

Approved Conservation Advice for
***Euphrasia arguta* (a herb)**

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

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

Euphrasia arguta is an erect, semi-parasitic annual herb growing up to 45 cm high (Leigh et al., 1984). The branches are very hairy with recurved stiff, non-glandular hairs (Harden, 1992). The plant has 18–30 pairs of leaves along the stem. Leaves are in pairs opposite each other on the stem, with adjacent pairs arranged at right angles (Benson and MacDougall, 2001).

Individual leaves have no petiole and are 7–15 mm in length with long slender 'tooth-like' projections. They may be smooth or rough to the touch. The plant has numerous flowers which are white to pinkish-lilac in colour. The raceme flower-heads contain a number of flowers on lateral stalks with the oldest at the base and the youngest at the top. Both the petals and sepals are tubular. The upper lip of the petals is hooded with two downward curved lobes. The fruit of this species is a capsule 4–8 mm long which contains many minute seeds (Leigh et al., 1984; Benson and MacDougall, 2001).

Conservation Status

Euphrasia arguta is listed as **critically endangered**. This species is eligible for listing as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) (EPBC Act) as it is known from only six populations in a very restricted range. The largest population, containing more than 90% of known individuals, is threatened by road maintenance and clearing of roadside vegetation for fire breaks, such that the species' geographic distribution is precarious for its survival (TSSC, 2010).

The species is listed as Critically Endangered under the NSW *Threatened Species Conservation Act 1995* and its status is under review.

Distribution and Habitat

Euphrasia arguta had not been found since 1904 until its rediscovery in 2008. The species is now known from six sites up to 25 km apart in the area of Nundle State Forest, south east of Tamworth, NSW (Binns, pers. comm., 2009). All sites are in the Nandewar Bioregion (subregion 4) of northern New South Wales, in the south-east section of Namoi NRM region.

Prior to its rediscovery, the only information on the habitat of *Euphrasia arguta* came from the type specimen. The species' previous habitat consisted of grassy areas near rivers at elevations up to 700 m above sea level, with an annual rainfall of 600 mm. The recently discovered populations are in grassy forests or regrowth vegetation (Binns, pers. comm., 2009).

Threats

The main identified threat to *Euphrasia arguta* is road maintenance and clearing of roadside vegetation for fire breaks. More than 90% of known individuals occur on a cleared firebreak which was cleared in 2007 and 2009 (Binns, pers. comm., 2009, 2010).

The main potential threats to *Euphrasia arguta* include browsing by domestic stock, rabbits and macropods; however populations of these animals are currently sufficiently low that it appears not to be a current significant threat (Binns, pers. comm., 2009). As some of the known individuals occur on private land there is also a potential threat from land clearing.

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.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes. In particular, assess the response of *Euphrasia arguta* to competition with, and disturbance to, dominant vegetation.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants and assess the existing seedbank.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.
- Undertake genetic analyses to 1/ 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 2/ 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.

Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of *Euphrasia arguta*.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- 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.
- Ensure there is no disturbance in areas where *Euphrasia arguta* occurs, excluding necessary actions to manage the conservation of the species.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for Crown and private land investigate inclusion in reserve tenure if possible.

Trampling, Browsing or Grazing

- If livestock grazing occurs in the area, ensure land owners/managers use an appropriate management regime and density that does not detrimentally affect this species.
- Where appropriate, manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

Conservation Information

- Raise awareness of *Euphrasia arguta* within the local community.
- Frequently engage with private landholders and land managers responsible for the land on which populations occur and encourage these key stakeholders to contribute to the implementation of conservation management actions.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage.
- Investigate options for linking, 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 *Euphrasia arguta*, but highlights those that are considered to be of highest priority at the time of preparing the Conservation Advice.

Information Sources:

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