

Chiloglottis jeanesii (Orchidaceae), a new species from Victoria.

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Editor's Note

This new *Chiloglottis* species, from alpine regions of Victoria, was recently described as new in Volume 10, pp 63-67.(1997) of *Muelleria*. That article is reproduced here for *The Orchadian*, with the kind permission of the author.

D.P.B.

Abstract

Chiloglottis jeanesii from Victoria, related to *C. valida* D.L.Jones and *C. chlorantha* D.L.Jones, is described and illustrated. *Chiloglottis jeanesii* can be distinguished by its widely spreading petals, relatively narrow (c. 5 mm wide) column and usually three columnar basal calli on the labellum.

Introduction

Continuing studies into the genus *Chiloglottis* R.Br. (Jones 1991) in south-eastern Australia have revealed the presence of a taxon in southern Victoria which is here described as a new species.

This species was at first suspected to be a natural hybrid between *C. valida* D.L. Jones and *C. cornuta* Hook.f. but an isozyme analysis of all three taxa, using leaf material supplied by Jeffrey Jeanes, has shown that this is not the case. As well my studies have shown that *C. cornuta* is autogamous and unlikely to be involved in hybridisation.

Pollination of most species in this genus is by sexual deception and experiments by Bower (1992, 1996) have shown a high degree of pollinator specificity exploiting male flower wasps (Tiphidae: Thynninae). Choice baiting studies on the new taxon have shown that it has a unique pollinator (*C. Bower* pers. comm.). These data suggest that the morphological novelty of this taxon arose via divergence rather than hybridisation, and thus taxonomic recognition at the specific rank is justified.

Methods

This study is based on the examination of fresh flowers collected from localities in south-eastern Australia, examination of dissected flowers mounted on cards, also dried and spirit-preserved herbarium specimens and

photographs of living flowers of the taxa involved. Herbarium collections (spirit and dried) were examined from AD, CANB, HO and MEL. Measurements given in the description are from living plants or dissected flowers on cards.

The isozyme banding patterns of leaf portions sampled from populations of *C. valida*, *C. cornuta* and *C. jeanesii* were obtained by Ish Sharma using starch gel electrophoresis. The methods used in this study have been outlined previously (Sharma & Jones 1992).

Taxonomy

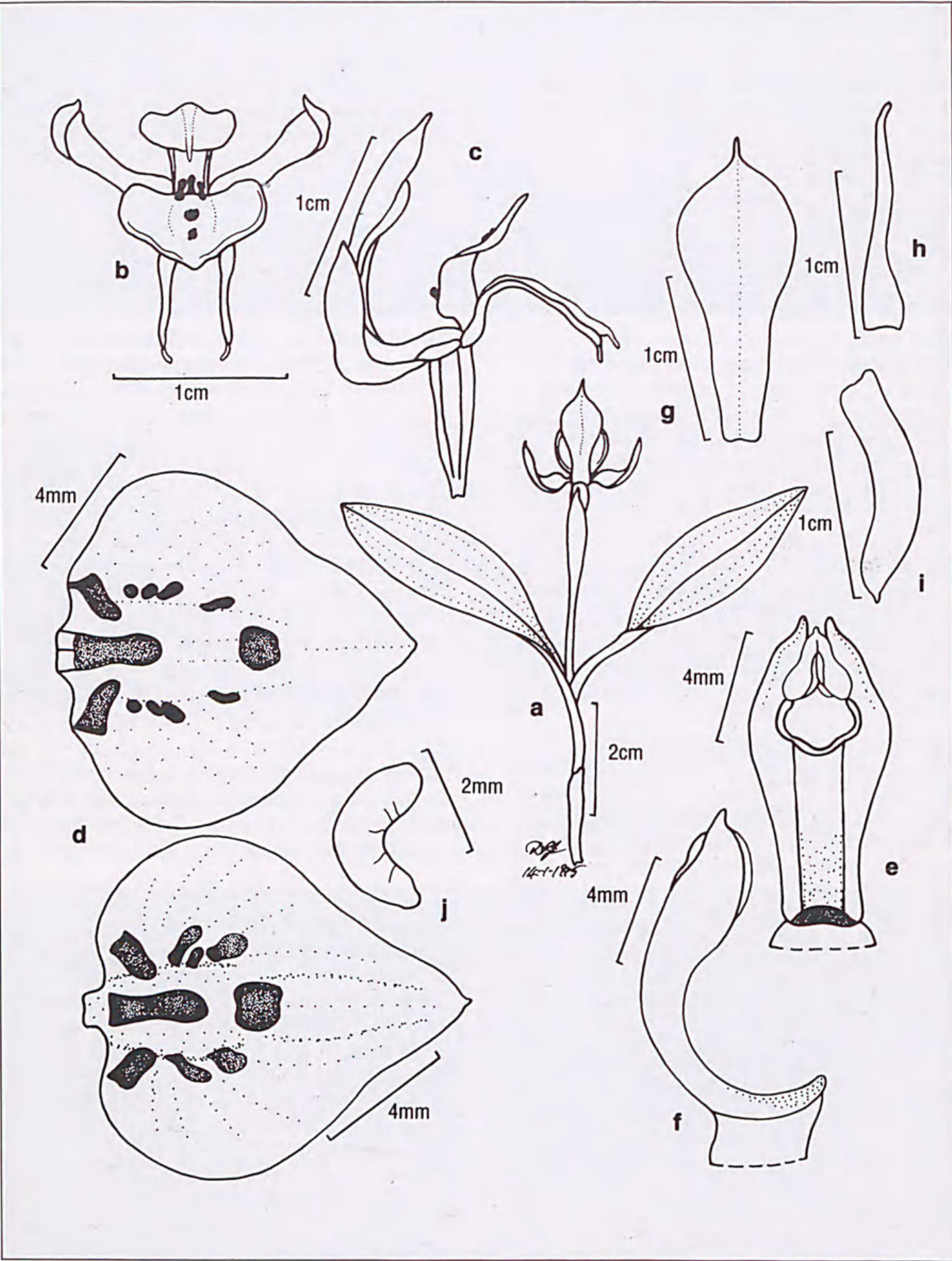
Chiloglottis jeanesii D.L.Jones.

