

Argyrotegium nitidulum

shining cottonleaf

TASMANIAN THREATENED SPECIES NOTESHEET



Image courtesy of Tasmanian Herbarium

Scientific name: *Argyrotegium nitidulum* (Hook.f.) J.M.Ward & Breitw., *New Zealand J. Bot.* 41: 609 (2003)

Common name: shining cottonleaf (Wapstra et al. 2005)

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**



Figure 1. Distribution of *Argyrotegium nitidulum* in Tasmania, showing IBRA bioregions



Plate 1. *Argyrotegium nitidulum*
(image courtesy of Tasmanian Herbarium)

SUMMARY: *Argyrotegium nitidulum* (shining cottonleaf) is a mat- or cushion-forming perennial daisy that colonises damp gaps and bare ground in alpine or subalpine areas. Only recognised as occurring in Tasmania in 2003, the species is not well known in the State, where it has only been confirmed from Ben Lomond in the north east. Available information suggests that the total population is likely to be small and at risk from chance events. Factors responsible for formation of gaps in vegetation are likely to be important for the survival of the species. The species may be susceptible to climate change through invasion of gaps by shrubs or poor recruitment due to drying of its habitat. A better understanding of the distribution and needs of the species is required to guide management.

IDENTIFICATION AND ECOLOGY

Recruitment of *Argyrotegium nitidulum* is from seed. The species is a good coloniser of bare ground as evidenced by its occurrence in intertussock gaps, and on tracks and roadside batters (NSW NPWS 2001).

Survey techniques

Surveys are best conducted when *Argyrotegium nitidulum* is in flower or fruit. The species is distinguishable from *Argyrotegium mackayi* with which it can co-occur by its shorter flower stalks. Flowering occurs from December to March (Harden 1992). The Tasmanian collection was made in mid-April.

Description

Argyrotegium nitidulum is a mat- or cushion-forming perennial with thick much branched creeping rhizomes covered in crowded small leaves with broad clasping petioles that form sheaths that persist as the leaves die and that are a third the length of the leaves. The 5 to 7 mm long by 2 to 3 mm wide leaves have dense, shiny, silvery to rust coloured felted hairs. New growth is confined to 1 to 3 cm high upturned stem tips, which terminate in solitary flowerheads consisting of 4 to 10 florets. The cylindrical or narrowly cup-shaped flowerheads are up to 10 mm wide and are on inconspicuous slender cottony peduncles that

elongate to 3 cm as the fruits develop. The 7 to 9 mm bracts on the inner edge of the flower heads are oblong and brown with long hairs at the base, and are glabrous and shiny with a thin dry texture above. The achenes (single seeded fruits) are smooth, glabrous, obovate and 1.3 to 1.5 mm long with pappus bristles about 6 mm long at the tips.

[description based on Harden 1992, Walsh & Entwisle 1999, Ward et al. 2003]

Confusing species

Species of *Argyrotegium* are superficially similar to a number of other Tasmanian daisy species in the genera *Gnaphalium*, *Euchiton* and *Ewartia*. The genus *Argyrotegium* was described in 2003 as distinct on the basis of not having stolons or phloem fibres, leaves with long broad sheathing bases, and differences in a number of other characters associated with flower and fruit characteristics (Ward et al. 2003). *Argyrotegium nitidulum* can be distinguished from the widely distributed *Argyrotegium mackayi* by its solitary flowerheads, much shorter flower stalks (to 3 cm) at maturity, and all leaves less than 1 cm long and oblong, not noticeably wider towards the end and with coarser hairs. The two species may co-occur on mainland Australia (NSW NPWS 2001).

DISTRIBUTION AND HABITAT

Argyrotegium nitidulum occurs in Tasmania, Victoria where it is listed as rare, NSW where it is listed as vulnerable, and in New Zealand. In Tasmania, the species has been confirmed from Ben Lomond in the north east of the State (Table 1, Figure 1). The Ben Lomond occurrence was found on dolerite paving with *Ewartia catipes* at an altitude of approximately 1550 m. On mainland Australia, the species occurs near streams and bogs or in damp open grasslands and heathland, in alpine and subalpine areas (NSW NPWS 2001).

