

# 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 terrestrial orchid *Pterostylis foliata* Hook.f. as a VULNERABLE SPECIES in Part 1 of Schedule 2 of the Act. Listing of Vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Pterostylis foliata* Hook.f. (family Orchidaceae) is described as: “Terrestrial herb. Leaves 3–6, scattered on the basal part of the stem, oblong to ovate or elliptic, 2–5 cm long, 8–16 mm wide, margins crisped or wavy; sessile. Scape to 30 cm high; stem smooth. Flower c. 2 cm long, dark green and white with brown in the galea, erect. Apex of galea obliquely erect, flat or slightly decurved. Lateral sepals tightly embracing the galea; sinus broadly to deeply V-shaped when viewed from the front, protruding in a shallow curve when viewed from the side; free points linear-tapered, c. 15 mm long, erect, divergent. Petals narrow, subacute. Labellum oblong, 9–12 mm long, c. 3 mm wide, brown, obtuse, distal third protruding from the sinus in the set position.” (PlantNET, The Royal Botanic Gardens and Domain Trust, accessed February 2015).
2. There is the possibility that more than one species are included under the name *Pterostylis foliata* as several forms are easily recognised (Bishop 2000). Populations attributed to this species do not form a monophyletic group in the molecular phylogeny presented by Clements *et al.* (2011) however this study was based on a limited number of samples, none of which were from New South Wales.
3. *Pterostylis foliata* is found in New South Wales, Victoria, South Australia, Tasmania and New Zealand (type location). In New South Wales the species occurs in the Southern Tablelands south from Batlow.
4. In New South Wales, *Pterostylis foliata* grows in eucalypt forest amongst an understorey of shrubs, ferns and grasses. It grows on loam or clay loam soils found on sheltered sloping to steep ground and populations may be found in localised open seepage areas. Flowering occurs from August to January (PlantNET, The Royal Botanic Gardens and Domain Trust, accessed February 2015; Jones 2006).
5. The number of individuals of *Pterostylis foliata* is estimated to be moderately low. It is known from 14 populations in the Southern Tablelands of New South Wales plus a single record from just west of the Southern Tablelands in the South Western Slopes. Herbarium records describe *P. foliata* variously as “locally frequent”, “uncommon” and “rare”. Populations of this species found in State forest range from six to 100 individuals (P. Branwhite *in litt.* May 2005, July 2007). The populations found in Kosciusko National Park are estimated to total less than 200 plants. The total population of *P. foliata* in New South Wales is therefore estimated to be fewer than 300–350 extant plants. Estimates of total population size can be difficult for ephemeral orchids because they are only observable at certain times of the year and often only flower under the right environmental conditions.
6. The extent of occurrence for *Pterostylis foliata* is approximately 7660 km<sup>2</sup> based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by IUCN (2014). The polygon was created by using all records of occurrence in NSW and extending it to the border of Victoria. The area of occupancy (AOO), based on the 15 confirmed populations of *P. foliata*, is estimated to be 88 km<sup>2</sup> based on 2 × 2 km grid cells, the scale

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recommended for assessing AOO by IUCN (2014). The geographic distribution of *P. foliata* is therefore considered to be moderately restricted.

7. *Pterostylis foliata* has been found in Kosciusko National Park and Tidbinbilla Nature Reserve and in Maragle, Carabost and Brandy Mary State Forests (P Branwhite *in litt.* May 2005, July 2007). The population found in the Carabost State Forest was reportedly destroyed (P. Branwhite *in litt.* May 2005). Other threats are feral animals, notably horses and pigs causing damage in open understorey areas and human recreational activities (P. Branwhite *in litt.* May 2005). Post-disturbance invasion of weeds such as Blackberries and exotic grasses pose an on-going threat as do wildfires and changed fire regimes which can have a considerable impact of fire-sensitive species. 'Clearing of native vegetation', 'Invasion of native plant communities by exotic perennial grasses' 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. *Pterostylis foliata* Hook.f. is not eligible to be listed as an Endangered or Critically Endangered species.
9. *Pterostylis foliata* Hook.f. is eligible to be listed as a Vulnerable species as, in the opinion of the Scientific Committee, it is facing a high risk of extinction in New South Wales in the medium-term future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation 2010*:

## Clause 9 Low numbers of mature individuals of species

The total number of mature individuals of the species is observed, estimated or inferred to be:  
(c) low.

Dr Mark Eldridge  
Chairperson  
Scientific Committee

Exhibition period: 01/05/15 – 26/06/15

Proposed Gazettal date: 01/05/15

## References:

- Bishop T (2000) 'Field guide to orchids on New South Wales and Victoria (2nd edn).' (UNSW Press: Sydney)
- Clements MA, Otero JT, Miller JT (2011) Phylogenetic relationships in Pterostylidinae (Cranichideae: Orchidaceae): combined evidence from nuclear ribosomal and plastid DNA sequences. *Australian Journal of Botany* **59**, 99–117.
- IUCN Standards and Petitions Subcommittee (2014) Guidelines for Using the IUCN Red List Categories and Criteria. Version 11. Prepared by the Standards and Petitions Subcommittee.  
<http://www.iucnredlist.org/documents/RedListGuidelines.pdf>.
- Jones DL (2006) A complete guide to native orchids of Australia including the island territories. (Reed New Holland: Sydney)

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The Royal Botanic Gardens and Domain Trust. PlantNET – The Plant Information Network System of  
The Royal Botanic Gardens and Domain Trust, Sydney, Australia (version 2.0

<http://plantnet.rbgsyd.nsw.gov.au/cgi->

[bin/NSWfl.pl?page=nswfl&lvl=sp&name=Pterostylis~foliata](http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Pterostylis~foliata) Accessed 9 February 2015