Chiloglottis sp. aff. *valida* sensu Backhouse & Jeanes, *The Orchids of Victoria* 137 (1995); *Chiloglottis* sp. A sensu Entwisle, *Flora of Victoria* 2: 747 (1994).

TYPE: Australia, Victoria; Toorongo, 14 Jan. 1995, *C. Bower* (Jones 13809) (HOLOTYPE: CANB, ISO AD, BRI, MEL, NSW, HO).

ILLUSTRATION: Backhouse & Jeanes (1995) page 137, *The Orchids of Victoria*.

Terrestrial tuberous herb forming colonies. Leaves broadly elliptical, 5-7 cm long, 2-3 cm wide, dark green above, paler beneath, with prominent veins, entire; *petioles* 8-18 mm long. *Peduncle* 3-5 cm long, green to brownish, fleshy. *Fertile bracts* elliptical-lanceolate to obovate-lanceolate, acuminate, 15-20 mm long, 7-10 mm wide, closely sheathing, acuminate. *Pedicel* 15-20 mm long, very slender. *Ovary* c. 10 mm long, green. *Flower* solitary, 25-30 mm across, green to dark purplish brown, with shiny black labellum calli. *Dorsal sepal* obovate, 17-20 mm long, 7-9 mm wide, erect, incurved close to the column; *osmophore* c. 1.3 mm long, linear-terete, tapered,



***Chiloglottis jeanesii*, Toorongo - Victoria.** (D.L. Jones,13809) (Fig. 1).

a. plant habit; b. flower from front; c. flower from side; d. two labella, flattened out; e. column from front; f. column from side; g. dorsal sepal;h. lateral sepal; i. petal; j. pollinium;
Drawing 14/1/1995 by D.L. Jones.©

Lateral sepals narrowly linear-tapered, 14-17 mm long, c. 2 mm wide, broadest near the base then tapered to the apex, projected forwards beneath the labellum, more or less parallel; *osmophore* c. 1 mm long, linear-filiform, green. *Petals* narrowly lanceolate, 13-16 mm long, c. 2.3 mm wide, falcate, acute, widely divergent, curved upwards towards the apex. *Labellum* articulated on a short claw c. 0.7 mm long, tremulous; *lamina* ovate-cordate in outline, 10-13 mm long, 9-12 mm wide, entire, often with a light marginal band. *Lamina callus* occupying the central proximal half of the ventral surface area, the calli shiny black; *major central gland* c. 2.5 mm long, linear-terete, columnar, obtuse, erect, curved apically, this flanked by 2 similar, but shorter, calli; distal to these 3 basal calli are 3 or 4 pairs of short, irregular calli; distal gland more or less quadrate, c. 1 mm across, sessile. *Column* incurved, 12-15 mm long, 5-6 mm wide, green to brown, with reddish flecks and irregular markings on the anterior surface; *wings* c. 2.3 mm broad, extending above the anther, subacute. *Anther* c. 2.2 mm long, c. 2 mm, smooth, with a short rostrum, yellow. *Pollinia* boomerang-shaped, c. 2.7 mm long, yellow, mealy. *Stigma* ovate-elliptical, c. 2.2 mm across. *Capsule* obovoid, 10-12 mm long, 5-6 mm wide, on a swollen pedicel c. 15 cm long. (Fig. 1).

Flowering Period

November to January.

