

Approved conservation advice  
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*).

**Approved Conservation Advice for**  
***Zieria murphyi***

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

**Description**

*Zieria murphyi*, Family Rutaceae, is a soft, hairy, slender shrub to 2 m high (Harden, 1991; Fairley & Moore, 2000; Armstrong, 2002). Leaves are born on a petiole 3–10 mm long and have either one or three leaflets about 30–49 mm long and 3–10 mm wide. Inflorescences have 3–9 white to pale pink flowers each about 7–9.5 mm in diameter (Armstrong, 2002). Flowers occur in spring, August to September, with fruiting specimens observed in summer (Harden, 1991; Fairley & Moore, 2000; Armstrong, 2002). Nectar-seeking beetles were observed effectively pollinating the blossoms of the Mt Tomah population, whilst at Bundanoon, nectar-seeking and pollen-feeding flies were the pollinators (Armstrong, 2002). The species is also capable of setting fruit following self-pollination (Armstrong, 2002).

**Conservation Status**

*Zieria murphyi* 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 commencement of the EPBC Act, it was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). The species is also listed as vulnerable on the *Threatened Species Conservation Act 1995* (NSW).

**Distribution and Habitat**

*Zieria murphyi* is endemic to the Sydney district of NSW (Fairley & Moore, 2000). The species has been recorded near Mt Tomah and in the southern highlands, at Penrose and Bundanoon (Harden, 1991; Fairley & Moore, 2000; Armstrong, 2002). Several populations of fewer than 1000 plants are known to occur in both the Blue Mountains and Morton National Parks (NP) (Briggs & Leigh, 1996). The few populations in the Penrose area are believed to be within Morton NP and the largest is between 250 and 500 plants, but the others are much smaller (10 plants at one site) (Armstrong, 2002). There is a population of 15–20 plants at Lovers Walk, Morton NP, Bundanoon (K. McDougall, in Armstrong, 2002).

The species grows in open, dry sclerophyll forest, in sheltered sites, often just below cliff-lines, on sandy soils on sandstone (Fairley & Moore, 2000; Armstrong, 2002; Harden, 2002). Associated species include *Eucalyptus stricta*, *Dillwynia sericea*, and *Lomandra longifolia* (Armstrong, 2002).

This species occurs within the Hawkesbury-Nepean and Southern Rivers (NSW) Natural Resource Management Regions (DECC, 2005).

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

**Threats**

The main identified threat to the species is frequent fire, as the species is an obligate seeder, (i.e. killed by fire and regenerates only from seed) (DECC, 2005).

### **Research Priorities**

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

- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.

### **Regional Priority Actions**

The following regional priority recovery and threat abatement actions can be done to support the recovery of *Zieria murphyi*.

#### **Habitat Loss, Disturbance and Modification**

- Identify populations of high conservation priority.
- If additional populations are discovered on private land, investigate formal conservation arrangements, such as, the use of covenants, conservation agreements or inclusion in reserve tenure.

#### **Fire**

- Develop and implement a suitable fire management strategy for *Zieria murphyi*. The species is thought to require fire no more than once every 10 years (NSW RFS, 2004). Hazard Reduction Techniques should include slashing only once every 10 years and no tree removal or trittering (NSW RFS, 2004).
- Identify appropriate intensity and interval of fire to promote seed germination.
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

#### **Conservation Information**

- Raise awareness of *Zieria murphyi* within the local community.

#### **Enable Recovery of Additional Sites and/or Populations**

- 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.
- Undertake appropriate seed collection and storage.

### **Local Priority Actions**

The following local priority recovery and threat abatement actions can be done to support the recovery of *Zieria murphyi*.

#### **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.
- Control access routes to suitably constrain public access to known sites on public land.
- Minimise adverse impacts from changed land use at known sites.

#### **Fire**

- Implement an appropriate fire management regime for local populations.
- Protect burn populations from further fire until plants have reached reproductive maturity (DECC 2005).
- Monitor populations following fire (DECC 2005).

This conservation advice was approved by the Minister / Delegate of the Minister on 3 July 2008

This list does not necessarily encompass all actions that may be of benefit to *Z. murphyi*, 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**

- Blue Mountains National Park Plan of Management (NSW NPWS 2001a),
- Final Fire Management Strategy Blue Mountains National Park (NSW NPWS, 2004),
- Blue Mountains Region Draft Pest Management Strategy (NSW NPWS 2007), and
- Morton National Park, Budawang National Park Plan of Management (NSW NPWS 2001b).

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

### **Information Sources:**

Armstrong, JA 2002, 'Zieria (Rutaceae): a systematic and evolutionary study', *Australian Systematic Botany*, vol. 15, pp 401-406.

Briggs, JD & Leigh, JH 1996, *Rare or Threatened Australian Plants 1995 rev. edn*, Collingwood: CSIRO Publishing.

Department of Environment and Climate Change (DECC) 2005, *Threatened Species Profile Database*, Velvet Zieria, viewed 5 May 2008, <<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10860>>.

Fairley, A & Moore, P 2000, *Native Plants of the Sydney District, An Identification Guide*, Roseville, NSW; Kangaroo Press.

Harden, GJ (ed.) 1991, *Flora of New South Wales, Volume Two*, Kensington, NSW, University of NSW Press.

New South Wales National Parks and Wildlife Service (NSW NPWS) 2001a, *Blue Mountains National Park plan of management*, viewed 5 May 2008, <[http://www.nationalparks.nsw.gov.au/PDFs/pom\\_final\\_bluemountains.pdf](http://www.nationalparks.nsw.gov.au/PDFs/pom_final_bluemountains.pdf)>.

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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 - Second Edition*, Australian Network for Plant Conservation, Canberra.