

Action Statement

Flora and Fauna Guarantee Act 1988 No. 121 (Revised in 2008)

Forked Spyridium *Spyridium* sp. 1

This revised 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

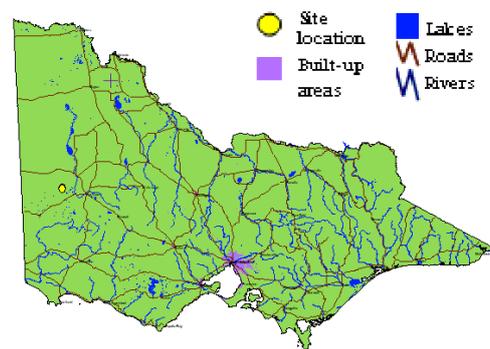
Forked Spyridium (*Spyridium* sp. 1 *sensu* Walsh & Entwisle 1999, formerly *Spyridium* sp. nov. Little Desert) is a shrub to approximately 1.6 m high. The stem leaves are Y-shaped, 6-10 mm long and 1-2 mm wide, dark grey-green, with scattered hairs on the upper surface (Walsh & Entwisle 1999). The leaf margins curve slightly under. Clusters, to 12 mm wide, of small, yellow flowers are surrounded by several pale grey-green to white, floral leaves. The floral leaves are similar to other leaves, but are pale grey-green to white, densely hairy above and generally less deeply cleft. The fruits are approximately 2.5 mm long (Walsh & Entwisle 1999).



Forked Spyridium (Photo: Blackman)

Distribution

Spyridium sp. 1 is a very rare Victorian endemic, found in heathy mallee near the southern boundary of the Little Desert between Goroke and Dimboola (Walsh & Entwisle 1999). Remaining populations occur within two kilometres of each other, and two of the three remaining populations are within 500 m of each other.



Distribution in Victoria
(Flora Information System DSE 2007)

Abundance

There are at least 500 plants remaining in five wild populations.

Important populations

Important populations necessary to the long term survival and recovery of occur in the following locations:

<i>Population</i>	<i>Estimated size</i>
Cooack Fire Access Road (West Wimmera Shire Council)	9 plants
Cooack Settlement Road (West Wimmera Shire Council)	120 plants
Cooack Private Property (site one)	35 plants
Cooack Private Property (site two)	380 + plants
Cooack Private Property (site three)	50 + plants

Habitat

Populations of *Spyridium* sp. 1 occur in windblown derived, sandy soils of heathlands and heathy woodlands in low rainfall areas (Tumino 1999; DNRE 2001). The upper stratum includes Desert Stringybark (*Eucalyptus arenacea*), Oyster Bay Pine (*Callitris rhomboidea*) or Slaty She-oak (*Allocasuarina muelleriana*). Although not previously associated with mallee eucalypts (Tumino 1999), a survey in 2002 found that *Spyridium* sp. 1 also occurred in association with Yellow Mallee (*Eucalyptus incrassata*) (O. Carter and J. Downe unpubl. data). Various heathy and narrow-leaved shrubs including Flame Heath (*Astroloma conostephioides*), Daphne Heath (*Brachyloma daphnoides*), Snow Myrtle (*Calytrix alpestris*), Fringe Myrtle (*Calytrix tetragona*), Silky Guinea-flower (*Hibbertia sericea*), Pink Beard-heath (*Leucopogon ericoides*), Heath Tea-tree (*Leptospermum myrsinoides*), Common Correa (*Correa reflexa*), Narrow-leaf Phebalium (*Phebalium stenophyllum*) and Prickly Geebung (*Persoonia juniperina*) comprise the lower strata.

Life history and ecology

Spyridium species are obligate seed regenerators with poor seed dispersal ability (Coates & Kirkpatrick 1999) and are unable to regenerate from rootstock (Tumino 1999). Disturbance, such as fire (Coates 1996) or light soil scraping (Tumino 1999), may germinate soil-stored seed; some seedling recruitment was evident after roadworks during 1999 at the Cooack Settlement Road site (Tumino 1999). Most individuals at all sites are mature non-senescent plants, although a few young individuals were observed during surveys in 2002 (O. Carter and J. Downe *pers. obs.*) and 2007 (Pauline Rudolph *pers. comm.*). An absence of appropriate germination cues, such as fire, may

lead to a decline in abundance in future years as existing plants senesce. Poor seed dispersal, coupled with the fragmented nature of current habitat on insecure tenure, puts this taxon in danger of extinction (Tumino 1999).

