Australian Government
Department of Agriculture, Water and the Environment

Conservation Advice for *Xerochrysum palustre* (Swamp Everlasting)

In effect under the *Environment Protection and Biodiversity Conservation Act 1999* from 23 November 2021.

This document provides a foundation for conservation action and further planning.

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Conservation status

Xerochrysum palustre (Swamp Everlasting) is listed in the Vulnerable category of the threatened species list under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) (EPBC Act) effective from 16 July 2000. The species is eligible for listing because prior to the EPBC Act, it was listed as Vulnerable under the *Endangered Species Protection Act 1992* (Cwlth).

The main factors that make the species eligible for listing in the Vulnerable category are its restricted area of occupancy, severe fragmentation and ongoing decline in numbers of subpopulations and quality of habitat.

Species can also be listed as threatened under state and territory legislation. For information on the current listing status of this species under relevant state or territory legislation, see the Species Profile and Threat Database.

Species information

Taxonomy

Conventionally accepted as *Xerochrysum palustre* (Flann) R.J.Bayer (2001). Formerly known as *Bracteantha palustris* (Carter & Walsh 2011).

Description

Swamp Everlasting is a perennial, erect herb growing to 30–100 cm tall. Leaves are narrow, alternate, sessile, partially stem clasping and lanceolate, to 100 x 8 mm, and more or less hairless except for cobweb-like hairs along their margins. The large yellow 'daisy' flowers are up to 50 mm across, terminal at the ends of branches, and consist of numerous small tubular florets in a central 'button', surrounded by a ray of numerous overlapping, broad papery bracts. Flowering occurs predominantly from November to March. The fruit is a narrow dry seed to 3 mm long with a crown of yellow bristles about twice as long as the seed. Plants are rhizomatous in habit (description from Flann 1998; Walsh & Entwisle 1999).

Distribution

Swamp Everlasting is endemic to south-eastern Australia, where it is widely distributed from south-eastern New South Wales, through Victoria, to north-eastern Tasmania.

In New South Wales, Swamp Everlasting occurs from the Victorian border near Delegate as far north as Lithgow and ranges up to about 1300 m altitude. In Victoria, the species is widely but patchily distributed from the South Australian border to near Bairnsdale, generally below 500 m altitude, but also near the Cobberas and Nunniong Plateau in subalpine woodland (Walsh & Entwisle 1999). In Tasmania, the species occurs patchily in the Northeast, East Coast, Midlands, Central Highlands and Southeast, up to 700 m altitude.

Swamp Everlasting is likely to have been abundant in ephemeral freshwater wetlands prior to their large-scale drainage and conversion for agriculture in the 20th century, particularly across southern Victoria, but also in lowland eastern and central Tasmania and south eastern New South Wales (Carter & Walsh 2011; DSEWPAC 2012; ALA 2020). Since 1990, about 80 subpopulations of Swamp Everlasting have been recorded, with a total abundance estimated, very approximately, at over 30,000 plants (Table 1, assuming a size of around 1000 plants for subpopulations noted as large, common or abundant). The 2011 Recovery Plan estimated the population size of Swamp Everlasting at approximately 35 subpopulations and 10 000 plants. This increase in the known number of subpopulations and plants is due to increased survey effort. Population estimates for this species are approximate as the rhizomatous habit makes estimating numbers of plants difficult. In some instances, estimates of abundance have been based on area (square metres) rather than number of individuals. Plant numbers in Victoria are estimated at over 12 000 (Table 1). There is incomplete population information from NSW, although there are probably over 15 000 plants occurring in subpopulations throughout escarpment swamps west of the Bega Valley (Table 1), usually in patches of less than 100 m^2 (Miles 2003). There is also incomplete population information from Tasmania, although there are probably fewer than 5 000 plants (TSS 2016).

