Image by Naomi Lawrence

Viminaria juncea

golden spray

TASMANIAN THREATENED FLORA LISTING STATEMENT

Scientific name: ***Viminaria juncea*** (Schrad. & J.Wendl.) Hoffmanns., *Verz. Pfl.-Kult.* 200 (1824)

Common name: golden spray (Wapstra et al. 2005)

Group: vascular plant, dicotyledon, family **Fabaceae**

Status: *Threatened Species Protection Act 1995*: **endangered**

Environment Protection and Biodiversity Conservation Act 1999: **Not Listed**

Distribution Endemic status: **Not endemic to Tasmania**

Tasmanian NRM Region: **South**

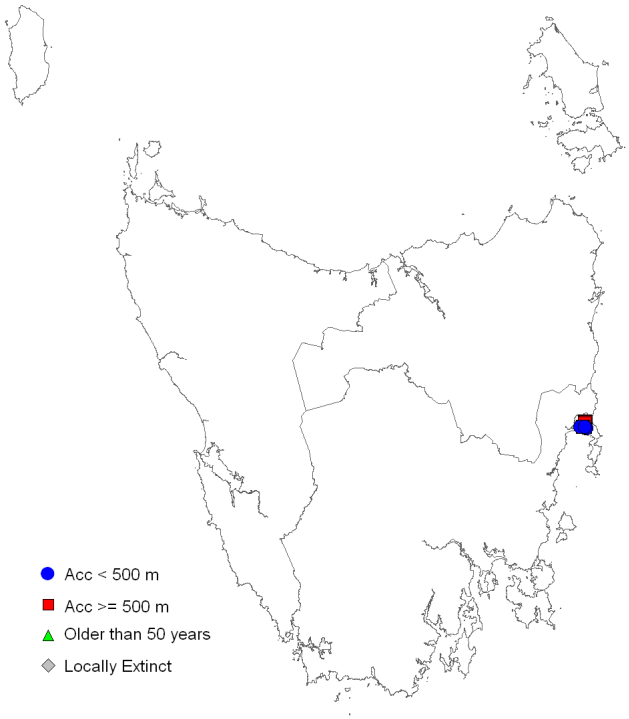

Figure 1. Distribution of *Viminaria juncea* in Tasmania

Plate 1. *Viminaria juncea*: habit
(image from Tuross Heads by Richard Schahinger)

IDENTIFICATION AND ECOLOGY

Viminaria juncea is a shrub or small tree in the Fabaceae (pea) family (Walsh & Entwisle 1996). It is known in Tasmania from a single population on the central east coast, where it grows in poorly-drained shrublands at the margins of Moulting Lagoon.

Viminaria juncea is notable for its ability to fix nitrogen under waterlogged conditions, with the development of pneumatophores and an integrated system of aerenchyma within its lower stem, roots and nodules (Walker et al. 1983). Post-fire regeneration is principally by soil-stored seed (Auld & O'Connell 1991).

Survey techniques

Surveys for *Viminaria juncea* may be undertaken at any time of year due to its distinctive foliage, though would be markedly easier during its main flowering period, December to February.

Description

Viminaria juncea is a glabrous upright shrub or small tree to 5 m, with long, green and slender drooping branches (Plates 1 & 2). The bark of older specimens is hard and fissured, similar to that of *Allocasuarina verticillata* (drooping sheoak). Leaves are reduced to long flexible 'needles' (filiform petioles) 8 to 25 cm long and less than 1.5 mm in diameter. One to three oval-oblong leaflets 1.5 to 3 cm long are occasionally borne at the leaf tips. Flowers are pea-shaped and are arranged in long loose terminal racemes. The calyx is 4 to 5 mm long with 5 short teeth, the tube solid at the base. Petals are yellow, about twice as long as the calyx, and there are free 10 stamens. Plants produce soft, inflated, ovoid pods that are 4 to 6 mm long and contain a single indehiscent seed (description from Curtis & Morris 1975, Costermans 1994).

Confusing Species

Viminaria juncea is superficially similar to the introduced *Cytisus scoparius* (english broom). However, the latter has small trifoliolate leaves that are hairy, golden-yellow flowers to 2 cm long, stamens that are fused at their base to form a tube, and a pod 4 to 6 cm long that is hairy along its margins (Muyt 2001).

TAXONOMIC ISSUES

The restricted distribution of *Viminaria juncea* in Tasmania and its relatively recent collection (1946) has led some to conjecture that the species may be an introduction. This possibility requires clarification through genetic analyses of Tasmanian and mainland populations. A morphological assessment may also be appropriate, as geographically isolated populations are known to vary widely and consistently from one another in their seedling morphology (Walker & Pate 1986).

DISTRIBUTION AND HABITAT

Viminaria juncea is endemic to Australia and is known from Tasmania, Western Australia, South Australia, Victoria, New South Wales and southern Queensland (Walsh & Entwisle 1996).

In Tasmania the species is known from a single location close to Coles Bay, where it occurs in several discrete patches within a few hundred metres of Moulting Lagoon (Plate 2). As at March 2011 it had a linear range of 0.9 km, an extent of occurrence of 0.02 km^2, and an area of occupancy of 0.13 ha (Table 1).

