

Flora & Fauna Guarantee Action Statement

#16

This Action Statement was first published in 1992 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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Dainty Maidenhair *Adiantum capillus-veneris*



Dainty Maidenhair (*Adiantum capillus-veneris*)



Distribution in Victoria (DSE 2002)

Description and Distribution

The Dainty Maidenhair (*Adiantum capillus-veneris* L. 1753) is a delicate ground fern to 50 cm high with clustered fronds which may be erect or spreading. The underground stem is creeping and short, the stalks long and slender, dark brown to purplish-black with a smooth, polished appearance. The leaves are ovate, membranous, glabrous and bipinnate or tripinnate. Pinnules (leaflets) are 7-15 mm wide, slightly asymmetrical with wedge-shape bases and rounded outer edges. They often have deep and irregular finely-toothed lobes. The spores are contained in sporangia which are clustered into sori. The Dainty Maidenhair has 4-7 large sori at the apex of the lobes causing them to appear truncated. The edge of the leaf folds over to protect the sori in a false indusium (Duncan & Isaac 1986).

This species may be confused with the Common Maidenhair (*Adiantum aethiopicum* L.), which differs in the structure of its pinnules, sori and the scales at the base of the stalk (Duncan & Isaac 1986).

Usually found growing among rocks on ledges and cliffs close to water (Jones & Clemesha 1976), in Australia it grows in protected, moist, shady habitats and on various substrates, e.g. sandstone in caves near Sydney, ironstone cliffs in the Hammersley Range of Western Australia, limestone in Queensland (Peter Bostock pers. comm.), limestone in erosion zones along the Murray River near Blanchetown and in sink-holes and wells on the Yorke Peninsula in South Australia (Black 1986).

The single Victorian colony grows in lime-rich deposits on a steep, easterly-facing bank, set in a deeply sheltered gully above a creek. The colony is 15 x 10 m and contains about 1000 plants (Archer 1986). Dainty Maidenhair is widespread, occurring in various climates throughout the world, but is rare in Australia (Duncan & Isaac 1986). It occurs disjunctly in Western Australia, the Northern Territory, Queensland, south-eastern South Australia and a single record in New South Wales (Black 1978, Hartley & Leigh 1979). In Victoria there is a single known extant population (discovered in 1981) on the Mornington Peninsula. To

guard the safety of the population its precise location will not be given. A specimen was collected in 1975 from the Bendigo area however it is uncertain if the plant was native to the area and subsequent attempts to find it there have been unsuccessful.

The Dainty Maidenhair has been successfully cultivated in Australia since early white occupation and, as the species is capable of becoming naturalised, there is some question as to whether the Victorian, South Australian and New South Wales' populations are naturally occurring (Archer 1986, Carr & Bostock pers. comm.).

Conservation Status

Current Status

Gullan *et al.* (1990) Endangered

Listed as a threatened taxon on Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.

Reasons for Conservation Status

There is only one known extant stand of the Dainty Maidenhair in Victoria. It has never previously been recorded in this state, the nearest occurrences that can confidently be called natural being in northern Australia. In its final recommendations the Scientific Advisory Committee determined that the Dainty Maidenhair is significantly prone to future threats which are likely to lead to extinction because:

- it is a rare taxon in Victoria in terms of abundance and distribution;
- its only known location in Victoria is a fragile environment where it is extremely vulnerable to habitat disturbance or degradation;
- it is under immediate threat from invasion by Karamu (**Coprosmia robusta*) and invasion by other alien species could pose a threat in the future; and
- it is subject to potential threat from natural events, e.g. fire.

*Denotes alien species

Major Conservation Objective

To ensure the long-term viability of the only known naturally occurring population of the Dainty Maidenhair in Victoria by:

- maintaining and/or enhancing its habitat and preventing any degradation; ameliorating or removing any threatening process;
- encouraging an increase in the size of the population; and
- artificially maintaining a source of plants for restocking should the colony start to decline.

Management Issues

In Victoria the Dainty Maidenhair is on public land just within the boundaries of Point Nepean National Park, which is managed by the Department of Conservation and Environment (DCE), Victoria.

