

Coronidium gunnianum

swamp everlasting

TASMANIAN THREATENED SPECIES NOTESHEET



Image by H & A Wapstra ©

Scientific name: *Coronidium gunnianum* (Hook.) N.G.Walsh, *Muelleria* 32: 20 (2014)

Previous names: *Coronidium* aff. *scorpioides* (Hobart airport), *Coronidium* aff. *scorpioides* (Midland wetlands), *Coronidium* sp. Lowland Swamps

Common name: swamp everlasting

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

Status: *Threatened Species Protection Act 1995*: **listing under consideration**
Environment Protection and Biodiversity Conservation Act 1999: **not listed**

Distribution: Biogeographic origin: **not endemic to Tasmania**
Tasmanian Natural Resource Management regions: **North, South**
Tasmanian IBRA Bioregions (V6): **Northern Midlands, South East and Ben Lomond (to a lesser extent)**

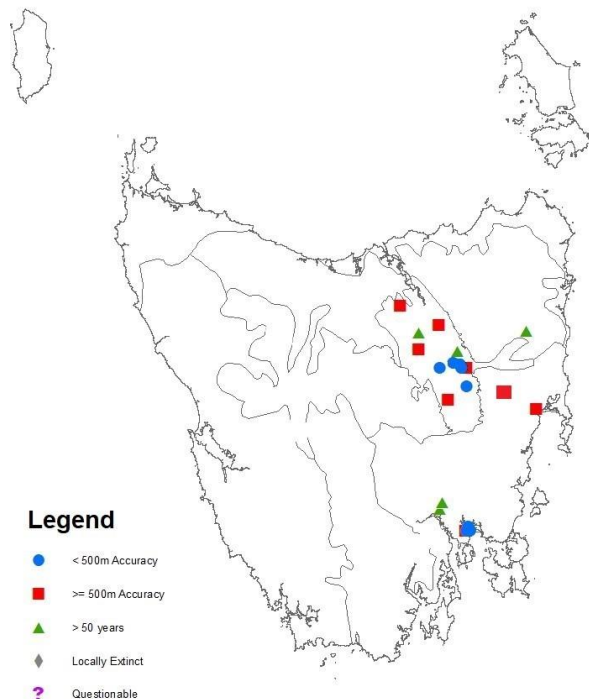


Figure 1. Distribution of *Coronidium gunnianum* in Tasmania showing IBRA bioregions (V6)



Plate 1. *Coronidium gunnianum* at Campbell Town
Image by G Daniels ©

SUMMARY: *Coronidium gunnianum* (swamp everlasting) is an upright, woolly, perennial herb with small, round, yellow, daisy flowers. It occurs in grasslands on heavy soils and riverine woodlands in areas often inundated. It occurs in eastern and central Tasmania and ranges from Cambridge to Hadspen. The species has a restricted area of occupancy and low abundance, presumably due to land clearing and fragmentation and may be at risk from increased droughts and fire due to climate change, major road projects, and low recruitment possibly due to self-incompatibility.

IDENTIFICATION AND ECOLOGY

Coronidium gunnianum is an upright, woolly, perennial herb with small, round, yellow, daisy flowers (Plate 1). It occurs in fertile grasslands, riverine woodlands and on the margins of wetlands, in sites that are often inundated. The species tends to reproduce vegetatively from rhizomes, forming circular patches of often long-lived individuals (Plate 2). The species is pollinated by insects (Hingston & McQuillan 2000) and the seeds are wind dispersed.

Coronidium gunnianum has been observed to respond well to fire, and flowers prolifically the following season (Daniels pers. comm.).

Limited seed dormancy tests performed on *Coronidium gunnianum* by the Royal Tasmanian Botanical Gardens indicated that this species does not have a dormancy. As such, the potential of the species to form a soil seed bank is considered low. In the laboratory, *Coronidium gunnianum* seed germinates quite well under alternating temperature regimes and less so at constant temperatures (Wood pers. comm.). Recruitment is believed to be mainly vegetative in the wild, including after fire (Daniels pers. comm.).

There are currently 227 taxa in the Asteraceae family native to Tasmania, with *Coronidium gunnianum* one of three native *Coronidium* taxa in Tasmania (de Salas & Baker 2020).

Survey techniques

Coronidium gunnianum is most readily detected and identifiable when in flower, although its circular growth pattern is highly distinctive, and patches of the species are easily detected.

