

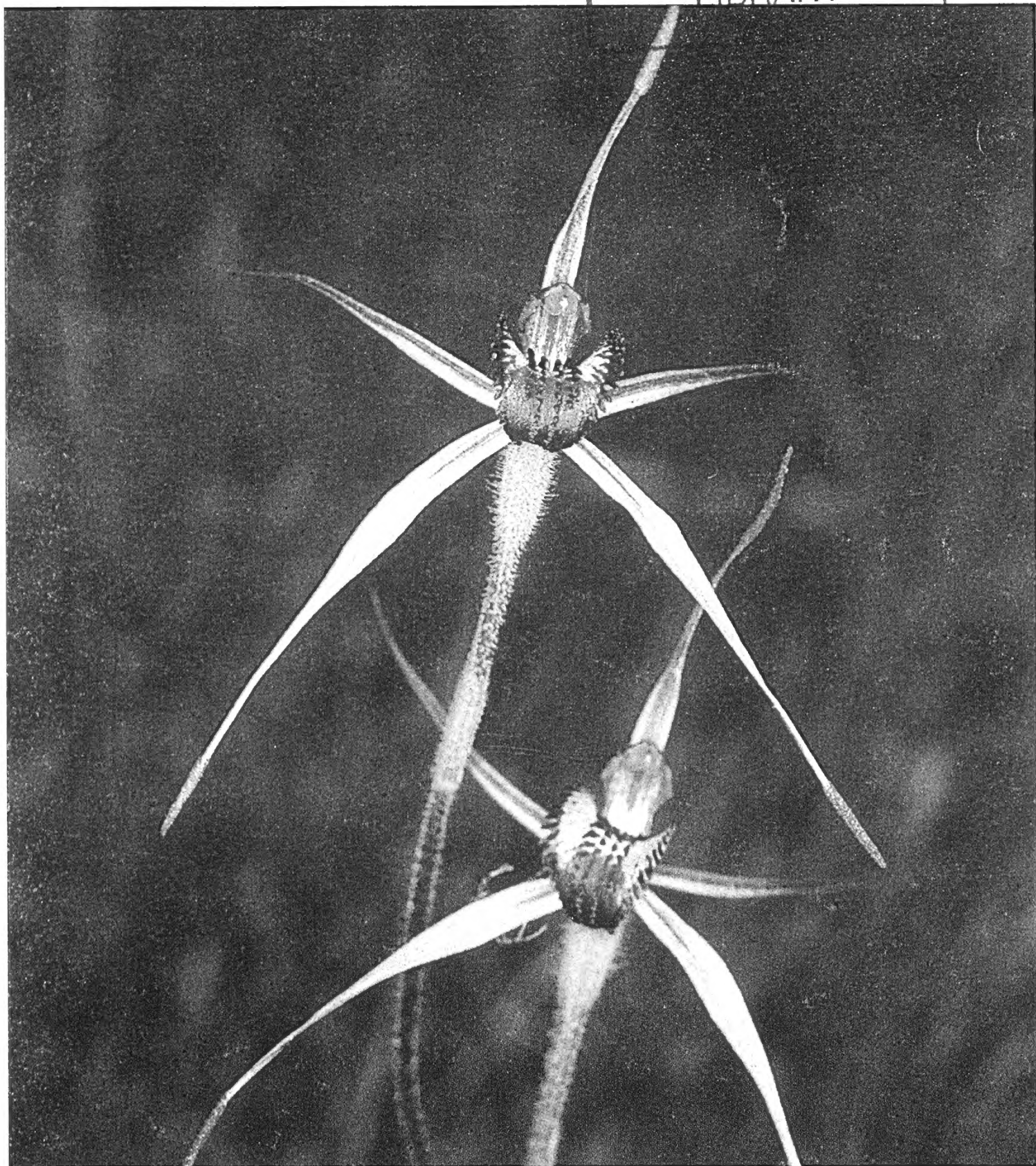
Royal Botanic Gardens
of New South Wales
The Orchadian

- 8 OCT 1999

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Official Journal of the Australasian Native Orchid Society
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P.G. Branwhite

Caladenia callitrophila

A New Species from the Wahgunyah State Forest, New South Wales

From the Editor...

Spring is finally here and the show season is now upon us. Have you noticed that it is generally the specimen plants that attract the most attention from the public at shows? Yet, where do all the "die hards" invariably congregate? Yes, you guessed it, around the Hybrid Seedling classes. This is where all the future champions start out in life. Seedlings are certainly the window to the future. I find it ironic that you can easily purchase many fine (and often awarded) divisions and/or mericlones of exotic orchid hybrids; then try buying a piece of a showbench *Dendrobium* or *Sarcochilus* hybrid.

Congratulations to our Conservation Officer, Alan Dash, who was one of thirty recipients of the 1999 Premier's Seniors Achievement Awards. Alan was recognised for his work with ANOS and the National Parks and Wildlife Service. At the recent (August 1999) ANOS Annual General Meeting, Alan was also bestowed Life Membership of ANOS.

Life Membership was also unanimously granted to Sid Batchelor for his significant contribution to the promotion and advancement of cool growing Australian *Dendrobium* hybrids. This nomination was proposed by elder statesman and ANOS Patron, Wal Upton and seconded by Michael Harrison. Sid made and registered over 25 *Dendrobium* hybrids, many incorporating the now well-known 'Yondi' name. He utilised his *D. Star of Gold 'Bathurst'* with superb results. Arguably the best being his remake of *D. Star of Riverdene* (using *D. speciosum* subsp. *pedunculatum*). *D. Star of Riverdene 'Amanda'* HCC/ANOS won the Champion Hybrid at the 2nd ANOS Conference and another clone of Sid's breeding won the *Dendrobium* section at the prestigious Tokyo Dome show in Japan a few years ago. Sid also bred the outstanding *D. Yondi Tina 'Goliath'* AM/ANOS. Sid is also Patron of ANOS Sydney Group. Congratulations Sid.

David P. Banks





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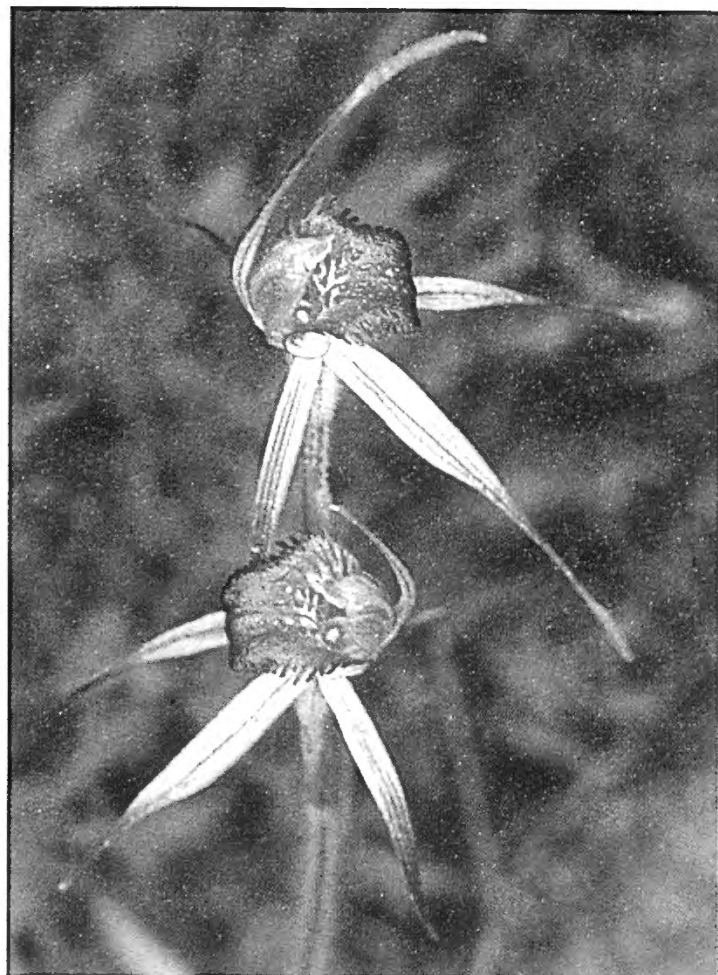
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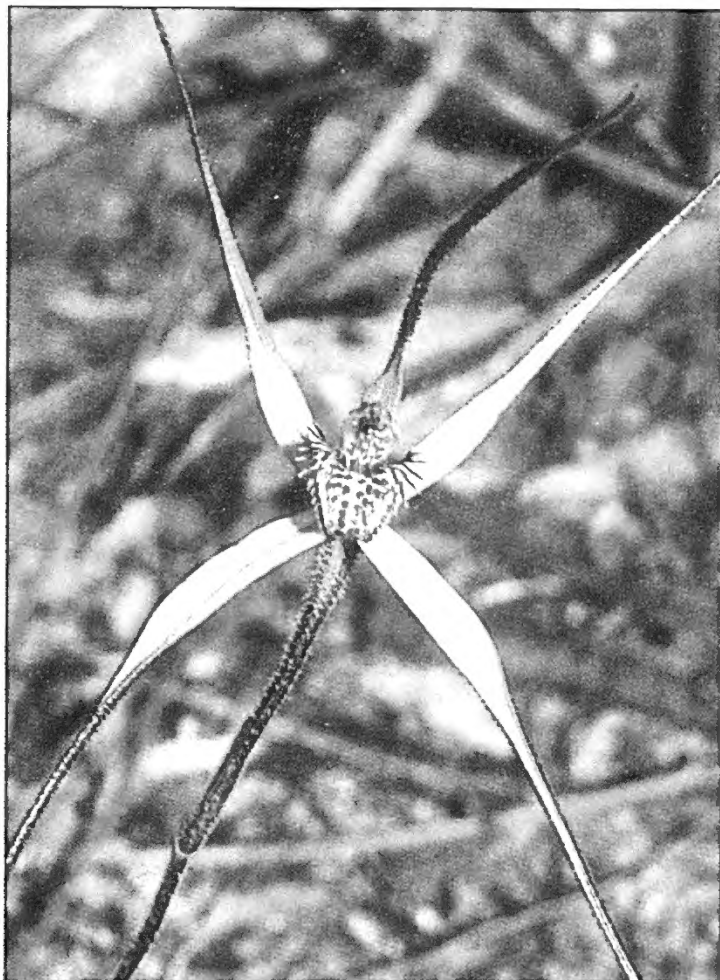
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Caladenia callitrophila
from Wahgunyah State Forest, NSW



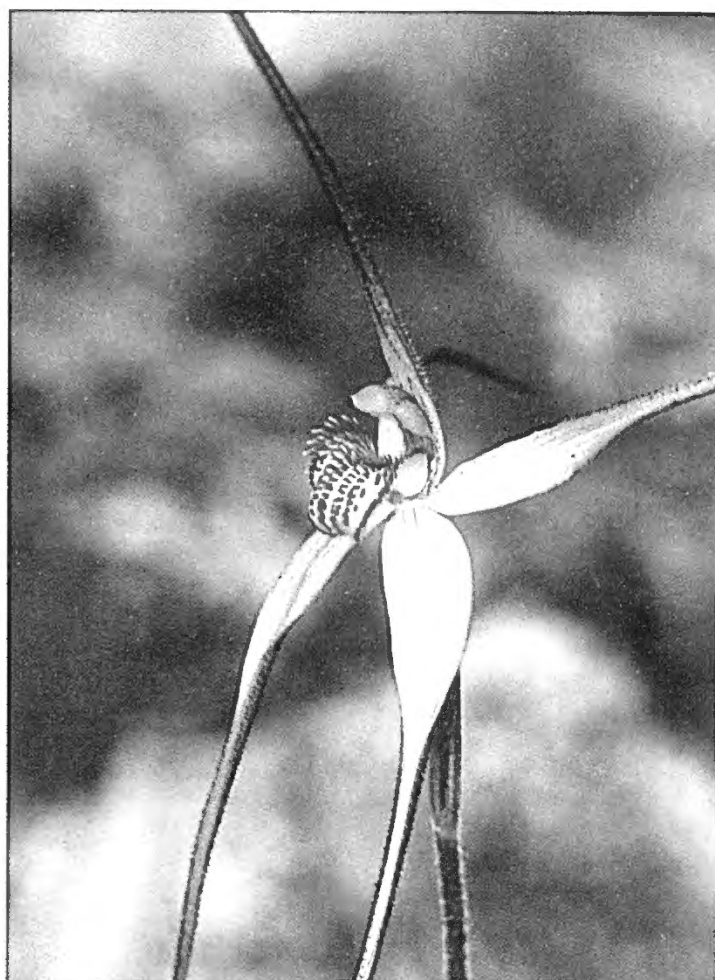
P.G. Branwhite

Caladenia callitrophila
from Wahgunyah State Forest, NSW



P.G. Branwhite

Caladenia pilotensis
from Mt. Pilot, Victoria



P.G. Branwhite

Caladenia pilotensis
from Mt. Pilot, Victoria

Eight New Species of *Caladenia* R.Br. (Orchidaceae) from Eastern Australia

David L. Jones

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Australian National Herbarium,
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Abstract

Caladenia callitrophila, *C. chamaephylla*, *C. cruciformis*, *C. maritima*, *C. pilotensis*, *C. porphyrea*, *C. sanguinea* and *C. subtilis*, all from eastern Australia, are described as new.

Key Words

Orchidaceae, *Caladenia callitrophila*, *C. chamaephylla*, *C. cruciformis*, *C. maritima*, *C. pilotensis*, *C. porphyrea*, *C. sanguinea*, *C. subtilis*, new species, Australian flora.

Introduction

Caladenia R.Br., a substantial complex genus of terrestrial orchids, comprises about 250 species in Australia (Jones 1998). The genus has been reviewed for Tasmania (Jones 1998) and studies are continuing into *Caladenia* in eastern and western areas of Australia prior to a treatment for Volume 47 of the *Flora of Australia*. As a result of my own field collections and fresh material received from field operatives, the following species of *Caladenia* are described as new. Some of these species are rare and require protective measures to ensure their conservation.

Methods

All types or photographs of types of taxa relevant to this study have been examined. Herbarium collections (spirit and dried) were studied from AD, BRI, CANB, MEL and NSW. Measurements given in the description are from living plants.

TAXONOMY

1. *Caladenia callitrophila* D.L.Jones sp. nov., *C. stellatae* D.L.Jones affinis, sed floribus majoribus; osmophoribus sepalorum longioribus, atrioribus; labello atro-fasciato; etiam *C. australi* G.W.Carr affinis, sed labello atro-fasciato, et labelli marginalibus distalibus non dentatis, differt.

Typus: New South Wales, near Berrigan, 21 Sept. 1993, P.Branwhite (D.L.Jones 12046) (holotype CANB, isotypes MEL, NSW).

Illustration: Plate 365, Bishop (1996) - as *C. sp. aff. australis* (Berrigan).

Hirsute terrestrial tuberous herb growing singly or in loose groups. Leaf erect, linear-lanceolate, 7-13 cm long, 0.4-1.2 cm wide, dull green, base blotched with red, densely hirsute with patent, transparent, eglandular trichomes to 5 mm long. Scape 20-35 cm tall, wiry, densely hirsute proximally with trichomes similar to those on the leaf, distally these mixed with glandular trichomes to c. 1.5 mm long. Sterile bracts closely sheathing, linear-obovate, 13-25 mm long, 3-6 mm wide, involute, acuminate, externally hirsute. Fertile bracts closely sheathing, oblong, 8-22 mm long, 4-6 mm wide, acute to acuminate, externally hirsute. Pedicel 2-5 cm long. Flowers 1 or 2, 5-6 cm diam., usually pale greenish yellow, occasionally reddish; labellum yellowish with red veins and a dark red apex; sepaline osmophores blackish; floral fragrance not noticeable. Tepals glandular externally; dorsal sepal erect, slightly incurved or recurved; lateral sepals obliquely decurved, divergent; petals obliquely decurved. Dorsal sepal narrowly oblong, 25-38 mm long, 1.5-2 mm wide, narrowed in distal third to a short, filiform, channelled cauda c. 0.3 mm wide, terminated by a thickened, linear, dark red osmophore 6-13 mm long, c. 0.8 mm wide. Lateral sepals lanceolate, 25-38 mm long, 3.5-4 mm wide, narrowed in the distal third to a filiform channelled cauda c. 0.3 mm wide, terminated by a smaller, but similar osmophore to that on the dorsal sepal. Petals linear-lanceolate, 22-28 mm long, c. 2-2.5 mm wide, long-acuminate. Labellum articulated on a short claw c. 1 mm long, 1.5 mm wide, obscurely 3-lobed. Lamina ovate to ovate-lanceolate in outline when flattened, erect in proximal third then projecting forwards, the apex strongly recurved; lateral lobes c. 2.5 mm wide, the margins splayed out; marginal fringe of 6-9 pairs of linear, straight or curved teeth, the longest c. 1.3 mm long; mid-lobe ovate-deltate in outline when flattened, basal margins with 3-6 pairs of short blunt teeth, the distal third to half with an irregular marginal band. Lamina calli in 4 or 6 rows, extending midway on the mid-lobe, the basal calli marginally distinct from the rest; basal calli 4 or 6, erect, crowded; stalk c. 0.5 mm long; head ovoid, c. 0.5 mm long; main

lamina calli numerous, crowded, mostly prominently stalked but those towards the apex sessile; longest lamina calli c. 1.2 mm long, semi-erect to hockey-stick-shaped, stalked; stalk c. 0.5 mm long; head c. 0.8 mm long, straight or curved when viewed from the side, narrowly linear-tapered from above. *Column* 9.5-11.5 mm long, 4-4.5 mm wide, recurved in proximal third then incurved, translucent reddish, narrowly winged; basal glands stalked c. 1.3 mm long, head asymmetrically globose, shiny, yellow, stalk red. *Anther* c. 2.5 mm long, c. 2 mm wide, red, with a short, linear rostrum. *Pollinia* 4, c. 2.4 mm long, broadly deltate, flat; yellow, mealy. *Stigma* c. 2 mm wide, green, more or less elliptical, sunken. *Capsule* not seen. **Fig. 1.**

Distribution and Ecology

Known only from 2 sites in southern New South Wales, one near Berrigan and the other near Goombargana. It grows on gentle slopes in woodland dominated by *Callitris glaucophylla* Joy Thomps. & L.A.S.Johnson and *C.endlicheri* (Parl.) F.M.Bailey. The soils are reddish to brown gravelly loams. Altitude: c. 100-120 m. Flowering period: September and October.

Recognition

Caladenia callitrophila is similar to *C. stellata* D.L.Jones but with larger flowers (*C. stellata* has flowers c. 4 cm diam.), longer darker sepaline osmophores and dark veins on the labellum. It also has affinities with *C. australis* G.W. Carr but can be distinguished by the dark veins on the labellum and the distal parts of the labellum mid-lobe with an irregular marginal band rather than discrete teeth.

Notes

The population in Wahgunyah State Forest consists of about 20 plants and about 500 occur near Goombargana (pers. comm. Peter Branwhite)

Etymology

From the generic name *Callitris* and the Greek *-philus*, loving, in reference to this species growing in *Callitris* woodland.

Conservation Status

Of very restricted distribution and not conserved; one population has recently suffered from illegal poaching by orchid growers (P. Branwhite pers. comm.); suggest 2E according to the criteria of Briggs & Leigh (1996).

