

# Action Statement

Flora and Fauna Guarantee Act 1988

No. 213

## Dwarf Sedge *Carex paupera*

This Action Statement is based on a draft Recovery Plan prepared for this species by DSE under contract to the Australian Government Department of the Environment, Water, Heritage and the Arts.

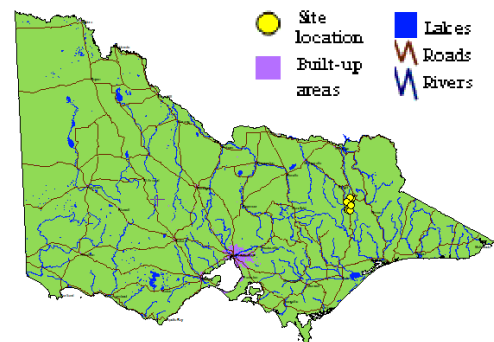
### Description

Dwarf Sedge (*Carex paupera*) is a loosely tufted, perennial sedge, to 15 cm tall (DNRE 2001). The cylindrical stems bear a short panicle, to 3 cm long, of pale green, chaffy flowers in dense clusters (DNRE 2001). The leaves are linear, to 10 cm x 1 mm, more or less flat, and hairless (Walsh & Entwisle 1994). The flowers grow in cylindrical spikes to 5 mm long, with female flowers in the upper part of spike and males in the lower part. The glumes are ovate, to 3 mm long, and pale green. The fruit is a green, ellipsoid, sack-like capsule (utricle), to 4.5 x 2 mm, with longitudinal ribs, tapered at the top, and contains a yellow-brown, obovoid, flattened nut (Walsh & Entwisle 1994).

The taxonomy of *Carex paupera* is unclear. In this Action Statement, *Carex paupera* is considered to be a distinct taxon (*sensu* Nelmes 1944), although some authors have suggested it may be a high altitude, reduced form of the very common and widespread Knob Sedge (*Carex inversa*) (Willis 1970; Walsh & Entwisle 1994). N. Scarlett (VROTPop database, 1985) observed *Carex paupera* and *Carex inversa* growing together but not intergrading at Nunniong Plain, supporting their recognition as distinct entities. Further study may result in changes to the taxonomic understanding of some or all populations of *Carex paupera*.

### Distribution

Dwarf Sedge is a Victorian endemic, confined to shallow "snow-pools" and other areas devoid of dense tussock grasses within alpine and sub-alpine grassland, 1200 - 1760 m above sea level (Willis 1970; N. Scarlet VROTPop 1985).



Populations have been recorded on the Bogong High Plains near Mt Jim, the Mt Hotham area and the Dargo High Plains

(Walsh & Entwisle 1994). Known populations occur on loamy soils over Tertiary basalt.

### Abundance

It is not possible to estimate the number of genetically distinct individuals (genets) of Dwarf Sedge, due to its colonial habit. This species is known to occur in 11 populations.

### Important populations

Important populations necessary to the long term survival and recovery of Dwarf Sedge occur in the Alpine National Park at Mt Jim (Bogong High

Plains), Big Nunniong Plain, Omeo Plain, King Spur, Lankey Plain North, Lankey Plain South, Long Spur and at JB Plain.

## Habitat

Populations of Dwarf Sedge occur in shallow depressions (snow-pools), track margins and other areas prone to disturbance on basaltic soils (Walsh & Entwisle 1994). These areas typically occur within alpine and sub-alpine grasslands and low herblands, 1200 - 1760 m above sea level (Willis 1970; N. Scarlett VROTPop 1985; N. Walsh pers. obs.). The snow-pools are water-filled for at least one month after snowmelt, but are dry in late summer. Associated species may include Tall Sedge (*Carex appressa*), Fen Sedge (*C. gaudichaudiana*), Mountain Sedge (*C. hebes*), Small Flower-rush (*Carpha alpina*), Hairy Anchor Plant (*Discaria pubescens*), Cudweed sp. (*Euchiton involucratus*), Shining Cudweed (*E. nitidulus*), Clover Glycine (*Glycine latrobeana*), *Lachnagrostis meionectes*, Mountain Cotula (*Leptinella filicula*), Bog Snow-grass (*Poa costiniana*), Soft Snow-grass (*P. hiemata*), \*Kentucky Blue-grass (*P. pratensis*), Mud Pratia (*Lobelia surrepens*), Dwarf Buttercup (*Ranunculus millanii*), Snow Wallaby-grass (*Rytidosperma nivicolium*) and Alpine Stackhousia (*Stackhousia pulvinaris*).

## Life history and ecology

Dwarf Sedge is a densely rhizomatous species which forms short, closely packed swards. Cultivated plants maintain this growth habit (VROTPop 1989). There is no detailed information on the biology of this species.

## Conservation status

### National conservation status

Dwarf Sedge is listed as vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

### Victorian conservation status

Dwarf Sedge is listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

It is considered vulnerable in Victoria according to DSE's *Advisory List of Rare or Threatened Plants in Victoria - 2005* (DSE 2005).

## Potentially threatening processes

### Weed invasion

Common weeds include White Clover (*Trifolium repens*) and Soft Rush (*Juncus effusus*), both of which are capable of forming closed swards in some areas.

### Recreational Use

Impacts of bushwalkers, camping and campfires may damage populations. In some areas, however, the maintenance of a lower, more open sward appears to benefit *Carex paupera*.

### Grazing

Rabbit grazing may also pose a threat to some populations.

### Vehicular damage

Trailbikes or 4WDs can disturb habitat or destroy populations.

### Weed control

Dwarf Sedge is potentially susceptible to incidental spraying in weed control programs (e.g. Soft Rush (*Juncus effusus*)).

