

# Two endangered new species of *Prasophyllum* (Orchidaceae) from southern New South Wales

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## Abstract

*Prasophyllum innubum* and *P. keltonii*, both with a highly restricted distribution in southern New South Wales, are described as new.

## Key Words

Orchidaceae, *Prasophyllum innubum*, *Prasophyllum keltonii*, critically endangered, endangered, new species, Australian flora, New South Wales.

## Introduction

Continuing studies by Peter Branwhite and Jim Kelton into the orchid flora of the Bago State Forest and Maragle State Forest in southern New South Wales have revealed the presence of two undescribed species of *Prasophyllum*. Significant parts of these forests are grazed and suffer from the problem of cattle concentrating on open mesic sites such as grassy plains, herbfields and streambanks, resulting in excessive grazing, trampling and soil pugging. Both forests are also subject to logging operations and in recent times gem fossickers have become active resulting in soil removal and undermining of some stream banks. The two orchid species which are detailed here, both currently known from restricted areas within the Bago State Forest, are considered to be endangered and are here described as new.

## Materials and Methods

Descriptions of taxa were made from fresh specimens. Dried specimens of *Prasophyllum* were examined from the following herbaria: CANB, CBG, HO and MEL. Unless otherwise indicated, all types of *Prasophyllum* species relevant to this study (or photographs thereof) and collections cited have been seen.

## Taxonomy

1. *Prasophyllum innubum* D.L.Jones, *sp. nov.*; affinis *P. mimulo* D.L.Jones, sed floribus minoribus; sepalo dorsali brevior, retuso; sepalis lateralibus fere omnino connatis, oblongis brevioribus retusis;

petalis brevioribus, anguste linearis; labello elliptico-oblongo, callo oblongo, praeter semi-longitudinem laminae extenso, differt; quoque *P. alpestri* D.L.Jones, sed floribus multo minoribus; petalis anguste linearis; labello minore elliptico-oblongo, differt.

**Type:** New South Wales. Brandy Marys, Bago State Forest, 12 Feb. 2005, *P.G.Branwhite* 297 & *J.Kelton* (holo CANB 658274).

**Description:** Leaf erect, terete, 25-50 cm long, 3-5 mm wide, bright-green, shiny; base c. 3-4 mm across, whitish or purplish; free lamina erect, 7-15 cm long, often distally withered at anthesis. *Inflorescence* a loose spike 5-8 cm long, consisting of 6-20 flowers. *Ovaries* at about 45° to the rachis, obovoid, 4-6 mm long, 2.5-3 mm wide, green, shiny. *Flowers* subsessile, 6-9 mm across, brownish green with white and purplish petals and a white or pink labellum. *Dorsal sepal* porrect to decurved, oblong-lanceolate to ovate-lanceolate, 5-6 mm long, 3-3.5 mm wide; apex obtuse. *Lateral sepals* connate, obliquely erect to erect, forming a synsepalum behind the labellum, each sepal linear-lanceolate, 5-6 mm long, c. 2 mm wide, straight; margins involute; apex entire, blunt. *Petals* incurved to spreading, linear, 6-7 mm long, 1-1.3 mm wide, with a pink to purplish central stripe; apex obtuse. *Labellum* sessile, porrect in the proximal half, recurved sharply in the distal half. *Labellum lamina* elliptic-oblong when flattened, 7-9 mm long, 3-3.5 mm wide, white or pink; base not gibbous; proximal margins entire; distal margins irregularly undulate/ crispate; apex broadly obtuse to apiculate. *Callus* more or less oblong-tapered, 5-6 mm long, 1.5-2 mm wide, green, whitish or pinkish distally; apex truncate to emarginate, irregular. *Column* porrect from the end of the ovary, c.