Specimens Examined

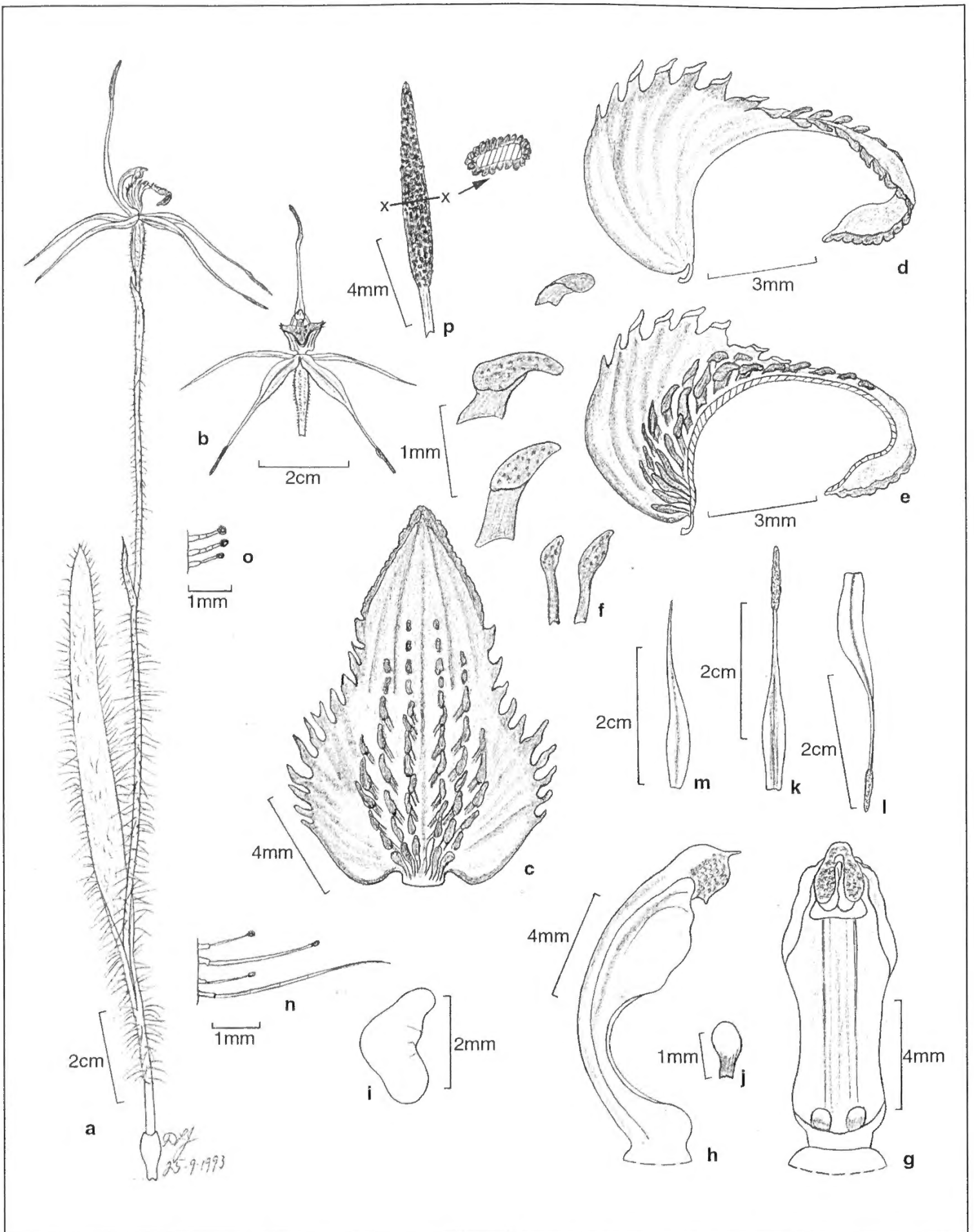
New South Wales. near Berrigan, 19 Oct. 1992, Branwhite (D.L.Jones 10363 (CANB)); *ibid*, 3 Oct. 1995, Branwhite (D.L.Jones 14457) (CANB); near Goombargana, 3 Oct. 1995, Branwhite (CANB); *ibid*, Oct. 1998, Branwhite (ORG 1605) (CANB).

2. *Caladenia chamaephylla* D.L.Jones, sp. nov., Affinis *C. fuscatae* (Rchb.) M.A.Clem. et D.L.Jones et *C. carneae* R.Br. affinis, sed folio prostrato abaxialiter rubescente; labelli callis laminae parvis, et lobi medii callis marginalibus paucis brevissimis, differt.

Typus: Queensland. Cook District: Little Forks, near Shiptons Flat, 8 June 1994, L.J.Roberts (D.L.Jones 13025) (holotype: CANB).

Illustration: None found.

Sparsely hirsute, terrestrial *herb* growing singly or in small to large groups. *Leaf* linear, 3-10 cm long, 0.35-0.55 cm wide, prostrate, dark green adaxially, reddish abaxially; apex acute to acuminate; trichomes sparse, to 0.5 mm long, glandular, patent. *Scape* 8-16 cm tall, thin and wiry, with glandular trichomes similar to those on the leaf. *Sterile bracts* closely sheathing, oblong-ovate, 3-6 mm long, 2-2.5 mm wide, subacute to obtuse, externally hirsute. *Floral bracts* closely sheathing, narrowly oblong, 3-4 mm long, 2.5-3 mm wide, obtuse, externally hirsute. *Flower* solitary, 15-20 mm diam., pale pink to bright pink internally, externally similar; labellum white to pale pink with darker pink bars and a cream apex; column whitish with a few pink to purplish bars; floral odour undetectable. *Tepals* very sparsely glandular externally, with a darker median line; dorsal sepal erect or recurved; lateral sepals porrect or obliquely decurved, slightly divergent; petals incurved. *Dorsal sepal* narrowly oblong-elliptic, 10-15 mm long, 2.5-3 mm wide; apex obtuse to subacute. *Lateral sepals* narrowly ovate-lanceolate, 12-16 mm long, 3.5-4.5 mm wide, apex acute. *Petals* narrowly lanceolate, 9-14 mm long, 2.5-3.5 mm wide, apex subacute. *Labellum* hinged at the base. *Lamina* prominently 3-lobed, 7-8.5 mm long, 6.5-7.2 mm wide, erect in the proximal half then porrect; apex recurved; lateral lobes c. 3 mm wide, erect and flanking the column; margins entire to slightly irregular; mid-lobe narrowly deltate, 2-2.5 mm long, c. 2 mm wide; marginal calli 3 or 4 pairs, to 0.3 mm long, like small teeth. *Lamina calli* in 2 rows, extending onto the base of the mid-lobe, the basal calli distinct from the rest; basal calli 4, c. 1.3 mm long; stalk c. 0.6 mm long, white; head ovoid, c. 0.7 mm long, orange to reddish; main lamina calli 7 to 10 pairs, not crowded, cream or yellow, straight or slightly curved; longest lamina calli c. 1 mm long.

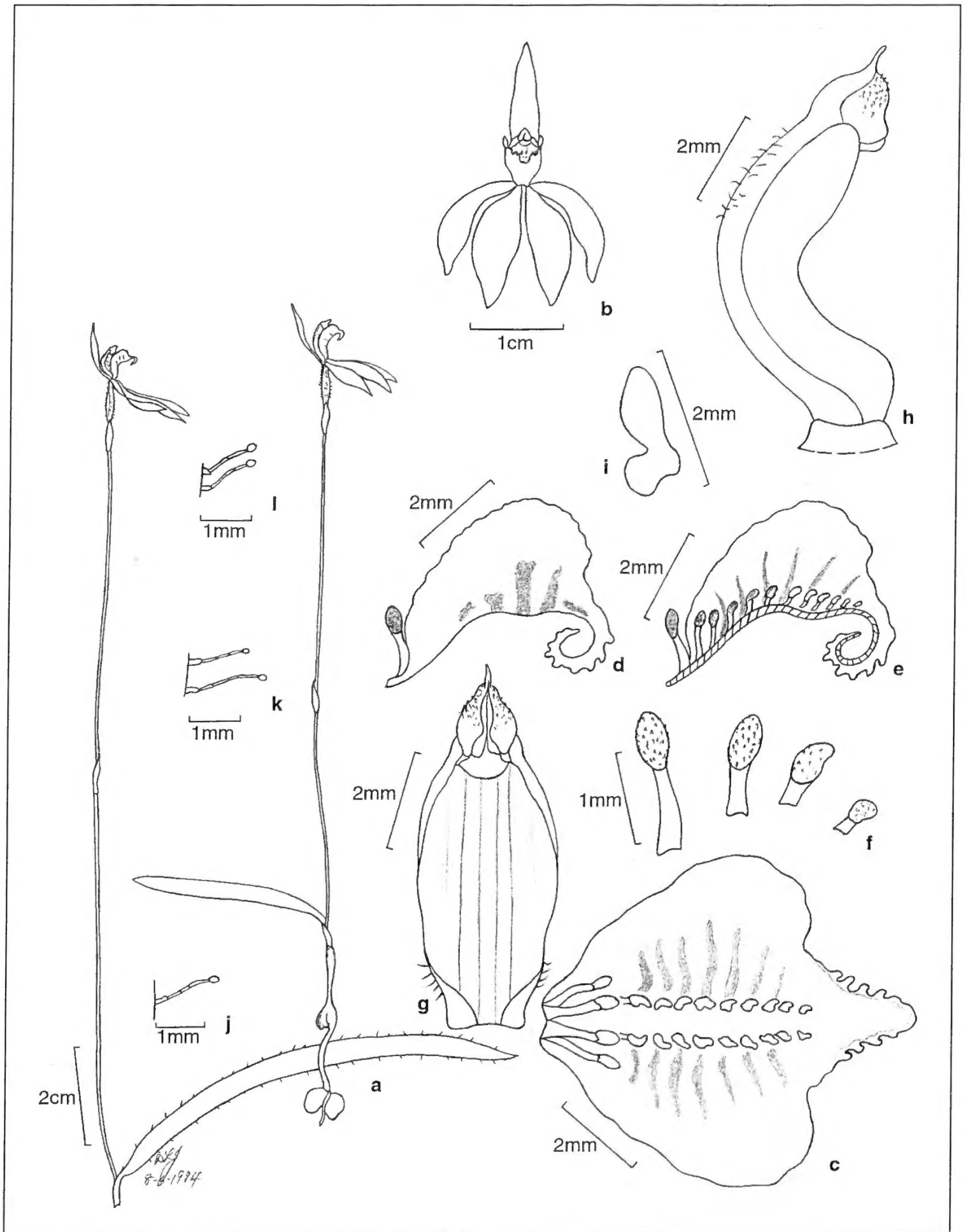


***Caladenia callitrophila*, Wahgunyah State Forest - New South Wales.**

P.G. Branwhite (D.L. Jones 12046), (drawn from type) Fig. 1.

- a. plant; b. flower from front; c. labellum from above, flattened out; d. labellum from side; e. longitudinal section of labellum; f. labellum calli; g. column from front; h. column from side; i. pollinium; j. column gland; k. dorsal sepal; l. lateral sepal; m. petal; n. leaf trichomes; o. ovary trichomes; p. osmophore from dorsal sepal.

Drawing 25/9/1993 by D.L. Jones.©

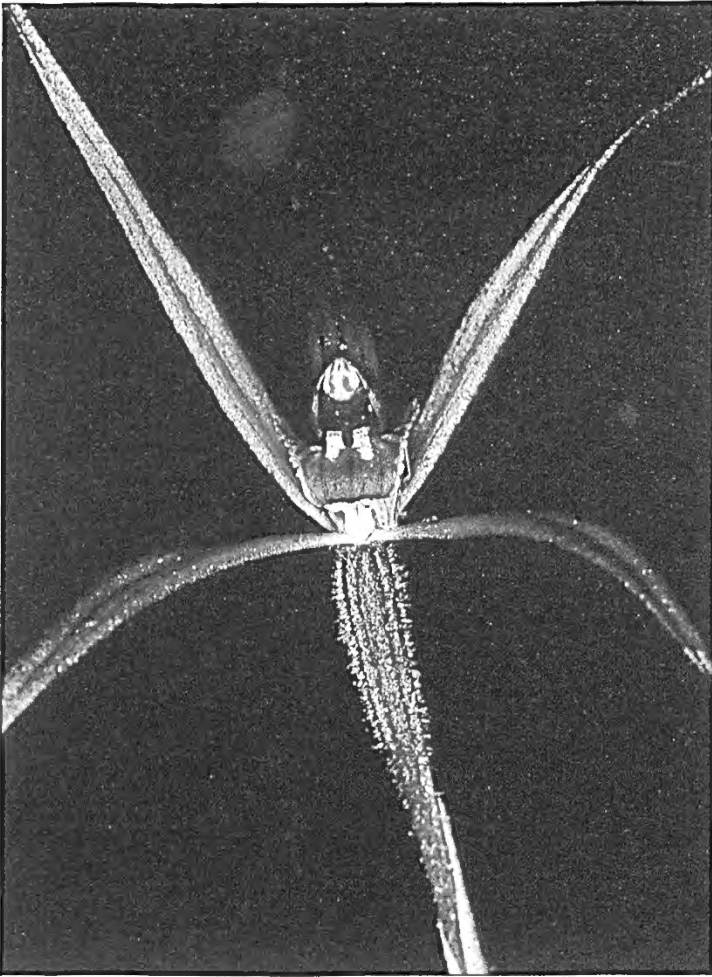


***Caladenia chamaephylla*, Little Forks - Queensland.**

L.J.Roberts, (D.L.Jones 13025) (drawn from type), Fig. 2.

a. plants; b. flower from front; c. labellum from above, flattened out; d. labellum from side; e. longitudinal section of labellum; f. labellum calli; g. column from front; h. column from side; i. pollinium; j. leaf trichome; k. stem trichomes; l. ovary trichomes.

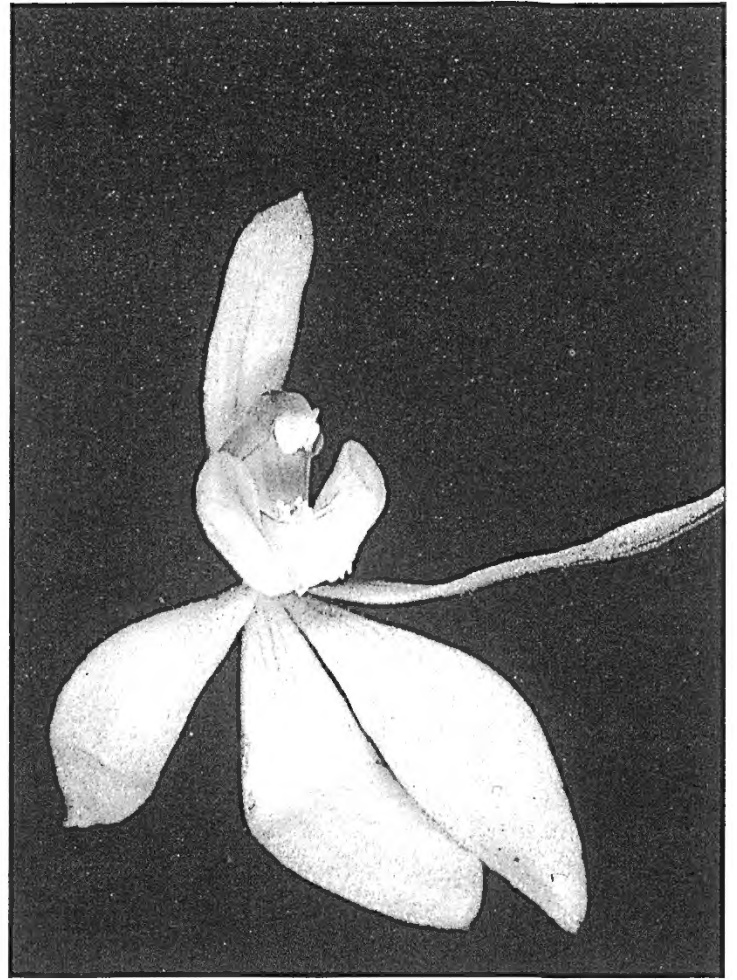
Drawing 8/6/1994 by D.L. Jones.©



M.A. Clements

Caladenia sanguinea

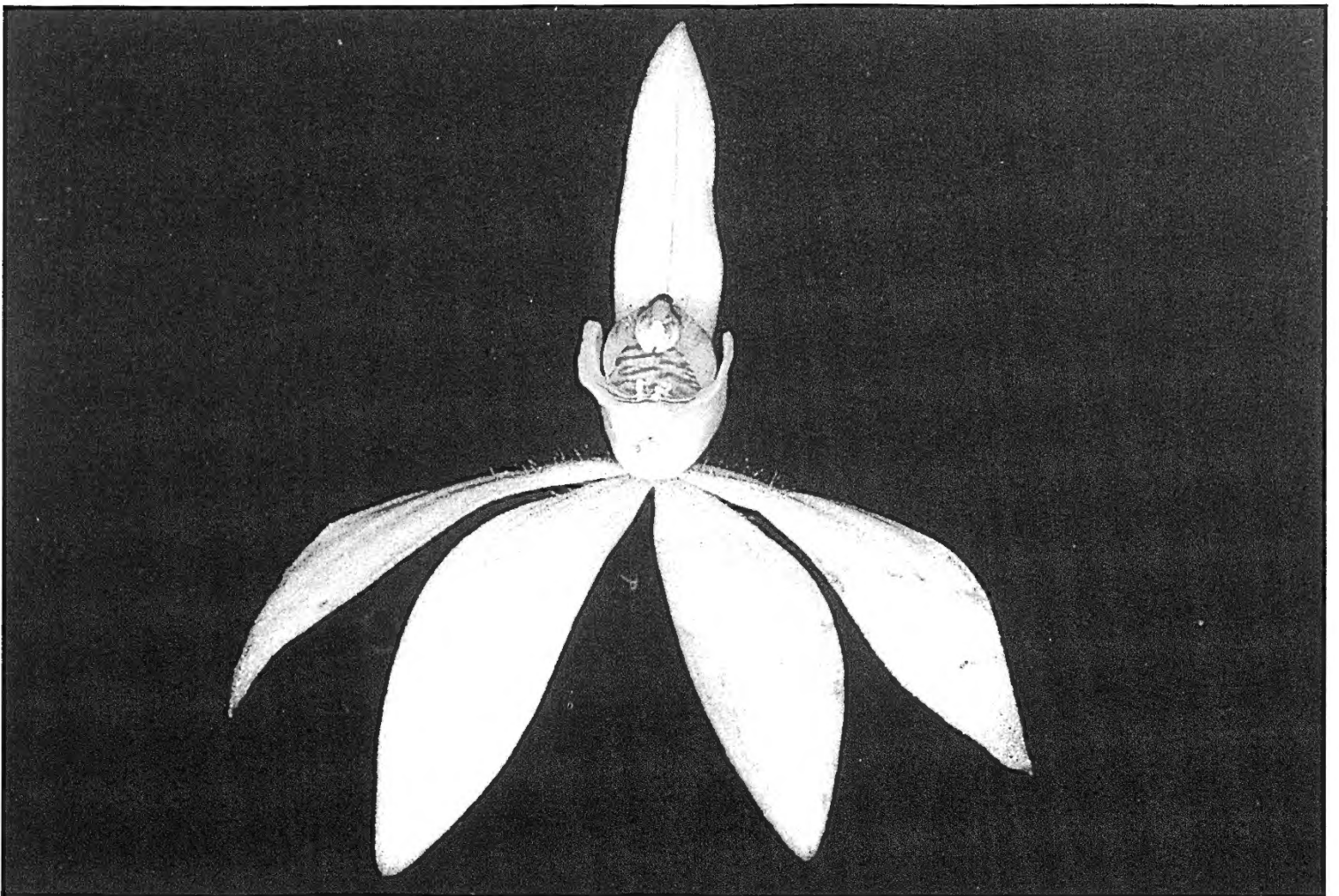
From Seal Bay Rd. Kangaroo Island, S.A.



M.A. Clements

Caladenia chamaeophylla

From Little Forks, Qld



M.A. Clements

Caladenia chamaeophylla from Little Forks, Qld.