Attempts to translocate *Spyridium* sp. 1 plants grown from cuttings have so far been unsuccessful (Tumino 1999). There may be a better success rate if high numbers of young plants are transplanted during cooler, wetter autumn months, and if there is more dedicated maintenance after planting (Tumino 1999). Improved methods for propagation and cultivation of this species need to be investigated.

Conservation status

National conservation status

Forked *Spyridium* is listed as endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Victorian conservation status

Forked *Spyridium* is listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*.

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

Potentially threatening processes

Weed invasion / Weed control

On roadside sites, the vegetation is largely indigenous, although weeds present include Smooth Cat's-ear (*Hypochaeris glabra*) and Perennial Veldt-grass (*Ehrharta calycina*). A local Broombrush cutter who is aware of the location and identification of this plant regularly cuts Broombrush (*Melaleuca uncinata*) within the vicinity of the site (Tumino 1999). A change in Broombrush operators may threaten survival of roadside populations.

Roadworks

Track widening or clearing of roadside vegetation may damage or destroy plants close to the roadside.

Reservation status

This species does not occur in any conservation reserves. The roadside patches are signposted as Native Plant Reserves. The private land site is within a fenced patch of relatively intact native vegetation.

Inappropriate biomass reduction / fire regimes

The response of *Spyridium* sp. 1 to fire is unknown. Other *Spyridium* species, however, germinate at temperatures expected during fire (Coates 1996). Success in germination of new

individuals is not assured after controlled burning, and there is a potential risk of death of many individuals. Burning should be trialled in a section of one population to reduce the risk of species extinction.

Trampling

Apiarists have set up numerous beehives along the roadside near to populations of *Spyridium* sp. 1; trampling of seedlings could occur during honey collection while walking from the road to those hives.

Clearing

Clearing by the owner on private property could destroy those plants.

- A population on private land has been surveyed by Longerenong students.
- Several roadside populations have been surveyed and monitored.
- Discussions with West Wimmera Shire Council have commenced regarding the formal protection of sites under the West Wimmera Shire planning scheme.
- Two additional parcels of private land were surveyed in 2007 by International Student Volunteers, DSE and community members, greatly increasing the overall known population size by locating over 400 new plants.

Previous management action

- Seed from locations on roadside and private property has been collected and is in storage at the Royal Botanic Gardens.

Long term objective

To ensure that the Forked *Spyridium* can survive, flourish and retain its potential for evolutionary development in the wild.

Specific Objectives, Actions and Targets

The Specific Objectives, Actions and Targets 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

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
1. Clarify/review taxonomy. Clarify the taxonomy of populations to enable an accurate conservation status assessment.	<ul style="list-style-type: none"> ▪ Updated records on all state databases (Flora Information System, VROTPop and Herbarium). ▪ Taxonomic revision of the taxon undertaken. 	Adelaide Herbarium
2. 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"> ▪ Core habitat mapped. ▪ Ecological requirements for the completion of essential life history stages, recruitment and dispersal identified at known sites. 	DSE
3. Conduct survey to locate suitable habitat. Identify and survey potential habitat, using ecological, historical and anecdotal information that may indicate habitat preference.	<ul style="list-style-type: none"> ▪ Sites of potential habitat identified and surveyed. 	DSE
4. Identify disturbance regimes to maintain habitat or promote regeneration and recruitment	<ul style="list-style-type: none"> ▪ Preparation of management prescriptions for ecological burning or soil scraping within sections of Cooack Fire Access Road and Cooack Settlement Road sites. 	DSE

5. 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.	<ul style="list-style-type: none"> Seed bank/regenerative potential quantified for target populations. Stimuli for recruitment/regeneration identified. Management strategies identified to maintain, enhance or restore regenerative processes fundamental to reproduction and survival. 	DSE, Royal Botanic Gardens
6. 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"> Techniques for monitoring developed and implemented. Collection of census data. Population growth rates determined. Population Viability Analysis completed for targeted populations. 	DSE

Objective II To secure populations or habitat from potentially incompatible land use or catastrophic loss