2.5 mm long, c. 3.5 mm wide, mostly purple; appendages oblong-obovate, c. 2 mm long, c. 0.7 mm wide, straight, purple; apex truncate. *Anther* shorter than the stigmatic plate, ovate, c. 2 mm long, c. 1.3 mm wide, brownish purple. *Pollinarium* c. 3 mm long; viscidium ovate, c. 0.3 mm long; hamulus ligulate, c. 0.7 mm long; pollinia c. 2 mm long, yellow, sectile. *Stigma* quadrate, c. 1.8 mm long, c. 2 mm wide; rostellum about as long as the appendages. *Capsules* suberect, obovoid, 6-8 mm long, 3-4 mm wide, green, shiny. **Fig. 1, a-d.**

**Distribution and ecology:** New South Wales where currently known only from 5 small colonies in the Bago State Forest and 2 others on the Brandy Marys Crown Lease within the Bago State Forest. I have also seen photos of specimens from northeastern Victoria taken by Dean Rouse and James Turner that have similar features to *P. innubum* and the species may well be more widespread than currently known. In the Bago State Forest the species occurs in the habitat described as "montane swamps and peatlands". The orchids grow beside small streams in sphagnum hummocks and on adjacent grassy flats, rarely in eucalypt woodland; occasionally also surviving in large sphagnum mounds surrounded by grazed herbfield (P.Branwhite pers. comm.). The orchid plants often grow among low vegetation with the tallest specimens protruding above the shrubs. Alt. c. 1150-1180 m. Flowering: Late January to early March.

**Recognition:** Characterised by relatively small self-pollinating flowers with the ovary swelling conspicuously during anthesis, the sepals and petals brownish purple with a white or pinkish labellum. The new species has affinities with *P. mimulum* D.L.Jones from Tasmania and also with *P. alpestre* D.L.Jones which occurs nearby. It can be distinguished from both by its much smaller self-pollinating flowers, short, blunt dorsal sepal, short blunt lateral sepals that are usually connate throughout, short narrowly linear petals and a relatively narrow elliptic-oblong labellum with the oblong callus extending more than half way along the lamina.

**Notes:** This species has been known by the tag name of *Prasophyllum* aff. *alpestre*. The

flowers are apparently self-pollinating and appear to lack any fragrance.

**Conservation status:** Currently known from about 7 small colonies in the Bago State Forest totalling less than 400 plants; one colony destroyed by grazing and most others damaged by grazing; one colony damaged by gem fossicking; the species is probably overlooked due to similarities with other taxa, particularly *P. alpestre*, and may be more widespread than currently known; suggest 2EK by the criteria of Briggs & Leigh (1996).

**Etymology:** The Latin *innubus*, unmarried, in reference to the self-pollinating nature of the flowers.

**Other specimens:** NEW SOUTH WALES: Brandy Marys, Bago State Forest, 9 Feb. 2004, *P.G.Branwhite* 219 (CANB); Bago State Forest, 20 Feb. 2004, *P.G.Branwhite* 221 & 222 (CANB); Brandy Marys, Bago State Forest, 28 Jan. 2005, *P.G.Branwhite* 290 (CANB); *ibid*, 12 Feb. 2005, *P.G.Branwhite* 297 (CANB).

**2. *Prasophyllum keltonii* D.L.Jones, *sp. nov.*;** affinis *P. canaliculato* D.L.Jones, sed floribus congestis, variantibus virentibus, roseis vel purpurascens; sepalis dorsali triente distali constricto; petalis angustioribus; labello ovato-lanceolato, medio parum praeter constricto, cauda 3–3.5 mm longa apicaliter contracta; callo late quadrato, apicaliter duobus columinibus lobatis canale centrali confinis, differt.

**Type:** New South Wales. McPhersons Plain, Bago State Forest, 23 Dec. 2004, *D.L.Jones* 19186, *T.Hopley*, *P.Branwhite* & *J.Kelton* (holo CANB 664871).