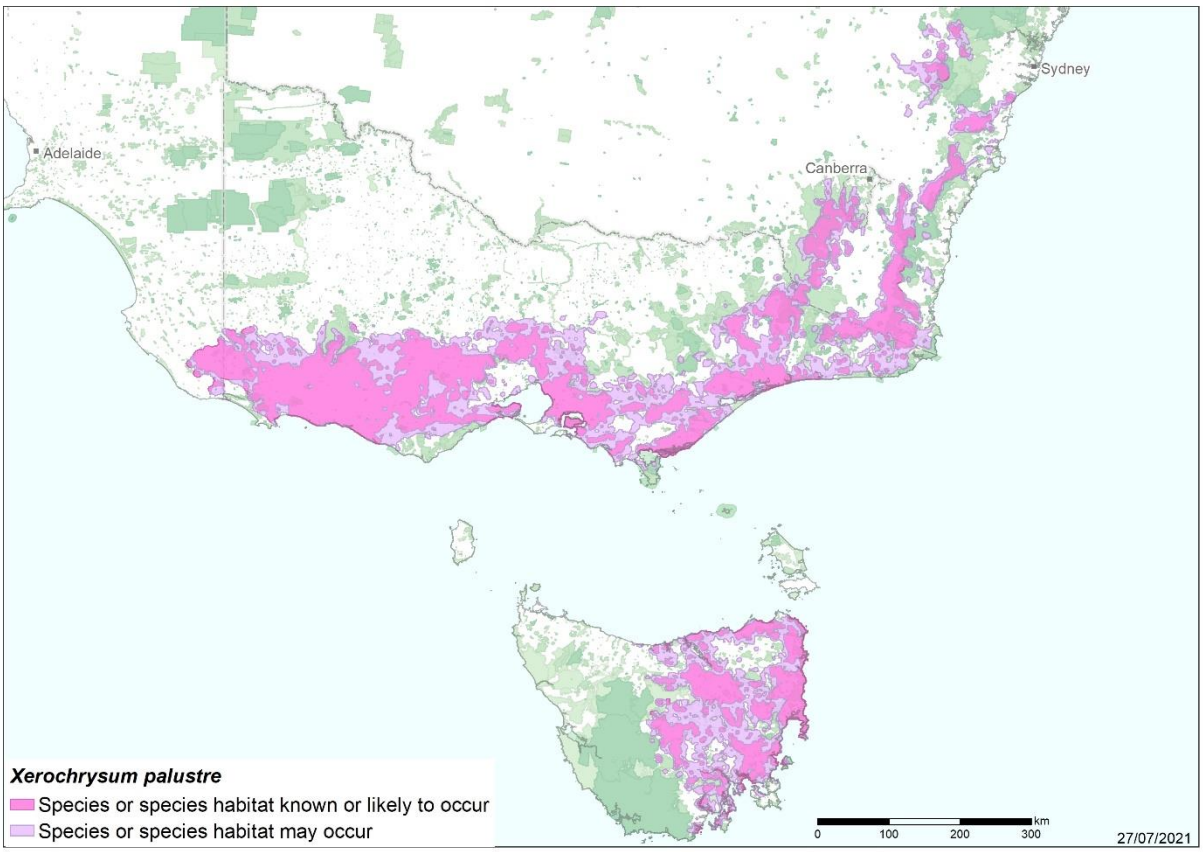
Table 1 Subpopulations of Swamp Everlasting recorded since 1990