Distribution

Endemic in southern Victoria where restricted to montane habitats of the Eastern Highlands between the Sherbrooke Forest and the Baw Baw Plateau.

Ecology

Occurs in tall wet sclerophyll forest dominated by *Eucalyptus regnans* F.Muell. or *E. obliqua* L'Hérit and cool temperate rainforest dominated by *Nothofagus cunninghamii* (Hook.) Oerst. Soils are well-structured clay loams, often krasnozems. Altitude: 800-1500 m.

Recognition

This species has similarities to both *C. valida* and *C. chlorantha*. It can be distinguished from *C. valida* by its smaller perianth parts (dorsal sepal to 20 x 7 mm cf. to 30 x 17 mm; lateral sepals to 17 x 2.5 mm cf. to 23 x 11 mm; petals to 16 x 3 mm cf. to 23 x 11 mm), widely spreading petals (incurved close to the labellum

in *C. valida*), three columnar basal calli (one in *C. valida*) and a much narrower column (to 5 mm wide cf. 8 mm in *C. valida*). It shares widely spreading petals with *C. chlorantha* but that species has more lamina calli, especially on the labellum base where 5-9 calli may be grouped together in close proximity (usually three in *C. jeanesii*).

Notes

Leaves from sympatric populations growing at Toorongo, Victoria of *Chiloglottis cornuta* (Jones 11254), *C. valida* (Jones 11255) and *C. jeanesii* (Jones 11256) collected by Jeffrey Jeanes in late January 1993 were analysed for seven enzyme systems.

All the enzyme systems, namely: isocitrate dehydrogenase (IDM, EC 1.1.1.42), uridine diphospho-gluconic pyrophosphatase (UGP, EC 3.4.11.2), gluco-phosphate dehydrogenase (GPI, EC 5.3.1.9), malate dehydrogenase (MDH, EC 1.1.1.37), menadine reductase (MR, EC 1.6.99.2), malic enzyme (ME, EC 1.1.1.82), phosphogluconate dehydrogenase (PGM, EC 2.7.5.1), were found to be monomorphic.

Isozyme banding patterns and migration distances observed were identical in all the specimens assayed for all the seven enzyme systems, showing that *C. jeanesii* is not of hybrid origin between *C. valida* and *C. cornuta*.

Bower (1996) used three designs of field choice experiments to demonstrate reproductive isolation in eight species of *Chiloglottis* which have a pollination syndrome of sexual deceit involving male thynnine wasps.

Multiple choice baiting tests involving *C. valida*, *C. chlorantha* D.L. Jones and *C. jeanesii* show that all three species have unique pollinators and that *C. jeanesii* is pollinated by the thynnine wasp *Neozeleboria* aff. *impatiens* (C. Bower pers. comm.). This study will be detailed in a separate paper.

Etymology

This species is named after Jeffrey Jeanes, botanist, keen photographer and co-author of *The Orchids of Victoria*. Jeffrey, an Orchidaceae specialist, has assisted my research with specimens, provided constructive criticisms of manuscripts and has brought a number of interesting taxa to my attention.

Conservation Status

Of restricted distribution but locally common and probably overlooked.

Conserved in the Baw Baw National Park (Backhouse & Jeanes 1995) and the Dandenong Ranges National Park, Victoria.

Other Specimens Examined:

VICTORIA:
Sherbrooke Forest, 29 Nov. 1995, Bower (Jones 14659) (CANB); Toorongo, 29 Jan. 1993, Jeanes (Jones 11256) (CANB).

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Southern Range Extension for *Liparis swenssonii* Bailey

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Liparis in general are not “fashionable” orchids and seldom receive a great deal of attention. *Liparis reflexa* and the closely related *L. swenssonii* are prime examples, with their smelly yellowish-green flowers. Most orchid enthusiasts, when visiting prime orchid habitats, list *L. reflexa* as an afterthought on their “finds for the day”, more interested in other rare or unusual discoveries.

But is it always *L. reflexa* they have found? As most of us know, *L. swenssonii* (previously known as *L. reflexa* var. *parviflora*) replaces *L. reflexa* in “Northern New South Wales and Southern Queensland”. True *L. reflexa* is endemic to New South Wales - reportedly north to the Hastings River. The furthest north I have knowingly encountered this species is Alum Mountain, Bulahdelah.

