

Flora & Fauna Guarantee Action Statement

#11

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.

© The State of Victoria,
Department of
Sustainability and
Environment, 2003

Published by the
Department
of Sustainability and
Environment, Victoria.
8 Nicholson Street,
East Melbourne,
Victoria 3002 Australia

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

ISSN 1448-9902

Filmy Maidenhair *Adiantum diaphanum*



Filmy Maidenhair (*Adiantum diaphanum*)



Distribution in Victoria (DSE 2002)

Description and Distribution

Filmy Maidenhair (*Adiantum diaphanum*) is a fern adapted to moist conditions. Its fronds are delicate and tufted, 10-25 cm long. Pinnules are dark green with small, stiff, dark hairs on both surfaces (Duncan & Issac 1986).

In Victoria it grows in small colonies along streams in shaded fern gullies surrounded by wet sclerophyll forest. It persists on wet rock faces around waterfalls or exposed sections of rock. The taxon was first found in Victoria at the headwaters of the Lang Lang River in 1880. Other colonies were not located until 1972.

Now it is only known to occur naturally at four sites in the Strzelecki Ranges of South Gippsland. These occurrences are disjunct from the nearest populations in New South Wales. Filmy Maidenhair grows abundantly at similar sites in rainforest in New South Wales and Queensland. It also occurs in New Zealand, Norfolk Island, Fiji and southern China. Filmy Maidenhair is

cultivated by the horticultural industry and is occasionally available from specialist nurseries.

Conservation Status

Current Status

Gullan *et al.* (1990) Endangered in Victoria

Filmy Maidenhair has been listed as a threatened taxon on Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.

Reasons for Conservation Status

The natural distribution of Filmy Maidenhair is restricted in Victoria. The first Victorian colonies to be found are now presumed to be extinct (Willis 1970). None of the four extant colonies is in an area reserved for conservation. The populations are very limited, ranging in area from approximately 0.3 m² to 3 m²; according to the Botany Dept, LaTrobe University, any further reduction in either the number or size of existing populations would make the survival of this species in the wild in Victoria doubtful.

The Scientific Advisory Committee determined that the Filmy Maidenhair is:

- rare in terms of abundance and distribution;
- in a demonstrable state of decline which is likely to result in extinction; and
- significantly prone to future threats which are likely to result in extinction.

Major Conservation Objective

To ensure the long-term viability of naturally occurring colonies of Filmy Maidenhair in Victoria by:

- maintaining and, if possible, enhancing the size and number of existing population;
- maintaining and/or restoring the natural habitat surrounding colonies; and
- ameliorating or eliminating any threatening processes acting on existing colonies.

Management Issues

The four known colonies of Filmy Maidenhair are on land with differing ownership and management.

Sunny Creek

This colony, occupying approximately 1.0 m², is growing on 154 ha of land in the headwaters of Sunny Creek owned, since May 1991, by the LaTrobe Region Water Authority (LRWA). This is approximately one-third of the total area of Sunny Creek (Trafalgar) Water Supply Catchment, proclaimed under Section 5(1)(b) of the *Land Conservation Act 1970* and under Section 22(1) of the *Soil Conservation and Land Utilization Act 1958*.

Under the Narracan Planning Scheme the land is zoned as an existing public purposes reserve (Local Government).

Deadlock Creek

The largest colony of the fern, with an area of around 3.0 m², is situated within the Allambee Plantation, Mt Worth Block, an area of reserved forest managed by the Department of Conservation and Environment for softwood and hardwood production. The surrounding streamside vegetation is currently protected by Regional

prescriptions and the *Code of Forest Practices 1989*, which excludes timber extraction operations from streamside buffers and steep slopes.

The Victorian Government is currently investigating opportunities and options to sell or lease the State's softwood and hardwood plantations. If Allambee Plantation is sold or leased it may be important to protect the section of the catchment for Deadlock Creek within the plantation.

Coal Creek

The smallest of the four colonies, with an area of only 0.3 m², is growing on a rockface on Crown Land water frontage near the boundary with privately owned farmland at Leongatha. It is protected by a fenced enclosure. Most of the surrounding streamside vegetation is on the adjoining private land and is subject to grazing by domestic stock.

Bawden's Creek

A small colony with an area of approximately 0.5 m² was found in November 1990 on private land at Bawden's Creek, Trida.

At present this site is surrounded by a protective strip of indigenous riparian vegetation. The area is not fenced from adjacent pasture where cattle graze.