**Description:** *Leaf* erect, terete, 20-35 cm long, 3-5 mm wide, bright green; base 2-3 mm across, reddish to purplish; free lamina erect, 8-15 cm long, usually partly withered at anthesis. *Inflorescence* a dense spike 5-9 cm long. *Ovaries* at about 30° to the rachis, obovoid, 4-5 mm long, c. 2.5 mm wide, bright green. *Flowers* 12-22, crowded, 7-9 mm across, green, brownish red or purplish, fragrant, sessile. *Dorsal sepal* deflexed, ovate to ovate-lanceolate, 7.5-8.5 mm long, 4-4.5



mm wide, with 3 darker stripes, constricted in the distal third; apex recurved, acuminate. *Lateral sepals* free, erect or recurved, linear-lanceolate, 8.5-10 mm long, c. 2 mm wide; base not gibbous; distal margins involute; apex entire or bidentate. *Petals* porrect to spreading, linear to linear-lanceolate, 7-8.5 mm long, c. 1.3 mm wide, incurved distally; apex obtuse to acute. *Labellum* shortly stalked, porrect to obliquely erect; apex erect, at right angles to the basal part, the tip sometimes recurved. *Labellum lamina* ovate-lanceolate, 6.5-7.5 mm long, 4-5 mm wide, constricted near the middle and extending as a tapered apical cauda 3-3.5 mm long; base not gibbous; margins widely flared, smooth; apex acute. *Callus* broadly quadrate, c. 3 mm long, c. 3 mm wide, green to reddish; base broadly concave; margins each ending in a raised lobe-like ridge which flanks a deep central channel, these ridges occasionally confluent. *Column* porrect from the end of the ovary, c. 3 mm long, c. 3.5 mm wide; appendages oblong-lanceolate, c. 3 mm long, c. 0.6 mm wide, divergent, about as long as the stigmatic plate; apex obtuse. *Anther* ovate, c. 1.5 mm long, c. 1.5 mm wide, pink to purplish. *Pollinarium* c. 2.3 mm long; viscidium ovate, c. 0.3 mm long; hamulus vestigial; pollinia c. 2 mm long, yellow, sectile. *Stigma* ovate-quadrate, c. 2 mm long, c. 2 mm wide; rostellum about as high as the appendages. *Capsules* obovoid, c. 5-6 mm long, 3-4 mm wide. **Fig. 1, e-h.**

**Distribution and ecology:** New South Wales where currently known only from McPhersons Plain in the Bago State Forest. The species grows among grass tussocks on a large flat plain covered mainly with tussock grassland and surrounded by eucalypt woodland. The soil is a moisture-retentive brown loam. Alt. c. 1180 m. Flowering: December and January.

**Recognition:** Characterised by robust habit, relatively large crowded flowers ranging in colour from green or brown to pink or purplish, dorsal sepal constricted in the distal third, narrow linear to linear-lanceolate petals, and an ovate-lanceolate labellum constricted just above the middle and ending in a tapered cauda 3-3.5 mm long, with a broadly quadrate callus that is concave at the base and with thickened margins that end in 2 raised lobe-like ridges which flank a central channel. In

some specimens the marginal ridges of the callus are confluent at the apex forming a horseshoe-shaped structure at the end of the central channel. The new species has obvious affinities with *P. canaliculatum* which has less-crowded red to reddish-brown flowers, broader petals, broadly elliptical labellum with widely flared lateral lobes that taper suddenly inwards at the apex and end in a short erect cauda c. 2 mm long, and a narrower quadrate labellum callus that ends in a narrow channel.

**Notes:** This species has been known by the tag name of *Prasophyllum* aff. *canaliculatum*. The flowers of this species have a noticeable light fragrance on warm days.

**Conservation status:** Currently known from a single locality despite extensive searching by Peter Branwhite and Jim Kelton and considered to be Critically Endangered (IUCN 2001).

**Etymology:** Named after James Edward Kelton (1951-), committed high country conservationist with a strong interest in the recording and conservation of high country native flora and fauna and an archaeologist devoted to the documentation of high country Aboriginal heritage.

