# NSW SCIENTIFIC COMMITTEE

**Final Determination**

The Scientific Committee, established by the *Threatened Species Conservation Act* 1995, has made a Final Determination to list the terrestrial orchid *Genoplesium insigne* D.L.Jones as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act and, as a consequence, to omit reference to *Genoplesium insignis* D.L.Jones from Part 1 of Schedule 1 (Endangered species) of the Act. Listing of Critically Endangered species is provided for by part 2 of the Act.

The Scientific Committee has found that:

1. *Genoplesium insigne* D.L.Jones (family Orchidaceae) is described by Jones (2001) as: "Terrestrial tuberous herb. Leaf terete, 6–15 cm long, c. 0.15 cm wide, dark green; base reddish; lamina sheathing the scape or distally free, subulate, 10–15 mm long, 1.5–2 mm wide, ending 5–20 mm below the first flower. Inflorescence 9–18 cm tall, bearing 5–12 flowers in a moderately dense spike 15–25 mm long. Flowers porrect, c. 5 mm diam., dark purple to dark reddish purple with a dark reddish-purple labellum; lateral sepals obliquely erect. Floral bracts closely sheathing, transversely ovate-oblong, c. 0.8 mm long, c. 1.5 mm wide, broadly obtuse. Ovary linear-obovoid, c. 3.5 mm long, asymmetrically arcuate. Dorsal sepal cucullate, ovate-lanceolate to elliptic-lanceolate, 5–5.5 mm long, c. 2.5 mm wide, deeply concave; margins entire; apex long-acuminate to attenuate-apiculate. Lateral sepals narrowly linear-lanceolate, 6.5–7 mm long, c. 1.2 mm wide, not gibbous at the base, more or less parallel; distal margins involute; apex subacute. Petals widely spreading, narrowly ovate-lanceolate, 4.5–5 mm long, c. 1 mm wide; margins entire; apex long-acuminate. Labellum hinged by a short claw, porrect, mobile in a breeze; lamina obovate-elliptic, c. 4 mm long, c. 1.8 mm wide, fleshy, sharply recurved at the base and the apex; margins with short to long (0.3–1 mm long), coarse, spreading purple cilia; apex long-acuminate; callus occupying less than half the area of the ventral surface of the lamina, extending to within 1 mm of the labellum apex, dark purplish-black, colluviate, thickest and broadest just above the base then drawn out and tapered to an obtuse apex. Column c. 2.8 mm long, c. 1.4 mm wide, purplish to reddish. Column foot ligulate, c. 0.7 mm long, the apex incurved. Column wings very shallowly notched; lobes slightly unequal, not divergent; posterior lobe slightly longer, linear, paler, obtuse, entire; anterior lobe slightly shorter, broadly deltate, dark purplish, obtuse, curved, the anterior margins densely and irregularly ciliate, with cilia to c. 0.5 mm long. Anther c. 1 mm long, with a filiform rostrum c. 0.6 mm long. Pollinarium c. 1 mm long; pollinia c. 0.9 mm long, yellow, coarsely granular; caudicle vestigial; viscidium c. 0.2 mm wide. Stigma ovate-elliptic, c. 1 mm long, c. 0.6 mm wide. Capsules not seen.".

2. *Genoplesium insigne* is the currently accepted name on PlantNET (Royal Botanic Gardens and Domain Trust accessed June 2014) but the species was previously known (and listed under the *Threatened Species Conservation Act* 1995, NSW Scientific Committee 2001) as *Genoplesium insignis* D.L.Jones. *Corunastylis insignis* (D.L.Jones) D.L.Jones & M.A.Clem. is a synonym.