In Tasmania, the species has been observed flowering from October to early May, with a peak in flowering from November to February. The species has been identified throughout the year.



Plate 2. Circular growth habit of *Coronidium gunnianum*. Image by G Daniels ©

Description

Coronidium gunnianum is an erect, perennial daisy, that grows up to about 50 cm high, is sparingly branched from rhizomes. The stems and leaves are usually covered in appressed-cottony hairs. The leaves are discolorous, firm and about 20 to 65 mm long and 1 to 4 mm wide. The leaves are linear to oblanceolate with a pointed apex and the margins are recurved to revolute. The lower surface has abundant glands that may be obscured by fine hairs. The flowerheads are solitary, from nearly globe-shaped to cone-shaped and about 13 to 20 mm in diameter. The yellow bracts below the flower head are 6 to 10.5 mm long, about 1.5 to 2 mm wide, occur in 5 to 8 rows and are transversely wrinkled. The florets within the flowerhead have corollas 3.5 to 5 mm long. Some of the outer florets are female only and do not contain anthers. The seeds are somewhat cylindrical, 1.3 to 1.9 mm long, not hairy, and 4-ribbed. The pappus is about the same length as the florets. The pappus of the female florets may be reduced or lacking [description based on Walsh 2014].

Coronidium gunnianum is noted as being quite variable in height, flower size and leaf characteristics, with individuals at Campbell Town having smaller flowers and leaves than those at the Cambridge sites (Daniels pers. comm.).

Confusing species

The *Coronidium scorpioides* species-complex was revised in 2014 and split into five separate species, including *Coronidium gunnianum* (Walsh 2014). *Coronidium gunnianum* has affinities with the other *Coronidium* species that occur in Tasmania, namely *Coronidium monticola*, and *Coronidium scorpioides*. *Coronidium gunnianum* may sometimes be confused with other small, woolly daisies such as *Calocephalus lacteus*, in the absence of flowers.

Coronidium monticola occurs mainly in montane to alpine woodland or heath and is unlikely to co-occur with *C. gunnianum*. The plants are generally smaller and hairier than the other species, appearing grey-white overall. The involucre bracts below the flowerhead are usually a darker, richer yellow to orange, than those of *Coronidium gunnianum*. The aerial stems are more freely branched, and the leaves have a sharper point (Walsh 2014).

Coronidium scorpioides occurs extensively in dry grasslands in Tasmania at elevations between 400 m to 700 m above sea level (M. Wapstra pers. comm.), while *C. gunnianum* prefers wetter sites. Its flowerheads are larger, mostly more than 25 mm in diameter, the rosette is usually developed, and the lower leaves have short bristles on the upper surface (Walsh 2014).

DISTRIBUTION AND HABITAT

In Tasmania, *Coronidium gunnianum* occurs primarily in the Northern Midlands bioregion, including sites at Campbell Town and Lake Leake.

It has also been recorded from the east coast at Fingal (historical record) and Swansea, in the southeast at Cambridge and historically in the southern Midlands at Brighton and Pontville (Figure 1, Table 1).

Coronidium gunnianum is not endemic to Tasmania and also occurs in southeastern Australia in New South Wales, Australian Capital Territory, Victoria (where it considered to be vulnerable), and South Australia (Figure 2).

Coronidium gunnianum generally occurs in grasslands on heavy soils, riverine woodlands and on the margins of wetlands, in sites that are often inundated (Plate 3). It mostly occurs at elevations below 100 m ASL but had been recorded at around 600 m ASL at Lake Leake, and some mainland populations occur above 700 m ASL (Walsh 2014).

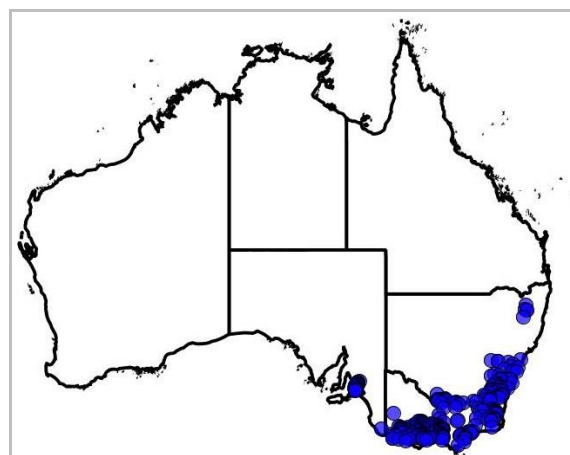


Figure 2. Distribution of *Coronidium gunnianum* on mainland Australia (map from Atlas of Living Australia [CC BY 3.0 AU](#))

