



small-leaf dustymiller

Spyridium lawrencei

TASMANIAN THREATENED FLORA LISTING STATEMENT

Scientific name: *Spyridium lawrencei* (Hook.f.) Benth., *Fl. Austral.* 1: 430 (1863)

Family: Rhamnaceae

Common Name: small-leaf dustymiller (Wapstra *et al.* 2005)

Name history: *Spyridium microphyllum* (small leaf spyridium)

Status: *Threatened Species Protection Act 1995:* **vulnerable**
Environment Protection and Biodiversity Conservation Act 1999:
Endangered
Tasmanian Regional Forest Agreement 1997: **Priority species**

Distribution: Endemic status: **Endemic to Tasmania**
Tasmanian NRM Region: **North & South**

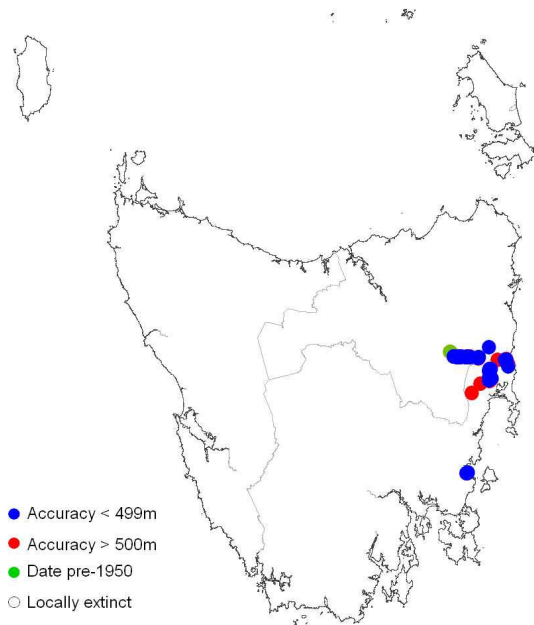


Figure 1. Distribution of *Spyridium lawrencei*.



Plate 1. *Spyridium lawrencei*
(All images by R. Schahinger).

IDENTIFICATION AND ECOLOGY

Spyridium lawrencei is a woody shrub in the Rhamnaceae family (Curtis & Morris 1975). In open situations it occurs as a much-branched compact shrub, whereas in shaded situations it tends to be more straggling. The species reaches 1 to 1.5 m in height, has small thick and leathery leaves, very small cream-coloured flowers clustered at the ends of branches and conspicuous velvety 'floral leaves' that surround the flowers.

Buds begin to form in September, peaking in production in summer for the majority of plants (Coates 1991). Bud burst begins in late November, with the majority of plants flowering in February. Flowering continues in some plants until April, whereas the floral leaves remain on plants for most of the year. Seed is produced after one season's flowering, develops over winter and is not released until the following year. Seed development is greatest during October and November, with fruit maturing in January for most of the population. Seed is released in February, though early seed release may commence in November and extend through to April.

Surveys for the species can be conducted anytime of the year as identifiable features are present at all times.

Spyridium lawrencei is often restricted to crevices between plates of exposed bedrock, which suggests it is drought tolerant. Plants suited to rocky habitats are well documented for drought tolerance where watershed effects of rock faces are the main source of moisture supply (Coates 1991). *Spyridium lawrencei* has the capacity to recover after fire via resprouting, though the response to particular fire intensities is poorly understood.

Description

Leaves are 2 to 4 mm long, convex and round to heart shaped with a blunt or notched tip and recurved margins. The upper surface of the leaves is usually devoid of hairs with deeply indented veins while the lower surface is covered with a dense layer of short hairs. The flowers are about 2 mm in diameter and

arranged in small dense heads on the end of the branches. They are subtended by whitish floral leaves similar in size to the foliage leaves, which are also covered in short hairs. The bracts, receptacle and the sepals are densely covered in hairs (Curtis & Morris 1975, Coates 1991).