Column 6.5-7.5 mm long, 2.5-3 mm wide, curved forwards from near the middle, very broadly winged; central ridge 1 mm wide. *Anther* c. 2 mm long, 1.3 mm wide, pink, densely papillate, green; rostrum linear, prominent. *Pollinia* 4, c. 1.8 mm long, lobed, white, mealy. *Stigma* more or less circular, c. 1.2 mm wide, sunken, green. *Capsule* not seen. **Fig. 2.**

Distribution and Ecology

Apparently restricted to the Cook District of north-eastern Queensland between Mt Misery and Mt Norkwa. Grows among low shrubs in open forest and woodland, sometimes in shallow soils over sandstone. It also colonises disturbed sites such as gravel scrapes. Soils vary from coarse sandy loams and gravelly loams to red or grey loams. Altitude: c. 200-500 m. Flowering period: May to July.

Recognition

Caladenia chamaephylla has affinities with *C. fuscata* (Rchb. f.) M.A.Clem. & D.L.Jones, and *C. carnea* R.Br. but can be distinguished from both by its very early flowering period; prostrate leaf which has a reddish undersurface; small lamina calli; and, few, very short marginal calli on the labellum mid-lobe.

Etymology

Derived from the Greek *chaemae*-, lowly, creeping, on the ground and *-phyllus*, leaved, in reference to the prostrate leaves of this species.

Conservation Status

Relatively widespread, often locally abundant and conserved in Starcke River National Park.

Specimens Examined

Queensland. Little Forks, near Shiptons Flat, 21 May 1996, Roberts (ORG 71) (CANB); *ibid*, 14 June 1996, Roberts (ORG 1430) (CANB); Mt Norkwa, 26 June 1999, Roberts (ORG 2626) (CANB).

3. *Caladenia cruciformis* D.L.Jones sp. nov., *C. reticulatae* Fitzg. affinis, sed floribus majoribus, atro-rufis ad sanguineis; et tepalis rigide patentibus cruciformibus, differt.

Typus: Victoria. Stuart Mill - Dalyenong Rd, 7 Oct. 1998, D.L. Jones 15802, M.Garratt and E.Foster (holotype CANB, isotypes AD, MEL, NSW).

Illustration: Plate 363, Bishop (1996) - as *C. sp. aff. reticulata* (Dalyenong).

Hirsute, terrestrial, tuberous *herb* growing singly or in loose groups. *Leaf* erect, linear-lanceolate, 5-11 cm long, 3.5-6 mm wide, dull green, base blotched with red, densely hirsute with patent, transparent, eglandular trichomes to 5 mm long. Scape 15-25 cm tall, wiry, densely hirsute proximally with trichomes similar to those on the leaf, distally these mixed with glandular trichomes to c. 1 mm long. *Sterile bracts* closely sheathing, linear-obovate, 13-17 mm long, 4-6 mm wide, involute, acuminate, externally hirsute. *Fertile bracts* closely sheathing, oblong-obovate, 8-14 mm long, 4-5 mm wide, acute to acuminate, externally hirsute. *Pedicel* 15-35 mm long. *Flower* solitary, 5-7 cm diam., dark red to crimson or occasionally pinkish with dark red stripes; sepaline osmophores blackish red; floral fragrance resembling a hot motor. *Tepals* glandular externally; dorsal sepal erect, slightly incurved or recurved; lateral sepals and petals spreading stiffly in the shape of a cross. *Dorsal sepal* narrowly oblong, 28-40 mm long, 1.5-2 mm wide, narrowed in distal third to a short, filiform, channelled cauda c. 0.3 mm wide, terminated by a thickened, linear, dark red osmophore 6-15 mm long, c. 0.8 mm wide. *Lateral sepals* lanceolate, 28-40 mm long, 4-4.5 mm wide, narrowed in the distal third to a short, filiform, channelled cauda c. 0.3 mm wide, terminated by a smaller, but similar osmophore to that on the dorsal sepal. *Petals* linear-lanceolate, 25-35 mm long, c. 2-2.5 mm wide, long-acuminate. *Labellum* articulated on a short claw c. 1 mm long, 1.5 mm wide, dark red, base whitish with darker veins, obscurely 3-lobed. *Lamina calli* in 4 or 6 rows, extending nearly to the labellum apex, the basal calli marginally distinct from the rest; basal calli 4 or 6, erect, crowded; stalk c. 0.4 mm long; head ovoid, c. 0.5 mm long; main lamina calli numerous, crowded, mostly prominently stalked but those towards the apex sessile; longest lamina calli c. 1.3 mm long, semi-erect to hockey-stick-shaped, stalked; stalk c. 0.4 mm long; head c. 0.5 mm long, straight or curved when viewed from the side, narrowly linear-tapered from above. *Column* 9-11 mm long, 4-4.5 mm wide, recurved in proximal third then incurved, translucent dark red, narrowly winged; basal glands stalked, c. 1.3 mm long, head asymmetrically globose, shiny, yellow, stalk red. *Anther* c. 2.8 mm long, c. 2 mm wide, red, with a short, linear rostrum. *Pollinia* 4, c. 2.1 mm long, broadly deltate, flat, yellow, mealy. *Stigma* c. 2 mm wide, green, more or less elliptical, sunken. *Capsule* not seen. **Fig. 3.**

Distribution and Ecology

Known only in the Stuart Mill - Dalyenong area of central Victoria, where it grows on gentle slopes in heathy forest in grey-brown sandy loam. Altitude: c. 40-80 m. Flowering period: September and October.

Recognition

This species belongs to a complex of difficult-to-identify taxa surrounding *C. reticulata* Fitzg., members of which typically have small flowers with well-developed sepaline osmophores. *Caladenia cruciformis* is a distinctive member of this complex which can be distinguished from all others by the relatively large, dark red to crimson flowers with stiffly spreading, almost rigid perianth segments which are arranged like a cross. No other members of the complex have this combination of characters. By contrast, *C. reticulata* has smaller (c. 35 mm diam.), paler flowers with decurved perianth segments and a boldly striped labellum. Further work is being carried out on this complex.

Etymology

Derived from the Latin *cruciformis*, cross-shaped, in reference to the attitude of the petals and lateral sepals.

Conservation Status

Of restricted occurrence, poorly known and not conserved; suggest 2KR by the criteria of Briggs & Leigh (1996).

Other Specimen Examined

Victoria: Stuart Mill, near Dalyenong, 17 Oct. 1997, Foster (CANB).

4. *Caladenia maritima* D.L.Jones, sp. nov.,

C. catenatae (Smith) Druce affinis, sed folio fere glabro; floribus minoribus; labello columnaue purpureo-tincta et fasciata; labelli callis laminae 6-14, in seriebus 2, non confertis, et callis marginalibus paribus 1-3, differt.

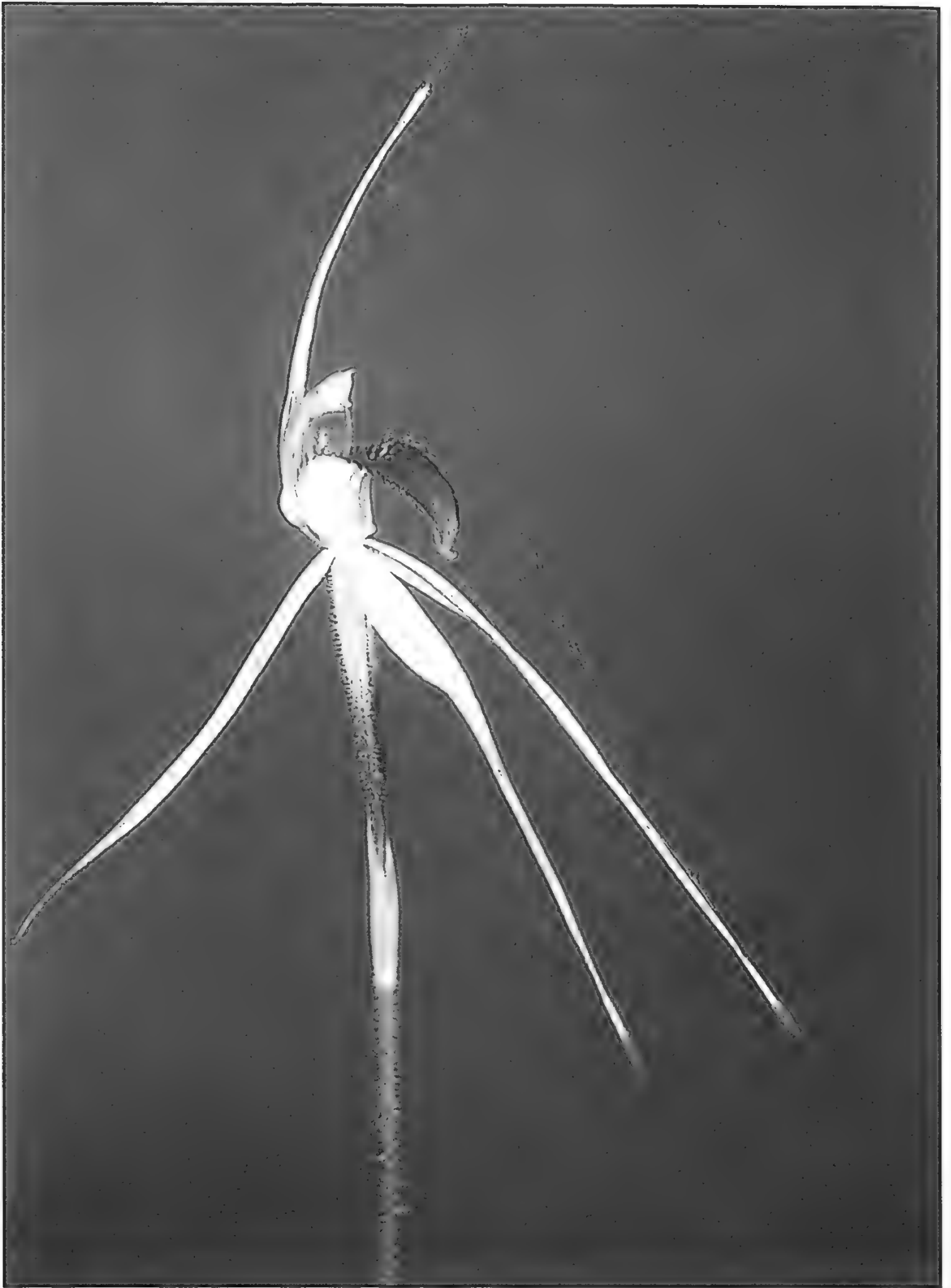
Typus: Victoria, near Anglesea, 7 Oct. 1998, D.L.Jones 15810, M.Garratt and E.Foster (holotype CANB, isotypes MEL, NSW).

Illustration: None found.

Hirsute, terrestrial *herb* growing singly or in small groups. *Leaf* narrowly linear, 8-15 cm long, 0.1-0.25 cm wide, erect, almost glabrous, dark green, base purplish, acute; trichomes very sparse, c. 0.7 mm long, transparent, glandular, patent. *Scape* 10-20 cm tall, very slender, wiry, densely covered with glandular trichomes similar to those on the leaf. *Sterile bracts* closely sheathing, oblong-obovate, 8-12 mm long, 3-4 mm wide, subacute, externally hirsute. *Floral bracts* closely sheathing, narrowly oblong, 6-7 mm long, 3-3.5 mm wide, obtuse, externally hirsute. *Flower* solitary, 25-30 mm diam., white internally, externally greenish white; labellum white, heavily stained and barred with purple, the apex orange; basal calli orange, rest white; column greenish, heavily stained and barred with purple; floral odour undetectable. *Tepals* moderately glandular externally, with a narrow, darker medial band; dorsal sepal erect to shallowly incurved; lateral sepals obliquely decurved, slightly divergent; petals widely spreading. *Dorsal sepal* narrowly oblong, 10-15 mm long, 2-2.5 mm wide, internally glabrous, subacute. *Lateral sepals* lanceolate, 13.5-17 mm long, 4-5.5 mm wide, internally glabrous, subacute. *Petals* lanceolate, 13-15 mm long, 4-5 mm wide, acute to acuminate. *Labellum* hinged at the base. *Lamina* prominently 3-lobed, 7-9 mm long, 5.5-7.5 mm wide, erect in the proximal third then curved forwards; apex recurved; lateral lobes c. 2.8 mm wide, erect and column-embracing, entire; mid-lobe narrowly ovate-deltate, 2.5-3 mm long, c. 2.5 mm wide; marginal calli 1-3 pairs, to 1 mm long, narrowly linear, straight or curved. *Lamina calli* in 2 rows, extending to the base of the mid-lobe, the basal calli distinct from the rest; basal calli 4, c. 1.6 mm long; stalk c. 0.7 mm long, white; head ovoid, c. 0.9 mm long, orange; main lamina calli 3 to 7 pairs, uncrowded, white, the distal ones curved forwards; longest lamina calli c. 1.2 mm long; stalk c. 0.5 mm long, white; head linear or slightly clavate. *Column* 8-9.5 mm long, c. 4 mm wide, porrect from the ovary, broadly winged; central ridge 1.5 mm wide. *Anther* c. 1.7 mm long, 1.6 mm wide, green, densely papillate; rostrum prominent. *Pollinia* 4, c. 1.3 mm long, roughly deltate, deeply lobed, white, mealy. *Stigma* more or less circular, c. 1.8 mm wide, sunken, green. *Capsule* not seen. **Fig. 4.**

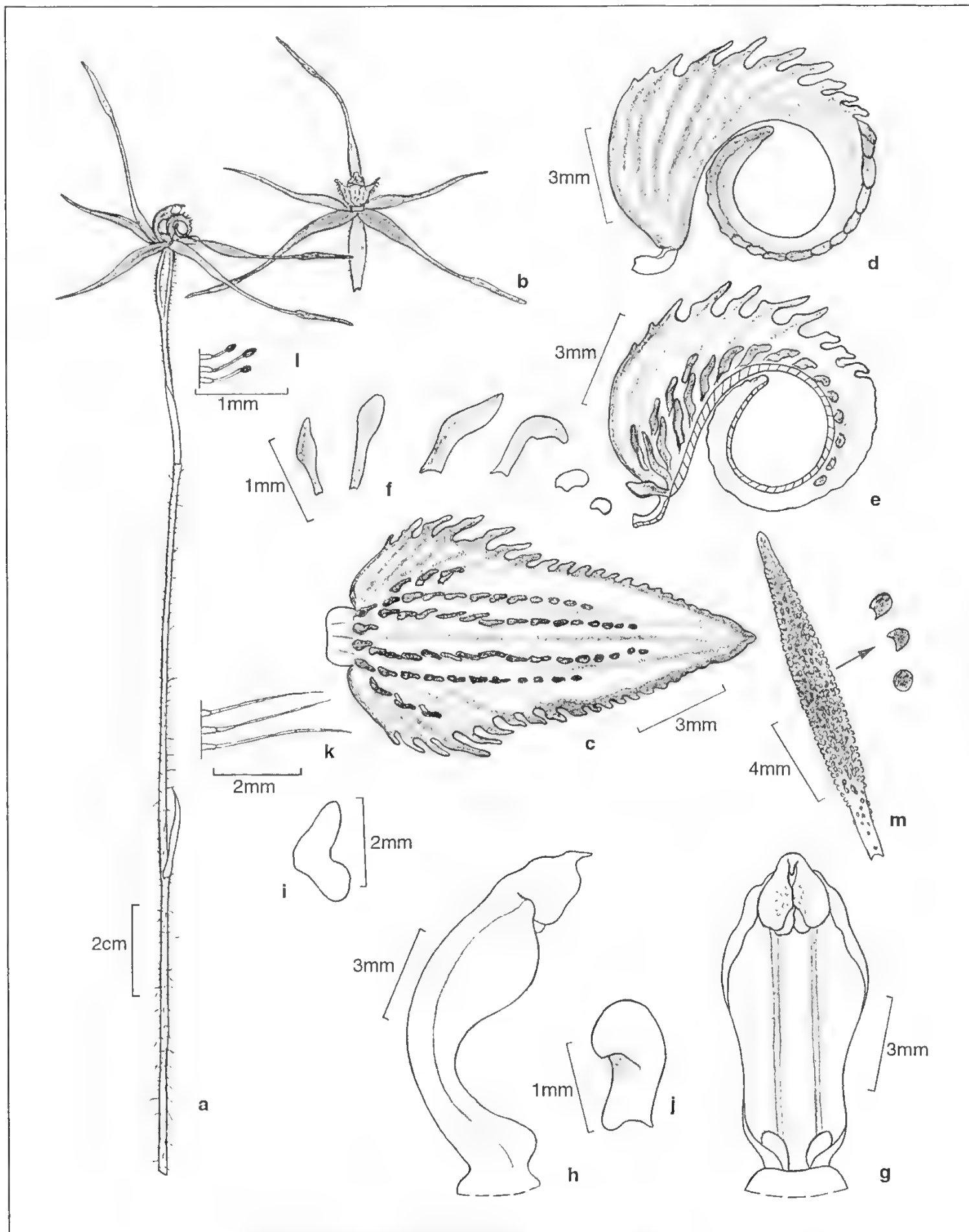
Distribution and Ecology

Apparently endemic in the vicinity of Anglesea in southern Victoria, where currently known from a single site. It grows among low shrubs on slopes in sparse, stunted forest with *Eucalyptus obliqua* L'Hér. and a dense heathy understorey. The site is close to the coast and overlooks Bass Strait. The soil is a dark grey sandy loam. Altitude: c. 30 m. Flowering period: September and October.



M.A. Clements

Caladenia subtilis
from Giro State Forest, New South Wales.

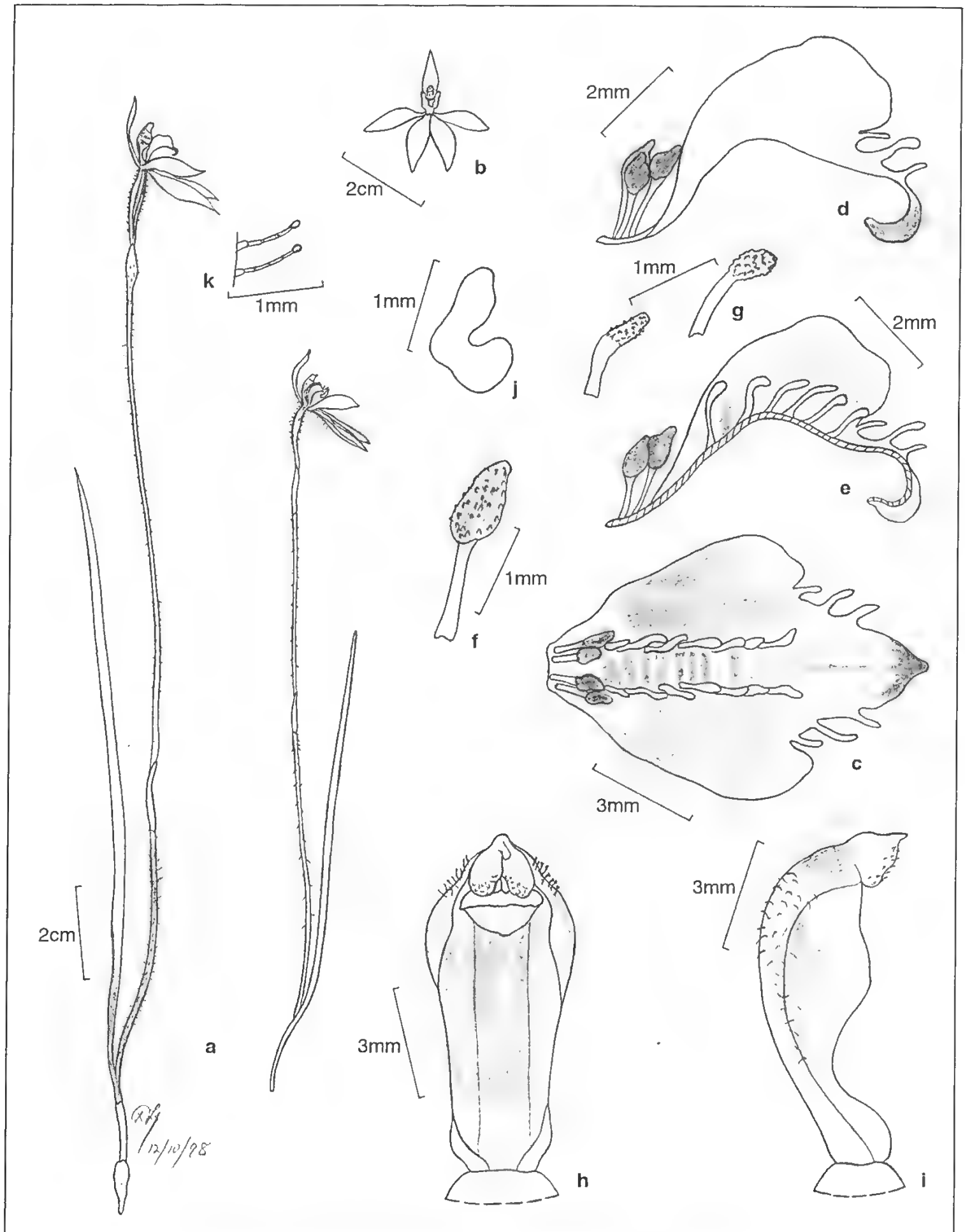


***Caladenia cruciformis*, Stuart Mill - Victoria.**

E. Foster, Fig. 3.

- a. flower and scape; b. flower from front; c. labellum from above, flattened out;
 d. labellum from side; e. longitudinal section of labellum; f. labellum calli; g. column from front;
 h. column from side; i. pollinium; j. column gland; k. stem trichomes;
 l. ovary trichomes; m. osmophore from dorsal sepal.

