

Xerochrysum palustre

swamp everlasting

TASMANIAN THREATENED SPECIES LISTING STATEMENT



Image by Mark Wapstra

- Scientific name:** *Xerochrysum palustre* (Flann) R.J.Bayer, *Kew Bull.* 56: 1014 (2001)
- Common name:** swamp everlasting (Wapstra et al. 2005)
- Name history:** *Bracteantha palustris*
- Group:** vascular plant, dicotyledon, family **Asteraceae**
- Status:** *Threatened Species Protection Act 1995: vulnerable*
Environment Protection and Biodiversity Conservation Act 1999: Vulnerable
- Distribution:** Endemic status: **not endemic to Tasmania**
Tasmanian NRM regions: **North, South**

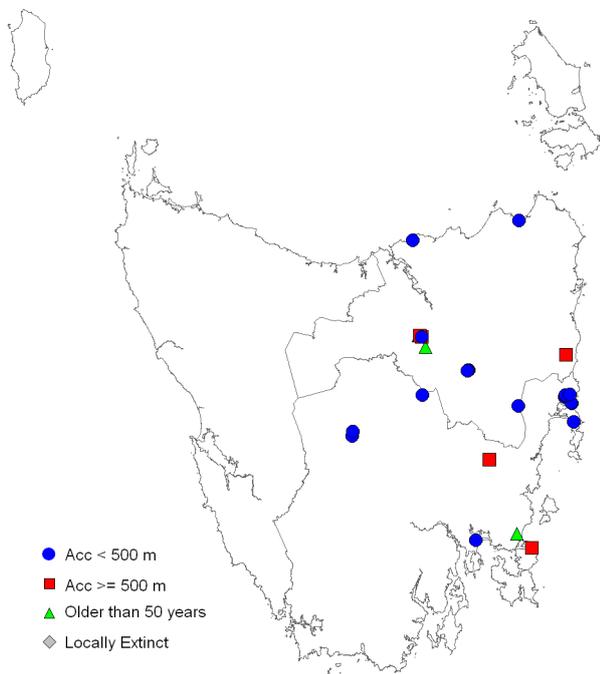


Figure 1. Distribution of *Xerochrysum palustre* in Tasmania, showing Natural Resource Management regions

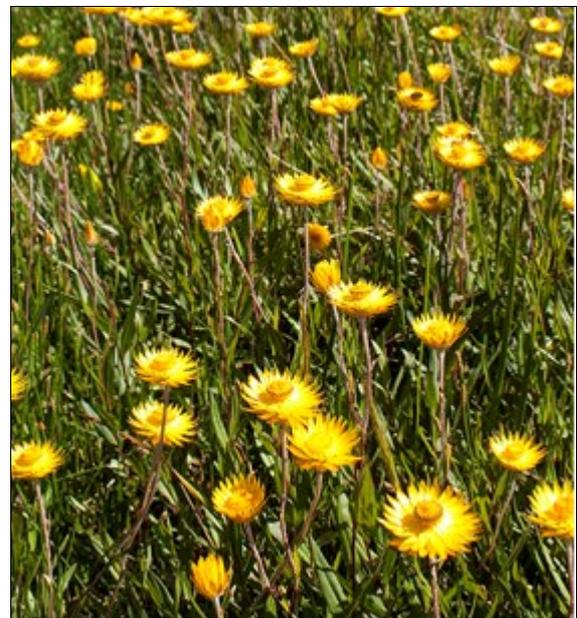


Plate 1. Growth habit of *Xerochrysum palustre* (image by James Wood)

SUMMARY: *Xerochrysum palustre* is a perennial paper daisy that grows in swampy habitats, including sedgy-heathy wetlands, heathlands and woodlands. In Tasmania, several of the 19 known subpopulations have not been recorded for many decades and the species was probably once more widespread than the data indicates. Subpopulations tend to be highly localised and small and the species probably has a total population of fewer than 5,000 mature individuals and occupies less than 5 hectares. This increases the risk of losses through chance events. This risk is exacerbated as the species does not appear to form a seed bank for recolonisation if plants are lost from a site. Threats include historical and continuing clearing and modification of prime habitat through agricultural practices.

