

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 the climbing herb *Cucumis althaeoides* (Ser.) P. Sebastian & I. Telford 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. *Cucumis althaeoides* (Ser.) P. Sebastian & I. Telford (family Cucurbitaceae) is described as a trailing or climbing perennial vine, monoecious, most vegetative parts hispid, sometimes pilose; stems to 3 m long, to 1.6 mm diam, ribbed, annually sprouting from a perennating rootstock. Tendrils simple, to 15 cm long. Leaves: subsessile or petiole to 38 mm long; lamina ovate or broadly lanceolate in outline, sometimes hastate, 24–75 mm long, 18–70 mm wide, cordate, unlobed or shallowly 3-lobed, rarely 5-lobed, obtuse or acute, mucronate. Inflorescences unisexual. Male flowers in 3–15-flowered fascicles, sometimes in racemes with peduncles to 3 mm long; pedicels to 7 mm long. Female flowers 1 or 2, rarely 3 or 4 per axil; pedicels to 2 mm long; ovary ellipsoidal, ca. 3 mm long, pilose with antrorse hairs. Fruit globose, 8–18 mm diam, pale green with darker longitudinal markings, at maturity sparsely pilose, red, with 9–25 seeds; fruiting pedicel to 6 mm long. Seeds ovate, 3.8–4.5 mm long, 2.3–2.8 mm wide, buff, the faces convex, verrucose, the margin thickened and raised (adapted from PlantNET 2017).
2. *Cucumis althaeoides* is widespread across northern Australia, and in New South Wales (NSW) is known from three small populations in Oxley Wild Rivers National Park, approximately 40 km east of Walcha in the New England Tablelands Bioregion. These NSW populations of *C. althaeoides* are disjunct with the nearest known population occurring approximately 400 km to the north in southeastern Queensland (Telford *et al.* 2011). In Oxley Wild Rivers National Park, populations of *C. althaeoides* have been recorded from three sites along the Apsley River and Green Gully Creek (L. Copeland *in litt.* May, 2016).
3. *Cucumis althaeoides* is a low growing perennial vine which can be relatively dormant during dry periods and can then grow rapidly from the thickened rootstock during more favourable conditions. It is unclear how long individuals live or how quickly they may reproduce. In NSW, *C. althaeoides* is known to occur on rocky soil in gravel beds along freshwater rivers and streams. The species has been documented in open habitats beneath River Oaks (*Casuarina cunninghamiana*) in association with *Melaleuca bracteata*, *Stephania japonica*, *Cleome viscosa*, *Digitaria sanguinolentis* and *Mitracarpus hirtus* (L. Copeland, *in litt.* May 2016). Across its broader Australian range, *C. althaeoides* occurs on coastal sands or riverine alluvium in herbfields and *Casuarina* or *Eucalyptus* woodland (Telford *et al.* 2011).
4. The number of mature individuals of *Cucumis althaeoides* in NSW is estimated to be very or extremely low with only 16 plants known across the three populations (L. Copeland *in litt.* May 2016). Searches of potentially suitable habitat for *C. althaeoides* within the vicinity of known populations by several botanists since 2007 have failed to locate additional populations (L. Copeland *in litt.* May 2016).
5. The distribution of *Cucumis althaeoides* in NSW is very highly restricted. The extent of occurrence (EOO) is estimated as 39 km². The EOO is based on a minimum convex polygon enclosing all sites of occurrence of the species, the method of assessment recommended by IUCN (2016). The area of occupancy (AOO) is estimated as 12 km² based on 2 x 2 km grid cells, the scale recommended for assessing AOO by IUCN (2016).

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6. Threats to *Cucumis althaeoides* in NSW include grazing by feral animals, including horses, goats and cattle, and competition from various weed species, including *Bidens pilosa* (Cobbler's Peg), *B. subalternans*, *Zinnia peruviana*, *Tagetes minuta*, *Cuscuta campestris*, *Galinsoga parviflora* and *Lantana camara* (L. Copeland *in litt.* May 2017). The population's limited extent makes it highly susceptible to localised events such as grazing by feral animals and competition from weeds. 'Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758' and 'Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. lat)' are listed as Key Threatening Processes under the Act.
7. *Cucumis althaeoides* (Ser.) P. Sebastian & I. Telford 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.

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.

Clause 9 Low number of mature individuals of species

The total number of mature individuals of the species is observed, estimated or inferred to be:

- (a) extremely low.

Dr Mark Eldridge
Chairperson
NSW Scientific Committee

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

Proposed Gazettal date: 30/06/17

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>

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

<http://plantnet.rbgsyd.nsw.gov.au> (accessed 24 April 2017).

Telford IR, Sebastian P, Bruhl JJ, Renner SS (2011) *Cucumis* (Cucurbitaceae) in Australia and eastern Malesia, including newly recognized species and the sister species to *C. melo*. *Systematic Botany* **36**, 376–389.