On a recent visit to Darryl & Alison Smedley’s “farm” near Lorne, we went on a bushwalk at nearby Swan’s Crossing. Here we saw heaps of *Liparis* growing on rocks and I was

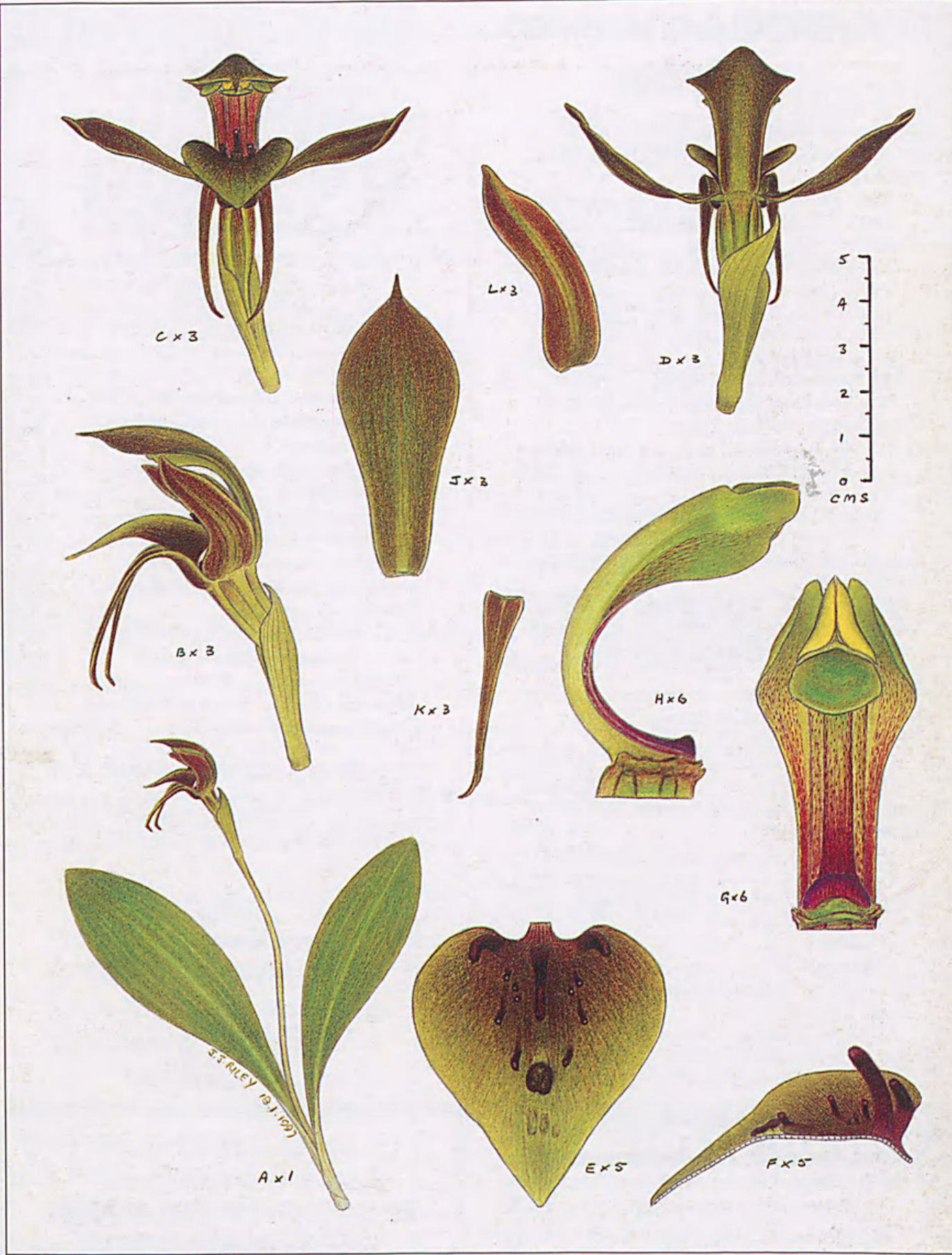
Acknowledgements

I thank Ish Sharma for carrying out the isozyme analysis on leaf material supplied by Jeffrey Jeanes, and Colin Bower for collecting specimens and for supplying information on pollination vectors. Alex George provided the Latin diagnosis which was modified by Peter Bostock. Mark Clements, Laurie Adams, Bob Bates and Jeff Jeanes commented on the manuscript. The Directors of the Australian Orchid Foundation are thanked for their support of field operatives and I thank the Directors of AD, CANB, HO and MEL for allowing me access to specimens.

suspicious. A small dislodged piece found its way back home and upon flowering has been confirmed as *L. swenssonii*. Specimens from this collection are lodged at the Australian National Herbarium in Canberra and represents the southern known limit of distribution.

So what are the true ranges for both species. Pay a bit more attention next time you come across a lithophytic *Liparis*, and report your find to the Australian National Herbarium, P.O. Box 1600, Canberra A.C.T. 2601.





***Chiloglottis jeanesii*, Toorongo - Victoria**

- a. Plant, b. Flower side view, c. Flower front view, d. Flower rear view, e. Labellum - flattened, f. Labellum - longitudinal section, g. Column - front view, h. Column -side view, j. Dorsal sepal, k. Lateral sepal, l. Petal

Drawing 18/1/1997 by J.J. Riley.©



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