

NSW SCIENTIFIC COMMITTEE

Final Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list a population of the small tree *Gossia acmenoides* (F.Muell.) N.Snow & Guymer in the Sydney Basin Bioregion south of the Georges River 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. *Gossia acmenoides* (F.Muell.) N.Snow & Guymer (family Myrtaceae) 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 and as a consequence populations of this species are eligible to be listed as endangered populations.
2. *Gossia acmenoides* (Scrub Ironwood) is described as a “Shrub or small crooked tree to 18 m high with smooth, brown mottled bark; young shoots glabrous. Leaves with lamina ovate to elliptic, 2.5–7.5 cm long, 10–35 mm wide, apex acute to acuminate, upper surface dull to moderately glossy, lower surface glabrous, oil glands not crowded; petiole 2–4 mm long. Inflorescences mostly 2–4-flowered, on a short lateral axis; pedicels 5–12 mm long. Hypanthium glabrous. Sepals 5, 1.5–2 mm long. Petals 3–5 mm long, white, minutely ciliate. Stamens 5–6 mm long. Ovary 2-locular; style 4–5 mm long. Fruit 4–6 mm diam., black.” (Royal Botanic Gardens and Domain Trust PlantNET accessed August 2013).
3. *Gossia acmenoides* grows in dry rainforest, as well as in subtropical rainforest, on the ranges and coastal plain of eastern Australia from the Illawarra (in the south) to Queensland (Royal Botanic Gardens and Domain Trust PlantNET accessed August 2013). It occurs mainly north of the Hunter region, with a disjunct population to the south of Sydney in the Illawarra region. It is this southern-most population of *G. acmenoides* that is described here as an Endangered population, and defined as ‘the population of *Gossia acmenoides* in the Sydney Basin Bioregion south of the Georges River’. This population is approximately 175 km from the nearest population to the north in the Hunter region of NSW (NSW Wildlife Atlas records). Any occurrences of *G. acmenoides* in the Pokolbin area and Hunter Valley to the north of Sydney in the Sydney Basin Bioregion are not considered to be a part of this Endangered population.
4. The population of *Gossia acmenoides* in the Sydney Basin Bioregion south of the Georges River is found in the local government areas of Wollongong, Shellharbour and Kiama. There may be occurrences of the species in the adjoining local government areas of Shoalhaven and Wingecarribee, where there are areas of suitable habitat. There are estimated to be less than 100 mature *G. acmenoides* plants in the population (Fuller 2011). There are currently about 30 sites where *G. acmenoides* is found, often as single individual plants or as a small group of up to four individuals. Sites are generally widely separated. *Gossia acmenoides* is not known from any conservation reserves south of Sydney.
5. The geographic distribution of the population of *Gossia acmenoides* in the Sydney Basin Bioregion south of the Georges River is highly restricted. The area of occupancy (AOO) was estimated to range from 40 km² to 120 km² based on 2 x 2 km grid cells, the scale recommended for assessing area of occupancy by IUCN (2011). The variation in estimates for

NSW SCIENTIFIC COMMITTEE

AOO is based on the range of possible number of sites from databases, Fuller (2011) and Glaister (*in litt.* 2012). The extent of occurrence (EOO) was estimated to be between 220 km² and 2300 km². The lower bound was estimated using a minimum convex polygon (method in IUCN Guidelines 2011) encompassing 11 known records, and the upper bound estimated by encompassing all areas of mapped rainforest in the Illawarra area (Mills 1989). This upper bound will likely be an overestimate of the EOO as not all areas of mapped rainforest necessarily contain *G. acmenoides*.

6. Since European colonisation of the Illawarra region there has been loss of rainforest habitat due to clearing, logging and urban development (Mills & Jakeman 1995). The population of *Gossia acmenoides* in the Sydney Basin Bioregion south of the Georges River is currently threatened by proposed urban development in the Wongawilli, West Dapto and Marshal Mount areas. Plants at Dunmore are threatened by cattle grazing and removal of plants during hard rock extraction. Disturbance from road maintenance and powerline maintenance are also a threat at some sites. Potentially, the most severe threat to the population of *Gossia acmenoides* in the Sydney Basin Bioregion south of the Georges River is the infection of plants with the Myrtle Rust pathogen. The pathogen has been observed on cultivated plants in the region for approximately 2 years where these plants have been affected through the loss of new growth (G Daly *in litt.* August 2012). The pathogen has also been observed on plants of *G. acmenoides* in the wild in NSW (NSW Department of Primary Industries <http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/hosts> accessed September 2013). In Queensland, this species is designated as having a high susceptibility to the pathogen (Pegg *et al.* 2012; Queensland Government <http://www.business.qld.gov.au/industry/agriculture/land-management/health-pests-weeds-diseases/weeds-and-diseases/identify-myrtle-rust/plants-affected-myrtle-rust> accessed Sept 2013). This threat could affect the entire distribution of the population south of the Georges River. 'Clearing of native vegetation' and 'Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae' are listed as Key Threatening Processes under the NSW *Threatened Species Conservation Act 1995*.
7. The population of *Gossia acmenoides* (F.Muell.) N.Snow & Guymer in the Sydney Basin Bioregion south of the Georges River 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:

- (a) a projected or continuing decline is observed, estimated or inferred in either of the key indicators:

NSW SCIENTIFIC COMMITTEE

- (a) an index of abundance appropriate to the taxon, or
- (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

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:

- (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.

Professor Michelle Leishman
Chairperson
Scientific Committee

Exhibition period: 30/05/04 – 25/07/14

Proposed Gazettal date: 30/05/14

References:

Fuller L (2011) 'Wollongong's Native Trees' (3rd edn) Big Bean Books Wollongong

IUCN Standards and Petitions Subcommittee (2011) Guidelines for Using the IUCN Red List Categories and Criteria. Version 9.0. Prepared by the Standards and Petitions Subcommittee in September 2011.

Mills K (1989) A survey of the rainforests of the Illawarra District, New South Wales. National Parks and Wildlife Service of New South Wales unpublished report.

Mills K, Jakeman J (1995) *Rainforests of the Illawarra District*. Coachwood Publishing, Jamberoo, NSW

Pegg G, Perry S, Carnegie A, Ireland K, Giblin F (2012) Understanding myrtle rust epidemiology and host specificity to determine disease impact in Australia. Final Report. Cooperative Research Centre for National Plant Biosecurity

Royal Botanic Gardens and Domain Trust (2013) PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (version 2.0). <http://plantnet.rbg Syd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Gossia~acmenoides> (accessed August 2013)