Location	No. plants	Year last recorded	Source
New South Wales			
Jacksons Bog, Bondi State Forest	100	2013	ALA 2020
Outskirt Creek	20	2017	ALA 2020
Waratah Gully, South East Forest National Park	?	2019	ALA 2020
Haines Creek, Mount Darragh Rd	210	2015	ALA 2020
Badgerys Creek, Tantawangalo Mountain Rd	locally common	2019	ALA 2020
New Line Rd Dragon Swamp Creek, Tantawangalo	~1000	2018	ALA 2020
Nunnock Swamp, South East Forest National Park	~1000	2013	ALA 2020
Packers Swamp, South East Forest National Park	1000s	2019	ALA 2020
small swamp east of Packers Swamp Rd, South East Forest National Park	1000s	2019	ALA 2020
swamp east of Monterey Rd, Nunnock River, Glenbog State Forest	200	2018	ALA 2020
Nitens Road, Glenbog State Forest	200	2009	ALA 2020
Bega Swamp, Wadbilliga National Park	1000–10 000	2019	ALA 2020
swamp east of 'Jumping Creek' property, Bemboka River, Glenbog State Forest	common	2014	ALA 2020
swamp at headwaters of Greenland Swamp Creek, Glenbog State Forest	20	2015	ALA 2020
Mowitts Swamp Creek, Wadbilliga National Park	?	2005	ALA 2020
swamp near Kydra Firetrail on tributary of Tuross River	1000	2015	ALA 2020
swamp on tributary of Back River (private)	100	2018	ALA 2020
Tuross Falls Rd, Badja State Forest (50 m N of Wadbilliga NP sign) and on Boorong Rd	1000	2014	ALA 2020
swamp on tributary of Big Badja River, Badja State Forest	120	2014	ALA 2020
17.8 km E of Braidwood – Clyde Mountain	?	2006	ALA 2020
Wingecarribee Swamp, between Moss Vale and Robertson	locally common	2001	ALA 2020
Morong Swamps / Jensen Swamp, Kanangra Boyd National Park	250	2020	ALA 2020
Pine Swamp, Newnes State Forest	?	2020	ALA 2020
Coxs River swamps, Wolgan State Forest	50	2020	ALA 2020
Tantangara pondage, Kosciuszko National Park	?	1999	ALA 2020
Alpine Creek, Boggy Plain, Rocky Plain, Kosciuszko National Park	100	2004	Carter & Walsh 2011
Victoria			
French Island National Park, Long Swamp	60	2008	Carter & Walsh 2011
French Island National Park, Mt Wellington Road	700	2008	Carter & Walsh 2011
Blond Bay Wildlife Reserve	150 (2008) 500 (2005)	2008	Carter & Walsh 2011

Location	**No. plants**	**Year last recorded**	**Source**
Saplings Morass Flora & Fauna Reserve	6000 (2008) 2000 (2005)	2016	Carter & Walsh 2011
Gelliondale State Forest	70	2007	ALA 2020
South Gippsland Hwy, near Pipeline Track	200	2009	Carter & Walsh 2011
Moormurng Nature Conservation Reserve	150	2008	ALA 2020
Andersons Lane, Bairnsdale	?	2010	ALA 2020
Murrumbung Wetland, Bairnsdale	250	2008	ALA 2020
Strathfieldsaye' (private), Perry Bridge	?	2017	M Freestone pers obs
Cobberas (four sites within 5 km of Native Dog Flat)	1000s	2018	ALA 2020; M Freestone pers obs
Mundy Plain, Nunniong	?	2010	ALA 2020
Manks Rd rail reserve, Clyde	10	2012	M Freestone pers obs
Waterways	59	2005	ALA 2020
Cranbourne Wetlands Nature Conservation Reserve	?	2010	ALA 2020
Croydon - Dorset Rd and Terredon Dve	<10	2006	ALA 2020
Blue Circle Wetland, Craigieburn	70	2005	ALA 2020
Wallan Rail Reserve	<30	2014	ALA 2020
Leopold	?	1995	ALA 2020
Gisborne Racecourse Reserve	?	2010	Carter & Walsh 2011
Lal Lal Rail Reserve	5 (2008) 150 (2001)	2008	Carter & Walsh 2011
Chepstowe-Pittong Rd (private), Chepstowe	1000	2002	Carter & Walsh 2011
Mortchup–Mount Emu Rd (private), Chepstowe	<20	2008	ALA 2020
Trawalla	?	1991	ALA 2020
McCutcheons Rd MacDonald Creek (private), Cavendish	?	2002	Carter & Walsh 2011
Doling Doling Swamp Reserve	~48	2020	DELWP 2021
Nagorckas Rd, Tarrington	?	2012	ALA 2020
Simpsons Ln, Penshurst	?	2012	ALA 2020
Gazette Ln (private), Penshurst	?	2012	ALA 2020
Bessiebelle State Forest	2	2020	DELWP 2021
Barkers Rd, Orford	9	2015	ALA 2020
Drik Drik	?	2009	ALA 2020
Cordover Swamp, Cobboboonee National Park	10	2020	DELWP 2021
Grassy Flats Swamp, Cobboboonee National Park	3	2020	DELWP 2021
Blackjack Swamp, Drajurk State Forest	3	2020	DELWP 2021
Strathdownie (private)	?	2009	ALA 2020
Tasmania			
Apsley Marshes (private)	~10, 3 clumps	2014	TSS 2016, NVA 2021
Big Den, Lake River (Conservation Covenant)	?	1990	Carter & Walsh 2011
Boobyalla/Tomahawk (private)	20	2012	ALA 2020

