

Amphibromus macrorhinus

longnose swampgrass

TASMANIAN THREATENED SPECIES NOTESHEET



Image by Richard Schahinger

Scientific name: *Amphibromus macrorhinus* S.W.L.Jacobs & Lapinpuro, *Telopea* 2: 723 (1986)

Common name: longnose swampgrass (Wapstra et al. 2005)

Group: vascular plant, monocotyledon, family **Poaceae**

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 regions: **North**

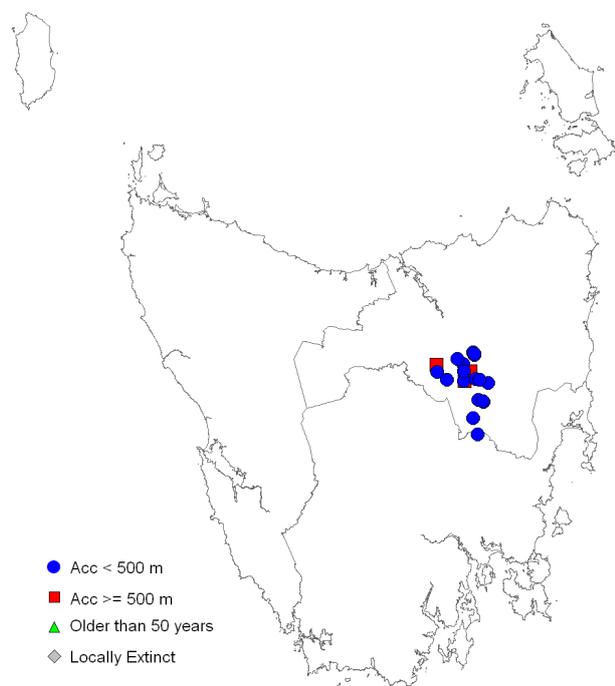


Figure 1. Distribution of *Amphibromus macrorhinus* in Tasmania, showing Natural Resource Management regions



Plate 1. Habit and habitat of *Amphibromus macrorhinus* (image by Richard Schahinger)

SUMMARY: *Amphibromus macrorhinus* is a perennial grass associated with wetlands and swamps. It is known in Tasmania from about a dozen sites in the Northern Midlands. Threats to the species and its wetland habitat include changes to hydrological processes, conversion for agriculture, stock browsing and trampling, and climate change. Available information suggests that subpopulations are usually localised, placing the species at risk of losses from chance events. The risk of inadvertent losses is exacerbated as the species may not emerge when its habitat is dry. The species would benefit from the retention of buffering vegetation surrounding its wetland habitat, and known occurrences on private land would benefit from stock management.

IDENTIFICATION AND ECOLOGY

Amphibromus macrorhinus flowers in response to rain or flooding (Harden 1993), typically flowering between October to December in Tasmania. Pollination is effected by wind, with fruit maturing in December and January. The species is capable of surviving extended periods of drought, due to a presumed soil-stored seed-bank. Dispersal of seed is likely to be by waterbirds and, within local catchments, by floods. Being one of six native species in the *Amphibromus* genus and 141 in the family Poaceae, *Amphibromus macrorhinus* represents a relatively low proportion of its genetic lineage in Tasmania (Baker & de Salas 2013).

Survey techniques

Fruit is required to identify this perennial grass, so surveys of *Amphibromus macrorhinus* should be undertaken during the latter part of its flowering period and when in fruit, late November to mid January.

Description

Amphibromus macrorhinus is an erect tufted perennial grass, with flowering stems (culms) up to 0.8 m high. The leaf blades are flaccid and up to 30 cm long by 2 mm wide. The lower leaf surface is finely ribbed, the upper surface more coarsely so, the ribs with short, stiff, spreading hairs. The membranous ligule is 9 to 13 mm long. The culm is terete or slightly flattened,

ribbed and glabrous or sparingly scaberulous. The inflorescence is an erect panicle up to 20 cm long, with 1 to 3 appressed or half-spreading branches up to 5 cm long. The spikelets are 4 to 5 flowered and 11 to 15 mm long excluding the awns. The lemma (lowermost bract enclosing the floret) is 6 to 8 mm long, with a 4-toothed apex, the inner two teeth slightly longer. It is 7-nerved and coarsely papillose-scabrous except at apex, and crustaceous at maturity. The 13 to 18 mm long awn is inserted at or just below the midpoint of the lemma, with a twisted 5 to 6.5 mm long column.