3. *Genoplesium insigne* is endemic to New South Wales and occurs in the Central Coast area. This species grows in patches of *Themeda australis* amongst shrubs and sedges in heathland and forest (Jones 2001). It was known from only three locations between Charmhaven and Wyong (NSW Scientific Committee 2001). Branwhite (*in litt.* April 2013) identified six sites where the species occurs, two of which should be considered a single site as they are only separated by a road. Of these five sites, two have been cleared for development. Consequently, there are three extant populations for this species sited between Charmhaven and Chain Valley Bay and two populations near Wyong and Toukley which are considered extinct.



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4. The geographic distribution of *Genoplesium insigne* is very highly restricted. The extent of occurrence (EOO) ranges from 40 $km^2$ for the three extant locations to 100 $km^2$ when all locations are included. The EOO was measured using a minimum convex polygon to contain all known sites of occurrence, as recommended for assessment by IUCN (2014). The area of occupancy (AOO) is estimated to be between 12–20 $km^2$ based on three to five 2 × 2 km grid cells, the scale recommended for assessing AOO by IUCN (2014).

5. The number of individuals of *Genoplesium insigne* is estimated to be very low. When this species was listed as Endangered in 2001, there were fewer than 20 plants found in the three locations recognised at the time (NSW Scientific Committee 2001). In 2013, two surveys done at one location recorded 10 and 13 plants (B. Branwhite *in litt.* April 2013) and a further 13 plants have been recorded in a new location nearby (R. Payne *in litt.* September 2014). At this latter location, five individuals were recorded in 2014 (R. Payne *in litt.* September 2014). All other known locations of this species in Wyong Shire were surveyed extensively in 2013 but no plants were found (B. Branwhite *in litt.* April 2013). At one extant location, the last recorded sighting of *G. insigne* was in 2000. Due to limited data it is difficult to determine if the populations are stable or otherwise. One extant population is likely to be within the Munmorah State Conservation Area and one within the Lake Macquarie Conservation Area. Populations may be at risk due to the small numbers of individuals which predisposes the species to decline via stochastic events.

6. There is little known about the ecology of *Genoplesium insigne* and many of the details of pollination, seed set, dispersal and germination are unknown. However, observation of a small population of *G. insigne* indicated flowering began in early September followed by ovary enlargement from mid- to late October and dehiscence during November and December (R. Payne 2014). Population structure and generation length are also unknown.

7. *Genoplesium insigne* is threatened by a range of factors associated with loss of habitat due to clearance of vegetation and site disturbance including urban development, road and track maintenance and off-road driving (NSW Scientific Committee 2001; B. Branwhite *in litt.* April 2013). It has been suggested that burning during flowering may kill individuals and the lack of fire may lead to changes in the ability to flower due to overgrowth of vegetation (B. Branwhite *in litt.* 2013). Similarly, mowing may have a deleterious effect on populations of this species (B. Branwhite *in litt.* April 2013). 'Clearing of native vegetation' is listed as a Key Threatening Process under the NSW *Threatened Species Conservation Act* 1995.

8. *Genoplesium insigne* D.L.Jones is eligible to be listed as a Critically Endangered species 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 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.



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**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
Scientific Committee

Exhibition period: 22/05/15 – 17/07/15 Proposed Gazettal date: 22/05/15

**References:**


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.

Jones DL (2001) Six new species and a new combination in *Genoplesium* (Orchidaceae) from Eastern Australia. *The Orchadian* **13**, 293–307.

NSW Scientific Committee (2001) *Genoplesium insignis*. Final Determination to list an endangered species under the Threatened Species Conservation Act 1995. NSW Scientific Committee, Sydney. http://www.environment.nsw.gov.au/determinations/GenoplesiumInsignisEndSpListing.htm (accessed June 2014)

Payne R (2014) Peak flowering and fruiting patterns in the endangered orchid *Corunastylis* sp. 'Charmhaven' on the Central Coast of New South Wales. *Cunninghamia* **14**, 203–213.

Royal Botanic Gardens and Domain Trust (2013) PlantNET – The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (version 2.0). http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Genoplesium~insigne (accessed August 2013)





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