

# Action Statement

Flora and Fauna Guarantee Act 1988

No. 88

## Curly Sedge *Carex tasmanica*

### Description and Distribution

Curly Sedge *Carex tasmanica* (Kuk. 1904) is a wiry, clumped, perennial sedge to 50cm high. It is described in detail in Walsh and Entwisle (1994). It is similar to a small number of other sedges, notably *Carex bichenoviana* and *Carex* sp. aff. *bichenoviana*, which also have curly leaf ends.

Curly Sedge was first recorded in south-eastern Tasmania. In Victoria it is now known from only nine sites in remnant grasslands: at Craigieburn, Lake Condah and near Portland. None are in conservation reserves: five are on private land and four are on roadsides.

Neither the number of plants nor the extent of the population at each site is known. However, a stand occurs as a band along Curly Sedge Creek and in a Swamp adjacent to the creek where it is extensive. The difficulty in assessing stands arises from the similarity of Curly Sedge to other Sedge species and that identification relies on material that can be collected only in a short period of the year.

An old record from Whitestone Swamp, west of Ballarat, is attributed to *Carex* sp. aff. *bichenoviana*, as is an old record from Lake Jollicum Wildlife

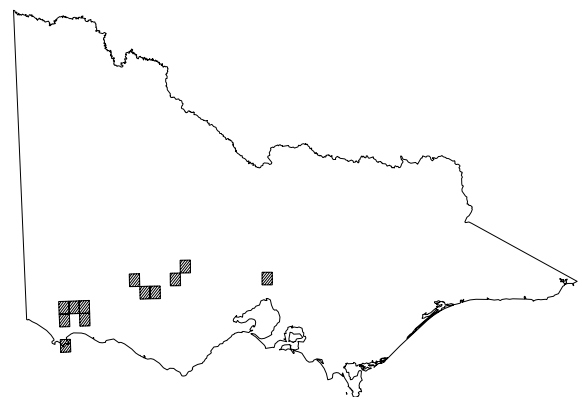
Reserve south of Streatham and another from Lake Omeo.

In Victoria, Curly Sedge is generally confined to the upper margin of vegetation around slightly saline drainage lines or marshes on fertile basalt derived soils. In Tasmania, it is found in soaks and seepage lines (rather than on the margins of watercourses) on sandy or clay loam soils within grasslands or grassy woodlands (Gilfedder 1991).

The dominant native species at the Lake Condah site on which Curly Sedge occurs are Shiny Bog-



**Curly Sedge, *Carex tasmanica***  
(illustration of inflorescence and plant by  
Mali Moir)



**Distribution in Victoria**  
[from *Flora Information System*, NRE 1998].

sedge *Schoenus nitens* and Shiny Swamp-mat *Selliera radicans* (Aboriginal Affairs Victoria 1993). G. Carr (*pers. comm.*) describes the site as a grassland on the margins of a freshwater swamp on fertile organic soil.

On the Hotspur-Condah Road, Curly Sedge grows in a seasonally inundated swamp on heavy black soil, associated with Woolly Tea-tree *Leptospermum lanigerum*, Common Tussock-grass *Poa labillardierei* and Common Spike-sedge *Eleocharis acuta*.

The dominant native species in the sections of the grassland at Craigieburn in which Curly Sedge occurs are Common Spike-sedge *Eleocharis acuta* and Curly Sedge itself (Frood 1992). These sites are on heavy grey-black volcanic soil in areas that are too wet to support the otherwise dominant Common Tussock-grass.

## Conservation Status

### Current status

ANZECC (1999).....Vulnerable (Aust.)

NRE (1998).....Vulnerable (Vic.)

SAC (1994).....Threatened (Vic.)

The Curly Sedge has been listed as a threatened taxon in Schedule 2 of the **Flora and Fauna Guarantee Act 1988**.

### Reasons for conservation status

Curly Sedge is known only from three localities in Victoria; Merri Creek corridor centred on Craigieburn, Lake Condah and near Portland. There are no known stands in conservation reserves. The stands are vulnerable to destruction by events or processes such as cropping, pasture improvement, intense cattle grazing, cultivation and industrial or residential development. The habitat of Curly Sedge has been substantially modified, and further depletion of its habitat is likely to threaten the survival of the species in Victoria.

In its final recommendation the Scientific Advisory Committee (SAC 1994) has determined that the Curly Sedge is:

- significantly prone to future threats which are likely to result in extinction.

### Major Conservation Objective

The major conservation objective is to recover the species in Victoria to the extent that it can be

reclassified from endangered to rare in the state within 10 years.