IDENTIFICATION AND ECOLOGY

The main form of reproduction in *Xerochrysum palustre* appears to be vegetative, in the form of an extensive rhizome system (underground stems), with the species forming locally dense patches. Plants appear to die back in dry conditions and resprout when conditions improve. No seed dormancy mechanisms are apparent as seed germinates readily when imbibed, suggesting that, like many daisies, the species is unlikely to form a soil-stored seed bank (James Wood, pers. comm. 2012). Recolonisation of patches where the species has been lost would therefore be dependent on seed being dispersed from nearby plants. The main flowering period is November to March (Flann 1999), with insects the most likely pollination vector. Like all species of *Xerochrysum*, *Xerochrysum palustre* has long persistent flower heads, and are commonly known as everlastings. Fruit can be found from December to April (Flann 1998, Gray & Knight 2001).

Survey techniques

Surveys are best conducted during the species' peak flowering period in spring/summer, as the golden-yellow flower heads can be observed in swampy habitats from some distance. At other times of the year or during periods of drought, the died-down leafy stems are difficult to detect.

Description

Xerochrysum palustre is a perennial rhizomatous herb 30 to 120 cm high. The stems are erect and simple, though rarely they have one to a few branches. Arachnoid hairs are confined to the upper 5 to 15 cm of the stems, but otherwise the stems are almost glabrous. The leaves are 3 to 10 cm long and 3 to 8 mm wide, lanceolate to elliptic with an acute apex. The leaf surfaces are almost glabrous but the margins have arachnoid hairs. The flower heads (capitula) are solitary, terminal, and are 2.5 to 5 cm in diameter. The involucre bracts are elliptic with an acute apex, 1 to 2.5 cm long, smooth and golden-yellow. They surround the yellow florets in the centre of the flower head (Plate 1). The female florets are few in a discontinuous outer series, and sometimes appear to be absent. The achenes are about 3 mm long, with a yellow pappus 5 to 8 mm long.

[description based on Flann 1998, 1999]

Confusing species

Xerochrysum palustre may be confused with lowland forms of *Xerochrysum subundulatum*. The latter is also rhizomatous and has a single terminal capitulum with golden-yellow bracts, but its stems have arachnoid hairs throughout rather than just in the upper section, and the tips of its involucre bracts are scabrous rather than smooth.

DISTRIBUTION AND HABITAT

Xerochrysum palustre occurs in Tasmania, Victoria and New South Wales (Flann 1999). In Tasmania, the species has a scattered distribution, with subpopulations in the Northeast, East Coast, Central Highlands and Midlands, all at altitudes below 700 m above sea level (Figure 1).

Table 1. Population summary for *Xerochrysum palustre* in Tasmania

	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of clumps or flowers
1	Near Hobart Airport	private	South	Carlton	2010	0.01	2 clumps, 100s of stems
2	Bream Creek	private?	South	Kellevie	1945	unknown	unknown
3	Lagoon Bay	private?	South	Dunalley	1975	unknown	unknown
4	Stony Lagoon	private	South	Lemont	1968	unknown	unknown
5	Bronte Lagoon (south)	private	South	D'Arcys	2012 (2011)	0.05+	extensive
6	Bronte Lagoon (north)	Tailers Bay Conservation Area & HEC	South	D'Arcys	2013	1	10 to 30
7	Big Den	private *	South	Millers	1990	unknown	loose patch
8	Kalangadoo Bay, Lake Leake	Conservation Area	North	Leake	2007	unknown	10
9	Saltwater Creek	private	South	Coles Bay	2005	unknown	unknown
10	Friendly Beaches Road	Freycinet National Park & private *	South	Friendly	2010 (1984)	0.002	low 100s
11	Hills Creek	Freycinet National Park	South	Lodi	2014	0.005	50 to 60
12	Apsley Marshes	private	South	Apslawn	2012 (2002)	3 patches over 1.6 km	few small clumps
13	Thompsons Marshes	Douglas-Apsley National Park	North	Piccaninny	1980	unknown	unknown
14	Smiths Lagoon	private *	North	Cleveland	2011 (2005)	0.1 to 0.2	10 to 200
15	Cressy	unknown	North	Cressy	1943	unknown	unknown
16	Toiberry	private	North	Longford	1932	unknown	unknown
17	South Lagoon	private	North	Longford	2015 (1985)	0.02	c. 100
18	Stony Head	Commonwealth	North	Low Head	2011	0.5	500 ±100 **
19	Near Tomahawk	private	North	Tomahawk	2012	0.0004	c. 20

* covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002*;

** likely to refer to the number of flowers rather than the number of individuals;

HEC = Hydro-Electric Corporation

Within Tasmania the species occurs in sedge- and rush-rich wetlands, grassy to sedgy wet heathlands and heathy open *Eucalyptus ovata* woodlands, usually in sites inundated for part of the year. The dominant sedge in lowland situations is typically *Lepidosperma longitudinale* (Plate 2), while at higher altitudes *Baloskion australe* and *Juncus* spp. may be prominent.

POPULATION PARAMETERS

In Tasmania *Xerochrysum palustre* has been recorded from 19 subpopulations, though several of these have not been formally observed for many decades (Table 1).

The species' extent of occurrence within Tasmania is 22,650 km² and linear extent 222 km. The area of occupancy and total number of mature individuals within Tasmanian subpopulations is difficult to estimate as there is little information available for most subpopulations, and the rhizomatous growth habit and dense clumps with large numbers of stems makes estimating numbers in any one subpopulation difficult. Available information suggests that subpopulations are small in numbers (Table 1), making it reasonable to assume that the total population does not exceed 5,000 mature individuals and that

numbers in any one subpopulations are fewer than 1,000. Similarly, the area occupied by each subpopulation is usually small and highly localised, making the total area of occupancy in Tasmania unlikely to exceed 5 ha.

Although highly visible from late spring through summer, *Xerochrysum palustre* is considered poorly known in Tasmania, perhaps as a result of its highly localised occurrences. Despite being well-established, some subpopulations have only been detected in recent years, some close to public roads, suggesting that additional subpopulations are likely to be detected. Discovery is likely to be serendipitous or the result of targeted surveys for threatened flora for development proposals such as in-stream dams.



Plate 2. Sedgy habitat of *Xerochrysum palustre* in Freycinet National Park (image by Richard Schahinger)

RESERVATION STATUS

Xerochrysum palustre has been recorded from Douglas-Apsley National Park, Freycinet National Park, an unnamed Conservation Area adjacent to Lake Leake, Tailers Bay Conservation Area, and from three private properties subject to conservation covenants under the Tasmanian *Nature Conservation Act 2002* (Table 1).

CONSERVATION ASSESSMENT

Xerochrysum palustre was listed as vulnerable on the Tasmanian *Threatened Species Protection Act 1995* in April 2016, meeting criterion C: total population estimated to number fewer than 10,000 mature individuals, specifically C2: a continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of (a) severely fragmented (i.e. no subpopulation estimated to contain more than 1,000 mature individuals).

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Xerochrysum palustre was most likely more common prior to widespread vegetation clearance and swamp drainage (Flann 1998). Its scattered occurrence in Victoria is attributed to habitat depletion (Flann 1999). The primary threats to *Xerochrysum palustre* within Tasmania have been, and continue to be, clearing and modification of habitat for agriculture. The apparent lack of a soil-stored seedbank as well as a fragmented distribution are a limitation as, once lost from a site, the species is dependent on recolonisation by dispersal of seed from nearby plants. The National Recovery Plan identifies the following threats, some of which apply to Tasmania: disruption of hydrology, weed invasion and chemical control of weeds, road or rail works, grazing, ploughing and mining (Carter & Walsh 2011).