### Climate change

Climate changes such as increases in air temperature may impose an 'alpine squeeze' on many species restricted to alpine habitats, including *Carex paupera*.

### Fire

The tendency of this species to occur in wet, alpine locations suggests that the species is rarely subjected to fire. The turf-like habit, extensive rhizome system and fire-behaviour of related species, however, suggests some level of fire tolerance. The effects of recent fires in the Alpine National Park on populations of *Carex paupera* are however unknown.

## Previous management action

- In May 2005, the Victorian Government announced that licences to graze cattle in the Alpine National Park would not be renewed.
- No actions have been undertaken specifically for *Carex paupera*, but the species has probably received indirect benefit from land management programs in alpine areas, particularly weed and erosion control and the decision stated above regarding cattle grazing.

## Conservation objectives, actions and targets

### Long term objective

To ensure that Dwarf Sedge can survive, flourish and retain its potential for evolutionary development in the wild.

### Specific objectives, actions and targets

The intended management actions listed below are further elaborated in DSE's Actions for Biodiversity Conservation (ABC) system. Detailed information about the actions and locations, including priorities, is held in this system and will be provided annually to land managers and other authorities.

#### Objective I To increase knowledge of biology, ecology and management requirements

Action	Targets	Responsible
1. Clarify/review taxonomy. Clarify the taxonomy of populations to enable an accurate conservation status assessment.	<ul style="list-style-type: none"> <li>▪ Updated records on all state databases (Flora Information System, VROTPop, Australia's Virtual Herbarium and Herbaria).</li> <li>▪ Revise taxonomic status of <i>Carex paupera</i></li> </ul>	Royal Botanic Gardens
2. Acquire baseline population data. Conduct detailed field and desk top surveys including identification of the area and extent of the population; estimates of the number, size and structure of the population; and inference or estimation of population change.	<ul style="list-style-type: none"> <li>▪ Determination or update of conservation status and other records on all state databases (Flora Information System, VROTPop and Herbarium)</li> <li>▪ Populations accurately mapped.</li> </ul>	DSE, Parks Victoria
3. Assess habitat characteristics and/or condition. Accurately survey known habitat and collect floristic and environmental information relevant to community ecology and condition.	<ul style="list-style-type: none"> <li>▪ Ecological requirements for the completion of essential life history stages, recruitment and dispersal identified at known sites.</li> <li>▪ Core habitat mapped.</li> </ul>	DSE, Parks Victoria
4. Conduct survey to locate suitable habitat. Identify and survey potential habitat, using ecological and bioclimatic information that may indicate habitat preference.	<ul style="list-style-type: none"> <li>• Predictive model for potential habitat developed and tested.</li> </ul>	DSE, Parks Victoria
5. Identify disturbance regimes to maintain habitat or promote regeneration and recruitment.	<ul style="list-style-type: none"> <li>• Impacts of the January 2003 Alpine National Park fires determined for all populations of <i>Carex paupera</i>.</li> </ul>	DSE, Parks Victoria
6. Assess threats. Undertake site-specific threat assessments and determine need for management action.	<ul style="list-style-type: none"> <li>• Detailed threat assessment completed for all populations.</li> </ul>	DSE, Parks Victoria
7. Undertake research to identify key biological functions. Evaluate current reproductive/regenerative status, seed bank status and longevity, fecundity and recruitment levels. Determine seed germination requirements by conducting laboratory and field trials aimed to identify key stimuli, and determine stimuli for vegetative regeneration.	<ul style="list-style-type: none"> <li>• Seed bank/regenerative potential quantified for target populations.</li> <li>• Stimuli for recruitment/regeneration identified.</li> <li>• Management strategies identified to maintain, enhance or restore regenerative processes fundamental to reproduction and survival.</li> </ul>	DSE, Parks Victoria, Royal Botanic Gardens

8. Analyse population trends. Measure population trends and responses against recovery actions by collecting demographic information including recruitment and mortality, timing of life history stages and morphological data. Collate, analyse and report on census data and compare with management histories.	<ul style="list-style-type: none"> <li>▪ Techniques for monitoring developed and implemented.</li> <li>▪ Census data for target populations collected.</li> <li>▪ Population growth rates determined.</li> <li>▪ Population Viability Analysis completed for targeted populations.</li> </ul>	DSE
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**Objective II To increase the extent of habitat**

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
9. Prevent habitat loss. Control threats as required, based on site-specific threat assessments.	<ul style="list-style-type: none"> <li>▪ Measurable seedling recruitment/vegetative regeneration and a measurable reduction in plant mortality at target populations.</li> </ul>	Parks Victoria

**Objective III To increase community awareness and support**

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
10. Involve community groups and volunteers in recovery activities.	<ul style="list-style-type: none"> <li>▪ Opportunities for involvement identified, promoted and supported.</li> </ul>	DSE

**References**

- DNRE (2001) DNRE Flora Information System 2001, Department of Natural Resources and Environment.
- DSE (2005) Advisory List of Rare or Threatened Plants in Victoria - 2005. Department of Sustainability and Environment, East Melbourne, Victoria.
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- Walsh, N.G. & Entwisle, T.J. (1994) Flora of Victoria Volume 2: Ferns and Allied Plants, Conifers and Monocotyledons, Inkata Press, Melbourne.
- Willis, J.H. (1970) A handbook to plants in Victoria: Volume 1 Ferns, Conifers and Monocotyledons, Melbourne University Press, Carlton, Victoria.

This Action Statement has been prepared under section 19 of the Flora and Fauna Guarantee Act 1988 under delegation from Mr Peter Harris, Secretary, Department of Sustainability and Environment, July 2008.

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