

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 a population of the shrub *Acacia pubescens* (Vent.) R.Br. in the Wingecarribee local government area as an ENDANGERED POPULATION in Part 2 of Schedule 1 of the Act. Listing of Endangered populations is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Acacia pubescens* (Vent.) R.Br. (family Fabaceae) is currently listed as a Vulnerable species in Part 1 of Schedule 2 of the Act. However, as it is not currently listed as an Endangered species in Part 1 of Schedule 1 or a Critically Endangered species in Part 1 of Schedule 1A, populations of this species are eligible to be listed as endangered populations.
2. *Acacia pubescens* is described by PlantNET 2016 as a “Spreading to slightly weeping shrub 1–5 m high; bark smooth, brownish grey; branchlets angled at apex becoming ± terete with ridges, hairy with long fine hairs. Leaves ± sessile on pulvinus, rachis 1.5–6.5 cm long, hairy, glands absent or small, often inconspicuous, jugary or rarely interjugary glands irregularly present; pinnae 3–12 pairs, 0.5–2.5 cm long; pinnules 5–20 pairs, mostly oblong to narrowly oblong, 1.5–5 mm long, 0.4–1 mm wide, glabrous. Inflorescences 6–49 in an axillary or terminal raceme with axis 2.5–11 cm long (axis often zigzagged) or sometimes in a terminal panicle; peduncles 2–6 mm long, glabrous or sparsely hairy; heads globose, 8–16-flowered, 3–6 mm diam., bright yellow. Pods ± straight, ± flat, ± straight-sided to variably constricted between seeds, 1.5–8 cm long, 4–6.5 mm wide, firmly papery to thinly leathery, glabrous, ± pruinose; seeds longitudinal; funicle filiform. Flowering is from August to October.”
3. *Acacia pubescens* is endemic to New South Wales (NSW), mainly occurring around Sydney from Bilpin in the north of the lower Blue Mountains, to the Georges River in the south, and in the Oakdale area west of Camden. There are two southern outlier populations at Aylmerton, just north of Mittagong in the southern highlands, and near Nowra on the NSW south coast (PlantNET 2016). The population at Aylmerton is the subject of this determination and is referred to as ‘the population of *Acacia pubescens* in the Wingecarribee local government area’. The population is near the southern limit of the species’ range and is disjunct, with the nearest record of *A. pubescens* being from Oakdale, approximately 40 km north, and Nowra, approximately 55 km south.
4. The population of *Acacia pubescens* in the Wingecarribee local government area is currently only known from a single site at Aylmerton, where it is located on a road verge fronting two private properties, and covers less than 1 ha (OEH *in litt.* 2016). The road verge is managed by the Wingecarribee Shire Council. Native vegetation in the area has been extensively cleared. Vegetation remnants occurring in the vicinity of the population primarily occur on clay-loam soils derived from Wianamatta Shale and include trees such as *Eucalyptus paniculata*, *E. punctata*, *E. globoidea* and *Exocarpus cupressiformis*, with an understorey dominated primarily by herbaceous species including *Billardiera scandens*, *Pratia purpurascens*, *Lomandra longifolia*, *Clematis aristata*, *Dichondra repens*, *Hardenbergia violacea*, *Austrostipa aristoglumis*, *Euchiton* sp., *Rytidosperma* sp., *Microlaena stipoides*, *Enterolasia stricta* and *Themeda triandra* (OEH *in litt.* 2016).

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5. The number of *Acacia pubescens* plants in the Wingecarribee local government area population is very low with an estimate of fewer than 100 mature individuals in a recent survey (OEH *in litt.* 2016). *Acacia pubescens* reproduces clonally and it is difficult to define a separate individual plant due to the presence of many suckering stems (NSW NPWS 2003). Hence it is likely that there may be fewer than 100 plants. Seed production is generally low for this species and for the little seed that is produced, seed predation is high (NSW NPWS 2003).
6. The distribution of the population of *Acacia pubescens* in the Wingecarribee local government area is very highly restricted. The extent of occurrence and area of occupancy (AOO) 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).
7. A number of threats to the *Acacia pubescens* population in the Wingecarribee local government area have been identified, including habitat loss and degradation. The only known site of the population is located on a road reserve in a highly modified rural-residential area and is surrounded by cleared private land. Many sections of the road verge are cleared and mown and/or planted with exotic vegetation including environmental weeds (S. Douglas *in litt.* 2016). Road maintenance activities and mechanical damage are threats to the population. Browsing by livestock has been observed (OEH *in litt.* 2016) and is also a threat. Potential hybridisation with *Acacia baileyana*, a species that is not native to the area but has naturalised extensively nearby, is a recognised threat to *A. pubescens* (NSW NPWS 2003, OEH 2016). By having a very highly restricted geographic distribution and occurring at only one location, the population of *A. pubescens* in the Wingecarribee local government area is prone to the future effects of human activities or stochastic events within a very short time period.
8. The population of *Acacia pubescens* (Vent.) R.Br. in the Wingecarribee local government area is eligible to be listed as an Endangered population as, in the opinion of the Scientific Committee, it is facing a very high risk of extinction in New South Wales in the near future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation 2010*:

Clause 11 Criteria for listing determinations by Scientific Committee

The population is facing a very high risk of extinction in New South Wales in the near future as, in the opinion of the Scientific Committee, it satisfies any one or more of the following paragraphs and also meets the criteria specified in one or more of the following clauses:

- (a) it is disjunct or near the limit of its geographic range,

Clause 13 Highly restricted geographic distribution of population and other conditions

The geographic distribution of the population is estimated or inferred to be highly restricted and either:

- (a) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:
 - (a) an index of abundance appropriate to the taxon, or
 - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

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Clause 14 Low numbers of mature individual in population and other conditions

The estimated total number of mature individuals in the population is low and either:

- (a) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:
 - (a) an index of abundance appropriate to the taxon, or
 - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

Clause 15 Very low numbers of mature individuals in population

The estimated total number of mature individuals of the population is observed, estimated or inferred to be very low.

Dr Mark Eldridge
Chairperson
NSW Scientific Committee

Exhibition period: 28/04/17 - 23/06/17

Proposed Gazettal date: 28/04/17

References:

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>.

NSW National Parks and Wildlife Service (2003) Downy Wattle (*Acacia pubescens*) Recovery Plan. NSW NPWS, Hurstville, NSW.

Office of Environment and Heritage (2016) Environmental Assessment Guidelines for *Acacia pubescens*.

<http://www.environment.nsw.gov.au/resources/nature/ApubescensEia0103.pdf>

(accessed 21 November 2016)

PlantNET (The NSW Plant Information Network System) (2016) Royal Botanic Gardens and Domain Trust, Sydney.

<http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Acacia~pubescens>

(accessed 21 November 2016)

Tozer MG, Turner K, Keith DA Tindall D C Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S (2010) Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands. *Cunninghamia* **11**, 359–406.