Ecological Issues Specific to the Taxon

Maintenance, protection and possibly enhancement of the surrounding habitat are of paramount importance to the conservation of the Dainty Maidenhair. To date the survival of the population has depended on the protection afforded by the steep bank of the creek restricting access (it is over 3 m wide and about 1 m deep). However, this protection is under threat because of the likelihood of soil erosion (due to poor stream quality and cattle access) causing degradation of the creek banks. Negotiations are under way about the problem of fencing the National Park-freehold land boundaries, which would prevent stock having access to the park.

The effects on the colony of water pollution, changes in soil hydrology and stream degradation caused by activities beyond the park boundaries are unknown. The effects of browsing/grazing are unknown. The colony appears to be ungrazed even though it is accessible to stock (when the water level is low) and to small mammals such as rabbits.

Although the surrounding environment contains many alien species few appear to be a direct threat to the population. Karamu (**Coprosmia robusta*), once thought to be a threat (Archer 1986, Scarlett 1984) has not displaced the colony in the 10 years since its discovery and actually appears to be providing shelter from adverse environmental conditions. Species such as Three-cornered Garlic (**Allium triquetrum*) and Panic Veldt Grass (**Ehrharta erecta*) are prolific on either side of the colony but not within it as the colony occupies a small area of limestone seepage which may be too alkaline for these species. However, the Dainty Maidenhair may formerly have been more widespread at the site in the absence of these weeds for, although it seems to have a preference for alkaline soils, this is not a prerequisite. Ivy (**Hedera helix*) poses a serious threat as it is notoriously vigorous and can occupy large areas by virtue of its creeping habit. The reaction of this species to fire is unknown (DCE 1989). There are no plans to burn the area as part of any fire protection works (R. Musker pers. comm.).

Although genetically isolated, this population is healthy and successfully sporulating, implying sexual reproduction. It is unclear if the population is asexually reproducing through rhizomatous growth. The species grows well in cultivation, has been successfully exploited and is capable of becoming naturalised, thus all reported occurrences in the wild should be carefully scrutinised to determine their likelihood as a natural occurrence. It is uncertain whether or not the Mornington Peninsula population is natural. Although access to the site is relatively difficult, collection by 'fern fanciers' is a high threat (DCE 1989) as the plant is rare, attractive and easily cultivated. The site is buffered to the west by about 500 m of disturbed native vegetation with a walking track about 400 m from the top of the cliff. There is to be some spraying in the area to control Ragwort (**Senecio jacobea*) and this is a possible threat to the community.

Wider Conservation Implications

- Reducing human disturbance and improving site quality will enhance conservation values in the surrounding National Park, in particular Main Creek.

- Absolute prevention of fire may be inappropriate for the surrounding native vegetation.

The long-term conservation of the Button Wrinklewort requires the retention of native grassland habitat, and this is likely to be beneficial for most other indigenous grassland flora and fauna and the ecological community as a whole.

Social and Economic Issues

As yet there are no major social or economic issues.

- The colony is within National Park boundaries so it already has some degree of protection.
- There is no vehicular access to the site and, as the site is rarely frequented, restriction of foot traffic will not have any detrimental effect on human activities.
- There may be some cost for fencing the boundary between 'Clondrissie' (the property to the east of Main Creek) and the National Park. Negotiations are pending on this matter.

*Denotes alien species

Management Action

Previous Management Action

Before 1976 the site was privately owned and its management history before this date is unknown.

In 1976 a strip of land to the west of the creek was purchased by the National Parks Service and incorporated into Cape Schanck Coastal Park. In 1988/89 several parks in the area were amalgamated into Point Nepean National Park.

Since its purchase in 1976 there has been some Ragwort control along the creek and a walking track has been established about 400 m from the creek. There has been no direct management for this species.

Intended Management Action

Monitoring

Monitor the colony annually to ensure the population remains healthy and successfully reproducing (both sexually and asexually). Investigate appropriate measures to be taken if a decline is observed in either of these parameters. Observe any signs of development of future threats such as detrimental human activity, grazing, fungal or insect attack, weed invasion or general site degradation. Note that record keeping is necessary because of possible staff changes.

Weed Control

Eradicate Ivy (*Hedera helix*) with minimal soil disturbance- this is critical to the continued existence of the population. Control or eradication of other non-indigenous species is not a priority, but their progress must be regularly monitored and appropriate action taken if any species becomes a threat.