Drawing by D.L. Jones.©



***Caladenia maritima*, near Anglesea - Victoria.**

(D.L. Jones 15810) (drawn from type), Fig. 4.

a. plants; b. flower from front; c. labellum from above, flattened out; d. labellum from side; e. longitudinal section of labellum; f. basal calli; g. labellum calli; h. column from front; i. column from side; j. pollinium; k. ovary trichomes.

Drawing 12/10/1998 by D.L. Jones.©

Recognition

Similar to *Caladenia catenata* (Smith) Druce but with generally smaller (25-30 mm diam. cf. 30-40 mm) flowers; smaller, mostly narrower tepals (dorsal sepal to 15 x 2.5 mm cf. to 19 x 4 mm; lateral sepals to 17 x 5.5 mm cf. to 22 x 6.5 mm; petals to 15 x 5 mm cf. 22 x 5 mm); the labellum and column heavily stained and barred with purple (usually white in *C. catenata*, occasionally pinkish); 6-14 lamina calli in 2 uncrowded rows (18-26 lamina calli in 4 crowded rows in *C. catenata*) and 1-3 pairs of marginal calli (5-9 pairs in *C. catenata*). The leaf of *C. maritima* has remarkably few hairs for a *Caladenia* of this group, being almost glabrous, with a few scattered trichomes to 0.7 mm long. By contrast the leaf of *C. catenata* is densely hairy throughout, with trichomes to 2 mm long. Additionally the flowers of *C. maritima* are more densely glandular on the exterior surface and each tepal has a distinctly darker median line. The flowers of *C. catenata* have many fewer external glands than those of *C. maritima* and rarely have a median line on the tepals.

Notes

C. maritima would appear to be a narrow endemic which has been overlooked because of its general similarity to *C. catenata*. The latter species is widely distributed in eastern Queensland and New South Wales, and in eastern Victoria is scattered disjunctly in southern parts, at one time extending to the outer eastern suburbs of Melbourne. Plants from some areas in south Gippsland, which have characteristics somewhat intermediate between *C. catenata* and *C. carnea*, require further study (Backhouse & Jeanes 1995).

There has been some speculation that *C. maritima* is a stabilised hybrid, but the absence of any putative parents at the type site and the lack of significant variation in the substantial population examined suggests that this is unlikely.

To date *C. maritima* is known from a single locality. It may occur in other sites nearby, but this I rather doubt. Anglesea has been a mecca for orchid enthusiasts for more than 50 years and it is interesting that the presence of this species has been noted only recently. The population is estimated at about 150 plants.

Etymology

Derived from the Latin *maritimus*, maritime, by the seashore, in reference to the type locality, which overlooks Bass Strait.

Conservation Status

Of very restricted distribution but conserved in a gazetted reserve: suggest 1KC by the criteria of Briggs & Leigh (1996)

Specimen Examined

None apart from the type collection.

5. *Caladenia pilotensis* D.L.Jones, sp. nov.,
C. fragrantissimae subsp. *orientali* G.W.Carr affinis,
sed floribus parum fragrantis; et labelli dentibus
marginalibus lobi medii claviformibus, differt.

Typus: Victoria, Mt Pilot, c. 500 m., 16 Sept. 1998, D.L. Jones 15727, M.Garratt and P.Branwhite (holotype CANB, isotypes MEL, NSW).

Illustration: None found.

Hirsute, terrestrial *herb* growing singly or in small, loose groups. *Leaf* lanceolate, 7-13 cm long, 1-1.5 cm wide, dull green, base red to purple-blotched; trichomes dense on both surfaces, to 6 mm long, patent, transparent, eglandular. *Scape* 25-32 cm tall, wiry, densely hirsute, with a mixture of transparent, eglandular trichomes to 6 mm long and a few short glandular trichomes towards the apex. *Sterile bracts* spreading, narrowly ovate-lanceolate, 16-25 mm long, 3-5 mm wide, long-acuminate, involute, externally hirsute. *Floral bracts* closely sheathing, ovate-lanceolate, 15-23 mm long, 5-7 mm wide, acuminate, externally shortly hirsute. *Flowers* 1 or 2, 7-10 cm diam., creamy white, sometimes with darker red lines, with a slight citrus scent; tepaline caudae blackish; labellum cream or reddish; calli reddish; column translucent, greenish or reddish. *Tepals* densely glandular distally, with up to 7 ovoid glands united in moniliform chains; dorsal sepal erect; lateral sepals divergent, obliquely deflexed to drooping; petals obliquely deflexed to drooping. *Dorsal sepal* 60-80 mm long, 3.5-4 mm wide, oblong-elliptic in the proximal third, then tapered to a thick, blackish, glandular cauda. *Lateral sepals* 60-80 mm long, 5.5-7.5 mm wide, ovate-lanceolate in proximal third, then gradually tapered to thick, blackish, glandular caudae. *Petals* 40-70 mm long, 3-5 mm wide, lanceolate in proximal third, gradually tapered to thick, blackish, glandular caudae. *Labellum* articulated on a short claw c. 0.8 mm long, c. 2 mm wide. *Lamina* obscurely three-lobed, broadly ovate-lanceolate in outline when flattened, 15-20 mm long, 8-11 mm wide, erect in

proximal third then curved forwards; apex strongly recurved; lateral lobes c. 4 mm wide, erect; marginal calli 8-12, linear, 1-2 mm long, dark purplish, widely spreading, incurved; head narrowly linear, outer face white; mid-lobe ovate-deltate in outline when flattened, obtuse; margins with numerous, very short, peg-like, purplish teeth, becoming decrescent and fused towards the apex. *Lamina calli* in 4 or 6 rows, extending nearly to the labellum apex, the basal calli marginally distinct from the rest; basal calli 6 or 8, crowded; stalk c. 0.5 mm long; head 1-1.2 mm long, erect, narrowly linear-tapered, whitish; main lamina calli numerous, crowded, mostly prominently stalked but those towards the apex sessile and irregularly arranged; longest lamina calli c. 1.5 mm long, hockey-stick-shape, stalked; stalk c. 1 mm long; head c. 0.5 mm long, curved when viewed from the side, narrowly linear-tapered from above. *Column* 12-15 mm long, c. 6 mm wide, translucent green with red markings, recurved in the proximal third then incurved, broadly winged; basal glands ovoid, c. 1 mm long, c. 0.8 mm wide, yellow. *Anther* c. 2.5 mm long, c. 2.5 mm wide, cream-green, occasionally yellowish; rostrum linear, c. 0.6 mm long. *Pollinia* 4, 2.5-3 mm long, deltate, lobed, flat, yellow, mealy. *Stigma* elliptic, c. 3 mm wide, sunken. *Capsule* not seen. **Fig. 5.**

Distribution and Ecology

Apparently endemic to Mt Pilot in north-eastern Victoria. It grows on slopes in eucalypt woodland with an extremely sparse understorey, amid scattered large granite boulders. The soil is a very freely draining grey gravelly loam. Altitude: c. 500 m. Flowering period: September and October.

Recognition

The new species is part of a complex of taxa surrounding *C. fragrantissima* D.L.Jones & G.W.Carr. Members of this group can be distinguished from members of the *C. patersonii* R. Br. complex by the osmophore cells on the glandular caudae being regularly arranged in moniliform chains, often consisting of 3 or more cells. *Caladenia pilotensis* has as its closest congener *Caladenia fragrantissima* subsp. *orientalis* G.W. Carr. It can be distinguished from that taxon by its more northerly distribution (*C. fragrantissima* subsp. *orientalis* occurs in coastal areas of southern Victoria), lightly fragrant flowers (strongly fragrant in *C. fragrantissima* subsp. *orientalis*) and peg-like marginal teeth on the labellum mid-lobe (truncate or obliquely cut in *C. fragrantissima* subsp. *orientalis*). *Caladenia fragrantissima* subsp. *orientalis* grows in lowland heath and heathy woodland, whereas the new species grows in sparse woodland on granitic slopes.

Notes

The population of this species is estimated at 50-100 plants.

Etymology

From Mt Pilot, the type locality.

Conservation Status

Of very restricted distribution and poorly conserved (if at all) in a multi-use park; suggest 1EK?C according to the criteria of Briggs & Leigh (1996).

Other Specimen Examined

Victoria. Mt Pilot, 20 Oct. 1992, *Branwhite* (CANB).

6. *Caladenia porphyrea* D.L.Jones, sp. nov., *C. catenatae* (Smith) Druce affinis, sed floribus plerumque corallinis ad purpureo-roseis (raro albis); et labello columnaue prominente rubro-purpurea fasciata, differt.

Typus: New South Wales. Norah Head, 6 Oct. 1996, *B.Branwhite* (ORG 294) (holotype CANB, NSW).

Illustration: None found.

Hirsute, terrestrial *herb* growing singly or in small groups. *Leaf* narrowly linear, 15-25 cm long, 0.25-0.45 cm wide, erect, dark green, base reddish, apex acute; trichomes sparse, c. 0.7 mm long, transparent, glandular, patent. *Scape* 20-35 cm tall, very slender, wiry, densely covered with glandular trichomes similar to those on the leaf. *Sterile bracts* closely sheathing, oblong-obovate, 8-12 mm long, 3-4 mm wide, subacute, externally hirsute. *Floral bracts* closely sheathing, narrowly oblong, 6-7 mm long, 3-3.5 mm wide, obtuse, externally hirsute. *Flower* solitary, 30-40 mm diam., usually bright pink to purplish pink internally, occasionally white, externally greenish white to brownish purple; labellum white, pink or purplish, heavily barred with reddish purple, the apex orange; basal calli orange, rest white; column greenish, heavily stained and barred with red; floral odour undetectable. *Tepals* moderately glandular externally, lacking a central dorsal band; dorsal sepal erect to shallowly recurved; lateral sepals porrect to obliquely decurved, slightly divergent; petals widely spreading. *Dorsal sepal* narrowly elliptic to narrowly obovate, 13-16 mm long, 3-4 mm wide, internally glabrous, subacute. *Lateral sepals* lanceolate, 17-20 mm long, 5-6.5 mm wide, internally glabrous, subacute. *Petals* lanceolate, 16-19 mm long, 3.5-5 mm wide, acute to acuminate. *Labellum* hinged at the base. *Lamina* prominently 3-lobed, 8-11 mm long, 8-

10 mm wide, erect in the proximal third then curved forwards; apex recurved; lateral lobes c. 3.8 mm wide, erect but not column-embracing, entire; mid-lobe ovate-deltate, 2.5-4 mm long, c. 3.5 mm wide; marginal calli 4-6 pairs, to 1 mm long, narrowly linear, straight or curved. *Lamina calli* in 2 rows, extending to the base of the mid-lobe, the basal calli distinct from the rest; basal calli 6 or 8, c. 2.3 mm long; stalk c. 1 mm long, white; head ovoid, c. 1.8 mm long, orange; main lamina calli 8 to 12 pairs, crowded, white, the apex of distal ones hooked forwards; longest lamina calli c. 1.4 mm long; stalk c. 1 mm long, white; head clavate. *Column* 9.5-11 mm long, c. 3.5 mm wide, porrect from the ovary, narrowly winged; central ridge 1 mm wide. *Anther* c. 2.3 mm long, 1.6 mm wide, green, densely papillate; rostrum prominent. *Pollinia* 4, c. 1.7 mm long, roughly deltate in shape, deeply lobed, white, mealy. *Stigma* more or less circular, c. 1.8 mm wide, sunken, green. *Capsule* not seen. **Fig. 6.**

Distribution and Ecology

Known with certainty from coastal parts of northern New South Wales. Similar specimens have been sporadically collected from the Blackall Range near Montville, but the flower colour of these is white or pinkish and they may represent hybrids between *C. catenata* and *C. carnea* rather than the new taxon. Much of the habitat on the coastal district of southern Queensland has been irretrievably lost. *Caladenia porphyrea* grows in heath and heathy forest and woodland, sometimes on exposed headlands. Soils are grey to white sands and sandy loam. Altitude: c. 10-40 m. Flowering period: September and October.

Recognition

Similar to *Caladenia catenata* (Smith) Druce, but usually with bright pink to purplish pink flowers and the labellum and column heavily stained and barred with red. Occasional specimens from New South Wales have white flowers, but still have the prominent barring on the labellum and column. At first glance this species could be taken for a hybrid between *C. catenata* and *C. carnea*, however apart from the colourful bars, the plants have no other features of *C. carnea*. The labellum in particular has the flat marginal calli and orange apex signifying a member of the *C. catenata* group.

Etymology

Derived from the Greek *porphyreos*, purple, in reference to the flower colour.

Conservation Status

Poorly known but conserved and apparently locally common (pers. comm. B. Branwhite); suggest 2KC by the criteria of Briggs & Leigh (1996).

Specimens Examined

New South Wales: Wyrabalong Natl Pk, 6 Oct. 1997, *Branwhite* (CANB); Norah Head, 22 Sept. 1997, *Branwhite & Price (ORG 840)* (CANB); Pelo Tk, Norah Head, 22 Sept. 1997, *Branwhite & Price (ORG 843)* (CANB); Norah Head, 30 Sept. 1997, *Branwhite (ORG 866)* (CANB).

7. *Caladenia sanguinea* D.L. Jones, sp. nov., *C. filamentosae* R.Br. affinis, sed habitu brevior; folio sparsim piloso; floribus parvis, nitentibus, sanguineis; et labello parvo apice plerumque attenuato, differt.

Typus: South Australia. Kangaroo Island, American River, Tip site, 7 Sept. 1994, *D.L. Jones 13276 & B.E. Jones* (holotype CANB, isotype AD).

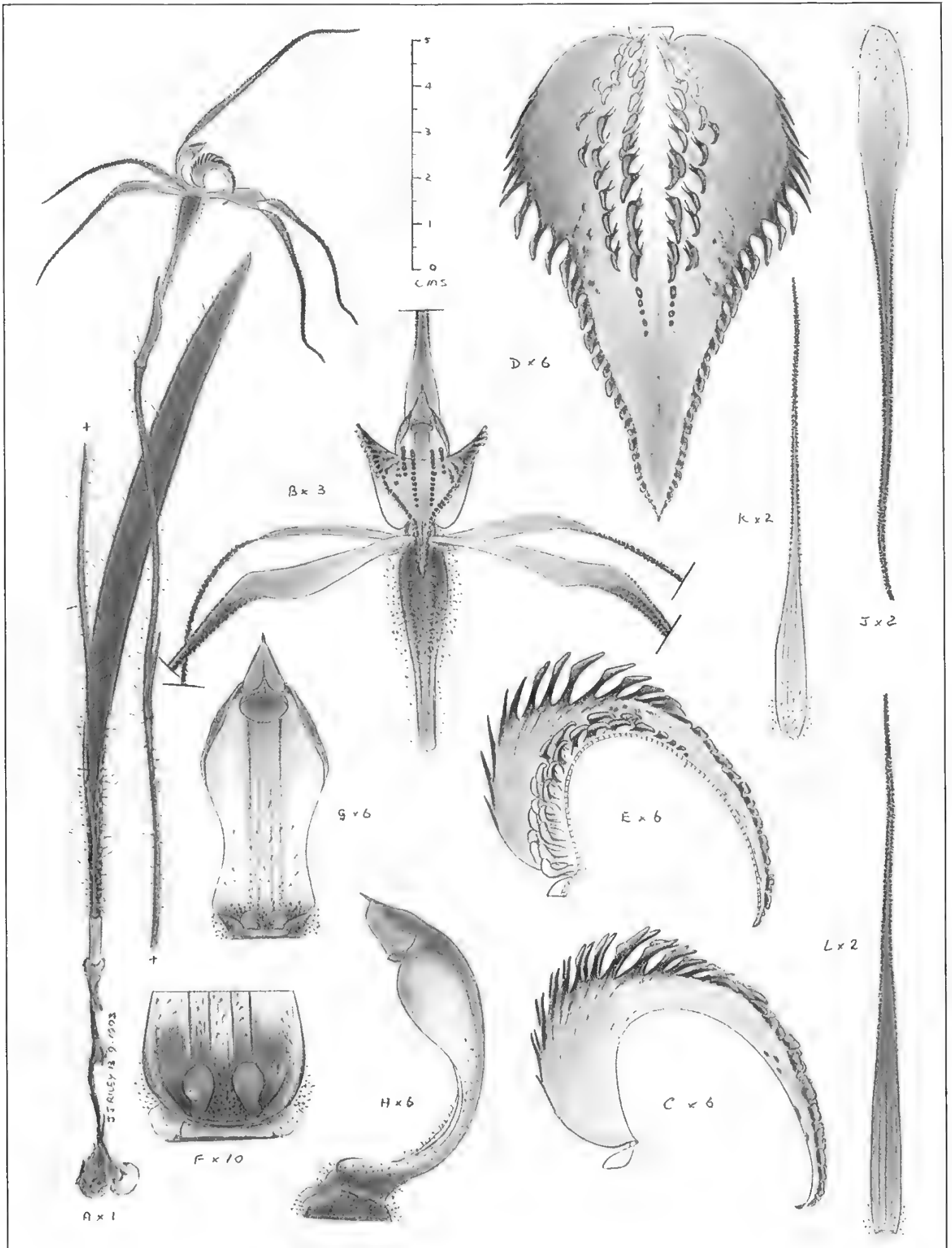
Illustration: None found.