POPULATION PARAMETERS

Number of subpopulations: 22 (5 possibly extinct)

Number of localities: 14 (3 possibly extinct)

Extent of occurrence: 8,923 km² (6,073 km² excluding possibly extinct sites)

Linear extent: 160 km

Area of occupancy: < 5 ha

Area of occupancy (as per IUCN criteria) = 100 km² (84 km² excluding possibly extinct sites)

Number of mature individuals: unknown;

Largest population: unknown, possibly ~1000

Table 1. Population summary for *Coronidium gunnianum* in Tasmania

Location	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of plants
1. North of Westbury	1. Pipers Lagoon	private land	North	Bridgenorth	1986	unknown	unknown
2. Evandale	2. Evandale	private land		Evandale	1980	unknown	unknown
3. Longford	3. Wilmores Lane	private land		Longford	pre-1981	unknown	unknown
4. Cressy	4. Brumbys Creek	unknown		Cressy	1985	unknown	unknown
5. Epping Forest	5. Belle Vue Road	private land		Nile	1877	possibly extinct	
6. Conara	6. Diprose Lagoon	Diprose Lagoon Informal Reserve		Cleveland	1988	unknown	unknown
	7. Smiths Lagoon	conservation covenant & private land		Cleveland	2010 (2005)	> 1	100-1000
	8. Conara Park	Crown land (DSG)		Conara	2020 (2017)	< 1	3
	9. Blanchards Creek	conservation covenant		Conara	2005	unknown	unknown
7. Stewarton	10. Stewarton Bridge	Crown land (riverbank)		Conara	2017	< 1	unknown
8. Campbell Town	11. Campbell Town	private land		Campbell Town	2021 (1992)	< 1	7
	12. Campbell Town golf course	conservation covenant		Campbell Town	2021	< 1	1050
	13. Hoggs Ford Road	conservation covenant		Campbell Town	2021	< 1	6
9. Forest Lagoon	14. Verwood Road	private land		Ellinthorp	1981	unknown	'common'
10. Fingal	15. Mathinna Rd	unknown	St Marys	1914	possibly extinct		
11. Lake Leake	16. Kearney Bogs	private land	Snow	2020 (2012)	< 1	dozens of stems	
12. North of Swansea	17. Didos Hill	private land	South	Cranbrook	1979	unknown	unknown
13. Brighton	18. Brighton	unknown		Tea Tree	1899	possibly extinct	
	19. Pontville	private land		Tea Tree	1899	possibly extinct	
14. Cambridge	20. Tasman Highway roundabout	private land & Crown land (DSG)		Hobart	2015 (2001)	possibly extinct	
	21. Pittwater Rd	Commonwealth land (airport), Crown land (DSG) & private land		Carlton	2020 (1996)	unknown	unknown
	22. Hobart Airport	Commonwealth land (airport) & private land		Carlton	2015 (2005)	unknown	unknown

DSG = Department of State Growth



Plate 3. Habitat of *Coronidium gunnianum* at Cambridge. Image by H & A Wapstra ©

Coronidium gunnianum is a recently described species that has been split from *Coronidium scorpioides* (Walsh 2014) which has led to a review of the records held at the Tasmanian Herbarium. In Tasmania, most records for the species have been redeterminations of herbarium specimens previously allocated to *Coronidium scorpioides*. Additionally, several specimens labelled *Coronidium gunnianum* have been reallocated to the other two species in the genus.

Recent observations of *Coronidium gunnianum* have been made at Campbell Town, Lake Leake, Conara and Cambridge, with some of the outlying sites now possibly locally extinct. Some of the Cambridge locations were lost in 2021 during road expansion works. The lack of observations and loss of sites suggests a possible decline in the population.

Walsh (2014) noted that the species is relatively infrequently encountered in Australia and is undoubtedly much reduced from its former range, much like the lowland grassland communities with which it is commonly associated. However, it is uncertain whether this species is naturally disjunct and localised wherever it occurs, or whether it has undergone a genuine decline.