[description based on Curtis & Morris (1994) and specimens collected in the interim held at the Tasmanian Herbarium]

Confusing species

Amphibromus macrorhinus was included previously in *Amphibromus neesii* (Jacobs & Lapinuro 1986). The latter is typically a taller plant (up to 1.7 m high), has an awn that is inserted in the upper third of the lemma rather than the middle, while the lemma body is sub-smooth to minutely scaberulous rather than coarsely papillose-scabrous (Curtis & Morris 1994).

DISTRIBUTION AND HABITAT

On mainland Australia *Amphibromus macrorhinus* occurs in Western Australia, South Australia, Victoria and New South Wales (Harden 1993, Walsh & Entwisle 1994). In Tasmania the species is restricted to the Northern Midlands (Figure 1, Table 1), where it grows in low-lying wet places and swamps, including sedgeland dominated by *Lepidosperma longitudinale*. Associated species include *Eleocharis acuta* and *Amphibromus archeri*. The elevation range of recorded sites in Tasmania is 160 to 240 m above sea level, with an annual mean rainfall of between 450 to 700 mm. The underlying substrate includes Tertiary basalt, Quaternary alluvium and Tertiary sediments.

POPULATION ESTIMATE

Amphibromus macrorhinus has been recorded in Tasmania from 13 subpopulations (Table 1). The total number of plants is likely to be in the

Table 1. Population summary for *Amphibromus macrorhinus* in Tasmania

	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Deddington Road	private land	North	Nile	2011 (2010)	0.05 (3 patches in 35 ha)	125 ±35
2	Powranna	Powranna Nature Reserve	North	Nile	2012	0.0001	1
3a	Cressy (farm)	private land	North	Cressy	1963 [#]	unknown	unknown
3b*	Cressy (south)	private land	North	Delmont	1996 [#]	unknown	unknown
4*	Macquarie Road	private land	North	Delmont	1980s?	unknown	unknown
5	Valleyfield Road	private land	North	Cleveland	1986 (1985)	unknown	unknown
6*	Epping Forest	Tom Gibson Nature Reserve	North	Cleveland	late 1980s?	unknown	unknown
7	Diprose	Crown land	North	Cleveland	2010	unknown	unknown
8a	Smiths Lagoon	private land**	North	Cleveland	2009	2–3	c. 500
8b	Southeast of Smiths Lagoon	private land**	North	Cleveland	2014	0.01 (5 patches in 45 ha)	c. 200
9	Blanchards Creek	private land**	North	Diamond	2012 (2011)	0.02	100–150
10	Maclains Plain	private land***	North	Jacobs	2011 (2010)	0.12 (5 patches in 20 ha)	c. 500
11	Ashby Road	private land	North	Jacobs	2011	0.5	1000s
12	Folly Lagoon	private land	North	Ellinthorp	1974	unknown	unknown
13*	Tunbridge	private land	North	Tunbridge	1980s?	unknown	unknown

- * = sites requiring survey to confirm identity due to lack of supporting voucher specimens;
 ** = covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002*;
 *** = covered by a Stewardship Agreement under the Tasmanian Midlands Landscape Project (promulgated by Bush Heritage Australia and the Tasmanian Land Conservancy);
 # = first collected in the Cressy area in 1845

thousands, though the status and veracity of several of the older sites is uncertain, and there is no information to indicate population trends. The linear range of the species in Tasmania is 55 km and the extent of occurrence 965 km². While reliable estimates for the area of occupancy at sites are not available (Table 1), the species is considered to occupy less than 10 ha in total.

Seven of the thirteen subpopulations have been discovered since 2009, six during the course of general botanical surveys of reserves and covenanted properties, and one during the course of environmental surveys undertaken for a proposed dam. It is considered likely that additional sites will emerge in the area given a targeted survey effort at the appropriate time of

year, though experience suggests that any such occurrences will be localised.