Ecological Issues Specific to the Taxon

The continuing existence of known colonies depends on maintaining suitable surrounding habitat. Sites require protection from disturbance to maintain the high levels of humidity, shelter and water quality that characterise the micro-environment in which this fern naturally occurs.

At all four sites a suitably wide streamside conservation zone is the very least that is needed to protect the fern's habitat. A strip of retained native vegetation extending at least 100 m horizontally either side of the creek, and 500 m upstream (or to the catchment head of the main stream if this is less than 500 m), and 100 m downstream of the colony should be reserved. If possible, the total catchment upstream from the colony should be protected.

Agriculture, forestry or subdivision pose a threat to the survival of Filmy Maidenhair. Threatening processes could include those that clear or deplete surrounding vegetation, lower water quality, add to the silt load of streams, result in run-off of chemical pollutants, wastes and fertilisers, lead to weed invasion or alter stream flow.

The implications and impact of such processes on Filmy Maidenhair and the other natural values of remnant forest in which it occurs must be considered before changes are made to land uses within the catchment areas.

Any increase in the number of visitors to a colony has the potential to degrade surrounding streamside vegetation and soil stability. Irresponsible or indiscriminate collection by fern collectors or fanciers could seriously affect a colony's survival because of the small size of remaining populations.

Wider Conservation Implications

Filmy Maidenhair colonies in South Gippsland are disjunct from colonies in central and northern NSW and Queensland, where it is common. This disjunction is of biogeographic

interest as it is evidence of processes that have fashioned the modern distribution of native riparian species. Given their long-term isolation, southern populations may vary genetically from those in the north. Extinction in Victoria would result in a major contraction of the Australia-wide distribution of this species.

The conservation of habitat for the Filmy Maidenhair offers opportunities to retain and enhance areas of relatively undisturbed remnant wet sclerophyll forest, few of which still exist in South Gippsland. These areas form valuable wildlife corridors and flora and fauna refuge areas, providing habitat for many other native species of flora and fauna.

Sunny Creek

The Sunny Creek (Trafalgar) Water Supply Catchment forms a forested link between Allambee and the Uralla Reserve area. The catchment provides habitat for many native animals including populations of Superb Lyrebirds (*Menura novaehollandiae*) and Koalas (*Phascolarctos cinereus*). Any proposal involving further clearing of native vegetation within the catchment may require a permit from the Shire of Narracan. Under current guidelines, permits are not issued to clear native forest for the establishment of softwood plantations. While clearing for hardwood production is allowed, any logging on the site would also be subject to controls laid down under the *Code of Forest Practices*. These controls include setting aside buffer strips of retained native vegetation along streambanks within areas to be logged for the protection of streambanks and flora and fauna values. These buffer strips would need to be wide enough to protect the fern's habitat (see Ecological Issues section).

The possibility of residential development at this site poses many risks to the survival of the Filmy Maidenhair colony. Such development would probably lead to increases in pollutant levels in water run-off, the risk of weed invasion to the area, and the number of people using the area for recreation. The danger of unauthorised collecting would also increase.

Deadlock Creek

The streamside vegetation along Deadlock Creek, part of the system of corridors of native forest within the surrounding plantation, protects an undisturbed deep gully supporting a rich fern flora. Twenty-four different fern species have been noted growing near the colony (DCE, Central Gippsland) including Slender Tree-fern (*Cyathea cunninghamii*), classed as a rare species in Victoria (Gullan et al. 1990).

Coal and Bawden's Creeks

These colonies occur along forested streambanks that form corridors of native vegetation through cleared farmland. Protecting this native vegetation would help minimise streambank degradation, maintain water quality, and preserve refuge areas for native flora and fauna.

Social and Economic Issues

General

Filmy Maidenhair is now widely cultivated, so retaining the gene pool in the naturally occurring Victorian populations could be important for the nursery trade.

Sunny Creek

Responsibility for managing the Sunny Creek catchment has recently been transferred from the Shire of Narracan to the newly formed LRWA.

The Shire of Narracan was reviewing the management of the Sunny Creek (Trafalgar) Water Supply Catchment for possible ways to derive income from this land. Options included establishing both soft and hardwood timber plantations and/or subdividing part of the area for residential development. Under the Shire's planning scheme, any proposals accepted by Council must be compatible with the existing use of the area for water production. At present the Shire of Narracan has no plan to proceed with any of the options.