Hirsute, terrestrial, tuberous *herb* growing singly or in small crowded tufts. *Leaf* erect, narrowly linear-lanceolate, 5-11 cm long, 0.2-0.3 cm wide, dull green; base purple-blotched; trichomes sparse on both surfaces, to 1.5 mm long, patent, transparent, a mixture of eglandular and purple-headed glandular trichomes towards the leaf base. *Scapes* 6-16 cm tall, very thin and wiry, hirsute, with glandular purple-headed trichomes to 0.5 mm long. *Sterile bracts* spreading, narrowly oblong-lanceolate, 10-15 mm long, 2-2.5 mm wide, acuminate, involute, externally hirsute. *Floral bracts* closely sheathing, narrowly ovate-lanceolate, 8-14 mm long, 3-4 mm wide, acuminate, externally shortly hirsute. *Flowers* 1 or 2, 4.5-6 cm diam., wholly dark red, shiny; labellum dark red or white towards the base, with brownish or reddish calli; column dark red. *Tepals* heavily glandular in the distal half, the glands terete and sausage-like; dorsal sepal erect; lateral sepals widely divergent, stiffly spreading to obliquely deflexed; petals obliquely erect. *Dorsal sepal* 20-65 mm long, 1.5-2 mm wide, narrowly linear-elliptic in the proximal quarter, then tapered to a filiform glandular cauda. *Lateral sepals* 20-65 mm long, 2-2.5 mm wide, narrowly lanceolate in the proximal quarter, then tapered to filiform glandular caudae. *Petals* 20-60 mm long, 1.5-2 mm wide, narrowly lanceolate in the proximal third, tapered to filiform glandular caudae. *Labellum* articulated on a short claw c. 0.6 mm long, c. 0.8 mm wide. *Lamina* obscurely 3-lobed,



P.G. Branwhite

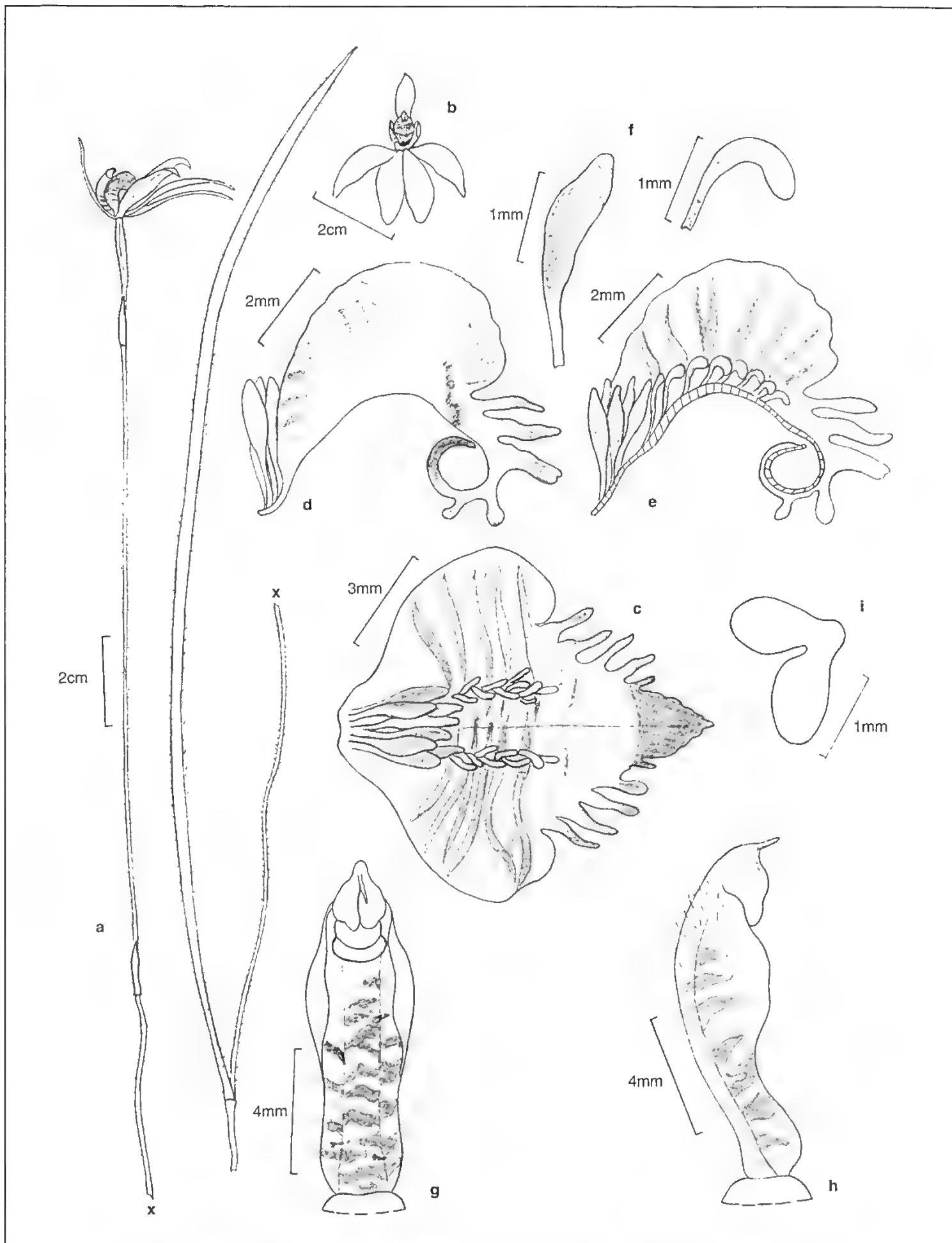
Caladenia pilotensis
from Mt. Pilot, Victoria.



Caladenia pilotensis, Mt Pilot - Victoria. Fig. 5.

a. plant; b. flower from front (tepals truncated); c. labellum from side;
 d. labellum from above, flattened out; e. longitudinal section of labellum; f. column glands;
 g. column from front; h. column from side; j. lateral sepal; k. petal; l. dorsal sepal.

Drawing 13/9/1993 by J.J. Riley.©



***Caladenia porphyrea*, Norah Head - New South Wales.**

B. Branwhite (ORG 294) (part of type), Fig. 6.

- a. plant; b. flower from front; c. labellum from above, flattened out;
 d. labellum from side; e. longitudinal section of labellum; f. labellum calli;
 g. column from front; h. column from side; i. pollinium.

Drawing by D.L. Jones.©

ovate-deltate in outline when flattened, 5.5-8 mm long, 4-5.5 mm wide, erect in proximal third then projected forwards; apex strongly recurved; lateral lobes obscure, obliquely erect; margins with 5-10 pairs of broad, blunt, white teeth to 3 mm long; mid-lobe narrowly deltate in outline when flattened, obtuse, the margins with a few short, blunt teeth, these becoming a continuous white marginal band towards the apex. *Lamina calli* in 2 irregular rows, cream to reddish, at an oblique angle, just extending onto the base of mid-lobe, shortly stalked, heads longer than wide; longest lamina calli c. 0.8 mm long, irregularly narrowly oblong from above. *Column* 4.5-5.5 mm long, c. 2.2 mm wide, incurved in the distal third, dark red, narrowly winged; basal glands absent. *Anther* c. 1.2 mm long, c. 1.3 mm wide, red to cream; rostrum linear, c. 0.4 mm long. *Pollinia* 4, c. 2.2 mm long, deltate, flat, yellow, mealy. *Stigma* c. 1.2 mm wide, elliptical, sunken. *Capsule* not seen. **Fig. 7.**

Distribution and Ecology

Endemic to Kangaroo Island, South Australia, where it grows in mallee shrubland and mallee heath in shallow sandy soils over limestone and, less commonly, in deep leached sand. Altitude: c. 10-50 m. Flowering period: Late August to October.

Recognition

Caladenia sanguinea is similar to *C. filamentosa* and undoubtedly has been confused with it in the past. It appears to be a local adaptation to the habitat and climate of Kangaroo Island and can be distinguished by its sparsely hairy leaf; relatively small, shiny, blood red flowers; and, small labellum which often has an attenuate apex. In addition, *C. sanguinea* is consistently short, even in cultivation.

Etymology

Derived from the Latin *sanguineus*, blood red, in reference to the flower colour.

Conservation status

Apparently restricted to Kangaroo Island but there widespread, locally common and well conserved.

Selected Specimens (34 seen)

South Australia. (all Kangaroo Island): near Bales Bay, 4 Oct. 1997, *Bates 48511* (AD, CANB); Eumalla, Sep. 1933, *Cashmore* (AD); 2 km S. along Seal Bay Rd, 8 Sep. 1994, *Jones* (CANB); Vivonne Bay, 23 Sep. 1994, *Jones* (CANB); D'Estree Bay, 30 Oct. 1986, *Overton 441* (AD); Pigs Head Flat, 17 Sep. 1905, *Rogers* (AD); Cape Borda, 20 Sep. 1908, *Rogers* (AD); American Beach, 4 Oct. 1973, *Rogers* (AD);

Flinders Chase, 21 Oct. 1968, *Wheeler* (AD); Middle River, 22 Oct. 1908, *White* (AD).

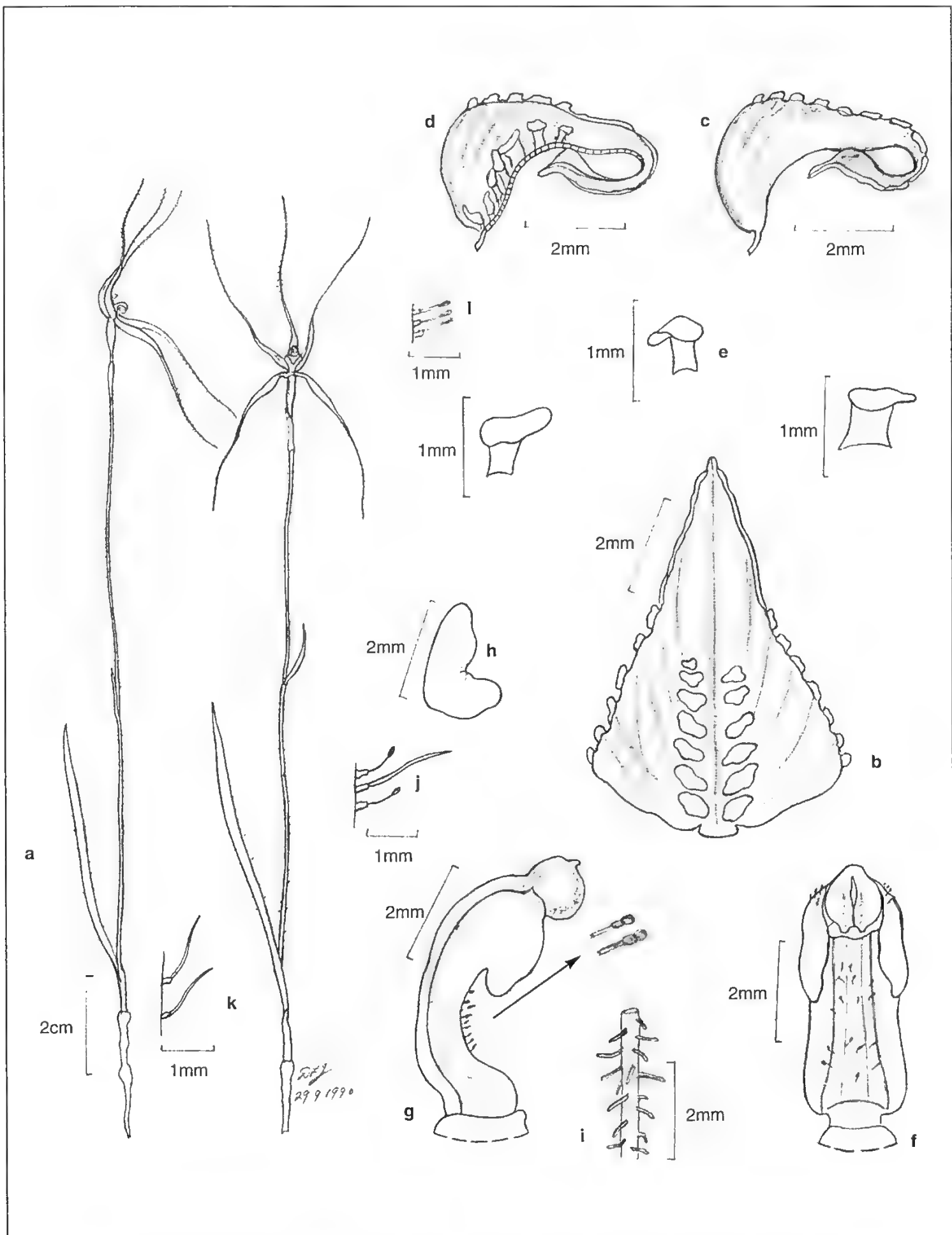
8. *Caladenia subtilis* D.L.Jones sp. nov.,

C. atroclaviae D.L.Jones & M.A.Clem. affinis, sed folio minore; floribus minoribus; sepalorum osmophoribus brevioribus, confertis, atro-rubris; labelli callis marginalibus plurimis; et columna angustiore recta, differt.

Typus: New South Wales. Giro State Forest, South of Nowendoc, 2 Oct. 1992, *R.Windsor 1080* (holotype CANB).

Illustration: None found.

Hirsute, terrestrial tuberous *herb* growing singly. *Leaf* erect, linear-lanceolate, 5-11 cm long, 0.35-55 cm wide, dull green, base blotched with red, hirsute with a mixture of patent, transparent, eglandular trichomes to 3 mm long and glandular trichomes c. 1.2 mm long. *Scape* 15-22 cm tall, wiry, densely hirsute with trichomes similar to those on the leaf. *Sterile bracts* closely sheathing, linear-obovate, 13-17 mm long, 4-6 mm wide, involute, acuminate, externally hirsute. *Fertile bracts* closely sheathing, obovate, 8-12 mm long, 5-7 mm wide, acuminate, externally hirsute. *Flower* usually solitary, 15-20 mm diam., cream with dense, dark red sepaline osmophores; floral fragrance resembling a hot motor. *Tepals* sparsely glandular externally; dorsal sepal erect and incurved above the column; lateral sepals obliquely decurved in front of labellum, stiff, not widely divergent; petals obliquely deflexed, slightly curved. *Dorsal sepal* narrowly ovate-lanceolate, 28-33 mm long, 2.3-2.5 mm wide, narrowed in distal third to a short, linear, channelled cauda c. 0.5 mm wide, terminated by a thickened, linear, dark red osmophore c. 9 mm long, c. 1.5 mm wide. *Lateral sepals* lanceolate, 28-33 mm long, 4-4.5 mm wide, narrowed in the distal third to a short, linear, channelled cauda c. 0.5 mm wide, terminated by an osmophore slightly smaller than on the dorsal sepal. *Petals* linear-lanceolate, 24-26 mm long, c. 2 mm wide, apex long-acuminate. Labellum articulated on a short claw c. 0.6 mm long, 2 mm wide. *Lamina* ovate to ovate-lanceolate in outline when flattened, erect in proximal third then porrect in a long gentle curve, distal third deflexed or recurved, maroon, usually whitish at the base, very obscurely 3-lobed; lateral lobes c. 2.5 mm wide, erect or with margins splayed out; marginal fringe of 9-11 pairs of linear, straight or curved teeth c. 1 mm long; mid-lobe broadly deltate in outline when flattened, 5-6 mm long, 4.5-5 mm wide, basal margins with 3-5 pairs of blunt teeth, decrescent and in an irregular marginal

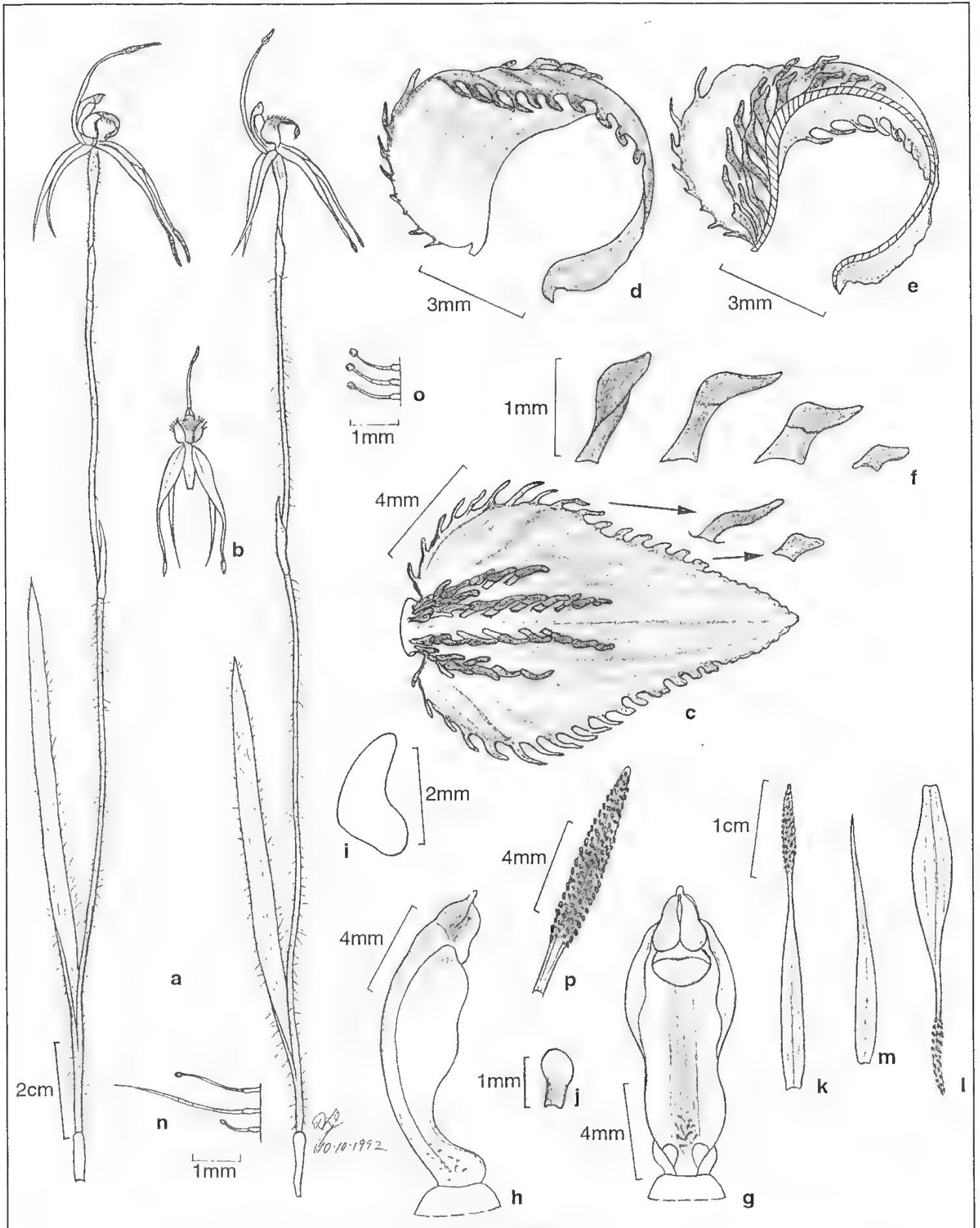


***Caladenia sanguinea*, Kangaroo Island – South Australia.**

N. Ridley, Fig. 7.

- a. plants; b. labellum from above, flattened out; c. labellum from side; d. longitudinal section of labellum; e. labellum calli; f. column from front; g. column from side; h. pollinium; i. cauda glands; j. stem trichomes; k. leaf trichomes; l. ovary trichomes.

Drawing 29/9/1990 by D.L. Jones.©



***Caladenia subtilis*, Giro State Forest - New South Wales.**

R. Windsor 1080 (drawn from type), Fig. 8.

- a. plants; b. flower from front; c. labellum from above, flattened out; d. labellum from side; e. longitudinal section of labellum; f. labellum calli; g. column from front; h. column from side; i. pollinium; j. column gland; k. dorsal sepal; l. lateral sepal; m. petal; n. leaf trichomes; o. ovary trichomes; p. osmophore from dorsal sepal.

Drawing 10/10/1992 by D.L. Jones.©

band to the apex. *Lamina calli* in 4 rows, golf-stick- or hockey-stick-shape, stalked, dark red, the central rows just extending to the base of the mid-lobe; basal calli c. 1 mm long, erect, stalked, head irregularly clavoid; longest lamina calli c. 1 mm long, hockey-stick-shape, on stalks c. 0.6 mm long, head slightly curved when viewed from the side, slightly curved from above. Column 10-12 mm long, 4-4.5 mm wide, recurved in proximal half then incurved, translucent, narrowly winged; basal glands stalked c. 1 mm long, head globose, shiny, yellow, stalk red. *Anther* c. 2 mm long, 2 mm wide, reddish; rostrum short, linear. *Pollinia* 4, c. 2.3 mm long, broadly deltate, flat, yellow, mealy. *Stigma* c. 2.5 mm wide, green, more or less elliptical, sunken. *Capsule* not seen. **Fig. 8.**

Distribution and Ecology

Known only from 2 sites in northern New South Wales, viz. Giro State Forest near Nowendoc and between Nundle and Woolomin. The species grows in open forest, often close to grass tussocks. Soils are shallow clay loams and gravelly loams. Altitude: c. 600-850 m. Flowering period: October and November.