Location	**No. plants**	**Year last recorded**	**Source**
Bream Creek (private)	?	1945	NVA 2021
Bronte Lagoon north (Tailers Bay Conservation Area)	~50	2018	NVA 2021
Bronte Lagoon south (private)	5-500	2013	NVA 2021
Cambridge, Hobart Airport (private)	100s	2018	TSS 2016
Cressy (private)	?	1943	NVA 2021
Friendly Beaches Road (Freycinet National Park & Conservation Covenant)	few 100s	2010	TSS 2016
Hills Creek, east of Llandaff (Freycinet National Park)	~100	2014	NVA 2021
Kalangadoo Bay, Lake Leake (Conservation Area)	10	2007	TSS 2016
Lagoon Bay, Tasman Peninsula (private)	?	1975	NVA 2021
Musselroe Bay (private)	?	2014	NVA 2021
Ouse River (Central Plateau Conservation Area)	100-200	2016	NVA 2021
Saltwater Creek, Coles Bay (private),	2	2005	TSS 2016
Skullbone Plains (Conservation Covenant)	2 clumps	2014	NVA 2021
Smiths Lagoon, Cleveland (Conservation Covenant & private land)	>1000	2018	NVA 2021
Stony Lagoon, southwest of Lemont (private)	?	1968	NVA 2021
South Lagoon, Toiberry (Crown land & private land)	~100	2015	ALA 2020
Thompsons Marshes (Douglas Apsley National Park)	?	1980	NVA 2021
Toddys Plain, Waterhouse Rd (private)	100s	2016	NVA 2021

Map 1 Modelled distribution of Swamp Everlasting



Source: Species distribution data Species of National Environmental Significance database, base map Geoscience Australia
Caveat: The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything containing herein.
Species distribution mapping: The species distribution mapping categories are indicative only and aim to capture (a) the specific habitat type or geographic feature that represents to recent observed locations of the species (known to occur) or preferred habitat occurring in close proximity to these locations (likely to occur); and (b) the broad environmental envelope or geographic region that encompasses all areas that could provide habitat for the species (may occur). These presence categories are created using an extensive database of species observations records, national and regional-scale environmental data, environmental modelling techniques and documented scientific research.

Cultural and community significance

The cultural significance of Swamp Everlasting is not well understood, although the ephemeral swamps and grasslands where it occurs have a long history of occupation and management by Indigenous Australians.

Relevant biology and ecology

Habitat ecology

Swamp Everlasting grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. Commonly associated genera include *Amphibromus* (Swamp Wallaby-grass), *Baumea* (Twig Sedge), *Carex* (Sedge), *Chorizandra* (Bristle Sedge), *Craspedia* (Billy Buttons), *Eleocharis* (Spike Sedge), *Isolepis* (Club Sedge), *Lachnagrostis* (Blown

Grass), *Lepidosperma* (Sword Sedge), *Myriophyllum* (Water Milfoil), *Phragmites* (Reed), *Themeda* (Kangaroo Grass) and *Villarsia* (Marsh Flower). Plants grow in 1 m depth of water on French Island (C. Gordes pers. comm. in Carter & Walsh 2011). The species will also grow in more marginal wetland habitats such as seasonally wet areas of native grassland and heath communities. At higher altitudes in NSW Swamp Everlasting also grows in Sphagnum moss bogs (Miles 2003).

It may occur in the following Threatened Ecological Communities: Temperate Highland Peat Swamps on Sandstone (NSW); Upland Wetlands on the New England Tablelands and the Monaro Plateau (NSW and Vic); Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains, Alpine Sphagnum Bogs and Associated Fens (Vic and Tas) and occasionally wetter types of Natural Temperate Grassland of the Victorian Volcanic Plain and Gippsland Red Gum Grassy Woodland and Associated Native Grassland (Vic).