Conservation of Filmy Maidenhair and its habitat is compatible with preserving water quality within the catchment. It has also been proposed to transfer title to the Crown and declare the area a flora and fauna reserve. Such a measure would help protect habitat for Filmy Maidenhair but may not provide an opportunity for the Shire to derive income from the land. Another strategy is put a covenant on native vegetation to protect the fern and its habitat.

Deadlock Creek

A wide buffer of intact native vegetation along the steep gorge of Deadlock Creek is protected from any timber extractive operations by Regional prescriptions and by the *Code of Forest Practices*.

A buffer width of 150 m along both sides of Deadlock Creek through the Allambee Plantation will not reduce the area set aside for timber production, so the economic productivity of the area is not expected to be affected.

Coal Creek

Less than one hectare of freehold farmland fenced and excluded from grazing would give adequate protection to the colony at Leongatha. This land is steeply sloped. Re-establishing and protecting the remnant indigenous vegetation would be appropriate land management, so that any apparent loss of economic return in the short term from loss of grazing area will be offset by long-term benefits. These would include providing habitat for native bird species, which reduce insect pests on neighbouring farmland; establishing a shelter belt for stock; and arresting rill and gully erosion and so increasing water quality.

Bawden's Creek

This colony is protected at present by intact buffers of native vegetation. No action is required that would have any negative economic or social consequences. Erecting a fence may bring positive economic consequences through protecting the gully from stock. Retaining the intact native vegetation, including the

rare fern, around the creek and waterfall is also likely to increase the value of the property with time.

Management Action

Previous Management Action

The four known colonies were inspected by Department of Conservation and Environment staff during 1989 and 1990.

Sunny Creek

In 1989 the Shire of Narracan set up a Committee of Management for a three year period to look at options for future management of the Sunny Creek (Trafalgar) Water Supply Catchment. The Committee had representatives from the Shire, the Department of Conservation and Environment and local Landcare, and conservation and service groups. Its brief included considering the conservation requirements of the Filmy Maidenhair colony. Proposals put forward by the Committee were to be submitted to the Shire for approval.

Ownership and control of the catchment passed to the LRWA when it was formed in May 1991. In response, the Shire of Narracan wound up the Committee of Management in July 1991. The Authority is investigating legal aspects of retaining the same or a similar committee under the powers vested in it under the *Water Act* 1989. Also in 1989, a group of local ratepayers and residents formed the Trafalgar Water Catchment Protection Group, which proposed that the area be declared a Flora and Fauna Reserve and has actively lobbied for this to occur.

Deadlock Creek

The history of land use for the area surrounding the Deadlock Creek site includes the establishment in 1948 of plantations of both Mountain Ash (*Eucalyptus regnans*) and Radiata Pine (*Pinus radiata*) within approximately 100 m of the creek.

Following harvesting of the 1948 plantings, a second rotation plantation of pines was established in a number of nearby areas over five years starting from 1979.

The Deadlock Creek Gorge is extremely steep. The native vegetation clothing its sides and bottom where the colony of Filmy Maidenhair is found has probably not been cleared since European settlement.

Coal Creek

In the 1980s a small fenced enclosure, approximately 2 m x 2 m, was erected around the colony at Leongatha by local naturalists and Departmental staff. It has since been regularly inspected and maintained.

Bawden's Creek

DCE has taken no previous management action at this site.

Management Aims

General

Monitoring: Measure the size of existing populations and

assess habitat conditions at each site annually to determine any changes in known colonies.

Critical habitat: Determine critical habitat areas for Filmy Maidenhair.

Site protection: Assess the potential for adverse visitor impact and if necessary take appropriate measures, e.g. erecting barriers and signs for each known site.

Weed invasion: Remove by hand any weeds which directly threaten colonies at each site.

Distribution: Encourage local field naturalists to locate other colonies.

Sunny Creek

Liaison: Draw up a Public Authority Management Agreement between the catchment manager and DCE detailing measures to protect the habitat of Filmy Maidenhair.

Provide on-going input into planning associated with the management of the Sunny Creek (Trafalgar) Water Supply Catchment.

Deadlock Creek

Timber prescriptions: Assess whether existing streamside buffers as defined by the *Code of Forest Practices* and Regional prescriptions provide adequate protection for the habitat of Filmy Maidenhair. If necessary, introduce additional prescriptions into timber harvesting plans to increase the area of the existing streamside conservation zone to the size recommended in the Ecological Issues section.