RESERVATION STATUS

Amphibromus macrorhinus is known from Powranna Nature Reserve and has been reported from Tom Gibson Nature Reserve (Parks & Wildlife Service 1996). Two subpopulations are on private land covered by conservation covenants under the Tasmanian *Nature Conservation Act 2002* (Table 1).

CONSERVATION ASSESSMENT

Amphibromus macrorhinus was listed as endangered on the original schedules of the Tasmanian *Threatened Species Protection Act 1995*. The status was reassessed in July 2014 with the species continuing to qualify as endangered,

meeting criterion B: area of occupancy less than 10 ha with a severely fragmented distribution and a continuing decline inferred, observed or projected in the area of occupancy.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Clearance of habitat and changes to hydrology at the local and catchment scales pose the greatest threat to the species in Tasmania. Additional threats include over-grazing by stock, stochastic events and climate change.

Loss of habitat and hydrological changes:

Tasmania's Northern Midlands have been substantially modified since European settlement, with the presumed loss of habitat for species such as *Amphibromus macrorhinus*. Fensham (1989) noted that '... 83% of the area of the vegetation of the Midlands has been replaced after 170 years of agricultural exploitation'. The vegetation that does remain is highly fragmented, meaning that the species' chances of dispersal have become increasingly unlikely. Further developments in agriculture and the infrastructure associated with these activities pose a threat as does further fragmentation of the population. Indirect threats to the species' wetland habitat are posed by fertilisers, pesticides, herbicides, weeds and the risk of increasing salinity. Wetlands are listed as a threatened vegetation community under the *Tasmanian Nature Conservation Act 2002*. However, they remain at some risk, as clearance and conversion of wetlands is only regulated where a Forest Practices Plan is required or in some circumstances where a dam approval is required.

Stock grazing and trampling: The species is known to be palatable to stock. Browsing may reduce the species' reproductive capacity.

Stochastic events: The small size of many subpopulations exposes them to a risk of extinction due to inadvertent or chance events. The species' transient nature means that there is a risk of inadvertent habitat destruction, as environmental impact assessments may not be conducted at optimal times for detection.

Climate change: Climatic trends for the 21st century in areas in Tasmania supporting *Amphibromus macrorhinus* are predicted to include warmer temperatures and more extreme events

(Grose et al. 2010), possibly leading to a drying out of its habitat. It is possible that this may affect the species' ability to colonise new sites or recolonise sites from which it has been lost.

Management objectives

The main objectives for the recovery of *Amphibromus macrorhinus* are to prevent the loss or degradation of known subpopulations, gain a better understanding of the species' ecological and management requirements, and identify new subpopulations within its notional range.

What has been done?

- Conservation covenants under the *Tasmanian Nature Conservation Act 2002* have been realised for two private properties that support the species with a stewardship agreement for another private property in place.
- Targeted surveys were undertaken for the species in the Northern Midlands from 2009 to 2012, in some instances with the assistance of Threatened Plants Tasmania, a Wildcare volunteer group. This resulted in the discovery of several new subpopulations.
- Seed has been collected from the Smiths Lagoon subpopulation and lodged for long-term conservation storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens, Hobart.

What is needed?

Agencies, groups or individuals may assist with some or all of the following recovery actions. Coordinated efforts may achieve the best and most efficient results.

- provide information and extension support to relevant Natural Resource Management Committees, local councils, government agencies, development proponents and the local community on the locality, significance and management of the known subpopulations and potential habitat;

- encourage landowners to retain buffering vegetation around wetlands supporting the species, and limit access of stock to sites;
- survey sites not seen in recent years to determine their status and to inform the development of appropriate management strategies;
- confirm the identity of subpopulations that lack supporting herbarium specimens;
- monitor selected subpopulations for longevity, recruitment, condition and response to disturbance;
- undertake extension surveys of potential habitat within the species' known range;
- monitor compliance with existing covenants and permit conditions to ensure that prescriptions are appropriate for the species;
- encourage private landowners to consider protection and management of the species' habitat through perpetual covenants under the Tasmanian *Nature Conservation Act 2002*.

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