Reproductive ecology

There is limited information on the reproductive ecology of Swamp Everlasting. The species has a rhizomatous, perennial rootstock from which plants can after fire or dry conditions (Carter & Walsh 2011). As a result, individual plants are suspected to be long lived with an estimated generation length of 50 to 100 years (DELWP 2020). The pollination biology of Swamp Everlasting is unknown, although like other everlasting daisies it may be pollinated by insects such as Hymenoptera and Diptera (McClaren 2013) and may be self-incompatible, needing to be cross-pollinated to produce seed (Costin et al. 2001). When pollinated, Swamp Everlasting produces many small, wind-blown, short-lived seeds.

Fire ecology

Little is known of the species' response to fire, other than that adult plants usually resprout from an underground rootstock following fire (DPIE 2020).

Habitat critical to the survival

At this point in time there is insufficient information available to describe, with spatial information, areas of habitat that are critical to the survival of the species. Further research is needed to do this (see conservation actions). Until such information is available, all habitat for this species should be considered habitat critical for the species' long-term survival.

No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat.

Important populations

In this section, the word population is used to refer to subpopulation, in keeping with the terminology used in the EPBC Act and state/territory environmental legislation.

At this point in time there is insufficient information available to be able to describe, with spatial information, important populations of this species. Further research is needed to do this, if practicable to do so (see conservation actions). Until such information is available, all populations of this species should be considered important.

Threats

The main threats to Swamp Everlasting are climate change, habitat loss and introduced herbivores and weeds. The species is threatened by several fire related threats including fire-drought interactions, fire promoted weed invasion and fire-herbivore interactions.

Table 2 Threats impacting Swamp Everlasting

Threat	Status and severity [a]	Evidence
Climate change		
Increased frequency and severity of bushfires	• Timing: current/future • Confidence: suspected • Consequence: major • Trend: increasing • Extent: across the entire range	Climate projections for south-eastern Australia include reduced rainfall, increased average temperatures, and more frequent bushfires (CSIRO & Bureau of Meteorology 2015). Analysis by the Wildlife and Threatened Species Bushfire Recovery Expert Panel, based on intersecting the modelled distribution of Swamp Everlasting and the National Indicative Aggregated Fire Extent Dataset, indicates that approximately 12 % of the range of the species was within the extent of the 2019-20 bushfires (Gallagher et al 2020). Swamp Everlasting is able to reshoot from an underground rootstock following fire (DPIE 2020) and fire is unlikely to threaten subpopulations under normal hydrological conditions. However, the swamps in which it grows often occur on a substrate with a high peat content and fires occurring during very severe droughts are likely to increase the risk of peat fires (DEWHA 2005). Peat fires are very destructive, and can kill underground rootstocks of species that would usually survive fire (Baird & Benson 2020).
Increased frequency and severity of drought	• Timing: current/future • Confidence: suspected • Consequence: major • Trend: increasing • Extent: across the entire range	Climate projections for south-eastern Australia include reduced rainfall, increased average temperatures, and more frequent droughts (CSIRO & Bureau of Meteorology 2015). Given its preference for ephemeral wetlands, climate change may pose a substantial threat to Swamp Everlasting, through increased drying of sites, leading to a reduction in suitable habitat (Carter & Walsh 2011). Increased drying of sites may also potentially facilitate weed invasion (TSS 2016). A serious potential impact of drought is likely to be its interaction with fire, as fires that occur in swamps dried out by drought are more likely to burn destructively into the peat layer,