Table 1. Population summary for *Argyrotegium nitidulum* in Tasmania

	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of individuals
1	Legges Tor	Ben Lomond National Park	North	Giblin	2000*	unknown	unknown

*The associated herbarium specimen was redetermined to be *Argyrotegium nitidulum* following description of the genus in 2003.

POPULATION PARAMETERS

In Tasmania, *Argyrotegium nitidulum* has only been confirmed from one site (Table 1, Figure 1). Despite the lack of population information, the total population and area occupied are likely to be small in Tasmania, as on mainland Australia, where, given the rhizomatous nature of the species, estimates of the numbers of mature individuals at sites have been made by counting clumps of shoots. The number of clumps in each of four sites in New South Wales was estimated to be in the low hundreds (NSW NPWS 2001).

Targeted extension surveys have not been conducted for *Argyrotegium nitidulum*. Only one other specimen was determined to be *Argyrotegium nitidulum* when herbarium collections attributed to similar daisy species were re-examined following the description of the new genus *Argyrotegium* in 2003 (Ward et al. 2003). However, this specimen was later redetermined not to be *Argyrotegium nitidulum*. For records lacking herbarium specimens, the identification of species attributed to the genera *Gnaphalium*, *Euchiton* and *Ewartia* cannot be verified and may in fact belong to *Argyrotegium* and these genera may co-occur with one another. It is therefore possible that new subpopulations of *Argyrotegium nitidulum* will be discovered with targeted surveys in suitable subalpine habitat from which unvouchered records of similar species have been made.

RESERVATION STATUS

Argyrotegium nitidulum is reserved in the Ben Lomond National Park (Table 1).

CONSERVATION ASSESSMENT

Argyrotegium nitidulum was listed as vulnerable under the Tasmanian *Threatened Species Protection Act 1995* in April 2016 meeting criterion D: total population very small or area of

occupancy restricted, specifically D2: total population with an area of occupancy less than 5 ha and typically in five or fewer locations that provide an uncertain future due to the effects of human activities or stochastic events, and thus capable of becoming endangered in a very short time period.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

While a better understanding of the distribution and ecological needs of *Argyrotegium nitidulum* is required in Tasmania, it would appear that the species is naturally locally restricted and subject to chance events and effects of climate change on its high altitude habitat. While the known occurrence is on reserved land, better knowledge of its precise location and extent would help protect the species from inadvertent losses associated with the construction and maintenance of tracks and infrastructure.

Stochastic risk: The presumed localised occurrence of *Argyrotegium nitidulum*, combined with apparent relatively low abundance, would make the species subject to chance events.

Climate change: *Argyrotegium nitidulum* appears to be dependent on damp bare ground for recruitment and persistence. The open recruitment niches in its alpine and subalpine habitat is likely to be due to a combination of factors such as browsing, formation of animal tracks, temporary inundation, frost heave, snow lie, and lack of competition due to shallow soils. Many of these factors are susceptible to the possible impacts of climate change through a warming and drying out of recruitment niches or a resultant increase in cover by tussock grasses or shrubs. Its locally restricted distribution makes the species susceptible to even small changes in climatic conditions.

MANAGEMENT STRATEGY

Management objectives

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

What has been done?

Argyrotegium nitidulum has not been actively managed in Tasmania.

What is needed?

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

- determine the precise location and extent of the Tasmanian occurrence;
- survey potential alpine habitat for new subpopulations, focussing on areas that have unvouchered records for *Euchiton*, *Gnaphalium* or *Ewartia* species;
- undertake extension surveys of potential habitat, radiating out from confirmed occurrences to maximise the chance of success;
- undertake demographic monitoring of at least one occurrence annually to determine the needs of the species and better inform management;
- 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;
- include the consideration of the species in management plans for subpopulations in reserves;
- collect seed for long-term conservation storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens.

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Prepared in 2013 and updated in May 2016.

Cite as: Threatened Species Section (2016). *Notesheet for Argyrotegium nitidulum (shining cottonleaf)*. Department of Primary Industries, Parks, Water and Environment, Tasmania.

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