Confusing Species

Spyridium lawrencei is similar in appearance to *Spyridium obcordatum* (creeping dustymiller) and *Stenanthemum pimeleoides* (propeller plant), which also have floral leaves. It can be distinguished from these two species by its growth habit. *Spyridium lawrencei* is an erect or wiry shrub whereas the other two species are ground hugging.

DISTRIBUTION AND HABITAT

Spyridium lawrencei is endemic to Tasmania (Curtis & Morris 1975). It occurs on the Central East Coast and the Eastern Midlands, with its main subpopulations centred on the Swan, Apsley and St Pauls rivers, with an outlying subpopulation in the southeast near Orford (Coates 1991). The species has a linear range of 95 km, an extent of occurrence 2,300 km², and an area of occupancy of about 7.4 ha.

Spyridium lawrencei on the St Pauls and Swan rivers usually occurs in the zone between riparian vegetation, woodland or forest, and pasture, where it is a component of shrubby vegetation maintained by regular disturbances such as fire or flooding (Coates 1991). The species also occurs on rock plates on forested slopes at Blindburn Creek and Three Thumbs (Table 1).

POPULATION ESTIMATE

The total population size is estimated to be about 11,000 mature individuals, with 10 known subpopulations (Table 1). The Blindburn Creek subpopulation within Douglas-Apsley National Park supports more than 80% of the known plants.

RESERVATION STATUS

Reserved within Douglas-Apsley National Park, Three Thumbs State Reserve and Apslaw Conservation Area.

Table 1. Population summary for *Spyridium lawrencei*.

	Subpopulation	Tenure	NRM Region *	1:25000 mapsheet	Year last seen	Area occupied (ha)	Number of mature plants
1	Three Thumbs	Three Thumbs State Reserve	South	Orford	2004	0.06	200
2	Swan River (south: Blacks Creek)	Private land	South	Apslawn	1996 2004 (part)		140 13
3	Swan River (north)	Private land	South	Apslawn Henry	1996		300
4	Apsley River	Apslawn Conservation Area	South	Bicheno	2000		> 10
5	Blindburn Creek	Douglas-Apsley National Park (& private land)	North (& South)	Bicheno	1996 2007 (part)	5.10	> 9,200
6	St Pauls River (Township Flat)	Private land	North	Henry	1999		> 500
7	St Pauls River (Royal George)	Private land	North	St Pauls Dome, Roys	1996	0.003	11
8	St Pauls River (Baileys Marsh)	Private land	North	St Pauls Dome, Roys	1999		< 500
9	St Pauls River (River Plains)	Private land	North	St Pauls Dome, Roys	1999	0.75	147
10	St Pauls River (causeway)	Private land	North	St Pauls Dome, Roys	1999	1.50	> 50

* NRM region = Natural Resource Management region.

CONSERVATION ASSESSMENT

Spyridium lawrencei was listed as vulnerable on schedules of the Tasmanian *Threatened Species Protection Act 1995* when the Act came into effect. It qualifies under criterion B as it occupies less than 50 hectares, it is known to exist at no more than ten locations and there is an inferred continuing decline in area, extent and/or quality of habitat.

The species is listed as Endangered on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, though its status is currently under review as part of a Species Information Partnership between the Australian and Tasmanian Governments.

Spyridium lawrencei is a priority species requiring consideration under the *Tasmanian Regional Forest Agreement* between the Commonwealth of

Australia and the State of Tasmania (RFA 1997, DPIWE 1998).

THREATS AND LIMITING FACTORS

The major threats to the long-term conservation of *Spyridium lawrencei* are land clearance and degradation of habitat from weeds on private land (Threatened Species Section 2008a). Threats identified for the species are detailed below.

Land Clearance: Historically, land clearance for agricultural development has had a major impact on the distribution of potential habitat (Harris and Kitchener 2005, Threatened Species Section 2008a & b). The discontinuous nature of habitat is apparent along the St Pauls, Swan and Apsley rivers, where clearing has reduced potentially once continuous occurrences to scattered remnants. There is still some risk that

limited habitat clearance may occur, particularly for small stands. This must be regarded as a suspected threat for those subpopulations on private property without conservation covenants (mainly those on the St Pauls and Swan rivers).