Land clearing: In Tasmania threats to *Xerochrysum palustre* have historically been extensive land clearing of low-lying ground for the development of pasture and cropping lands, which included substantial modifications to many areas of swampy habitat that may have supported the species. The extent to which this factor has, and continues to, operate is unknown but it may partially explain the disjunct contemporary distribution of the species.

Disruption to hydrology: Draining and modification of wetlands has probably contributed to the loss of undocumented subpopulations of *Xerochrysum palustre* within Tasmania. Activities adjacent to swampy habitats (such as lagoons in the Midlands) may alter the water table and affect the persistence of the species. Such activities may include

cultivation, ploughing and establishment of crops (including tree plantations).

Modification of habitat: The majority of sites within Tasmania supporting *Xerochrysum palustre* are in good ecological condition with few weeds. However, many such sites are on private property, nestled within an intensively managed primary production context, such that edge effects through application of fertilisers, herbicides, drainage works and invasion by competitive weeds remain a potential threat.

Impoundments: Large in-stream impoundments have probably resulted in the loss of several sites for *Xerochrysum palustre* in Tasmania, although to what extent this has contributed to the current disjunct and fragmented distribution is unknown. The species occurs on the fringes of large impoundments such as Bronte Lagoon. Loss and modification of potential habitat continues through small- and large-scale agricultural and irrigation activities.

Browsing: Browsing by stock and feral animals such as rabbits, horses and deer, is identified as a threat to some mainland Australian subpopulations (Carter & Walsh 2011). The level of threat posed to Tasmanian sites, especially on private property, has not been assessed.

Climate change: A warmer climate and longer periods of drought may deleteriously impact on the habitat of *Xerochrysum palustre*, through effects such as drying out of low-lying areas and competition with weeds. This may be exacerbated by impacts of stock grazing at some sites.

Stochastic risk: The often highly localised distribution of some subpopulations of *Xerochrysum palustre*, combined with relatively low abundance, makes the species subject to chance events at some of its known sites. While the widespread distribution of subpopulations provides a degree of security to the species in Tasmania as a whole, the threat of unpredictable events affecting any one particular isolated site remains present. The extinction risk to small populations separated by long distances supporting unsuitable habitats is exacerbated for *Xerochrysum palustre* due to limited recruitment potential if plant numbers decline to the point that viable seed cannot

form or any seed produced suffers from inbreeding. Lack of recruitment in the subpopulation near Hobart airport, with effectively only two individuals, suggests that it is not viable in the long term.

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Xerochrysum palustre* are to prevent the loss or degradation of known subpopulations, and increase the number of known subpopulations through survey.

What has been done?

- A nationally approved Recovery Plan has been produced for the species (Carter & Walsh 2011) with an overall objective of minimising the probability of extinction of *Xerochrysum palustre* in the wild and increasing the probability of important populations becoming self-sustaining in the long term.
- Seed has been collected from two subpopulations for long-term conservation storage at the Tasmanian Seed Conservation Centre (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;
- undertake surveys of poorly known subpopulations to determine their status, precise location, full extent and identify relevant management issues;
- undertake targeted surveys of low-lying swamp habitats within the predicted range of the species;

- monitor known subpopulations for health, recruitment and response to disturbance.
- liaise with managers of reserves and State forest sites supporting the species to develop the most appropriate management regime (e.g. fire, etc.), and update any relevant management plans;
- investigate the recruitment strategy of the species including cross incompatibility mechanisms to inform management intervention for critically small subpopulations;
- encourage private landowners to consider protection and management of the habitat of the species through either perpetual covenants or vegetation management agreements under the Tasmanian *Nature Conservation Act 2002*.

Industries, Parks, Water and Environment, Tasmania.

View:

www.dpipwe.tas.gov.au/threatenedspecieslists

www.threatenedspecieslink.tas.gov.au/

Contact details: Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, GPO Box 44 Hobart Tasmania Australia 7001. Ph. (03) 61654340. threatenedspecies.enquiries@dpiw.tas.gov.au

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

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