

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 a population of the shrub *Spyridium burragorang* K.R.Thiele in the Cessnock 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. *Spyridium burragorang* K.R.Thiele (family Rhamnaceae) 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 of the Act and, as a consequence, populations of this species are eligible to be listed as Endangered populations.
2. *Spyridium burragorang* K.R.Thiele is described as a “shrub to 120 cm, often 60–80 cm high, sometimes with numerous stems from woody rootstock. Leaves oblong to narrow-oblong, 8–30 mm long, 2–6 mm wide, margins recurved, upper surface dark green and glabrous, lower surface mostly densely hairy and greyish, rarely glabrescent and green; stipules lanceolate, 3–6 mm long, brown. Floral leaves 2–4, mostly ovate to elliptic, upper surface whitish tomentose. Bracts around individual flowers usually c. 5 mm long, brown. Flowers 4–5 mm long, hairs long and hairs at base mixed with dense short hairs above” (PlantNET 2016).
3. *Spyridium burragorang* is endemic to New South Wales (NSW) and is known from the Lake Burragorang area in the Wollondilly River and adjacent Nattai River Valleys in the Blue Mountains (Thiele and West 2004) and form a disjunct population located approximately 150 km to the north in the Cessnock area of the Hunter Valley. This northern-most population of *S. burragorang* is the subject of this determination and is hereafter referred to as ‘the population of *Spyridium burragorang* in the Cessnock local government area’.
4. The population of *Spyridium burragorang* in the Cessnock local government area is currently known from a single site in the western part of Werakata State Conservation Area approximately 4 km southwest of Cessnock and covers approximately 3.9 ha. It is found on a steep hill at 150 m altitude in a dry ridge forest dominated by *Corymbia eximia* (Yellow Bloodwood), *C. maculata* (Spotted Gum) and *Eucalyptus* aff. *agglomerata*, with *E. squamosa* and *E. punctata* also present. The shrubby understorey is mainly composed of *Leptospermum trinervium* with *Isopogon anemonifolius*, *Dillwynia retorta*, *Xanthorrhoea* sp., *Hakea sericea*, *Grevillea montana*, *Leucopogon* sp., *Bossiaea obcordata* and the grasses *Rytidosperma pallidum* and *Aristida* sp. The vegetation has been mapped as ‘Sandstone Hills Bloodwood Woodland’ (DECC 2008) and is a restricted vegetation type (S. Bell *in litt.* Nov 2015). Further extensions to the population in potential habitat have not been found during searches within 10 km surrounding the site.
5. Flowering and seeding times apparently differ between the Cessnock population and the southern populations of *Spyridium burragorang*. Thiele and West (2004) reported that the Blue Mountains populations of *S. burragorang* flower in June–July, with fruiting the following year. Flowering in the Cessnock population has been observed in summer, with fruiting in winter (M. Elliott *in litt.* September 2015). Further studies would be required to ascertain if flowering/fruiting differences and a number of observed morphological differences are consistent between the populations and over time.

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6. The number of *Spyridium burragorang* plants in the Cessnock population is low. A survey in 2015 gave estimates of between 1,270 and 2,450 plants, though not all of these may be mature individuals as some were recovering from being burnt in a fire in 2014. Observations following the fire showed plants of *S. burragorang* can resprout from a lignotuber.
7. The geographic distribution of the population of *Spyridium burragorang* in the Cessnock local government area is very highly restricted, such that it is prone to the effects of human activities or stochastic events. The area of occupancy (AOO) and extent of occurrence 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).
8. A number of threats to the population of *Spyridium burragorang* in the Cessnock local government area have been identified. Recent site inspections showed threats affected approximately 90% of the population (D. Beckers *in litt.* June 2016). Clearing of habitat to enable vehicular access and line maintenance has occurred beneath electricity transmission wires that run through the population. A number of fire trails also converge at this site with trail bikes and off road vehicles reportedly using the trail system regularly. This has led to physical damage to the plants and erosion of the habitat, indicated by deeply incised areas associated with the trails. Rubbish has been dumped and is scattered throughout the site, adversely affecting the *S. burragorang* plants.
9. The population of *Spyridium burragorang* K.R.Thiele in the Cessnock 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:

- (a) 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.

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 the key indicator:
- (b) the geographic distribution, habitat quality or diversity, or genetic diversity.

Dr Mark Eldridge
Chairperson
Scientific Committee

Exhibition period: 30/06/17 – 25/08/17

Proposed Gazettal date: 30/06/17

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References:

DECC (2008) Vegetation of the Cessnock-Kurri Region: Survey; classification and mapping. Cessnock LGA, New South Wales. Department of Environment and Climate Change (DECC), Sydney.

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>.

PlantNET (The NSW Plant Information Network System) (2016) Royal Botanic Gardens and Domain Trust, Sydney. <http://plantnet.rbg Syd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Spyridium~burraborang> (accessed 7 March 2016)

Thiele KR, West JG (2004) *Spyridium burragorang* (Rhamnaceae), a new species from New South Wales, with new combinations for *Spyridium buxifolium* and *Spyridium scortechinii*. *Telopea* **10**, 823–829.