RESERVATION STATUS

Coronidium gunnianum occurs within an informal reserve at Diprose Lagoon that is managed by the Tasmanian Parks and Wildlife Service, as well as on three private properties in areas covered by perpetual conservation covenants under the Tasmanian *Nature Conservation Act 2002*, with another in the process of being covenanted (Table 1).

CONSERVATION ASSESSMENT

Coronidium gunnianum is under consideration for listing as endangered on the Schedules of the Tasmanian *Threatened Species Protection Act 1995* meeting the following criteria:

- B. Area of occupancy estimated to be less than 10 hectares, and:
1. severely fragmented;
 2. continuing decline inferred, observed or projected in:
 - a. extent of occurrence;
 - b. area of occupancy,
 - c. area, extent and/or quality of habitat;
 - d. number of locations or subpopulations;
 - e. number of mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Land clearing and edge effects form adjacent development: *Coronidium gunnianum* has been subject to land clearing and fragmentation in Tasmania. Most occurrences are on private land and are at risk of changes in land use e.g. for agriculture, residential development and associated roading. Some of the Cambridge locations were lost in 2021 during road widening works and the remaining occurrences at this location are precarious given ongoing roadworks and residential activity in the area.

Reproduction: Recruitment is believed to be mainly through asexual vegetative reproduction from rhizomes, which may result in a reduction in genetic diversity. Additionally, many daisy species have mechanisms that prevent self-fertilisation, which negatively affects seed production and subsequently reduces recruitment in small populations.

If this self-incompatibility occurs in *Coronidium gunnianum* it may contribute to a decline in the species, particularly in small occurrences.

Stochasticity: The small size (low abundance and small area of occupancy) of subpopulations exposes them to a risk of local extinction due to chance or inadvertent events.

Climate change: As *Coronidium gunnianum* occurs in wetter areas within the drier parts of the State, the species may be at particular risk from an increase in the frequency, duration and intensity of drought, influenced by climate change. Drought may dry out habitat which inhibits growth and vegetative spread and may compromise recruitment. Climate change may also adversely impact the species, through an increase in the frequency and intensity of fires (CSIRO & BOM 2020). Fire during drought would also likely inhibit recovery of the species, especially if post-fire rainfall is lacking. *Coronidium* has been recorded flowering later in Victoria due to increased temperatures in July due to climate change (Keatley & Hudson 2007), which may impact recruitment.

Inappropriate fire regimes: *Coronidium gunnianum* persists through fires, which increases the openness of the site and can promote recruitment. However, it is possible that too frequent fires may compromise seed production if recruits are killed prior to maturity, or the plants may be killed by intense fires, increasing the likelihood of decline or local extinctions. Local studies are required to determine the response of the species to fires of varying intensity and frequency to inform management.

Roadside disturbance: Several occurrences are associated with roadsides, suggesting that the increased openness and disturbance from roadside maintenance (such as slashing) has promoted recruitment at these sites. Conversely, these occurrences are also at risk of elimination through roadworks such as road widening. Roadside occurrences are also threatened by competition with weeds that frequently invade such highly-disturbed sites, and from weed control measures such as chemical spraying.

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Coronidium gunnianum* are to survey known sites to determine the current status of the species, to appropriately manage sites and to improve the general trajectory of the species.

What has been done?

Seed was collected for long-term conservation storage at the Tasmanian Seed Conservation Centre (based at the Royal Tasmanian Botanical Gardens, Hobart) in 2011.

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, the local community and development proponents on the locality, significance and management of known subpopulations and potential habitat;
- maintain the viability of existing subpopulations through surveys and the implementation of an adaptive management approach, in collaboration with land managers and stakeholders;
- determine the status of subpopulations, especially those not recorded for over 20 years;
- monitor known sites for evidence of recruitment, decline and threats;
- conduct extension surveys in potential habitat, near known sites;
- promote conditions for successful recruitment by the use of fire or other biomass management;
- engage with landowners to formally reserve unreserved subpopulations;
- determine the response of the species to fire, drought and other disturbances;

- determine whether poor seed production is related to low genetic diversity within occurrences;
- collect seed from various sites to further supplement the collection held for long-term conservation storage at the Tasmanian Seed Conservation Centre.

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Prepared in 2021 by J. Potter-Craven of the Threatened Species & Private Land Conservation Section under the provisions of the Tasmanian *Threatened Species Protection Act 1995*.

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