Access

Negotiations are currently under way to restrict humans and stock access from private land east of the site by

building a fence on the eastern side of the creek, thus enabling more rapid regeneration of the entire native vegetation community. This will prevent collection, soil compaction, erosion, stream and general site degradation. Access from the west is unlikely as the cliff is steep and high and the walking track is sufficient distance away to divert foot traffic from the area.

Propagation

Through the DCE Ranger, involve the local Peninsula Society for Growing Australian Plants (SGAP) Group in propagating and maintaining plants from the existing population to provide plants from the wild genotype for restocking if the colony starts to decline.

Liaison

So as not to publicise the precise location of the colony, liaison with local interest groups is not recommended.

Fire

As the reaction of the Dainty Maidenhair to fire is unknown, fire prevention measures must be undertaken. Present measures are considered adequate and it is recommended that they be maintained.

Protecting the Population

Supervise the Ragwort controllers so that they avoid the population.

Other Desirable Management Actions

Research

To increase our knowledge of the fern and to increase the size of the fern population at this site, encourage research to discover why this population only occupies the limestone substrate, i.e. is it because this species has a preference for alkaline substrates or because this is the only area where it is able to out-compete the more vigorous weed species? This may be achieved by encouraging the spread of the current population, both sexually (via spores) and asexually (via rhizomatous growth), into nearby non-limestone areas by removing weed competition. Soil disturbance must be minimal and measures taken to ensure that weed regrowth does not out-compete new fern growth. The sample areas should adjoin, or be as close as practicable to, the original population and be selected for their ecological suitability to this species. If resources are available, it is desirable to investigate the distribution of the Dainty Maidenhair to determine whether or not the species is native.

Legislative Powers Operating

Legislation

Fences Act 1968-guidelines for construction, maintenance and repair of dividing fences by landholders.

Flora and Fauna Guarantee Act 1988-provides the basic legal powers and management systems needed for protection of Victoria's native taxa.

National Parks Act 1975-makes provision for National Parks and their management.

Licence/Permit Conditions

Permits to collect the Dainty Maidenhair are required under the *Flora and Fauna Guarantee Act 1988*. Such permits will not be issued except for the purposes of propagation in accordance with the guidelines of this Action Statement and will be refused if the scale and method of collection threatens the viability of the population.

Consultation and Community Participation

Organisations or agencies that have been consulted in the preparation of this Action Statement are:

- Staff of the Flora and Fauna Guarantee Unit (FFG), DCE
- Staff of Flora Branch, DCE
- Staff of the National Herbarium, DCE
- Staff of National Parks and Public Land Division, DCE
- Staff of the Dandenong Region, DCE
- R. Musker, Ranger at 'Highfields', Dromana, DCE
- FFG Officer, Dandenong Region, DCE
- FFG Officer, Bendigo Region, DCE
- Departmental Legal Officer, DCE
- Peter Bostock, Queensland Herbarium, Brisbane
- A.C. Beauglehole, naturalist
- Local naturalists, Bendigo area
- G.W. Carr, Botanist, Ecological Horticulture

Organisations or agencies which will be consulted are:

- articles in local papers in the western suburbs and rural areas;
- discussions with La Trobe University Botany Department relating to flora management and weed control;
- discussions and correspondence with cemetery trusts notifying the significance of the sites and the need for sympathetic management;
- negotiations with various municipalities and government authorities over management of grasslands containing populations of Button Wrinklewort; and
- publicity and the development of a public awareness program in conjunction with the launching of the Government's Grasslands Action Plan early in 1991. The plan was produced with input from community groups, and its release is resulting in further development of public awareness of the issues concerning conservation of grasslands.

There will be:

- Peninsula SGAP Group, regarding propagation and maintenance of an indigenous population from the Mornington Peninsula population. Contact: Secretary, Betty Drummond 62 Yarralumla Drive, Langwarrin, 3910 (03) 789 1102
- Adjacent landholder, Mr. Baillieu.

Implementation, Evaluation and Review

The Regional Manager, Dandenong, DCE, will be responsible for coordination and implementation of the recommendations of this Action Statement and evaluation of the effectiveness of actions taken. This Action Statement will be reviewed at five-yearly intervals.

Compiler

Cathy Molnar

Further information

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>

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Personal Communications

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