Plate 2. *Viminaria juncea* at the margins of Moulting Lagoon in 2002 (image by Tim Rudman)

Table 1. Population summary for *Viminaria juncea* in Tasmania

	Population	Tenure	NRM region	1:25 000 mapsheet	Year of census	Area of occupancy (ha)	Number of mature plants
1	Moulting Lagoon	Private land & Moulting Lagoon Game Reserve	South	Friendly	2011 2007 2002	0.13 0.30 0.30	43 180–190 240–250 *

NRM region = Natural Resource Management region; * plus about 70 juveniles.

On mainland Australia *Viminaria juncea* occurs typically in swampy depressions in heathland or woodland on sandy soils, particularly in near-coastal areas. In Tasmania, plants grow close to sea level on soils prone to periodic waterlogging and drying out in summer. The associated vegetation is generally a sedgey shrubland. Common species include the shrubs *Banksia marginata* (silver banksia), *Leptospermum scoparium* (common teatree) *Leptospermum lanigerum* (woolly teatree), *Acacia verticillata* (prickly moses) and *Hakea teretifolia* (dagger needlebush), the monocots *Lepidosperma longitudinale* (spreading swordsedge), *Empodisma minus* (spreading roperush) and *Baumea* spp. (twigsedge), and *Gleichenia microphylla* (scrambling coralfern).

POPULATION ESTIMATE

There were estimated to be between 240 and 250 mature individuals in February 2002. Numbers had declined to 180–190 plants by May 2007, a presumed consequence of long-term drought, and had declined further to just 43 mature plants by March 2011 (with almost all plants in very poor condition and an absence of juvenile plants).

An unknown number of plants along the margins of Coles Bay Road were lost in the 1990s due to changes in drainage brought about by road-works.

RESERVATION STATUS

About a third of the *Viminaria juncea* population occurs in Moulting Lagoon Game Reserve.

CONSERVATION ASSESSMENT

Viminaria juncea was listed as endangered on the Tasmanian *Threatened Species Protection Act 1995* when the Act came into being. It continues to qualify for listing as endangered under criterion D1:

- total population estimated to number fewer than 250 mature individuals.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

The main threats to *Viminaria juncea* include a lack of disturbance and drought, land clearance and hydrological changes, woody weed invasion and stochastic events.

Inappropriate fire regimes & drought: The species is at risk of being eliminated if fires are more frequent than the time required for plants to reach maturity and produce sufficient seed to replace the standing population. However, the site's recent history suggests that a lack of fire, combined with drought, is a more likely threat to the species, with the death of all juvenile plants observed in 2002 on the private property component of the population. The soil-stored seedbank is likely to be long-lived (decades), though a gradual decline in viability would be expected in the continued absence of fire.

Land clearance & hydrological changes: The greater part of the population lies on private land and in consequence there is some risk of inadvertent clearance. The construction of deep drains along Coles Bay Road in the 1990s is thought to have contributed to the demise of a number of plants due to changes in hydrology.

Poor recruitment: Many of the older plants at the margins of Moulting Lagoon, with stem diameters up to 30 cm, have succumbed to a wind damage or natural senescence over the

past 15 years (Plate 2), with little or no recruitment. Inhibiting factors include dense mounds of coralfern and browsing of seedlings by native animals in more open areas.

Weed invasion: Dense infestations of *Ulex europaeus* (gorse) are present at the margins of Moulting Lagoon close to one of the *Viminaria juncea* patches, with smaller infestations nearby. A small stand of the potentially invasive *Acacia howittii* (sticky wattle) — a native of Victoria — was also known to occur close to one of the *Viminaria* patches on private land but was treated in early 2002. Both species would appear to have the potential to out-compete *Viminaria juncea* following fire.

Stochastic risk: The small size of the population exposes it to a high risk of extinction due to chance events.

MANAGEMENT STRATEGY

The main objectives for the recovery of *Viminaria juncea* are to prevent the loss or degradation of the known population, and promote conditions for the species' successful recruitment.

What has been done?

The conservation biology and management of *Viminaria juncea* was examined as part of a broader study of rare Fabaceae species in Tasmania (Lynch 1993).

An infestation of sticky wattle was treated in May 2002, with funding provided by the Glamorgan–Spring Bay Landcare Management Committee. Follow-up control has been undertaken by the landowner.

Seed was collected in 2007 and lodged for long-term conservation storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens) as a buffer against declines in the wild population.

A census of the population was conducted by Threatened Species Section personnel in 2002, 2007 and 2011, with assistance by volunteers with the group Threatened Plants Tasmania on the latter occasion.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Viminaria juncea* include:

- an ecological burn of part of the population to stimulate recruitment from a soil-stored seedbank, with pre- and post-fire treatment of any woody weeds;
- encourage landholders to consider protection of the species' habitat through a vegetation management agreement or conservation covenant under the Tasmanian *Nature Conservation Act 2002*;
- control of gorse infestations within the Moulting Lagoon Game Reserve in the vicinity of *Viminaria juncea*, and treatment of any sticky wattle regrowth in areas treated in 2002;
- monitor the known population for health and recruitment, and gauge its response to fire;
- provide information and extension support to relevant Natural Resource Management Committees, local councils, government agencies and the local community on the locality, significance and management of the known population and potential habitat.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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