Recognition

Caladenia subtilis has affinities with *C. atroclavia* but is a neater, smaller-flowered species with smaller leaves, shorter, dense, dark red sepaline osmophores, more numerous marginal calli on the labellum, and a narrower, erect column. *Caladenia subtilis* has probably also been included with *C. reticulata* Fitzg. which occurs in South Australia and western Victoria.

This species can be distinguished by its stiffly spreading tepals and colourful flowers which have boldly marked veins in the labellum and much coarser marginal calli.

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Etymology

From the Latin *subtilis* fine, delicate, nice; all of which apply to this species.

Conservation Status

Caladenia subtilis is currently known from only 2 localities and is not conserved; suggest 2R by criteria of Briggs & Leigh (1996).

Specimens Examined

New South Wales. Duncans Ck Rd, Nundle, 15 Sept. 1994, Hillman (D.L.Jones 13310) (CANB); *ibid*, 29 Aug. 1995, Hillman (D.L.Jones 14289) (CANB); Duncans Ck Rd, S. of Woolomin, 10 Oct. 1998, Bower (ORG 1652) (CANB).

Acknowledgements

I thank the following people for supplying specimens or information: - Bob Bates, the late Tony Bishop, Col. Bower, Boris Branwhite, Peter Branwhite, Ralph Crane, Everett Foster, George Hillman, Len Lawler, Denzel Murfet, Bev. Overton, John Riley, Lewis Roberts and Richard Windsor. Alex George supplied the Latin diagnoses and Andrew Lyne and Randell Bayer commented on the manuscript.

Appreciation is also expressed to Marion Garratt for help in many ways, especially with the drawings, Karina FitzGerald for technical assistance and Barbara Jones for companionship in the field. I also thank the Directors and Curators at AD, BRI, CANB, MEL and NSW.



Orchids and Computers

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'Orchids and Computers' is not an oxymoron [oxymoron (n): welding school dropout]. On the contrary, a computer can be a quite useful tool for the serious orchid grower. I'm not going to waste any space going over hackneyed arguments for and against the use of computers. I will just point out the useful ways you can use a computer to enhance your hobby.

Around the time Brown, Fitzgerald, Mueller and co. were gallivanting around the bushland sniffing out those discoveries most of us dream about, I have it on good authority that their findings weren't recorded for posterity on a laptop computer. Indeed, details were painstakingly (blasted green ants!) recorded on notebook or on art paper. I agree there is a certain style in the way their findings are presented to us these days. Computer art, fascinating as it can be, does not compare to a Fitzgerald illustration or Nicholls watercolour. How many of you would like to have a copy of Brown's original notes? Doesn't quite have the same ring to it if you said you had a copy of Veitch's *A Manual of Orchidaceous Plants* on CD ROM rather than on your bookshelf (and if you said it was personally autographed, it would raise more than a few eyebrows). However, part of the romance that literature of the past offers is that they are from the past. Things are done differently now and there would be few, if any, books published these days that are not affected by computer technology in some way. We must move on and what once cost several trees (and, possibly, orchid habitats) can now be produced on a 5 inch plastic disc. Yes, computers are somewhat more environmentally friendly than the old paper and ink. And they also have several advantages.

A good example of the advantages that computers can offer is that of the *Encyclopaedia Britannica*. It is now possible for your child or grandchild to hold the entirety of this most respected source of knowledge in one hand. This is not due to all the growth hormones, steroids or other chemicals in their diet but to the fact that all thirty something volumes can be stored on a couple of pieces of plastic. To find out something about orchids in the hard copy version of *Encyclopaedia Britannica*, you would have to lug out the Index and look up the numerous references spread over possibly all thirty odd other books. The modern computerised version will give you easy access to all these references with just a few clicks of

the keyboard or mouse. This could also include colour photographs that you can print or easily incorporate into other documents or even view a short movie clip showing the pollination of an orchid. What's more this information can be located in seconds, literally, without having to leave your seat. And it only costs about \$300. And no, I'm not moonlighting as an encyclopaedia salesman!

If research is your bent, then searching computerised records is much quicker than searching through libraries and filing cabinets, as the *Encyclopaedia Britannica* example shows. It is also possible now to view reference sources in multiple locations without having to leave your home. This is where the Internet comes in but more about that later.

The Royal Horticultural Society has presented *Sander's List of Orchid Hybrids* in a CD format through the services of the Orchid Database Co. Pty Ltd. Another company, WildCatt have also released a CD version of this database. The advantage of the CD format is the lower cost of production, both in money and environmental terms, and the quicker access to information. You are able to view family trees, progeny information, registration details, photographs and awards. For those with commercial interests, computers can save you considerable time. You could use a word processor to produce your catalogues, a database to organise your stock and mailing list, and a spreadsheet to keep your finances in order. For example, if you are going to update your catalogue, you won't have to retype the whole thing; just modify the entries and layout of the previous catalogue and it will take a fraction of the time. If you don't have your previous catalogue in electronic form, then a scanner can do that for you. If you increased the cost of your seedlings from, say, \$3.50 to \$4 each, using a spreadsheet program, you could almost instantly see the extra income it would bring. No, I don't mean that your wallet will suddenly become thicker or your bank balance turn from

red to black; you will be able to see the projected figures based on what are known as "what if" scenarios. "What if" I increased the price, "what if" I expanded my greenhouse, "what if" I flew to Brazil owing several hundred thousand in back taxes. Hang on, that's going a bit too far, maybe Fiji. Not only does a computerised database organise your stock records into a easily searchable form, it can also store photographs.

The world of photography is being revolutionised with the use of digital cameras. While it will be a long time before they replace the traditional film camera (price and picture quality being the main obstacle) it does mean that you instantly see the results of your photos and is potentially cheaper as you can print the pictures yourself. You can also touch up the pictures to improve or remove certain aspects of the picture. If you still prefer the traditional slide or photograph, you can "scan" them to produce miniature representations. This is useful if you have large quantities of pictures requiring cataloguing. The "thumbnail" picture can be stored or printed on the computer with a caption and an index number which reduces searching time as well as handling of the slides or photos.

Computers can assist in maintaining a healthy growing environment. While most of us don't need much of an excuse to slip off to the bushhouse or glasshouse and enjoy the "hands on" approach to orchid care, how many of you have been at work on a 40C+ degree day wishing you were at home damping down. It would also be a relief if when your heating system broke down, an emergency one was automatically turned on. Or, if there was a sudden weather change, protective measures could be brought into bear. It is possible now to have control to the extent that you could ring your computer, type a certain code and the computer could coordinate the changes you required. This can also be programmed to happen automatically. At present, this does require complicated and costly sensor equipment. Cheaper alternatives are available which still require a degree of manual control. Ah yes, you say, all this requires power. What if there is a blackout? The answer is a UPS (uninterruptible power supply) that can maintain enough power to the computer for a certain amount of time for emergency procedures to be carried out.

There is one aspect of computing that more orchid lovers are turning to. In fact, you can't escape it. It has affected all our lives whether you like it or not. I'm talking about that growth that has covered the world called the Internet. The Internet is simply a way of connecting all the computers in the world together. Not directly: you dial into one computer which connects to another computer and so on until you get to the computer you want information from. How all this is managed is sheer mind-boggling brilliance, especially when you consider that anything you send gets broken up into smaller chunks (called packets) that go their own separate ways and then get reassembled at their destination. There are trillions of these packets going every which way at any given moment. More than what could be found going into politicians' pockets. Much has been mentioned in the media of the insidious use of the Internet - pornography, terrorism, viruses, invasion of privacy - to give it a fairly poor reputation that unfortunately has overshadowed its benefits. The trouble is, no one owns the Internet in its entirety, just parts of it. It is impossible to control but we can take measures to protect ourselves from the negative aspects. If you buy a new computer now, it is probably already set up to connect to the Internet. All you need to do is plug it in, turn it on and away you go. Sound too easy? To give a straight answer, it is and it isn't. Unfortunately, the term "user friendly" is still pretty much marketing hype. I could go on for pages about the misconceptions and misadventures of first time computer users but I am already drifting away from the point. So what do you enjoy talking about most? As if we didn't know. And how would you like to talk not just among fellow enthusiast or club members but also with other orchid growers around the world at the same time. This is now possible. There are things called "Chat Rooms" where people of a common interest can get together and discuss things by keyboard. Of course this means you need to become a fairly quick typist to keep up with the conversations. At this stage, I need to mention that the majority of orchid related activities on the Internet come from the good old US of A. So be prepared to discuss all genera. Most discussion is about the most commonly grown genera: *Cattleya* alliance, *Phalaenopsis*, *Paphiopedilum* and soft-cane *Dendrobium*. Most discussion takes place by what is known as mailing lists.

Subscribers send an email to a certain place, these are collated and distributed amongst subscribers in digest form. It is a place to ask questions and receive a variety of answers. It is interesting to see the different cultural advice offered. For example, one question was about the growing of *Dockrillia cucumerina*. "It grows on the underside of River Oak branches so likes a shaded moist situation," say some. "Rubbish!" say others, "we have ours in dry sunny conditions and it grows like a weed". Some topics have been fiercely debated: two of recent memories are spelling of plant names and proper naming in keeping with changes by taxonomists. These digest are moderated to filter out offensive and off-topic email. The moderators are also the compilers of these digests. There are a few available now: Arguably the most popular forum is the Orchid Guide Digest.

To subscribe or unsubscribe to the Orchidguide Digest (OGD), send the command SUBSCRIBE ORCHIDS-DIGEST to majordomo@orchidguide.com

ANOS Web Page: <http://www.ozemail.com.au/~graemebr/>

Orchids Australia Web Page: <http://www.infoweb.com.au/orchids/>

For those with a biological bent (no, I'm not describing any part of your anatomy), there is Orchid Biology coordinated by Cassio van den Berg. How to subscribe: send a message to listserv@bdt.org.br with the text SUBSCRIBE ORCHID-BIOLOGY your name. You can receive a digest format of orchid-biology by sending a message with the text SET ORCHID-BIOLOGY MAIL DIGEST

I have found these lists to be a great source of good hints. I will share a couple with you now: cinnamon makes a pretty good fungicide and cutting sealer; wrap copper wire around the legs of your galvanised steel orchid benches to discourage slugs and snails from crawling up them. Well that's all from me. To finish off, here are a couple of Australian links you may wish to visit. In turn, you will find more and more links to other pages. Good growing and happy surfing.



An Orchid Adventure in Far North Queensland

William Moon
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Early in 1997, I decided to visit the Iron Range National Park in far north Queensland. I planned the trip for the two weeks in the latter half of April, the end of the wet season.

My fascination with Iron Range has developed over a number of years. I had read various articles on the huge diversity of the flora and fauna that occur in this area, with evidence of an interchange of species with New Guinea. One article quoted that of the 300+ plant species collected in the area, about 10% were undescribed.

I planned the trip with a friend. However a month before our scheduled departure, his interest waned when he learned of the lack of restaurant's and public bars in the area. I went regardless. On April 21 I touched down in a light aircraft at the Lochardt River Aboriginal Reserve and subsequently set up base camp on the Claudie River.

Initially on entering the rainforest in the Claudie River area, I did not see many orchids. I began to think that this might not be such a good trip in which to see tropical orchids in their natural habitat. I was expecting the trees to be laden with orchids like they are in the sub tropical rainforest at Barrington Tops, New South Wales.

From my base I planned to walk into the rainforest for four days. As the entire walk would be through untracked wilderness, I would have to rely on map and compass to navigate through the forest. I planned to follow a major tributary of the Claudie River heading northwest towards the Dorriwill Ridge. From here I would cross the Dorriwill Ridge via a low saddle and then follow another tributary back down to the Claudie River proper. From here it would be less than a days walk back down the Claudie River to my base camp.

On the first day as I wandered along the river flats amidst the beautiful lowland rainforest, the canopy seemed dark and elusive which made it difficult to make out any detail of the epiphytes that were most likely living there. *Bulbophyllum baileyi* was common on the lower trunks of the trees; in fact this orchid was probably the most common orchid that I saw in the forest. Another species that was very common in the canopy was *Pholidota imbricata*.

A number of monopodial species were also seen on the lower limbs and trunks of trees. It seemed impossible for me to identify many of them as they were not in flower. Continuing along the river I saw *Rhinerrhiza moorei* and *Vanda hindsii*. Another common orchid was *Appendicula australiensis*, easy to identify against the blue sky by the distinctive fern-like features of the stems.

The second day saw the river begin to climb steeply through where it bisects the Dorriwill Ridge. Instead of the quiet flowing river with its sandy bottom and its overhanging forest canopy, the river now flowed down rock-faces and around and over boulders. In this more open area, the rainforest trees were much shorter and the canopy more open, allowing more light to penetrate. There was also much greater air movement through this area as the Dorriwill was the first ridge inland from the east coast and felt the effects of the prevailing south-easterlies.

As a result of these conditions there was an abundance of orchids. Orchids grew on exposed

rocks and all over the trees growing on both sides of the river. The orchids on the trees seemed most abundant on the branches protruding from the rainforest fringes near the edge of the water course. I could identify *Rhynchophreatia micrantha* growing on rocks and on the trunks at palm trees.

Also growing in this area was *Dendrobium discolor*, *D. jonesii*, *D. smillieae* (*Pedilonum smillieae*) and *Grastidium luteocilium* (previously *Dendrobium luteocilium*). By far the largest of all the orchids I saw was *D. discolor*. It had the tallest pseudobulbs I have ever seen. I also noted what distinctly looked like *D. bigibbum*, but the plants were not flowering - whereas the plants I saw on the west coast were in full bloom.

Travelling on from here the river divided up into a number of smaller tributaries. I took the northern tributary, which went along the western side of the Dorriwill Ridge. The National Parks rangers were unaware of anyone having been into this area, so there was an added sense of remoteness felt as I ventured further into the mountains. Wandering along this section of the creek was a real pleasure, beautiful forest, wedge-leaf fan palms along the waters edge plus a variety of orchids. I could now freely plunge into the clear waters of the creek without fear for my safety, as I was now above a number of waterfalls. The bush pigs were not as common in this steeper country either.

On the western side of the creek I was delighted to see *Dendrobium capitisyork* growing on thin trees along the waters edge. This plant is such a close relative to *D. tetragonum* and was the only familiar thing I had seen in a couple of days.

On the east side of the creek, *Micropera fasciculata* was in flower and also a large pink flowering *Dendrobium*. This *Dendrobium* was growing on the end of a branch of a dead tree, and was hanging almost out over the water, but well above it. The flower was about 4cm across and had twisted petals but not twisted sepals. It looked like *D. nindii* but with a smaller labellum. The plant looked like *D. speciosum*, but the pseudobulb was much smoother and without grooves. On my return home I tried unsuccessfully to identify this plant. In a strange twist of fate, the only photos not to turn out on my roll of film were the two I took of this plant. Maybe one day I'll be back to find this

mysterious orchid when the lure of this enchanted forest gets the better of me.

The next day I went through the pass in the Dorriwill Ridge and onto the tributary heading east to the Claudie River. Wading through the waste deep water, many beautiful flowering *Hoya* vines were hanging from the trees along the waters edge. I reached the Claudie River and spent the next day walking down the Claudie being totally pre-occupied with the numerous encounters I had with wild pigs. What are these creatures doing to the habitat of terrestrial orchids on the Cape?

After completing my walk I mountain-biked my way to the Tozers Gap area on the western edge of the National Park. Tozers Gap is an interesting place with rainforest, woodland and wet and dry heathland. There's more than enough to see here for anyone with an interest in Australian flora. With map and compass, I thrashed around in the forest for a few hours encountering many of the orchid species I had previously seen in the Dorriwill area. In addition, along the rainforest fringe just into the woodland area, there was a number of *Dendrobium bifalce* and *Dockrillia rigida* (previously *Dendrobium rigidum*) looking very healthy and happy where there was plenty of light. Walking along the fringes of the rainforest, where the orchids seemed to be most prolific, I was having a number of close encounters with Brown Snakes and Taipans. They were not always easily seen as the bushes were around knee height. My nerves were frayed, so I decided to get out of the place while I still could. I never did get to see *Grastidium tozerense* (previously *Dendrobium tozerensis*) but I did manage to reduce my stress levels.

On returning to my camp by a small creek in the Tozers Gap area, I sighted a small orchid growing on the trunk of a rough barked Pandanus, overhanging the creek. I marvelled at how this little orchid had found its unique niche for survival in the world. I wondered how these little gems would survive with the forecast impending climate change. Anyway, I suppose this orchid copes with some pretty significant changes in weather between the wet and dry seasons.

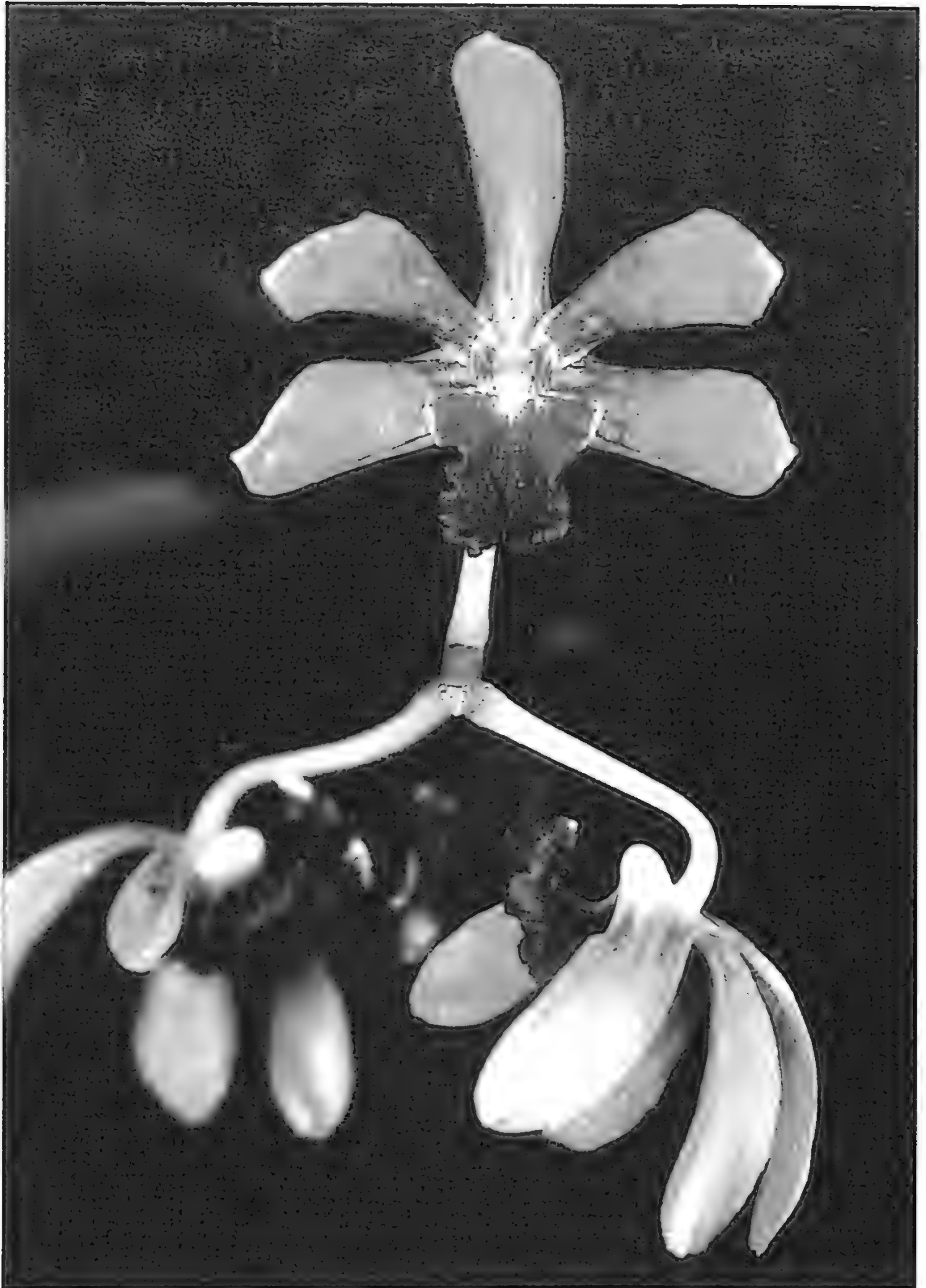
It was now time to load up my bike and begin my 200 km ride across the Cape to Weipa. My stress levels rose again when I had to cross the Pascoe River via the Frenchmans Track. Carrying my bike over my head, with the fast flowing water at chest height, it took everything to keep myself from being swept down into the deep pools, which are home to the dreaded Long Nosed Swamp Dogs - the crocodiles.