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
7. Negotiate MOU or appropriate management agreement for public land. Negotiate Public Authority Management Agreements under the <i>Flora and Fauna Guarantee Act 1988</i> or establish roadside conservation reserves and protect with Victorian Planning Provisions	<ul style="list-style-type: none"> Key public land sites fully protected and appropriately managed. 	DSE, West Wimmera Shire Council
8. Negotiate co-operative management agreements with private landholders. Initiate discussions with the private landholder with a view to establishing a voluntary conservation agreement.	<ul style="list-style-type: none"> Voluntary conservation agreements established at Cooack private property site. 	DSE
9. Liaise with private landholders. Ensure that information and advice about the recovery of Forked <i>Spyridium</i> has been provided to private landholders.	<ul style="list-style-type: none"> All relevant private land managers are aware of the species and its management needs. 	DSE
10. Develop or amend planning scheme overlays and schedules	<ul style="list-style-type: none"> West Wimmera Shire's existing Environmental Significance Overlay amended to incorporate locations of <i>Spyridium</i> sp. 1. 	DSE, West Wimmera Shire Council
11. Erect/maintain structures to restrict or control access. Control threats by installing appropriate signage, preventing access and fencing sites.	<ul style="list-style-type: none"> Measurable seedling recruitment at Cooack Fire Access Road and Cooack Settlement Road sites. A measurable reduction in plant mortality at Cooack Fire Access Road and Cooack Settlement Road sites. 	DSE, West Wimmera Shire Council
12. Establish cultivated plants <i>ex situ</i> to safeguard from the unforeseen destruction of the wild population.	<ul style="list-style-type: none"> Development of effective propagation and cultivation techniques. At least 10 mature plants in cultivation. 	Royal Botanic Gardens

13. Liaise with government agencies. Ensure that information and advice about the recovery of Forked Spyridium has been provided to public land managers, local government authorities and Catchment Management Authorities.	<ul style="list-style-type: none"> All relevant authorities and public land managers are aware of the species and its management needs. 	DSE
--	--	-----

Objective III To improve the condition of habitat

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
14. Manage environmental weeds. Control threats from pest plants using hand weeding.	<ul style="list-style-type: none"> Measurable seedling recruitment at Cooack Fire Access Road and Cooack Settlement Road sites. A measurable reduction in plant mortality at Cooack Fire Access Road and Cooack Settlement Road sites. 	DSE, West Wimmera Shire Council

Objective IV To increase the number of populations or individuals

<i>Action</i>	<i>Targets</i>	<i>Responsible</i>
15. Store reproductive material. Establish a seed bank.	<ul style="list-style-type: none"> Long-term storage facility identified. Seed from important populations in long-term storage. 	Royal Botanic Gardens
16. Determine seed viability.	<ul style="list-style-type: none"> Seed viability determined. 	Royal Botanic Gardens

Objective V To increase community awareness and support

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

References

- Coates, F. & Kirkpatrick, J.B. (1999) Is geographic range correlated with climatic range in Australian *Spyridium* taxa? *Australian Journal of Botany* 47: 755-767.
- Coates, F. (1996) *Ecological and biogeographical correlates of rarity in two narrow endemics in Tasmania: Spyridium microphyllum and Spyridium obcordatum*, Ph.D. Thesis, University of Tasmania.
- DSE (2005) *Advisory List of Rare or Threatened Plants in Victoria - 2005*. Department of Sustainability and Environment, East Melbourne, Victoria.
- DSE (2005a1) *Flora Information System 2005* (electronic flora database). Department of Sustainability and Environment, East Melbourne
- Environment Australia (2000) *Revision of the Interim Biogeographic Regionalisation of Australia (IBRA) and the Development of Version 5.1. - Summary Report*. Department of Environment and Heritage, Canberra.
- IUCN (2000) *IUCN Red List Categories Version 3.1*. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland.
- Tumino, M. (1999) *Forked Spyridium* *Spyridium* sp. 1: *Flora and Fauna Guarantee Action Statement*, Final Draft Report, Department of Natural Resources and Environment, Melbourne.
- Walsh, N.G. & Entwisle, T.J. (1999) *Flora of Victoria, Vol 4: Dicotyledons: Cornaceae to Asteraceae*, Inkata Press, Melbourne.

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.

Published by the Victorian Government Department of Sustainability and Environment

Melbourne, July 2008

© The State of Victoria Department of Sustainability and Environment 2008

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

ISSN 1448-9902

For more information contact the DSE Customer Service Centre 136 186

Disclaimer

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.

Accessibility

If you would like to receive this publication in an accessible format, such as large print or audio, please telephone 136 186, 1800 122 969 (TTY), or email customer.service@dse.vic.gov.au This document is also available in PDF format on the Internet at www.dse.vic.gov.au