

NSW SCIENTIFIC COMMITTEE

Final Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the orchid *Corunastylis* sp. Charmhaven (NSW896673) 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. *Corunastylis* sp. Charmhaven (NSW896673) (family Orchidaceae) is a terrestrial orchid described by P Weston (*in litt.* 2012) as: “Terrestrial tuberous herb. Leaf 19.5 cm long, 1.8 mm wide, slender, terete, [colour mostly unknown]; lamina 16 mm long (measured from base of terete part; 25 mm from tip to base of slit), 1.4 mm wide, subulate, sheathing the scape, ending 8.5 mm above base of the first flower. Inflorescence 20.5 cm tall, bearing 9 flowers (6-7 in photos) in a well-spaced spike, 1.4 cm long; rachis deep red-brown. Flowers c. 8.5 mm between tip of dorsal sepal and tips of lateral sepals, 6 mm between tips of lateral petals, green and cream with deep maroon markings, semi-erect to erect. Ovary 2.7-3.8 mm long, ellipsoidal, curved. Dorsal sepal 4.0-4.5 mm long, 2.0-2.1 mm wide, ovate, cucullate, glabrous, greenish cream, with 3 maroon veins and maroon margins. Lateral sepals 5.0-5.5 mm long, 1.3-1.4 mm wide, narrow-ovate, bent abaxially c. 1 mm above base through 45°-100°, erect to ascending, slightly to prominently divergent, distally involute, green with heavy reddish suffusion in basal 1/2 to 2/3, glabrous. Lateral petals 3.5-3.7 mm long, 1.0-1.2 mm wide, narrow-ovate, acute or shortly acuminate, divergent, cream with 3 maroon veins and maroon margins, with sparsely ciliate margins; cilia mostly less than 0.1 mm long. Labellum 3.2 mm long, 1.5 mm wide, obovate, rounded distally, with recurved, mucronate apex, maroon, narrowed in proximal 2/3, thick and fleshy, the margins densely ciliate with trichomes varying in length from < 0.1 mm long to 1.0 mm long; callus extending almost to labellum apex, deeply channelled for basal 2/3 of its length, widest just below the middle, thickest in the basal half. Column 2.2 mm long, erect, with two prominent basal callosities; foot c. 0.5 mm long, projected forwards, curved upwards. Column wings finely scabrous, notched in distal 1/5 to 1/6, oblong-obovate in outline, with lobes not divergent, both acuminate. Anther 1.0 mm long, truncate. Stigma broad-elliptical, 0.8 mm long, 0.7 mm wide. Pollinarium 1.0 mm long; pollinia 0.45 mm long, yellow, granular; hamulus 0.45 mm long; viscidium 0.3 mm wide.”
2. *Corunastylis* sp. Charmhaven is a recently recognised species. It is similar to *Corunastylis archeri* (syn. *Genoplesium archeri*) but differs in having fewer, larger flowers (6-9 flowers, 6 mm across, versus 10-20 flowers, 4.5–5 mm across in *C. archeri*), borne on a shorter inflorescence (1.4 cm long versus 2–3.5 cm long in *C. archeri*) (P. Weston pers. comm. August 2012). *Corunastylis* sp. Charmhaven is also similar to *Genoplesium fimbriatum*, which co-occurs and flowers at the same time. It differs from *G. fimbriatum* in having lateral sepals with the lower portion reddish (versus green in *G. fimbriatum*), labellum non-tremulous and ovate (versus tremulous and rectangular), and flowers rather widely spaced (versus crowded).
3. *Corunastylis* sp. Charmhaven is currently only known from the Wyong Shire of NSW where it is restricted to a single location in the Gorokan / Charmhaven area. It occurs

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within low woodland to heathland with a shrubby understorey and ground layer. Dominant species include *Allocasuarina littoralis*, *Kunzea ambigua*, *Leptospermum juniperinum*, *Melaleuca nodosa*, *Callistemon linearis* and *Schoenus brevifolius*. *Corunastylis* sp. Charmhaven has been detected above ground in mown heath, but not unmown heath (although it may still be present as tubers in unmown heath).

4. The number of mature individuals of *Corunastylis* sp. Charmhaven is extremely low, with less than 20 plants occurring in the only known population.
5. The geographic distribution of *Corunastylis* sp. Charmhaven is very highly restricted. The area of occupancy (AOO) and extent of occurrence (EOO) were estimated to be 4 km². The AOO is equivalent to a single (2 x 2 km) grid cell, the recommended measure for AOO in the IUCN (2011) guidelines.
6. *Corunastylis* sp. Charmhaven is under threat from clearing for development and from rabbits grazing on the tubers and flowers. 'Clearing of native vegetation' and 'Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus* (L.)' are listed as Key Threatening Processes under the *Threatened Species Conservation Act 1995*. Other threats include weed invasion, and possibly inappropriate fire and mowing regimes. By having a very highly restricted geographic distribution and occurring at only one location, *Corunastylis* sp. Charmhaven (NSW896673) is prone to the effects of human activities or stochastic events within a very short time period in an uncertain future.
7. *Corunastylis* sp. Charmhaven (NSW896673) 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 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 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 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.

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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 Andrea Wilson
Deputy Chairperson
Scientific Committee

References:

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. Downloadable from

<http://www.iucnredlist.org/documents/RedListGuidelines.pdf>

A notice of determination to provisionally list this species as a critically endangered species was gazetted on 5th October 2012.