

**Advice to the Minister for the Environment, Heritage and the Arts
from the Threatened Species Scientific Committee (the Committee)
on Amendments to the list of Threatened Species
under the *Environment Protection and Biodiversity Conservation Act 1999*
(EPBC Act)**

1. Scientific name (common name)

Veronica derwentiana subsp. *homalodonta* (Mount Lofty Speedwell)

2. Description

The subspecies was described as *Derwentia derwentiana* subsp. *homalodonta* and is now recognised by the Australian systematics community as *Veronica derwentiana* subsp. *homalodonta* (CHAH, 2008).

There are five currently recognised subspecies of *Veronica derwentiana* that all appear morphologically similar but differ in their geographical range, with three subspecies occurring in South Australia (Briggs and Ehrendorfer, 1992). The subspecies *Veronica derwentiana homalodonta* is endemic to South Australia and is confined to the eastern side of the Murray River valley and Kangaroo Island.

The Mount Lofty Speedwell is a large herbaceous plant that grows to between 1.5 m high and 2 m across. The stems of the subspecies emerge annually from a long-lived rootstock, forming a large clump. The subspecies has large toothed leaves and tubular white or pale lilac to pale blue flowers that occur in large stalked clusters at the ends of the branches (Briggs and Ehrendorfer, 1992).

3. National Context

The Mount Lofty Speedwell is endemic to South Australia where it occurs in the southern Mount Lofty Ranges, to the east and south of Adelaide, and on Kangaroo Island. The subspecies occurs in the higher, wetter regions of the Mount Lofty Ranges, from Forest Range in the central ranges to Deep Creek, near Cape Jervis. The east-west extent of the subspecies is quite restricted, reaching its widest extent in the southern Fleurieu Peninsula between Myponga and Hindmarsh Valley. There are two records of the subspecies on Kangaroo Island, at the western end of the island in Flinders Chase National Park and in the upper catchment of the Cygnet River in the central part of the Island.

The Mount Lofty Speedwell is listed as endangered under Schedule 7 of the South Australian *National Parks and Wildlife Act 1972*. Endangered is the highest threat category under South Australian legislation.

4. How judged by the Committee in relation to the EPBC Act criteria

The Committee judges the subspecies to be **eligible** for listing as **critically endangered** under the EPBC Act. The justification against the criteria is as follows:

Criterion 1 – It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers

Based on the available data, the estimated total number of mature individuals of the Mount Lofty Speedwell is between 100 and 200 plants, with the subspecies occurring in very small numbers at each known locality. The Mount Lofty Speedwell is now predominantly confined to areas of remnant vegetation, and may have once occupied a greater area prior to extensive vegetation clearance in the Mount Lofty Ranges. There are several historical herbarium records of the subspecies, dating from between 1895 and 1969, from both the Mount Lofty Ranges and Kangaroo Island from areas where the subspecies is no longer recorded. This may be due to the imprecise location information associated with these records, or may represent a true decline in the subspecies' population numbers, however there is insufficient information available to quantify any historical decline.

Exotic weeds, particularly Blackberry (*Rubus fruticosus aggregate*) and Montpellier Broom (*Genista monspessulana*), are the main threat to the subspecies. The subspecies occurs in moist gullies and along creeklines, habitats which are particularly susceptible to weed invasion. The subspecies is also threatened by land use changes such as damming for agriculture and urban expansion, however there are no data available to predict a decline in the subspecies' numbers due to these threats. Therefore, there are insufficient data available to assess the subspecies against this criterion.

Criterion 2 – Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited

Though the extent of occurrence of the Mount Lofty Speedwell is approximately 610 km², the subspecies' area of occupancy is estimated to be less than 0.001 km², as most known populations are comprised of very few plants. The Mount Lofty Speedwell occurs in areas of high moisture with excellent drainage and also requires a high level of light (Brewer pers. comm., 2005). The subspecies is commonly found in moist gullies and near creeklines, where it typically occurs in the gap between the waterline and the tree canopy, or where rocky outcrops create a high level of light (Brewer, pers. comm., 2005). Therefore, the subspecies' distribution is very restricted and also severely fragmented, as many populations are separated by areas of unsuitable habitat.