Threat	Status and severity [a]	Evidence
		thereby damaging the habitat of the Swamp Everlasting(DEWHA 2005).
Habitat loss, disturbance and modifications		
Land clearing and changed hydrology	• Timing: historical/current • Confidence: known • Consequence: major • Trend: decreasing • Extent: across part of its range	Historical drainage and clearing of ephemeral wetlands for agriculture has been the major historical driver of the species decline on private land in Victoria (Carter & Walsh 2011). Some draining and clearing of ephemeral swamps is likely to be ongoing (Carter & Walsh 2011). The Doling Doling Swamp is suffering from changed hydrology, that has caused the swamp to be drier than normal and facilitating weed invasion by Sweet Vernal-grass (*Anthoxanthum odoratum*) (DELWP 2021). The cause of this is unknown, but could be due to groundwater extraction or changed runoff from the nearby Doling Road (DELWP 2021).
Road and rail works	• Timing: current • Confidence: inferred • Consequence: major • Trend: static • Extent: across part of its range	Many subpopulations of Swamp Everlasting are on roadsides or rail reserves, particularly in Victoria (Table 1). Swamp Everlasting subpopulations in these areas are threatened by works associated with the road and rail maintenance, such as localised clearing or weed spraying (Carter & Walsh 2011).
Timber plantations	• Timing: current • Confidence: suspected • Consequence: major • Trend: increasing • Extent: across part of its range	Establishment of timber plantations in proximity to ephemeral swamps can lower the water table, which can negatively impact Swamp Everlasting by increased drying of the ephemeral swamps (Carter & Walsh 2011) and possibly facilitating weed invasion (TSS 2016).
Mining	• Timing: current/future • Confidence: known • Consequence: major • Trend: static • Extent: across part of its range	Subpopulations on the Newnes Plateau in NSW may be threatened by longwall coal mining (Baird & Benson 2020). A subpopulation at Gelliondale in Vic may also be threatened by proposed coal mining (Carter & Walsh 2011).
Invasive species		
Feral herbivores	• Timing: current • Confidence: known • Consequence: major • Trend: increasing • Extent: across part of its range	Rooting by feral pigs (*Sus scrofa*) is a major issue in ephemeral swamps containing Swamp Everlasting along the Great Dividing Range in south-eastern NSW. Pigs are capable of killing populations of threatened plants in ephemeral swamps through massive soil disturbance (DOEE 2017). Grazing by other herbivores such as deer (*Cervidae* spp.), feral horses (*Equus ferus caballus*), domestic cattle (*Bos taurus*) and European Rabbit (*Oryctolagus*

Threat	Status and severity [a]	Evidence
		cuniculus) may be a threat in localised areas (Carter & Walsh 2011). Fire-herbivore interactions may also be a threat to the species, as herbivores may be more attracted to post-fire growth, with grazing and trampling affecting the survival and growth of post-fire sprouts (Leigh et al. 1991)
Competition with weeds	• Timing: current • Confidence: known • Consequence: major • Trend: unknown • Extent: across part of its range	Several high threat weeds capable of outcompeting native flora and modifying habitat threaten Swamp Everlasting, including Ragwort (*Senecio jacobaea*), Spear Thistle (*Cirsium vulgare*), Blackberry (*Rubus fruticosus* spp. agg.) and Canary Grass (*Phalaris* spp.). Chemical control of weed species may also impact on Swamp Everlasting. Furthermore, frequent fires may exacerbate the risk posed by weed invasion, as fires can create gaps in vegetation allowing superior competitors to invade.
Grazing from overabundant native fauna		
Overabundant macropods	• Timing: current • Confidence: known • Consequence: moderate • Trend: unknown • Extent: across part of its range	Grazing by Eastern Grey Kangaroo (*Macropus giganteus*) is a threat to several subpopulations by direct impacts on plants and by disturbing the soil surface and facilitating weed invasion, and is an issue at Perry Bridge in Vic (Carter & Walsh 2011, M. Freestone 2020 pers. comm. 11 Dec).
Genetic threats resulting from small and fragmented populations		
Small subpopulation size	• Timing: current • Confidence: inferred • Consequence: unknown • Trend: unknown • Extent: across entire range	Small, isolated subpopulations can be subject to the effects of low genetic diversity (Frankham et al. 2014). It is possible that this is impacting smaller subpopulations of Swamp Everlasting (e.g. Hobart Airport, Grassy Flats Swamp, Bessiebelle State Forest).

Status—identify the temporal nature of the threat;
Confidence—identify the extent to which we have confidence about the impact of the threat on the species;
Consequence—identify the severity of the threat;
Trend—identify the extent to which it will continue to operate on the species;
Extent—identify its spatial content in terms of the range of the species.

Each threat has been described in Table 2 in terms of the extent that it is operating on the species. The risk matrix (Table 3) provides a visual depiction of the level of risk being imposed by a threat and supports the prioritisation of subsequent management and conservation actions. In preparing a risk matrix, several factors have been taken into consideration, they are: the life stage they affect; the duration of the impact; and the efficacy of current management regimes, assuming that management will continue to be applied appropriately. The risk matrix and

ranking of threats has been developed in consultation with experts and using available literature.