**Other specimen:** NEW SOUTH WALES: Brandy Marys, Bago State Forest, 28 Dec. 2003, P.G.Branwhite 210 (CANB, NSW).

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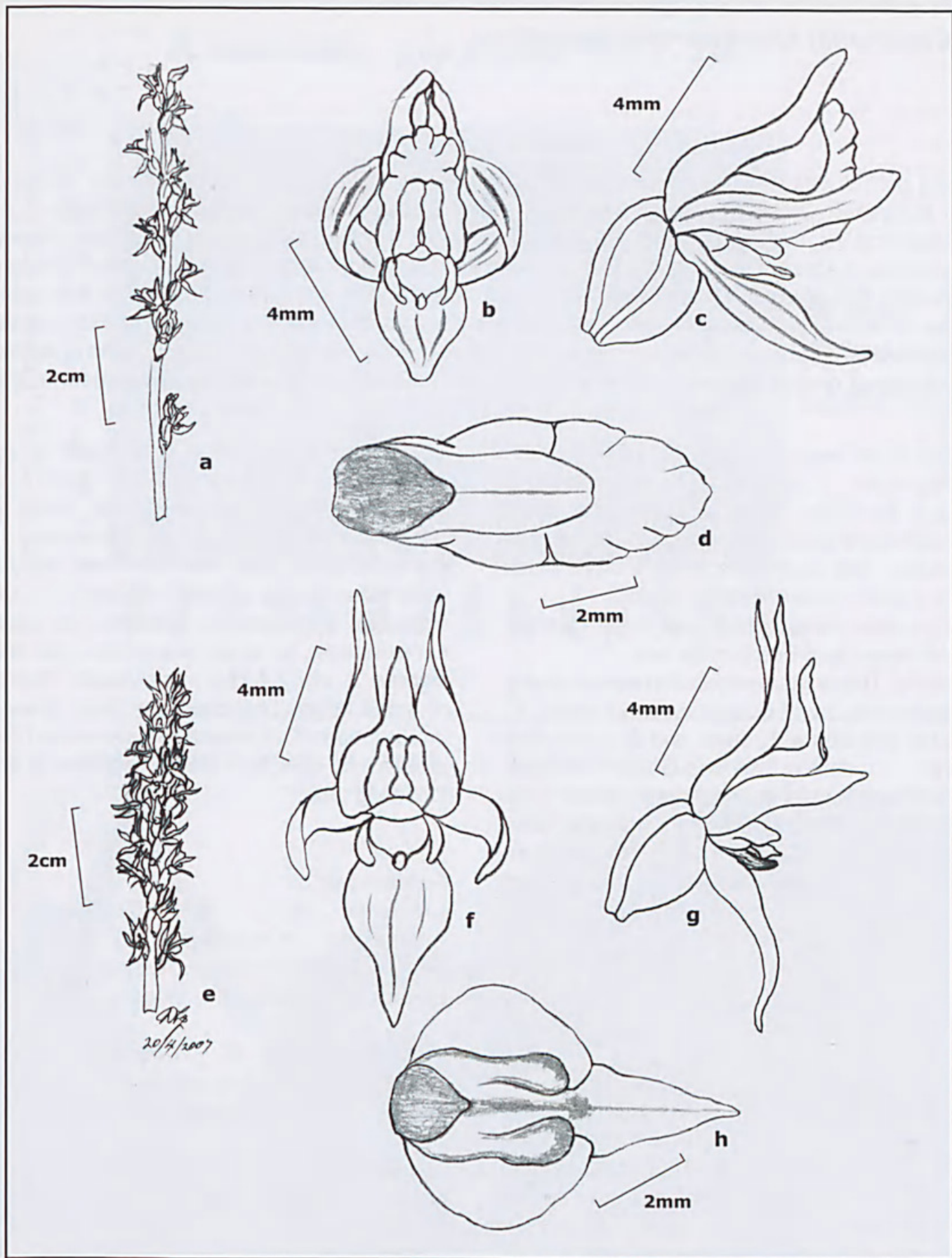
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# **Caption**

**Fig. 1, a-d, *Prasophyllum innubum*, Bago State Forest, P.Branwhite 221. a. inflorescence; b. flower from front; c. flower from side; d. labellum from above, flattened. Fig. 1; e-h, *Prasophyllum keltonii*, McPhersons Plain, D.L.Jones 19186. e. inflorescence; f. flower from front; g. flower from side; h. labellum from above, flattened.**



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