Eventually I rolled on into Weipa and headed to the pub for a well-deserved beer or two. While relaxing here, a large bellowing red-haired gentleman was making a lot of noise down my end of the bar. After a while, to my surprise, I overheard him passionately describing some orchids to his friends. When the opportunity rose, I asked him where I might find some orchids in flower in the area. "If you want to see orchids, go to Pennifarther" he said.

This was out of the question as I had only one more day before flying back to Sydney, and I couldn't face one more kilometre on my bike. He invited me around to see his personal collection the next day while he was at work. Eventually I found his place, which had numerous *D. bigibbum* in full flower growing on the trees in his front yard. What a sight it was! I suspected his plants had been collected from the wild and, as I never saw him again, couldn't suggest the importance of leaving wild populations intact.

Within a couple of weeks of my return from 'The Cape', I was already planning my next adventure to this wonderful place.





grower, Michael Harrison (Macquarie Native Orchids)

D.P. Banks

***Dendrobium finetianum* from New Caledonia**



grower, David Banks (Hills District Orchids)

D. Titmuss

***Kinetochilus crassicaule* from New Caledonia**

Checklist of New Caledonian Orchidaceae

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Earlier this year a local orchid enthusiast from Noumea requested an updated checklist of the orchids of New Caledonia to place on a web site. The following list is a result of that request. All entries are based on study of the relevant type collections, are the results of research undertaken by the authors, or where appropriate, information taken from various publications, which are cited in the text. Endemic species have been identified based on this research. Scientific research into the orchids of the whole region including New Caledonia, using traditional as well as various modern techniques including embryogenesis, isozyme analysis and molecular analysis is ongoing and further changes as well as new discoveries are expected.

Genus and Species list

- Acanthephippium splendidum*** J.J.Sm. (Syn: *A. vitiense* L.O. Williams; Ref: S. Thomas, *Orchid Monographs* 8: 130-131 (1997))
- Acianthus aegeridantennatus*** N.Hallé (endemic)
- Acianthus atepalus*** Rchb.f. (endemic)
- Acianthus bracteatus*** Rendle (endemic)
- Acianthus confusus*** Guillaumin (endemic)
- Acianthus corniculatus*** Rendle (endemic)
- Acianthus cymbalariifolius*** F.Muell. & Kraenzl. (endemic)
- Acianthus elegans*** Rchb.f. (endemic)
- Acianthus grandiflorus*** Schltr. (endemic)
- Acianthus halleanus*** Kores (endemic)
- Acianthus heptadactylus*** Kraenzl. (endemic)
- Acianthus macroglossus*** Schltr. (endemic)
- Acianthus oxyglossus*** Schltr. (endemic)
- Acianthus tenellus*** Schltr. (endemic)
- Acianthus tenuilabris*** Schltr. (endemic)
- Acianthus veillonis*** N.Hallé (endemic)
- Agrostophyllum leucophalum*** Schltr.
- Anoectochilus imitans*** Schltr. (endemic)
- Anoectochilus subregularis*** (Rchb.f.) Ormerod (Basionym: *Goodyera subregularis* Rchb.f.; Ref: *Aust. Orch. Rev.* 61(4): 36 (1996))
- Appendicula vieillardii*** Rchb.f. (endemic)
- Bulbophyllum aphanopetalum*** Schltr.
- Bulbophyllum argyropus*** (Endl.) Rchb.f. (Syn: *Bulbophyllum corythium* N.Hallé; Ref.: J.J. Vermeulen, *Orchid Monographs* 7: 67-68 (1993))
- Bulbophyllum atrorubens*** Schltr.
- Bulbophyllum baladeanum*** J.J.Sm. (endemic)
- Bulbophyllum comptonii*** Rendle (endemic)
- Bulbophyllum finetianum*** Schltr.
- Bulbophyllum keekee*** N.Hallé (endemic)
- Bulbophyllum leratae*** (Kraenzl.) Seidenf. (endemic)
- Bulbophyllum lingulatum*** Rendl. (endemic)
- Bulbophyllum lophoglottis*** (Guillaumin) N.Hallé (endemic)
- Bulbophyllum neocaledonicum*** Schltr.
- Bulbophyllum ngoyense*** Schltr. (endemic)
- Bulbophyllum pachyanthum*** Schltr.

- Bulbophyllum pallidiflorum*** Schltr. (endemic)
Bulbophyllum polypodioides Schltr.
Bulbophyllum samoanum Schltr. (Syn: *B. christophersenii* L.O. Williams; Ref.: Cribb & Whistler, *Orchids of Samoa* 118 (1996))
Bulbophyllum triandrum Schltr. (Ref: *Bulbophyllum* sp., *Orchidées indigènes de Nouvelle-Calédonie*, page 46 (1995))
Caladenia catenata (Sm.) Druce, *sens. lat.*
Calanthe angraeciflora Rchb.f.
Calanthe balansae Finet (endemic)
Calanthe hololeuca Rchb.f. (Syn: *C. neocaledonica* Rendle)
Calanthe oreadum Rendle (endemic)
Calanthe ventrilabrum Rchb.f. (Syn: *C. langei* F.Muell.)
Calochilus neocaledonicus Schltr. (endemic)
Cannaeorchis atractoglossum (N.Hallé) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis cymatoleguum (Schltr.) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis delumbe (Kraenzl.) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis deplanchei (Rchb.f.) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis fractiflexum (Finet) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis megalorrhizum (Kraenzl.) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis polycladium (Rchb.f.) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis sarcochilus (Finet) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis steatoglossum (Finet) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis vandifolium (Finet) M.A.Clem. & D.L.Jones (endemic)
Cannaeorchis verruciferum (Rchb.f.) M.A.Clem. & D.L.Jones (endemic)
Ceratostylis micrantha Schltr.
Cheirostylis orobanchoides (F.Muell.) D.L.Jones & M.A.Clem. (Ref.: D.L.Jones & M.A. Clements, *Orchadian* 12(7): 350-351 (1998))
Chrysoglossum ornatum Blume (Syn: *C. neocaledonicum* Schltr.)
Cirrhopetalum clavigerum Fitzg. (Syn: *Bulbophyllum longiflorum* Thouars)
Cirrhopetalum gracillimum Rolfe (Syn: *Bulbophyllum gracillimum* (Rolfe) Rolfe)
Clematepisthium smilacifolium (Rchb.f.) N.Hallé (endemic)
Cleisostoma montanum (J.J.Sm.) Garay (endemic)
Coelogyne lycastoides F.Muell. & Kraenzl.
Coilochilus neocaledonicus Schltr. (endemic)
Corybas neocaledonicus Schltr. (endemic)
Crepidium grandifolium (Schltr.) Szlach. (Ref: *Malaxis* sp.; *Orchidées indigènes de Nouvelle-Calédonie* page 119 (1995))
Crepidium glabrum (Kraenzl.) M.A.Clem. & D.L.Jones (Basionym: *Goodyera glabra* Kraenzl.)(endemic)
Crepidium polyphyllum (Ridl.) M.A.Clem. & D.L.Jones (Basionym: *Microstylis polyphylla* Ridl.)(endemic)
Crepidium taurinum (Kraenzl.) Szlach. (Syn: *Malaxis taurina* (Rchb.f.) Kuntze)
Cryptostylis stenochila Schltr. (endemic)
Dendrobium austrocaledonicum Schltr.
Dendrobium bilobum Lindl.
Dendrobium closterium Rchb.f. (Syn: *Dendrobium jocosum* Rchb.f.) (endemic)
Dendrobium comptonii Rendle
Dendrobium conanthum Schltr. (Ref: *Orchidées indigènes de Nouvelle-Calédonie* page 65 (1995))
Dendrobium finetianum Schltr. (Syn: *Dendrobium kanakorum* Kraenzl.) (endemic)
Dendrobium macranthum A. Rich. (Syn: *D. tokai* Rchb.f. var. *crassinerve* Finet)
Dendrobium ngoyense Schltr. (endemic)
Dendrobium odontochilum Rchb.f. (endemic)
Dendrobium platygastrium Rchb.f. (Syn: *D. camptocentrum* Schltr.)

- Dendrobium poissonianum*** Schltr. (endemic)
- Dendrobium psyche*** Kraenzl. (Syn: *D. macrophyllum* auct. non A. Rich.).
- Dendrobium sylvanum*** Rchb.f.
- Dendrobium theionanthum*** Schltr. (Syn: *D. masarangense* Schltr. subsp. *theionanthum* (Schltr.) T.M.Reeve & P. Woods)
- Dendrobium virotii*** Guillaumin (endemic)
- Didymoplexis micradenia*** (Rchb.f.) Hemsl. (Syn: *Didymoplexis minor* J.J.Sm.)
- Diplocaulobium mekynosepalum*** (Schltr.) Kraenzl., sens. lat. (Ref: *Diplocaulobium* sp., *Orchidées indigènes de Nouvell-Calédonie*, page 90 (1995)).
- Diplocaulobium ou-hinnae*** (Schltr.) Kraenzl.
- Dipodium squamatum*** (G.Forst.) Sm. (Syn: *Dipodium punctatum* Sm. var. *squamatum* (G.Forst) Finet ex Guillaumin).
- Dockrillia bowmanii*** (Benth.) M.A.Clem. & D.L.Jones (Syn: *Dendrobium mortii* auct. non F.Muell.)
- Dockrillia casuarinae*** (Schltr.) M.A.Clem. & D.L.Jones (Syn: *Dendrobium sylvanum* auct. non N.Hallé) (endemic)
- Dockrillia linguiformis*** (Sw.) Brieger
- Dockrillia seemannii*** (L.O.Williams) M.A.Clem. & D.L.Jones
- Drymoanthus minimus*** (Schltr.) Garay (endemic)
- Earina deplanchei*** Rchb.f. (endemic)
- Earina floripecten*** Kraenzl. (endemic)
- Earina valida*** Rchb.f.
- Epicrianthes hexarhopalos*** (Schltr.) Garay & W.Kittr. (Basionym: *Bulbophyllum hexarhopalos* Schltr.)
- Epipogium roseum*** (D. Don) Lindl.
- Eria karicouyensis*** Schltr. (endemic)
- Eria robusta*** (Blume) Lindl. (Syn: *E. aeridostachya* Rchb.f. ex Lindl.)
- Eria rostriflora*** Rchb.f. (Syn: *E. vieillardii* Rchb.f.)
- Eriaxis rigida*** Rchb.f. (endemic)
- Eulophia moratii*** N.Hallé (endemic)
- Eulophia pulchra*** (Thouars) Lindl.
- Flickingeria comata*** (Blume) A.D.Hawkes (Syn: *Ephemerantha comata* (Blume) P.F.Hunt & Summerh.)
- Genoplesium calopterum*** (Rchb.f.) D.L.Jones & M.A.Clem. (Basionym: *Prasophyllum calopterum* Rchb.f.) (endemic)
- Geodorum densiflorum*** (Lam.) Schltr. (Syn: *Geodorum pictum* R. Br., nom. illeg.)
- Glossorhyncha macdonaldii*** Schltr. (Syn: *Glomera macdonaldii* (Schltr.) J.J.Sm.)
- Gonatostylis bougainvillei*** N.Hallé (endemic)
- Gonatostylis vieillardii*** (Rchb.f.) Schltr. (endemic)
- Goodyera scripta*** (Rchb.f.) Schltr. (endemic)
- Goodyera triandra*** Schltr. (Syn: *G. rubicunda* (Blume) Lindl. var. *triandra* (Schltr.) N.Hallé)
- Goodyera viridiflora*** (Blume) Blume
- Grastidium camaridiorum*** (Rchb.f.) Rauschert (Basionym: *Dendrobium camaridiorum* Rchb.f.)(endemic)
- Grastidium crassifolium*** (Schltr.) Rauschert (Basionym: *Dendrobium crassifolium* Schltr.)(endemic)
- Gunnarella aymardii*** (N.Hallé) Senghas (Basionym: *Chamaeanthus aymardii* N.Hallé)(endemic)
- Gunnarella begaudii*** (N.Hallé) Senghas (Basionym: *Chamaeanthus begaudii* N.Hallé)(endemic)
- Gunnarella brigittae*** (N.Hallé) Senghas (Basionym: *Chamaeanthus brigittae* N.Hallé)(endemic)
- Gunnarella florenciae*** (N.Hallé) Senghas (Basionym: *Chamaeanthus florenciae* N.Hallé)(endemic)
- Gunnarella neocaledonicus*** (Rendle) Senghas (Basionym: *Chamaeanthus neocaledonicus* Rendle)(endemic)
- Gunnarella robertsii*** (Schltr.) Senghas (Syn: *Chamaeanthus robertsii* (Schltr.) Schltr.)

- Hetaeria oblongifolia** Blume. (Syn: *H. discoidea* (Rchb.f.) Schltr.)
- Hymenorchis serralata** (N.Hallé) N.Hallé
- Inobulbum layardii** (F.Muell. & Kraenzl.) M.A.Clem. & D. L. Jones (Syn: *Dendrobium munificum* (Finet) Schltr.)(endemic)
- Inobulbum muricatum** (Finet) Kraenzl. (Basionym: *Dendrobium muricatum* Finet)(endemic)
- Kinetochilus cleistogamum** (Schltr.) Brieger (Basionym: *Dendrobium cleistogamum* Schltr.)(endemic)
- Kinetochilus crassicaule** (Schltr.) Brieger (Basionym: *Dendrobium crassicaule* Schltr.)(endemic)
- Kinetochilus pectinatum** (Schltr.) Brieger (Basionym: *Dendrobium pectinatum* Schltr.)(endemic)
- Liparis caespitosa** (Thouars) Lindl.
- Liparis chalandei** Finet (endemic)
- Liparis condylobulbon** Rchb.f.
- Liparis confusa** J.J.Sm.
- Liparis disepala** Rchb.f.
- Liparis elliptica** Wight
- Liparis gibbosa** Finet
- Liparis indifferens** J.J.Sm.
- Liparis layardii** F.Muell.
- Liparis laxa** Schltr. (endemic)
- Liparis leratii** Schltr. (endemic)
- Liparis phalacrocorax** N.Hallé (endemic)
- Liparis sula** N.Hallé (endemic)
- Liparis zosterops** N.Hallé (endemic)
- Luisia tristis** (G.Forst.) Hook.f. (syn. *L. teretifolia* auct. non Gaudich.)(endemic)
- Megastylis gigas** (Rchb.f.) Schltr.
- Megastylis glandulosa** (Schltr.) Schltr. (endemic)
- Megastylis latilabris** (Schltr.) Schltr. (endemic)
- Megastylis latissima** (Schltr.) Schltr. (endemic)
- Megastylis montana** (Schltr.) Schltr. (endemic)
- Megastylis paradoxa** (Kraenzl.) N.Hallé (endemic)
- Megastylis rara** (Schltr.) Schltr. (endemic)
- Micropera fasciculata** (Lindl.) Garay
- Microtatorchis oreophila** Schltr. (endemic)
- Microtatorchis schlechteri** Garay var. **schlechteri**
- Microtatorchis schlechteri** Garay var. **productilis** N.Hallé (endemic)
- Microtis aemula** Schltr. Note: The illustration in *Orchidées indigènes de Nouvelle-Calédonie*, page 129 (1995) is of *Coilochilus neocaledonicus* and not *Microtis aemula*. (endemic)
- Moerenhoutia grandiflora** (Schltr.) Schltr.
- Nervilia aragoana** Gaudich.
- Nervilia platyphila** Schltr.
- Oberonia equitans** (G.Forst.) Mutel
- Oberonia fissiglossa** N.Hallé (endemic)
- Oberonia flexuosa** Schltr. (Syn: *Oberonia equitans* auct. non (G.Forst.) Mutel)(endemic)
- Oberonia titania** Lindl. (Syn: *O. neocaledonica* Schltr.)
- Oberonia vieillardii** (Rchb.f.) M.A.Clem. et D.L. Jones, *comb. nov.* (Basionym: *Malaxis vieillardii* Rchb.f., *Linnaea* 41: 98 (1877). Type: New Caledonia [In the montains near Kanala, 1855-60], *Vieillard* [1296] (holo P!; iso P!).
Syn: *Oberonia ensiformis* auct. non (Sm.) Lindl.; N.Hallé, *Flore de la Nouvelle-Calédonie et Dependances* 8: 265-268, t. 112, f. 71 (1977).
Notes: Differs from *O. complanata* (A. Cunn.) M.A.Clem. & D.L.Jones by larger habit and rounder labellum with deeply erose margins. (endemic)
- Octarrhena oberonioidea** (Schltr.) Schltr.
- Orthoceras strictum** R. Br.

