

NSW SCIENTIFIC COMMITTEE

Final Determination

The Scientific Committee, established by the *Threatened Species Conservation Act 1995* (the Act), has made a Final Determination to list the shrub *Callistemon purpurascens* S.M.Douglas & S.David 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. *Callistemon purpurascens* S.M.Douglas & S.David (family Myrtaceae) is described as a “shrub to 3–7 m high (mostly c. 3.5 m), tending to branch above 1.5 m; bark slightly fissured, platy and flaking to peeling (in small sections), subpapery on the largest stems and trunks. Branchlets glabrescent to sericeous. Leaves alternate, 30–70 mm long, 5–8 mm wide, oblanceolate, and thickened at the margin and midrib; both surfaces usually glabrous, but lower surface with occasional silky brown hairs towards the petiole. Leaf base finely tapered, thickened and often twisted. Leaf apex narrowly acute to narrowly acuminate, with a distinct mucro. Lateral leaf venation clearly pinnate, though generally less apparent than in *C. citrinus* due to the thicker leaves of *C. purpurascens*. Leaf oil glands less dense and less prominent than in *C. citrinus* and *C. megalongensis*, again due to the thickened lamina in *C. purpurascens*. Inflorescence spicate, pseudoterminal, with 20–60 monads, 60–120 mm long, 40–48 mm wide. Hypanthium tuberculate to warty-bullate, downyhairy, 3.3–4.0 mm deep. Calyx lobes sparsely hairy (not glabrescent as in *C. megalongensis*), scarios with membranous bands; central band 0.1 mm wide. Stamens free, 45–50 per flower. Filaments red-purple (72A RHS Colour Chart, 1966), 17–23 mm long. Anthers dark purple to brown. Style 18–23 mm. Fruit c. 8–10 mm wide, sometimes slightly wrinkled, calyx lobes not retained; globose but may deform to barrel-shaped when crowded. Embryo with obvolvate cotyledons” (Douglas and Wilson 2015).
2. *Callistemon purpurascens* was first collected in 2006 and is restricted to the Megalong Valley in the Blue Mountains, central New South Wales (NSW) (Douglas and Wilson 2015). *Callistemon purpurascens* grows near *C. megalongensis* and *C. citrinus* but there is no evidence of intergradation between these species (Douglas and Wilson 2015). Differences among the three species have been tabulated in Douglas and Wilson (2015).
3. The only known population of *Callistemon purpurascens* is located in the Megalong Valley in the Sydney Basin Bioregion. *Callistemon purpurascens* is known to occur on the swampy floodplain and riparian zone of two unnamed tributaries of Megalong Creek below the Blue Mountains Plateau, on privately owned rural land (Douglas and Wilson 2015). The species is not known to occur in any conservation reserves. There are estimated to be about 150 mature individuals. No juveniles have been observed in the wild, though seeds germinate readily *ex situ* (S. Douglas pers. comm. October 2015). The number of mature individuals of *C. purpurascens* is very low.
4. The habitat of *Callistemon purpurascens* consists of swampy, mostly riparian shrubland, swamp woodland and swamp forest with emergent *Melaleuca linariifolia*, *M. styphelioides* and *Eucalyptus camphora*. *Leptospermum* and other *Callistemon* species are often dominant in the midstorey. The ground stratum is variable depending on levels of moisture, light and disturbance (Douglas and Wilson 2015).
5. The geographic distribution of *Callistemon purpurascens* is very highly restricted. The extent of occurrence and area of occupancy (AOO) are 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 (2014).

NSW SCIENTIFIC COMMITTEE

6. A number of threats to *Callistemon purpurascens* and its habitat have been identified by Douglas and Wilson (2015). Disturbance of the habitat by feral pigs (*Sus scrofa*) and from livestock grazing has led to pugging and increased erosion of the swampy soils and is facilitating weed invasion. Wallowing by feral pigs is causing habitat degradation and altering the hydrology. The construction of dams on the streams running through the habitat has also affected the hydrology of the swamps, though the effects on *C. purpurascens* are unknown. Changes in hydrology and the resultant potential damage to the swamp ecosystem constitute a significant threat to the long-term viability of *C. purpurascens*. There is a threat of weed invasion by *Rubus anglocandicans* (Blackberry), pasture weeds such as *Axonopus fissifolius* (Carpet Grass) and *Lonicera japonica* (Japanese Honeysuckle), all of which occur in the cleared areas fringing the core habitat of *C. purpurascens*. There is a risk of further clearing of habitat associated with rural-residential land use, livestock grazing and bushfire risk management (S. Douglas *in litt.* January 2013). The effects of extreme rainfall/flood events associated with climate change may lead to the erosion of the swampy floodplain habitat and an increase in prolonged and severe droughts may cause possible loss and degradation of habitat (Douglas and Wilson 2015). 'Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758', 'Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands', 'Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants' and 'Clearing of Native Vegetation' are listed as Key Threatening Processes under the Act.
7. *Callistemon purpurascens* S.M.Douglas & S.David 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:

- (d) a projected or continuing decline is observed, estimated or inferred in the key indicator:
(b) the geographic distribution, habitat quality or diversity, or genetic diversity of the species.

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:

- (d) a projected or continuing decline is observed, estimated or inferred in the key indicator:
(b) the geographic distribution, habitat quality or diversity, or genetic diversity of the species.

Dr Mark Eldridge
Chairperson
NSW Scientific Committee

Exhibition period: 16/12/16 – 10/02/17

Proposed Gazettal date: 16/12/16

NSW SCIENTIFIC COMMITTEE

References:

Douglas SM, Wilson PG (2015) *Callistemon purpurascens* (Myrtaceae): a new and threatened species from the Blue Mountains region of New South Wales, Australia. *Telopea* **18**, 265–272.

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>.