <i>Epilobium gunnianum</i>  <i>Lobelia surrepens</i>  <i>Myriophyllum pedunculatum</i>  <i>Oreomyrrhis ciliata</i></p> <p><b>Grasses, Sedges, Rushes</b></p> <p><i>Carex echinata</i>  <i>Carex gaudichaudiana</i>  <i>Carpha nivicola</i>  <i>Empodisma minus</i>  <i>Isolepis crassiuscula</i>  <i>Juncus falcatus</i></p> <p><b>Mosses</b></p> <p><i>Sphagnum cristatum</i>  <i>Sphagnum novozelandicum</i></p>	<p><b>Herbs</b></p> <p><i>Gunnera cordifolia</i>  <i>Lobelia surrepens</i></p> <p><b>Grasses, Sedges, Rushes</b></p> <p><i>Baloskion australe</i>  <i>Carex gaudichaudiana</i>  <i>Carex</i> spp.  <i>Carpha alpina</i>  <i>Empodisma minus</i>  <i>Gymnoschoenus sphaerocephalus</i>  <i>Lepidosperma filiforme</i>  <i>Poa gunnii</i>  <i>Poa labillardierei</i></p> <p><b>Mosses</b></p> <p><i>Sphagnum cristatum</i></p>
------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Table 2.** Relevant management plans, threat abatement plans, recovery plans and strategies for the conservation of the Alpine *Sphagnum* Bogs and Associated Fens ecological community.

AREA MANAGEMENT PLANS
<p><b>Alpine National Park Management Plan</b></p> <ul style="list-style-type: none"> <li>• Bogong Planning Unit</li> <li>• Cobberas-Tingaringy Planning Unit</li> <li>• Dartmouth Planning Unit</li> <li>• Wonnangatta Planning Unit</li> </ul> <p><i>Department of Environment and Conservation, Victoria (1992)</i></p>
<p><b>Mount Buffalo National Park Management Plan</b></p> <p><i>National Parks Service, Department of Natural Resources and Environment, Victoria (1996)</i></p>
<p><b>Baw Baw National Park Management Plan</b></p> <p><i>Parks Victoria (2005)</i></p>
<p><b>Namadgi National Park Management Plan (under review)</b></p> <p><i>ACT Parks, Conservation and Lands (in prep.)</i></p>
<p><b>Kosciusko National Park Plan of Management</b></p> <p><i>Department of Environment and Conservation, NSW (2006)</i></p>
<p><b>Tasmanian Wilderness World Heritage Area Management Plan 1999</b></p> <p><i>Parks and Wildlife Service, Tasmania (1999)</i></p>

**Table 2** (*continued*)

<p><b>Mount Field National Park, Marriotts Falls State Reserve &amp; Junee Cave State Reserve Management Plan 2002</b></p> <p><i>Parks and Wildlife Service, Tasmania (2002)</i></p>
<p><b>Ginini Flats Wetlands Ramsar Site Plan of Management</b></p> <p><i>Environment ACT, Department of Urban Services (2001)</i></p>
<p><b>THREAT RELATED PLANS</b></p>
<p><b>Australian Alps Rehabilitation Manual</b></p> <p><i>Prepared by Roger Good for the Australian Alps Liaison Committee (2006)</i></p>
<p><b>The Australian Weeds Strategy - A national strategy for weed management in Australia</b></p> <p><i>Natural Resource Management Ministerial Council, Developed by the Australian Weeds Committee (2007)</i></p>
<p><b>Weeds of National Significance - Willow (<i>Salix taxa</i>, excluding <i>S. babylonica</i>, <i>S. x calodendron</i> and <i>S. x reichardtii</i>) Strategic Plan</b></p> <p><i>National Weeds Strategy Executive Committee, Launceston (2000)</i></p>
<p><b>Horse Management Plan for the Alpine Area of Kosciusko National Park (January 2003 - January 2005)</b></p> <p><i>National Parks and Wildlife Service, NSW (2002)</i></p>
<p><b>Namadgi National Park Feral Horse Management Plan 2007</b></p> <p><i>ACT Parks, Conservation and Lands (2007)</i></p>
<p><b>Threat Abatement Plan for Predation, habitat degradation, competition and disease transmission by feral pigs</b></p> <p><i>Department of the Environment and Heritage (2005)</i></p>
<p><b>RECOVERY PLANS</b></p>
<p><b>Recovery Plan for the Baw Baw Frog (<i>Philoria frosti</i>).</b></p> <p><i>Hollis, G.J. Report to Endangered Species Program, Environment Australia, Canberra. (1997)</i></p>
<p><b>National Recovery Plan for the Bogong Eyebright <i>Euphrasia eichleri</i></b></p> <p><i>Carter, O. and Walsh, N. Victorian Government Department of Sustainability and Environment, Melbourne (2006)</i></p>
<p><b>Approved Recovery Plan for the Southern Corroboree Frog (<i>Pseudophryne corroboree</i>).</b></p> <p><i>National Parks and Wildlife Service, Hurstville, NSW (2001)</i></p>

## Information Sources

Ashton, D.H. and Williams, R.J. (1989). "Dynamics of the sub-alpine vegetation in the Victorian region". pp 143-168 in Good, R. (Editor) *The Scientific Significance of the Australian Alps*. Proceedings of the First Fenner Conference. Australian Alps National Parks Liaison Committee, Canberra.

Harris, S. and Kitchener, A. (Editors) (2005) *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation*. Department of Primary Industries, Water and Environment, Hobart.

Kirkpatrick, J.B. (1989). "The comparative ecology of mainland Australia and Tasmania alpine vegetation". pp. 127-142 in Good, R. (Editor) *The Scientific Significance of the Australian Alps*. Proceedings of the First Fenner Conference. Australian Alps National Parks Liaison Committee, Canberra.

McDougall, K. and Walsh, N. (2007) "Treeless vegetation of the Australian Alps". *Cunninghamia*, 10(1): 1-57.

Pickering, C., Good, R. and Green, K. (2004). *Potential Effects of Global Warming on the Biota of the Australian Alps*. Australian Greenhouse Office, Canberra.

VDSE (Victorian Department of Sustainability and Environment) (2005). *EVC/Bioregion Benchmark for Wetland Vegetation Assessment*. (EVCs 44, 171, 210, 221, 288-61, 288-62, 917 and 1011) Victorian Government Department of Sustainability and Environment, Melbourne.

Whinam, J., Barmuta, L. and Chilcott, A. (2001). "Floristic description and environmental relationships of Tasmanian *Sphagnum* communities and their conservation management. *Australian Journal of Botany*, 49(6), 673-685.