- Pachyplectron arifolium* Schltr. (endemic)
Pachyplectron neocaledonicum Schltr. (endemic)
Pachystoma pubescens Blume
Peristylis minimiflorus (Kraenzl.) N.Hallé (endemic)
Peristylus ngoyensis (Schltr.) N.Hallé (Syn: *P. novo-ebudarum* auct. non F.Muell.) (endemic)
Phaius amboinensis Blume (Syn: *P. neocaledonicus* Rendle)
Phaius daenikeri Kraenzl. (endemic)
Phaius robertsii F.Muell.
Phaius tankervilleae (Banks ex L'Her.) Blume
Pholidota imbricata Hook., sens. lat. (Syn: *P. pallida* auct. non Lindl.)
Phreatia hypsorhynchus Schltr.
Phreatia micrantha (A. Rich.) Schltr. (Syn: *Rhynchophreatia micrantha* (A. Rich.) N.Hallé)
Phreatia neocaledonica Schltr. (endemic)
Phreatia oubatchensis Schltr. (Syn: *P. stenostachya* auct. non (Rchb.f.) Kraenzl.; Lewis & Cribb, *Orch. Vanuatu* 88 (1989))
Phreatia pachyphylla Schltr.
Phreatia paleata Schltr.
Phreatia sublata N.Hallé (endemic)
Pristiglottis montana (Schltr.) Cretz & J.J.Sm.
Pterostylis bureaviana Schltr. (endemic)
Pterostylis neocaledonica Schltr. (endemic)
Pterostylis splendens D.L.Jones & M.A.Clem. (endemic)
Pterostylis tenuicauda Kraenzl. (endemic)
Sarcanthopsis nagarensis (Rchb.f.) Garay
Sarcochilus gildasii N.Hallé (endemic)
Sarcochilus hillii (F.Muell.) F.Muell. var. *thycola* N.Hallé (endemic)
Sarcochilus koghiensis Schltr. (endemic)
Sarcochilus rarus Schltr. (endemic)
Schoenorchis micrantha Blume
Spathoglottis petri Rchb.f.
Spathoglottis plicata Blume (Syn: *S. vieillardii* Rchb.f.)
Spathoglottis unguiculata (Labill.) Rchb.f.
Spiranthes neocaledonica Schltr.
Taeniophyllum fasciola (G.Forst.) Rchb.f. var. *mutina* N.Hallé (endemic)
Taeniophyllum graptolium N.Hallé (endemic)
Taeniophyllum minutissimum Schltr. (syn: *T. sp. aff. muelleri* N.Hallé, *Bull. Mus. Nat. Hist.*, Paris 4(ser. 8): 222-223 (1986))
Taeniophyllum trachypus Schltr. (endemic)
Tetradon oppositifolium (Kraenzl.) M.A.Clem. et. D.L.Jones (Basionym: *Eria oppositifolia* Kraenzl.; Syn: *Dendrobium oppositifolium*)(endemic)
Tetradon petrophilum (Kraenzl.) M.A.Clem. et. D.L.Jones (Basionym: *Eria petrophila* Kraenzl.; Syn: *Dendrobium petrophilum*)(endemic)
Thelasis sp. aff. carinata Blume
Thelymitra sarasiniana Kraenzl. (endemic)
Thrixspermum hystrix (Blume) Rchb.f., sens. lat. (Ref: *T. graeffei* auct. non Rchb.f.; Lewis & Cribb, *Orch. Solomon Isl. & Bougainville* 272, f. 71L-R (1991))
Trachoma societalis (L.G.Moore) N.Hallé, sens. lat. (Syn: *Tuberlabium papuanum* auct. non (Schltr.) J.J. Wood in Lewis & Cribb, *Orch. Vanuatu* 150 (1989))
Trachoma stellatum M.A.Clem., D.L. Jones, B.Gray & J.J.Wood, sens. lat.
Tropidia viridi-fusca Kraenzl.
Zeuxine francii Schltr. (endemic)
Zeuxine vieillardii (Rchb.f.) Schltr.





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grower, Henk van den Berg

D.P. Banks

***Dendrobium* Avril's Gold 'Ace'**

***Dendrobium* Aussie Child 'Avril' HCC-AD/AOC-NSW 1990**

Henk van den Berg
16 Compton Street, Rutherford NSW 2320

The late Ray Hill from Charlestown purchased this plant as a small seedling from the now defunct Wondabah Orchids in the mid 1980's. Upon flowering, Ray named this colourful clone after his wife Avril. Phil Spence bred this hybrid and registered it in 1986. The result of crossing *D. Hilda Poxon* (*speciosum* x *tetragonum*) and *D. Aussie Spectrum* (Peter {*fleckeri* x *falcorostrum*} x *speciosum*).

It was judged Grand Champion of the Maitland & Coalfields District Orchid Society Show held in Cessnock in August 1990. It was subsequently awarded a Highly Commended Certificate and an Award of Distinction for its colour from the Orchid Society of New South Wales and later the Australian Orchid Council.

It had an upright inflorescence with seven well-displayed blooms, the colour of course being the outstanding feature at that time (1990) and still is today. The lateral sepals had a tendency to bow, but was still regarded highly enough by the judges to be awarded.

Ray used *D. Aussie Child 'Avril'* in several hybrids with great effect. They were:

- D. Aussie Child 'Avril' x Star of Gold*
- D. Ray's Dream* (x Ellen 'Galaxy')
- D. Ray's Girls* (x *tetragonum*)
- D. Avril's Gold* (x *speciosum* subsp. *grandiflorum* 'Golden Fluke') and a remake
- D. Avril's Gold* (x *speciosum* subsp. *speciosum* 'Windermere').

Of these, *D. Ray's Girls* and the unregistered hybrid using *D. Star of Gold* were, in general, poor growers like the parent plant. However *D. Ray's Dream* and *D. Avril's Gold* are robust plants. Ray distributed flasks of all these crosses, some limited, before he became ill.

The last cross he made was a remake of *D. Avril's Gold* using *D. speciosum* 'Windermere'. Because of his deteriorating health, this pod was flaked by his friend John Purvis (of Brolga Orchids, Jesmond) and these flasks and subsequent seedlings were distributed to and marketed by Highfield Orchids – Toowoomba, Tinonee Orchids – Taree and Royale Orchids – Peats Ridge.

The enthusiasts who had the foresight (or good fortune) to purchase flasks or seedlings of *D. Avril's Gold* (using 'Windermere') will be delighted. I have flowered several of these and they are very striking and desirable plants to own.

My outstanding clone to date has been *D. Avril's Gold 'Louanne'* (see back cover), a semi-arching spike, with strong colour and well marked. It displayed large flowers with heavy texture. *D. Avril's Gold 'Ace'* has an upright spike, with a 'foxtail' display of blooms – again well marked.

D. Avril's Gold using *D. speciosum* subsp. *grandiflorum* 'Golden Fluke' (owned by the late Ron West) has also produced some nice clones, but generally they have 'bowed' lateral sepals, which slightly detracts from their appeal. The 'Golden Fluke' cross has also produced some very nice, unmarked, so lid clear flowers, ranging from cream, yellow, through to rich gold and buttercup.

I believe that *D. Avril's Gold* will gain further recognition, particularly as they grow into mature plants. A couple of clones have already been awarded interstate.

This hybrid has the potential to end the domination of *D. Hilda Poxon* on many show benches.

Ray Hill certainly had vision when he introduced *D. Aussie Child 'Avril'* to his hybridising programme.



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A Tale of Two Orchids

Irene Bodell

76 Honiton Avenue (West), Carlingford NSW 2118

Way back on 23rd May 1928, farmer Jack Trott wanted to clear the native *Melaleuca* scrub from his property. As Jack cleared the scrub he unearthed some very strange plants, 36 in all. His curiosity aroused, he sent them to identification to Mr. Charles Gardner, at the State Herbarium, Perth (WA).

Mr. Gardner, unsure of the plants, on-forwarded them to South Australia to Dr. Richard Rogers, a well-known and highly regarded authority on Australian native orchids. Ironically, Dr. Rogers named this new species *Rhizanthella gardneri* after Mr. Charles Gardner, who was curator of the Western Australia Herbarium for 34 years.

The name refers to the direct attachment between the rhizomes and the inflorescence. This subterranean saprophytic orchid has succulent rhizomes, grows 6-12 cm below the ground, and produces a formalin like sent if cut. When not in flower the orchid resembles a diminutive pea pod, a white fleshy stem tuber. When in flower petaloid bracts protect the small flowers, which vary in colour from deep purple-red to white, with many speckled with both colours. The flowers are arranged in spiral rows and take approximately a week to open.

Jack Trott found the orchid again on his property in 1940 and decades later C. W. Bee found a single specimen at Babkin (WA) in 1962. This underground orchid fascinated Jack and in 1968 he offered a reward of \$100.00 for any one who could find a new specimen. Within a year Munglinup (WA) farmer John McGuinness had unearthed one, but Jack died before the news reached him.

Prior to 1978 all discoveries of *Rhizanthella* were accidental, occurring during agricultural operations in the wheat belt of Western Australia. In 1978 a grant from the World Wild Life Fund enabled further research to be carried out. The Landsat satellite was used to pinpoint likely areas of *Melaleuca uncinata* (Broom honey myrtle) and subsequently more than 100 specimens of *R. gardneri* were found. *R. gardneri* is always found growing in close proximity to *M. uncinata* in chemically and physically infertile soil, with a total lack of organic matter. The fungus *Rhizoctonia* (Warcup 1985) is indicated in a specific relationship, although the seedlings do not need the fungus to germinate, they will stop growing if it is not present.

Pollination occurs May to June, the seed capsule takes five months to mature. At maturity the capsule resembles a small bean seed, is fleshy and darkly coloured. Each capsule contains 20-60 seeds, and is among the largest known seed of any orchid. It is smooth, unlike the typical 13-ribbed ovary of most orchids and has a sticky coating. It also reproduces vegetatively with the flowering head dying and 1-3 daughter 'tubers' being produced from buds on the surface of the parent 'tuber'. These 'tubers' may not flower the following season. Research by Kingsley Dixon, of Kings Park WA, indicates that this leafless orchid is a relic of a tropical period some 5000 years ago.

Thousands of kilometres away in New South Wales, Mr. Ernest Slater was collecting the colourful saprophyte *Dipodium punctatum*, for Mr and Mrs Fieldsend of East Maitland - the year was 1931. Mr. Slater of Bulahdelah (NSW) was collecting on the Western slope of Alum Mountain. As he was digging the *D. punctatum* up he discovered some strange plants. They were sent to the Rev. H. Montague R. Rupp, well-known orchid botanist, to determine if the specimens were Orchidaceous. At this time Rev. Rupp lived at Bulahdelah. Within a week Mr. Slater and Dr. Leighton Kesteven sent four more plants to Rupp. Of these, three had fully matured ovaries with withered flowers, the other plant, although withered, could be softened and dissected showing all the parts. Rupp named the orchid *Cryptanthemis slateri* after Ernest Slater. The genus *Cryptanthemis* refers to 'hidden flora' an allusion to its habit. A specimen was sent to Dr. Richard Rogers in South Australia, a correspondent of several years. Rupp, with Dr. Rogers comments, published his description in the *Proceedings of the Linnean Society of NSW* (March 1932) with a note that due to the withered nature of the specimens the description may have to be revised in part when fresh specimens are found. Rupp felt that *Rhizanthella* and *Cryptanthemis*

were sufficiently alike as to warrant *Cryptanthemis* being included in the subtribe *Rhizanthellinae* if the description was modified to admit genera having flowers with free segments.

Rupp visited the site on December 26th 1931 but he was unable to find any plants. He had hoped to visit the site again in Spring 1932. This did not happen, however Mr. Slater sent him further specimens in early October 1932. Dr. Kesteven and Rupp relocated it two years later (10th October 1933) in the type locality, bringing to twelve the number of plants found at this site.

Rupp stated that the living plants of *Cryptanthemis* resemble more closely those of *Rhizanthella* than was apparent from the first withered specimens. In a paper published in June 1933, Rupp amended his original description and made further amendments in May 1934.

C. slateri was not seen again until November 1958 when it was found by Gus Kouskos in the Lamington National Park, south-east Queensland. The species was also found at Springwood in 1974 and closeby at Wentworth Falls in 1975. Both of these locations are in the Blue Mountains, west of Sydney, New South Wales.

In the June 1981 edition of the *Australian Orchid Review*, the Australian Orchid Foundation announced its offer of a \$200 reward for finding this orchid.

The AOF paid out on this reward when Dr. Mark Clements rediscovered it at the type location in 1984. Not long after this Wyn Jones discovered a plant in the Wisemans Ferry area, NSW, which

had been exposed after heavy rain has washed away the leaf litter and eroded part of the soil surface.

This species has a wide distribution from the New South Wales / Queensland Border Range south to the Nowra district on the South Coast of NSW, where it was recently discovered. Studies indicate that *C. slateri* has an association with a fungus but that it is not as specific as *R. gardneri*. It also grows in more varied locations, damp rainforest to dry Eucalyptus forest.

In a paper in the Kew Magazine (1984) Clements & Cribb transferred *Cryptanthemis slateri* to the Genus *Rhizanthella*. Clements & Cribb state that *Cryptanthemis* and *Rhizanthella* do differ in some features. "Each flower in *Rhizanthella* is subtended by a one veined bract, the outer bracts surrounding the capitulum being 3-veined and much larger. All the bracts in *Cryptanthemis* are one-veined. The flowers of *Cryptanthemis* are indeed slightly larger than those of *Rhizanthella* but of an essentially similar shape. We are, therefore, convinced that we are considering two closely allied species in the same genus. Since *Rhizanthella* is the earlier generic name we hereby transfer *Cryptanthemis*." Thereby *Cryptanthemis slateri* is now known as *Rhizanthella slateri*.

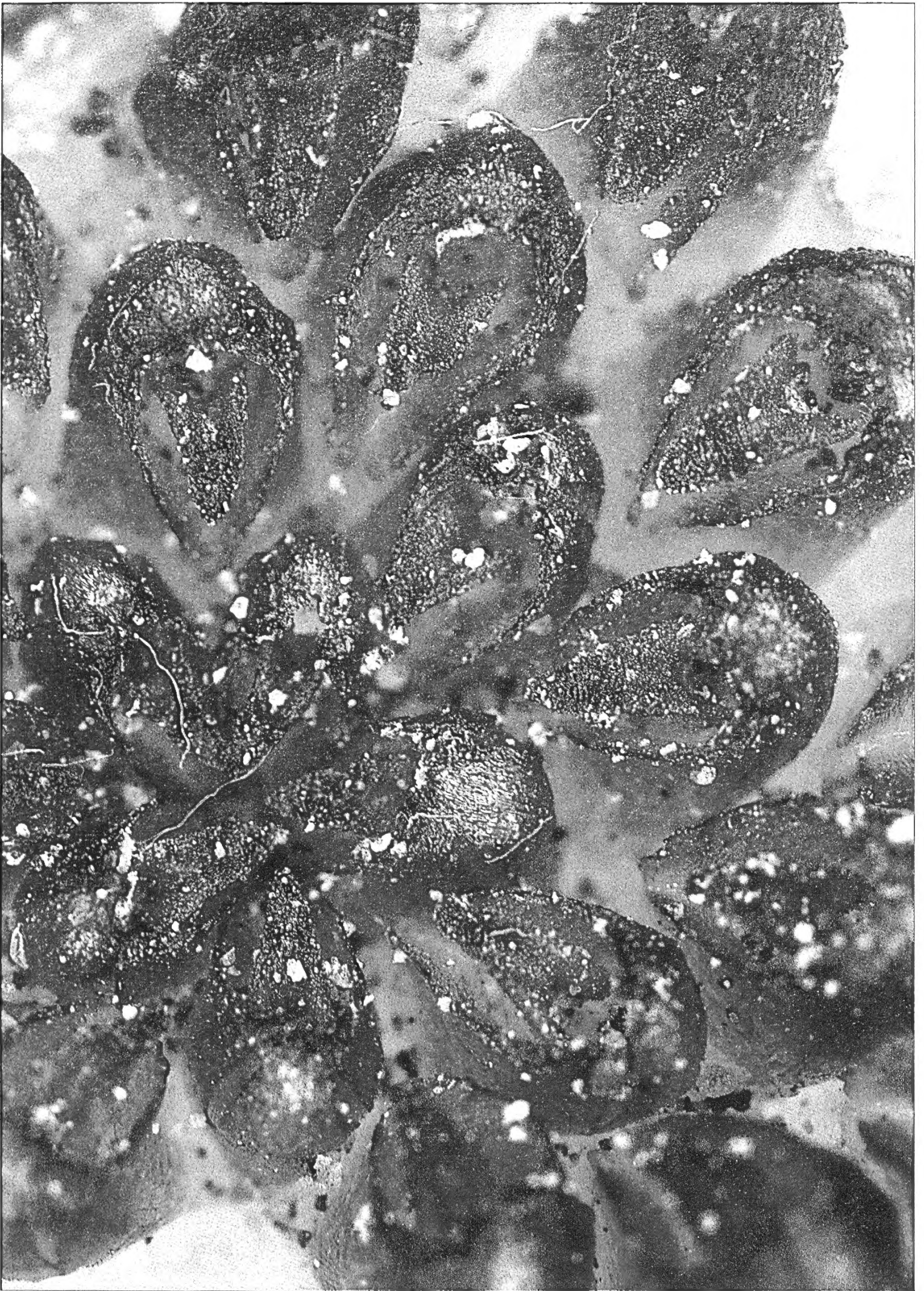
This unique and intriguing genus has proved to be a touch elusive over the years. Today there are a number of dedicated scientists and amateurs hot on its trail and I am sure we will have more news on the underground orchids in the future.



Editors note.

The colour photographs of *Rhizanthella gardneri* that accompany this paper were taken by myself on 4th June, 1999 at the Australian National Herbarium, Canberra of fresh material sent to David Jones and Mark Clements with authority from the Western Australian Government. Note the grains of sand on the flowers.

DPB



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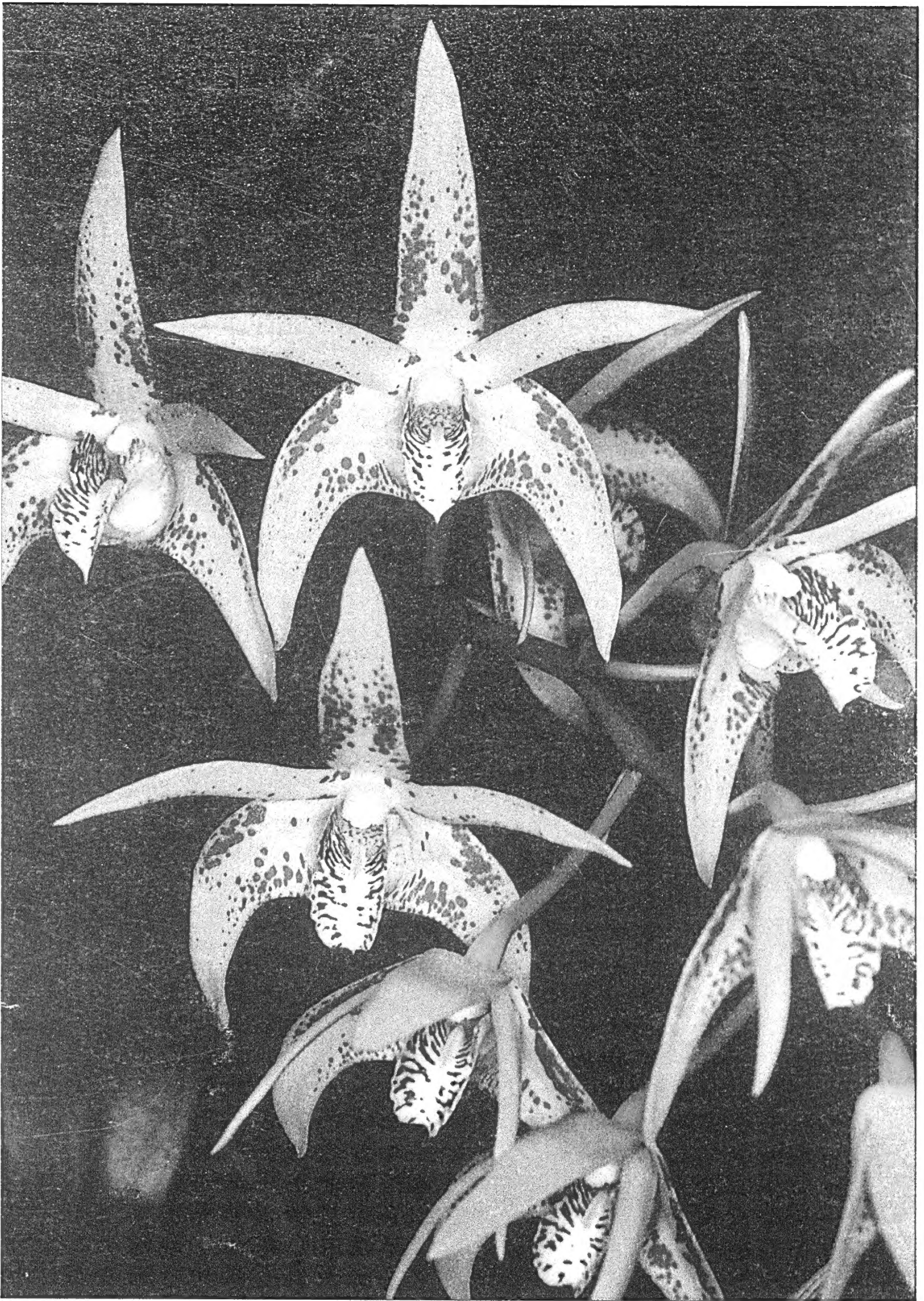
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