The highly fertile habitats in which the Mount Lofty Speedwell occurs are particularly vulnerable to invasion by weeds, particularly Blackberry (*Rubus fruticosus aggregate*), Montpellier Broom (*Genista monspessulana*), Sweet Briar (*Rosa rubiginosa*), Hawthorn (*Crataegus monogyna*) and vetch (*Vicia* spp.), which are likely to be a threat to the subspecies. Weeds may compete with seedlings and prevent recruitment, or lead to a decline in the vigour of adult plants. Weed control practices, such as the use of pesticides or the mechanical removal of weeds, may also be a threat to the subspecies. For example, a population of the Mount Lofty Speedwell was partially destroyed when blackberries were removed from a creekline (Brewer, pers. comm., 2005). The biology of the Mount Lofty Speedwell is not well understood, in particular the conditions required for the recruitment of seedlings are not known. The subspecies appears to be very long lived

and known populations are comprised of large, mature plants with no juveniles or seedlings (Brewer, pers. comm., 2005). Therefore the loss of mature plants may severely impact on populations if there are no juvenile plants to replace senescent mature plants. Since most known populations are comprised of very few plants, they are susceptible to catastrophic events due to their isolation. Such threats may include disease, severe drought or flood scouring. Plants may also be susceptible to *Phytophthora* as they are shallow-rooted plants that occur in moist conditions (Brewer, pers. comm., 2005).

Although fires are relatively common across the subspecies' distribution, the subspecies' response to fire is not well understood. A large increase from 4 to 50 plants was recorded for a population on Kangaroo Island, which may have been related to recruitment after fire. However, significant fluctuations have not been reported for other populations that have been burnt, and it is possible that plants are more easily located after a fire when the overstorey weeds are destroyed (Brewer, pers. comm., 2005).

The subspecies occurs in land used for agricultural purposes, and in some areas of expanding urban development. These land use practices may impact on the subspecies through altered hydrological regimes from the damming of creeklines, grazing by animals or pollution of stormwater run-off. Therefore, the very restricted geographic distribution of the subspecies is precarious for its survival as the subspecies is likely to decline as a result of these threats. Therefore, the subspecies is **eligible** for listing as **critically endangered** under this criterion.

Criterion 3 – The estimated total number of mature individuals is limited to a particular degree and: (a) evidence suggests that the number will continue to decline at a particular rate; or (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival

The Mount Lofty Speedwell has only been recorded in very small numbers at each known locality, and based on available data, the estimated total number of mature individuals is between 100 to 200 plants, which is limited.

The subspecies is likely to decline as a result of weed invasion and habitat disturbance due to land use change. Most known populations of the subspecies are comprised of very few plants and, based on the available data, no populations of the Mount Lofty Speedwell contain over 50 plants. Therefore, the very restricted geographic distribution of the subspecies is precarious for its survival, and the subspecies is **eligible** for listing as **critically endangered** under this criterion.

Criterion 4 – The estimated total number of mature individuals is extremely low, very low or low

The estimated total number of mature individuals of the Mount Lofty Speedwell is between 100 and 200 plants, with the subspecies occurring in very small numbers at each known locality. Although the Mount Lofty Speedwell is very distinctive and has been reasonably well collected, no extensive searches have been conducted for the subspecies in areas of potentially suitable habitat. The subspecies may be more widespread on western Kangaroo Island, but the area in which it occurs is largely inaccessible. However, based on currently available information, the estimated total number of mature individuals of the subspecies is very low, and the subspecies is **eligible** for listing as **endangered** under this criterion.

Criterion 5 – Probability of extinction in the wild

There are no quantitative data available regarding the probability of extinction of the Mount Lofty Speedwell in the wild. Therefore, there is insufficient information to assess the subspecies against this criterion.

5. CONCLUSION

The Mount Lofty Speedwell is endemic to South Australia, and is known from the southern Mount Lofty Ranges and on Kangaroo Island. Based on available data, the total number of mature individuals of the subspecies is between 100 and 200 plants, which is very low. The subspecies is threatened by weed invasion, particularly Blackberry and Montpellier Broom, as well as land use changes such as damming for agriculture and urban expansion. Therefore, the subspecies' numbers are likely to decline in the future as a result of these ongoing threats, and it is **eligible** for listing as **critically endangered** under criteria 2 and 3 and as **endangered** under criterion 4.

6. Recommendation

The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **critically endangered** category:

***Veronica derwentiana* subsp. *homalodonta* (Mount Lofty Speedwell)**

Associate Professor Robert J.S. Beeton
AM FEIANZ
Chair
Threatened Species Scientific Committee

References cited in the advice

Brewer K (2005). Personal communication, 20 June 2005.

Briggs BG and Ehrendorfer F (1992). A revision of the Australian species of *Parahebe* and *Derwentia*. *Telopea* 5: 241-287.

CHAH (Council of Heads of Australian Herbaria) (2008). Australian Plant Census. IBIS database. Centre for Plant Biodiversity Research. viewed 23 February 2007, <http://www.chah.gov.au/apc/index.html>.