## Management Issues

### Ecological issues specific to the taxon

The grassy areas on the margins of swamps and drainage lines that form the habitat of Curly Sedge have been largely modified for agriculture or heavily grazed. Changes to drainage patterns or flooding regimes at sites supporting Curly Sedge are likely to affect the species, as its distribution is confined to a narrow ecological band on the margins of drainage depressions or swamps.

The existing populations are isolated. This precludes the exchange of genetic material by natural processes and could therefore affect genetic vigour.

Studies indicate that Curly Sedge probably resprouts after fire and tolerates some levels of sheep grazing but not cattle grazing (L. Gilfedder *pers. comm.*). Gilfedder and Kirkpatrick (1996) concluded that Curly Sedge responds favourably to certain levels of mechanical disturbance. Competition from introduced grasses may pose a threat to Curly Sedge through direct competition.

The habitat where Curly Sedge is found is prone to increased levels of salinity (often associated with the clearing of native vegetation and other practices which result in elevated watertables), but there is no evidence that salinity levels are currently a problem for Curly Sedge at any site.

Few seedlings of Curly Sedge have been observed in the field; regeneration is mainly through division (Gilfedder 1991). There are differing views on the ease of germination of seed.

### Wider conservation issues

The protection of such habitats is also likely to be of benefit to a number of other rare or threatened plant species including Salt Tussock-grass *Poa sallacustris* and Adamson's Bent *Agrostis adamsonii*.

The habitat of Curly Sedge is restricted and any management actions will need to include an assessment of their potential impacts on all associated species. Curly Sedge is a grassland species. Establishment of trees or other species on sites supporting Curly Sedge, is likely to affect Curly Sedge by fundamentally altering the characteristics of these sites.

The Curly Sedge population at Craigieburn Grasslands is within a significant remnant of the original grassland vegetation of the basalt plains.

Western Basalt Plains Grassland is a listed community under the Flora and Fauna Guarantee Act. An Action Statement has been prepared for this community (CNR 1994). The community is urgently in need of protection.

The Native Vegetation Retention planning scheme amendment restricts large-scale clearing, but as Curly Sedge has an unremarkable appearance and is unlikely to be recognised by any but a trained observer, other steps need to be taken to ensure the survival of the species. On private land this requires active liaison with landholders in areas of suitable.

Continued education, both within the community and NRE, is required on the values of native grasslands, particularly in relation to areas that are naturally saline. The problems posed by the establishment of trees or other non-indigenous species also requires emphasis in education programs.

Should the ephemeral swamp at Craigieburn be allowed to flood more frequently, the *Carex* distribution may change from its current broad coverage to the margins. This potential event may require action.

#### **Social and economic issues**

The active conservation of the species will help to promote the value of native grasslands throughout Victoria. Social and economic issues may be raised at the sites near Melbourne due to the development pressure on this area and the subsequent high cost of land.

The sites on which Curly Sedge occurs at Craigieburn are in demand for residential or industrial development. Consideration is being given to the purchase of part of these grasslands with subsequent management to be aimed at conservation of the grassland community, including conservation of Curly Sedge.

#### **Previous Management Action**

The Royal Tasmanian Botanic Gardens have propagated Curly Sedge by division. It has also recently been re-introduced into two field sites and two *ex situ* sites in Tasmania (Ball 1995).

The vegetation communities of Lake Condah and the Craigieburn grasslands have been surveyed and their values described. Curly Sedge has been propagated and sold in the Melbourne area for use as a soil stabiliser along drainage lines and dam banks.

The City of Darebin has successfully established Curly Sedge along the Merri Creek in Thornbury

(Mark Scida *pers comm*). The Merri Creek Committee of Management has also established plants from this source along the Merri Creek.

The Kerrup Jmara Aboriginal elders have removed stock grazing intend to help restore the native vegetation on their land at Lake Condah (J. Fisher *pers comm*).

The Craigieburn Grasslands have been purchased (effective June 1999). Curly Sedge occurs on the purchased land which will become a nature conservation reserve. The sedge also occurs on the nearby swamp which will be managed by Parks Victoria under a S69 agreement.

#### **Intended Management Action**

1. Provide the managers of land that supports stands of Curly Sedge with information that will help manage the species, and seek their cooperation in protecting the species, particularly by signposting sites. Also provide Landcare groups and Catchment Authorities with information on how to recognise the species and the type of landform on which it may be found.
2. Survey the extent of all known stands, assess the status and threats to the species at each site, and undertake monitoring to assess stand size, shape and extent of weed invasion and the effects of site management.
3. Facilitate research at the Craigieburn site to determine the effect of different grazing and fire regimes on germination and survival.
4. Develop and implement management prescriptions for all wild and re-introduced stands, including the continuation of low-intensity sheep grazing at Craigieburn until research identifies a more suitable management regime.
5. Establish new populations of at least 100 plants each at 10 sites, and ensure that revegetation at Curly Sedge sites uses only locally indigenous appropriate species.

