

# 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 shrub *Allocasuarina diminuta* subsp. *mimica* L.A.S.Johnson in the Sutherland and Liverpool local government areas 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. *Allocasuarina diminuta* subsp. *mimica* L.A.S.Johnson (family Casuarinaceae) 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. *Allocasuarina diminuta* is described as: “Dioecious or monoecious shrub or small tree 1–5 m high. Branchlets to 23 cm long; articles often with a waxy bloom, 5–12 mm long, 0.5–1.1 mm diam.; teeth broad- to narrow-triangular, more or less straight-sided, erect to spreading. Male spikes 0.5–5 cm long, with 5–10 whorls of flowers per cm of spike length. Cone body 5–20 mm long, 5–12 mm diam.; bracteoles truncate to broad-acute. Samara 3.5–5.0 mm long.” (Royal Botanic Gardens and Domain Trust PlantNET, July 2014a). *Allocasuarina diminuta* subsp. *mimica* is described as: “Shrub 1–2.5 m high. Articles often with waxy bloom, ridges angular to rounded-convex; teeth 6–10, broad-triangular with convex margins, 0.3–0.6 mm long. Anther 0.5–0.7 mm long. Cone bracteoles obtuse to broad-acute.” (Royal Botanic Gardens and Domain Trust PlantNET, July 2014b).
3. *Allocasuarina diminuta* subsp. *mimica* is confined to the Central Coast botanical subdivision and the eastern half of the Central Tablelands botanical subdivision. The other subspecies generally occupy different regions of NSW, with *A. diminuta* subsp. *annectens* restricted to the South Coast and Southern Tablelands botanical subdivisions, while *A. diminuta* subsp. *diminuta* has the widest distribution with abundant records from the north to the south of the state, predominantly west of the tablelands (Royal Botanic Gardens and Domain Trust PlantNET July 2014b,c,d).
4. A population of the shrub *Allocasuarina diminuta* subsp. *mimica* occurs in the Sutherland and Liverpool local government areas, including the Heathcote Road area. The nearest recorded locations of *A. diminuta* subsp. *mimica* to this population are in the eastern suburbs of Sydney and Appin Road. The plants at the eastern suburbs location are now thought to be extinct. Mackenzie (2013) could not relocate the Appin Road population where there has been roadside disturbance which may have affected the area. The nearest confirmed extant locations are Upper Nepean State Conservation Area (c. 65 km away) and Mt Hay Road in the Blue Mountains (c. 70 km away). Two unconfirmed survey records exist from Orchard Hills (c. 35 km away) and Mount Riverview (c. 45 km away).
5. *Allocasuarina diminuta* subsp. *mimica* occurs in eucalypt woodland and heath in association with *Eucalyptus sclerophylla* or *E. haemastoma*. The population of *Allocasuarina diminuta* subsp. *mimica* in the Sutherland and Liverpool local government areas occurs in localised patches in heath and open woodland of the *Angophora hispida*/*Eucalyptus haemastoma* community in the area (B. Graham *in litt.* 2013). Little is known about the ecology of the species. *Allocasuarina diminuta* subsp. *diminuta* may resprout after fire (Benson and McDougall 1995). *Allocasuarina diminuta* subsp. *annectans* is known to resprout after fire

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(DECCW 2010) and it is likely that *A. diminuta* subsp. *mimica* has the same capacity. *Allocasuarina diminuta* subsp. *mimica* has serotinous fruits which release seed soon after fire (Benson and McDougall 1995) and regeneration from seed after fire has been observed.

6. The population of *Allocasuarina diminuta* subsp. *mimica* in the Sutherland and Liverpool local government areas has an estimated area of occupancy (AOO) of 32 km<sup>2</sup> based on eight 2 x 2 km grid cells, the scale recommended for assessing area of occupancy by IUCN (2013). The extent of occurrence (EOO) was also estimated to be 32 km<sup>2</sup>. The geographic distribution is considered to be very highly restricted.
7. The population of *Allocasuarina diminuta* subsp. *mimica* in the Sutherland and Liverpool local government areas is threatened by habitat loss as a result of clearing for urban development. Much of the habitat in the Sutherland and Liverpool local government areas has already been cleared for urbanisation. The Heathcote Ridge development is expected to impact on some 188 ha of the heath and open woodland of the *Angophora hispida/Eucalyptus haemastoma* community containing *Allocasuarina diminuta* subsp. *mimica* representing some 78% of the community at that site (B. Graham *in litt.* Aug 2013). 'Clearing of native vegetation' is listed as a Key Threatening Process under the NSW *Threatened Species Conservation Act 1995*. Part of the population occurs on a roadside reserve and is likely to be disturbed by road maintenance and road widening activities associated with urban development. The population of *A. diminuta* subsp. *mimica* in the Sutherland and Liverpool local government areas is threatened by environmental and demographic stochasticity due to its restricted distribution.
8. The population of *Allocasuarina diminuta* subsp. *mimica* L.A.S.Johnson in the Sutherland and Liverpool local government areas 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:
  - (a) an index of abundance appropriate to the taxon, or
  - (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

Professor Michelle Leishman  
Chairperson  
Scientific Committee

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Exhibition period: 17/10/14 – 12/12/14

Proposed Gazettal date: 17/10/14

## References:

Benson D, McDougall L (1995) Ecology of Sydney plant species. Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. *Cunninghamia* **4**, 217-431.

DECCW (2010) NSW Flora Fire Response Database. Version 2.0 (February 2010). Sydney, DECCW.

IUCN Standards and Petitions Subcommittee (2013) Guidelines for Using the IUCN Red List Categories and Criteria. Version 10.0. Prepared by the Standards and Petitions Subcommittee

Mackenzie (2013) Conservation status of the *Allocasuarina diminuta* subsp. *mimica* population in Sutherland and Liverpool LGAs. Report to the NSW Scientific Committee. Unpublished report to the NSW Scientific Committee.

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