Weed Invasion: *Ulex europaeus* (gorse) is a major issue for *Spyridium lawrencei* on private land on the St Pauls and Swan rivers.

Fire: *Spyridium lawrencei* has the capacity to recover after fire via resprouting, though the response to particular fire intensities is poorly understood. Observations by Coates (1991), Barker and Johnson (1997) and Coates *et al.* (1999) suggest that frequent fires might eliminate the species if there is too short a period between fires. High intensity summer fires on exposed highly insolated sites have the ability to severely affect the subpopulations, as has been observed at the Three Thumbs subpopulation south of Orford.

Grazing: Coates (1991) indicates that *Spyridium lawrencei* has the capacity to recover vegetatively following damage from grazing, although the level of grazing it is able to tolerate is unknown. Grazing of habitat on the St Pauls and Swan rivers is a potential threat to the viability of these subpopulations.

MANAGEMENT STRATEGY

The main objective for the recovery of that *Spyridium lawrencei* is to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for its successful recruitment.

What has been done?

A multi-species Recovery Plan for selected Tasmanian forest-associated plants, including *Spyridium lawrencei*, was prepared by Forestry Tasmania in 1998 (Barker & Johnson 1997). The Commonwealth did not formally adopt this plan, though sections of the Plan have been implemented by various Tasmanian agencies. The *Draft Greater Freycinet Region Threatened Species Recovery Plan 2008–2012* (Threatened Species Section 2008a) expanded upon Barker & Johnson (1997).

The following progress has been made towards the recovery objectives of the aforementioned plans:

- Surveys on private and public land have identified additional localities for *Spyridium lawrencei* within its known range.
- Additional public land supporting *Spyridium lawrencei* has been protected in the Three Thumbs State Reserve and the Apslawn Conservation Area.
- A number of subpopulations and sites on the St Pauls River and near the Douglas-Apsley National Park have been proposed for protection by Conservation Covenants through the Private Forest Reserves Program (DPIW). Negotiations with landowners are continuing.
- The *Spyridium lawrencei* site at Blindburn Creek in Douglas-Apsley National Park has been identified as a conservation management zone (Parks and Wildlife Service 1993 & 1998). Prescriptions include controls and prohibitions on modifications of the area from human activity, and ongoing monitoring to determine the distribution of *Phytophthora cinnamomi* and its rate of spread.
- Management prescriptions have been prepared for *Spyridium lawrencei* on public land (Johnson & Barker 1998).
- Gorse eradication has been undertaken along the middle reaches of the St Pauls River and adjacent paddocks since the late 1990s via a number of projects funded by the Australian Government Natural Heritage Trust (e.g., Zacharek 2000). On-ground work has been carried out by Green Corp, DPIW field staff and private landowners, as well as by volunteers organised by the Threatened Species Network.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Spyridium lawrencei* include:

- provide adequate information and extension support to the relevant Natural Resource Management Committees, Local

Councils, Government Agencies and the local community on the locality, significance and management of known subpopulations and the management of potential habitat of *Spyridium lawrencei*;

- provide technical assistance to DPIW's Private Land Conservation Program for the protection and management of sites on private land;
- continue weed eradication and monitoring on private land sites on the St Pauls and Swan rivers;
- assess the success of various weed treatments by trialing various weed management strategies in conjunction with management of *Eucalyptus ovata*–*Callitris oblonga* Forest on private land along the St Pauls River;
- assess the impact on the species of stock (including grazing and trampling);
- monitor occurrences in public reserves and on State Forest, and develop ongoing management prescriptions. Monitoring of reproductive capacity will be important to plan for suitable fire intervals for the species;
- develop methods for regenerating the species and monitor the success of regeneration in stock-grazed landscapes;
- survey known sites to assess the size of subpopulations and condition of habitat. Conduct extension surveys of suitable habitat.

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View:

<http://www.dpiw.tas.gov.au/threatenedspecieslists>

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Permit: It is an offence to collect, disturb, damage or destroy this species unless under permit.