#### **Other Desirable Management Action**

6. Support the reservation of the Craigieburn grassland site as a conservation reserve.
7. Determine the effectiveness of Curly Sedge as a soil stabiliser by monitoring trial sites.
8. Continue to conduct training and interpretive programs on the values of native grasslands, species of unremarkable appearance, and areas which are naturally saline.

## Legislative Powers Operating

### Legislation

**Catchment and Land Protection Act 1994:** which provides guidelines for land management including pest plants control on public and private land.

**Conservation Forests and Lands Act 1987:** provides for the management of public land under the Act, the co-ordination of legislation administered by NRE and for the preparation of codes of practice.

**Country Fire Authority Act 1958:** provides for fire protection and suppression in country areas and requires that authorities take practical steps for the prevention of fires.

**Crown Land (Reserves) Act 1978:** provides for reserving areas as public land and for making a specific reservation status for existing public land.

**Flora and Fauna Guarantee Act 1988:** provides for the protection of flora and fauna in Victoria through a range of mechanisms including controls over the handling of protected flora.

**Local Government Act 1958:** provides for local council by-laws and conservation regulations (eg. permit requirement for land clearing).

**Mineral Resources Development Act 1990** provides for the management of mineral resources and includes controls over exploration and mining activities to minimise impacts on the environment.

**Planning and Environment Act 1987:** provides for the protection of native vegetation through the State section, and for regional planning controls in all planning schemes.

**Victorian Conservation Trust Act 1972:** provides for the establishment of conservation covenants on land titles.

### Licence/permit conditions

Permits for collection will only be issued for purposes which are in support of the objectives of this Action Statement.

Seed may be collected from stands for use in re-establishment trials or programs. Plant material for propagation will only be permitted for trial purposes or if seedling propagation is found to be impractical. Guidelines for collection of material for propagation are: that no more than 10% of any one stand should be taken at any given time and subsequent collections should not be made until the stand has recovered its area prior to collection.

## Consultation and Community Participation

All people and organisations known to have an interest in Curly Sedge have been consulted during the preparation of this Action Statement.

Private land managers, whose land supports Curly Sedge, will be encouraged to be actively involved in management of the species.

University and community groups, including *Landcare* Groups will be encouraged to take part in all appropriate aspects of the implementation of this Action Statement.

## Implementation, Evaluation and Review

The Regional Managers in the Port Phillip and South West Regions where the Curly Sedge occurs will coordinate the implementation of this Action Statement. Primary responsibility for implementation and assessment of the effectiveness of the management actions lie with the Flora and Fauna Units in these areas. The relevant Catchment Management Authorities will be kept informed of progress in the implementation of this Action Statement.

Parks Victoria will manage land under its control in a manner sympathetic to the conservation of Curly Sedge.

In accordance with the major conservation objectives, the results of monitoring will be assessed in 2000. The Action Statement will be reviewed by 2003.

## Contacts

### Management

DSE Flora and Fauna staff in Ballarat, Melbourne and Portland Regions.

DSE Flora and Fauna Program: Melbourne.

### Biology

N. G. Walsh, National Herbarium: South Yarra.

L. Gilfedder and J. Kirkpatrick, Department of Geography and Environmental Studies: University of Tasmania.

D. Froud, Consultant Botanist: Victoria.

N. Scarlett, Botanist: La Trobe University.

G. Carr. Ecology Australia Pty. Ltd.: Melbourne.

Nick van Rosendale. Plantwise Nursery: Victoria.

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- Personal Communications
- Vanessa Craigie, Flora and Fauna Program, Natural Resources and Environment: Melbourne.
- Louise Gilfedder, Department of Geography and Environmental Studies. University of Tasmania.
- John Fisher, formerly Flora and Fauna Guarantee Officer, Natural Resources and Environment: Portland.
- Doug Frood, consultant botanist: Victoria.
- Nick van Rosendale, *Plantwise Nursery*: Victoria.
- Mark Scida, City of Darebin: Melbourne.
- Personal Observations
- Lisa Morcom - NRE Ballarat.

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Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website: <http://www.dse.vic.gov.au>

This Action Statement was first published in 1999 and remains current. This version has been prepared for web publication. It retains the original text of the action statement, although contact information, the distribution map and the illustration may have been updated.

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