Reservation: Reserve a buffer at least 150 m wide either side of Deadlock Creek extending along its length through Allambee Plantation. In the event of the sale, or leasing out of the Allambee Plantation, DCE will retain management of this buffer area.

Coal Creek and Bawden's Creek

Liaison: Liaise with landowners on the importance of colonies of Filmy Maidenhair and options for their protection. In particular to:

- identify buffer zones of retained native vegetation on private land required to protect colonies
- emphasise the economic value of remnant streamside vegetation as a shelterbelt for stock, for preventing erosion and maintaining water quality
- provide assistance with protection works

Grazing Controls: Encourage landholders to fence out and where necessary revegetate buffer zones identified on private land.

Protection: Encourage the use of conservation covenants on property titles to permanently protect the habitat of Filmy Maidenhair.

Other Desirable Management Actions

Reintroductions: Discuss with the Melbourne Botanical Gardens the role of *ex situ* propagation in the conservation of Filmy Maidenhair and the potential for its reintroduction to sites in the wild.

Liaison: Contact nursery trade associations to seek support for protecting naturally occurring Victorian populations.

Legislative Powers Operating

Legislation

Flora and Fauna Guarantee Act 1988—provides for the protection of Filmy Maidenhair through the listing process and subsequent commitments.

Conservation, Forests and Lands Act 1987—provides guidelines for management prescriptions to protect the conservation values of areas set aside for timber production. These are set out in the

Code of Forest Practices for Timber Production 1989 and Regional prescriptions. The Code is enforced by Timber Harvesting Regulations (1989) as set out under the *Conservation, Forests and Lands Act 1987*.

Planning and Environment Act 1987—provides current regulations to control the clearing of native vegetation on both private and public land.

Soil Conservation and Land Utilization Act 1958—provides guidelines for land management within proclaimed water catchment areas.

Water Act 1989—provides protection for the environmental qualities of waterways and for catchment conditions.

Licence/Permit Conditions

In line with current policy for the taking of species considered under threat in Victoria, permits to take plants or parts of plants of Filmy Maidenhair are not to be issued except within a DCE approved conservation plan.

The remaining populations are so small that applications to collect material for scientific purposes may have to be refused because they could threaten the viability of these populations.

Consultation and Community Participation

Naturalists in the Gippsland area have been involved in locating and protecting colonies of Filmy Maidenhair.

Community groups have been represented on the Committee of Management for the Sunny Creek (Trafalgar) Water Supply Catchment and are participating in decision-making regarding future management.

The Earls Road Landcare Group, Trafalgar Water Catchment Protection Group and local naturalist groups are actively concerned with the conservation of habitat of Filmy Maidenhair at Sunny Creek.

Implementation, Evaluation and Review

The Flora and Fauna Guarantee Officers for the Central Gippsland and Yarram Regions of the Department of Conservation and Environment will be responsible for co-ordinating the implementation of this Action Statement and each year monitoring the effectiveness of the actions. This Action Statement will be reviewed in 1997.

Contacts

Management

Frank Noble, DCE, Central Gippsland Region, Regional Manager.

Ken Ashton, Assistant Regional Manager, Resource Conservation.

Ken King, DCE, Yarram Region, Regional Manager.
Ian Hastings, Assistant Regional Manager, Resource Conservation.

Action Statement

FFG Officer, Traralgon Ph. (051) 746166

FFG Officer, Yarram Ph. (051) 825155

Biology

Neville Walsh, National Herbarium, Royal Botanic Gardens Ph. (03) 9252 2300

Compilers

Susan Taylor and Max James

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>

References

- CFL (1989) *Code of Forest Practices for Timber Production. (Revision No. 1)*. Dept of Conservation, Forests & Lands, Victoria.
- DSE (2002) Flora Information System (Electronic Flora Database). Parks, Flora & Fauna, Department of Sustainability & Environment, East Melbourne.
- Duncan, B.D. & Isaac, G. (1986) *Ferns and Allied Plants of Victoria, Tasmania and South Australia*. Melbourne University Press (in association with Monash University).
- Gullan, P., Cheal, D., & Walsh, N.G. (1990) *Rare or Threatened Plants in Victoria*. Dept. Conservation & Environment, Victoria.
- Jones, D.L. & Clemesha, S.C. (1976) *Australian Ferns and Fern Allies with notes on their cultivation*. A.H. and A.W. Reed, Sydney.
- Willis, J.H. (1970) *A Handbook to Plants in Victoria, Vol. 1*. Melbourne University Press.