Table 3 Swamp Everlasting risk matrix

Likelihood	Consequences				
	Not significant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost certain	Low risk	Moderate risk	Very high risk **Grazing from overabundant native fauna**	Very high risk **Increased frequency and intensity of bushfires** **Increased frequency and intensity of drought** **Grazing from feral herbivores** **Competition with weeds**	Very high risk
Likely	Low risk	Moderate risk	High risk	Very high risk	Very high risk
Possible	Low risk	Moderate risk	High risk	Very high risk **Road and rail works** **Timber plantations** **Land clearing and drainage of ephemeral swamps** **Mining**	Very high risk
Unlikely	Low risk	Low risk	Moderate risk	High risk	Very high risk
Unknown	Low risk	Low risk	Moderate risk	High risk	Very high risk

Priority actions have then been developed to manage the threat particularly where the risk was deemed to be 'very high' or 'high'. For those threats with an unknown or low risk outcome it may be more appropriate to identify further research or maintain monitoring.

Conservation and recovery actions

Primary conservation objective

By 2030, the population of Swamp Everlasting will have increased in abundance and viable subpopulations are sustained in habitats where very high risk threats are managed effectively.

Conservation and management priorities

Habitat loss disturbance and modifications

- Liaise with landowners about entering into voluntary management agreement to maintain or enhance the species and its habitat on unsecured private land.
- Ensure all subpopulations are adequately documented on databases used by land managers and, where deemed necessary, physically identified via signage to avoid accidental damage.

- Protect subpopulations of Swamp Everlasting from direct destruction and indirect degradation of habitat by mining operations.
- Implement sufficient buffer distances between forestry plantations and swamps containing Swamp Everlasting so that the hydrology of the swamp is not affected.
- Investigate the causes of hydrological changes at Doling Doling Swamp, Victoria and potential solutions for restoring the original hydrology of this site (DELWP 2021).

Herbivory

- Implement a feral pig control program in montane swamps in the southern tablelands where pig damage is currently severe and likely to be negatively impacting Swamp Everlasting and many other threatened flora (DOEE 2017).
- Reduce the impacts of habitat destruction and browsing by feral herbivores through ongoing control programs. Fencing is not recommended in grassy swamps due to the likelihood of biomass build up.

Invasive weeds

- Monitor the impacts of weeds and implement appropriate control measures, by hand removal or extremely careful use of herbicides, if there is evidence to suggest that high threat weeds are, or have the potential to become, a threat capable of causing a decline of Swamp Everlasting.

Climate change and fire

- Develop and implement a management plan to reduce the risk from peat fires, including:
  - Identify swamps containing Swamp Everlasting that are at risk of peat fires.
  - Identify the conditions under which peat fires may take hold in these swamps.
  - Prioritise these at-risk swamps for fire protection in case of a threatening bushfire event.
  - Design and implement a fire protection plan for these swamps, including the deployment ahead of the fire of retardant or water to reduce the risk of peat fires taking hold.
  - Make plans for the possibility that a peat fire does take hold in a priority swamp and allocate sufficient resources to limit its impact.

Breeding, seed collection, propagation and other ex situ recovery action

- Collect and maintain ex situ seed collections at Botanic Gardens from across the species' range to ensure genetic diversity is captured and seeds remain viable.
- Research the reproductive ecology and the seed germination requirements of the Swamp Everlasting.

Stakeholder engagement/community engagement

- Engage and involve Traditional Owners in conservation actions, including survey, monitoring and management actions.
- Encourage ongoing and effective coordination among stakeholders to support conservation of Swamp Everlasting.

- If appropriate, engage interested nature conservation groups in participating in surveys or monitoring for the species.

Survey and monitoring priorities

- Conduct targeted surveys throughout the range of Swamp Everlasting to better inform its estimated population size.
- Establish and maintain a monitoring program to:
  - determine trends in population size and distribution;
  - determine threats and their impacts; and,
  - monitor effectiveness of management actions and the need to adapt them if necessary.

Information and research priorities

- Investigate the impact of forestry plantations on the hydrology of ephemeral swamps.
- Determine the habitat critical to the survival of the species and precise subpopulations important to the survival of this species.

Links to relevant implementation documents

National Recovery Plan for the Swamp Everlasting *Xerochrysum palustre* (2011)

Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (2017)

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