

Approved Conservation Advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for
***Limosella granitica* (Granite Mudwort)**

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

Description

Limosella granitica, Family Scrophulariaceae, also known as Granite Mudwort, is an aquatic perennial, occasionally with a conspicuous stolon. Its leaves are 3–8 cm long, with the blade often floating on the surface of the water. The leaf blade is obovate, 6–20 mm long, 2–4.5 mm wide, attenuated at the base and rounded at the apex. The flower stalks (pedicels) are generally 10–22 mm long. The calyx is 2–3 mm long and red-purple in colour; the corolla is white; the anthers are black with white pollen. The capsules (fruit) are downturned into the silt, 3.2–4.8 mm long and 2.5–3.5 mm wide, and dark brown in colour. Flowering occurs mainly from September to October. Seeds are narrow-oblong, 0.9–1.1 mm long and dark brown (Barker, 1984).

Conservation Status

Granite Mudwort is listed as **vulnerable**. This species is eligible for listing as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). Granite Mudwort is also listed as vulnerable under the *National Parks and Wildlife Act 1972* (South Australia).

Distribution and Habitat

Granite Mudwort occurs in a small number of disjunct sub-populations across northern Eyre Peninsula, South Australia, where it is confined to seasonally wet rock-pools (gnamma holes) on the top of granite inselbergs and outcrops (Pobke, 2007). The five known sub-populations are thought to contain approximately 500 individual plants, and occur within an estimated area of 6000 km². It occurs in the district councils of Le Hunte, Cleve, Streaky Bay and Bosanquet (Gawler Ranges National Park) (Pobke, 2007). This species occurs within the Eyre Peninsula (South Australia) Natural Resource Management Region.

Granite Mudwort grows in fine silt in wet granite rockholes (Barker, 1984); the depth and water quality of these pools affect habitat quality for this species. It occurs in areas of winter-dominant annually variable rainfall (180–300 mm/year) in areas of hot summers and mild winters (Pobke, 2007).

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological communities.

Threats

The main identified threats to Granite Mudwort are invasive weeds, which suppress this species within gnamma holes. Weeds could also significantly impact upon the quality of critical habitat, making them unsuitable for the survival of Granite Mudwort (Pobke, 2007).

The main potential threats to Granite Mudwort include disturbance caused by mining; agricultural practices; trampling by feral goats (*Capra hircus*); stochastic events causing localised extinction; spray drift; and off-road vehicles. Feral goats are known to muddy the

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water, trample substrate and trample plants around rock-pools. Sheep around Gawler Ranges could potentially threaten this species and associated habitat (Pobke, 2007). Granite Mudwort may also be at risk from water borne pests and diseases. An increase in water nutrient levels may increase the risk of algal blooms (Pobke, 2007).

The long term survival of Granite Mudwort is thought to be at threat from extended or extreme weather patterns, due to its highly specialised habitat requirements and threat associated habitat stress.

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- Investigate if changes in hydrology (e.g. salinity and soil moisture) influence critical habitat degradation or species decline. It is uncertain how much disturbance this species can tolerate (Pobke, 2007).
- Determine pollination requirements, seed germination and establishment requirements in Granite Mudwort. It is unknown whether flowering occurs under water or at times between rains when buds are exposed (Barker, 1984).
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Undertake research to determine if chemical drift from agriculture is adversely affecting populations.
- Granite Mudwort may have very low levels of genetic variation due to small and isolated habitat. Undertake genetic analyses to assess current gene flow (using markers and analyses capable of distinguishing population divergence on an evolutionary timescale, from that which might be due to more recent impacts), and identify populations with low genetic diversity that might benefit from artificial introduction of genetic material from other populations from which they have relatively recently diverged.
- Undertake research to determine the effects of waterborne pests or diseases on Granite Mudwort.

Regional and Local Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of Granite Mudwort.

Habitat Loss, Disturbance and Modification

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.
- Manage any changes to hydrology that may result in changes to water table levels and/or run-off, salinity, algal blooms, sedimentation or pollution.
- Control access routes to suitably constrain public access to known sites.
- Minimise adverse impacts from land use at known sites, particularly spray drift from agriculture and mining.

Trampling, Browsing or Grazing

- Implement the Threat Abatement Plan (EA, 1999) for the control and eradication of feral goats in the region.

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- Where appropriate manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

Invasive Weeds

- Identify and weeds in the local area, which could become a threat to Granite Mudwort, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the species, using appropriate methods.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Granite Mudwort.

Conservation Information

- Raise awareness of Granite Mudwort within the local community.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage.
- Investigate options for enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

This list does not necessarily encompass all actions that may be of benefit to Granite Mudwort, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Draft recovery plan for 23 threatened flora taxa on Eyre Peninsula, South Australia 2007–2012 (Pobke, 2007), and
- Threat Abatement Plan for Competition and Land Degradation by Feral Goats (EA, 1999).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

Australian Natural Resources Atlas (ANRA) 2008, *Biodiversity Assessment – Gawler: Species at risk and their recovery process*, viewed 25 May 2008, <<http://www.anra.gov.au/topics/vegetation/assessment/sa/ibra-gaw-species-recovery.html>>.

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Barker, WR 1984, 'Scrophulariaceae', In Jessop, JP & Toelken, HR (Eds.), *Flora of South Australia, Part III: Polemoniaceae-Compositae*, South Australian Government Printer, Adelaide.

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Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia* (2nd ed.), Australian Network for Plant Conservation, Canberra.