

NSW SCIENTIFIC COMMITTEE

Preliminary Determination

The Scientific Committee, established by the *Threatened Species Conservation Act 1995* (the Act), has made a Preliminary Determination to support a proposal to list the shrub *Prostanthera gilesii* Althofer ex B.J.Conn & T.C.Wilson as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act. Listing of Critically Endangered species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Prostanthera gilesii* Althofer ex B.J.Conn & T.C.Wilson (family Lamiaceae) is described as a “small, compact, spreading shrub, up to 1 m high, with the populations formed by a tangle of individual plants. Branchlets ± terete, moderately hairy on distal internodes and nodes with antrorse hairs, becoming sparsely hairy, glands indistinct. Leaves dark green, glossy, paler below, aromatic; petiole 1–2 mm long; lamina narrowly ovate to elliptic, 15–26 mm long, 5–10 mm wide, a few hairs on midrib, otherwise glabrous, margin entire; apex obtuse; venation indistinct, midrib slightly raised on abaxial surface. Inflorescence in groups of 3–4, sometimes 6 flowers; calyx green; outer surface glabrous, moderately glandular; inner surface of tube glabrous, lobes densely hairy near margin and apex; corolla 12–15 mm long, white to yellowish white, with purple to dark mauve markings on the inner surface of the tube and base of adaxial median lobe-pair, with pale orange marking on base of abaxial median lobe; hairs crinkled. Fruiting calyx not or only slightly enlarged (only immature fruits seen). Mature mericarps and seeds not seen” (PlantNET 2017).
2. *Prostanthera gilesii* is endemic to New South Wales (NSW) and is currently only known from Mt Canobolas, approximately 13 km west south west of Orange in central western NSW (Conn and Wilson 2015). There are two known populations within the Mt Canobolas State Conservation Area (Conn and Wilson 2015).
3. The largest population of *Prostanthera gilesii* occurs along a creek-line in wet sclerophyll forest dominated by tall *Eucalyptus dalrympleana* subsp. *dalrympleana*, with scattered *E. canobolensis* and *E. dives*. The understory consists of predominantly *Mirbelia oxylobioides*, *Cassinia longifolia*, *Pteridium esculentum*, *Polyscias sambucifolia* and thickets of exotic Blackberry (*Rubus fruticosus* agg.). The soil is a deep basaltic clay-loam (krasnozem) with alluvial deposits on the lower slopes. The second, smaller population of *P. gilesii* occurs in a steep rock crevice of a trachyte rocky outcrop. The crevice is fed by seepage and the soil is likely to be formed from rock scree and detritus. The surrounding vegetation is heath with the occasional tree of *Exocarpos cupressiformis* (native cherry) and *Eucalyptus canobolensis*. The heath is dominated by *Pteridium esculentum*, *Mirbelia oxylobioides*, *Phebalium* sp., *Calytrix tetragona* and *Kunzea parvifolia*.
4. Little is known about the ecology of *Prostanthera gilesii*. Mature plants characteristically form a tangled divaricate mass, making it difficult to estimate the numbers of individuals. *Prostanthera gilesii* easily strikes from layered stems and may be clonal, suggesting that genetic diversity within the species is low. Past collections (AVH 2016) indicate *P. gilesii* may not readily set seed and Conn and Wilson (2015) did not describe the mature mericarps or seed as none was seen on the specimens examined.
5. The number of mature individuals of *Prostanthera gilesii* is extremely low, estimated to be fewer than 50 plants (name withheld *in litt.* January 2016).
6. The geographic distribution of *Prostanthera gilesii* is very highly restricted. The area of occupancy (AOO) and extent of occurrence were both estimated to be 4 km². The AOO is based on 2 x 2 km grid cells, the scale recommended for assessing AOO by IUCN (2016).

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7. There are a number of threats currently affecting *Prostanthera gilesii* including competition from weeds, disturbance from feral pigs (*Sus scrofa*), human visitation and soil pathogens (name withheld *in litt.* January 2016; S. Woodhall pers. comm. Dec 2016). Blackberry (*Rubus fruticosus* agg.) infestations surround and encroach upon the larger *P. gilesii* population and although the smaller population is currently free of exotic plant species, Blackberry occurs nearby. Blackberry is likely to compete with *P. gilesii*, provide habitat for feral pigs, and may build fuel loads that could potentially increase the severity of fire (name withheld *in litt.* January 2016). Other exotic plants in nearby areas of Mt Canobolas include English Ivy (*Hedera helix*), Elderberry (*Sambucus nigra*), Radiata Pine (*Pinus radiata*) and English Holly (*Ilex aquifolium*) (name withheld *in litt.* January 2016). Damage caused by feral pigs is evident in the nearby riparian zone of the creek-line site (name withheld *in litt.* January 2016). Feral pigs cause substantial soil disturbance, introduce weeds and spread soil borne diseases. The pathogenic soil fungus *Phytophthora* was detected in the population following observations of dieback in several *Prostanthera gilesii* plants. Whilst it was not the highly pathogenic species *Phytophthora cinnamomi*, most *Phytophthora* species are potentially pathogenic given the right environment and host (Botanic Gardens Trust *in litt.* August 2015). Human visitation to both sites may lead to the spread of *Phytophthora* sp., trampling of the plants and the introduction of weeds. In addition, unauthorised collection of plant material has occurred (name withheld *in litt.* January 2016). The response of *Prostanthera gilesii* to fire is unknown. The persistence of *Prostanthera gilesii* is likely to be dependent on an appropriate fire regime and associated fire mitigation activities. ‘Invasion and establishment of exotic vines and scramblers’, ‘Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants’ and ‘Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758’ are listed as Key Threatening Processes under the Act.
8. *Prostanthera gilesii* Althofer ex B.J.Conn & T.C. Wilson is eligible to be listed as a Critically Endangered species as, in the opinion of the Scientific Committee, it is facing an extremely high risk of extinction in New South Wales in the immediate future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation 2010*:

Clause 7 Restricted geographic distribution and other conditions

The geographic distribution of the species is estimated or inferred to be:

- (a) very highly restricted,
- and either:
- (d) a projected or continuing decline is observed, estimated or inferred in the key indicators:
 - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

Clause 8 Low numbers of mature individuals of species and other conditions

The estimated total number of mature individuals of the species is:

- (a) very low,
- and either:
- (d) a projected or continuing decline is observed, estimated or inferred in the key indicators:
 - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

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Clause 9 Low number of mature individuals of species

The total number of mature individuals of the species is observed, estimated or inferred to be:

- (a) extremely low.

Dr Marco Duretto
Chairperson
NSW Scientific Committee

Exhibition period: 18/08/17 – 13/10/17

Proposed Gazettal date: 18/08/17

References:

AVH (2016) Australia's Virtual Herbarium, Council of Heads of Australasian Herbaria, <http://avh.chah.org.au>. (accessed 25 October 2016).

Conn BJ, Wilson TC (2015) Two new species of *Prostanthera* (Lamiaceae) in New South Wales. *Telopea* **18**, 463–474.

IUCN Standards and Petitions Subcommittee (2016) Guidelines for Using the IUCN Red List Categories and Criteria. Version 12. Prepared by the Standards and Petitions Subcommittee. <http://www.iucnredlist.org/documents/RedListGuidelines.pdf>

PlantNET (The NSW Plant Information Network System) Royal Botanic Gardens and Domain Trust, Sydney. <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Prostanthera~gilesii> (accessed 7 August 2017).