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**PRASOPHYLLUM FECUNDUM  
AND *P. OCCULTANS* (ORCHIDACEAE):  
TWO NEW SPECIES ENDEMIC TO SOUTH AUSTRALIA**

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**Abstract**

*Prasophyllum fecundum* R. Bates and *P. occultans* R. Bates are described from southern South Australia, together with illustrations and key.

**Introduction**

During preparation of a revision for the genus *Prasophyllum* R. Br. it became evident that two undescribed species occurred in South Australia. Although neither is common both are widespread and known from large and stable populations. Indications are that both were probably common before land clearance destroyed most of their habitat. Collections of *P. fecundum* were previously included under *P. fitzgeraldii* R. Rogers & Maiden ex R. Rogers while *P. occultans* has been misidentified variously as *P. occidentale* R. Rogers and *P. pallidum* Nicholls. A key is provided below for identification of these species.

**Key to selected *Prasophyllum* species**

1. Labellum and callus lanceolate; quite glabrous ..... *P. occidentale*
1. Labellum and callus triangular, with some pubescence or papillae on lamina ..... 2
2. Flowers with some purple or pink tints ..... 3
2. Flowers wholly greenish ..... 4
3. Flowers 3-8 rarely to 12, hardly as large as the ovary; dorsal sepal less than 5 mm long; centre of labellum callus glabrous, much raised and polished ..... 1. *P. fecundum*
3. Flowers 10-30, much larger than ovary; dorsal sepal more than 5 mm long; centre of labellum callus pubescent and not much raised ..... *P. fitzgeraldii*
4. Flowers 10-20 rarely more, lateral sepals parallel, labellum, lamina and callus wholly pubescent. .... *P. pallidum*
4. Flowers 3-10 rarely to 12, lateral sepals spreading, labellum, lamina with some papillae about margins of callus plate ..... 2. *P. occultans*

**1. *Prasophyllum fecundum* R. Bates, sp. nov.**

*P. fitzgeraldii* affine sed plantae parvae, floribus paucioribus parvis in ovarii magnis, labello brevior callo nitido elevato pubescente tomentum in marginibus differt.

*Holotype*: R. Bates 6395 Sandy Creek Conservation Park, 4.x.1985 (AD).

Slender herb (6-) 10-20 cm tall; *tuberoïd* sub-globose, 4-7 mm diam., outer skin parchment-like when dry, base of stem below ground with 2 cylindrical hyaline sheaths, the lower one less than 1 cm long, upper one to 3 cm long, sheaths persistent, their fibrous remains encasing lower scape. *Leaf* hollow-terete, 2-4 mm diam., to 20 cm long, basal 1 cm tinted red or purplish, apex green, erect. *Scape* green, 1.5-3 mm diam., emerging from leaf at a fistula 3-8 cm above ground level; *flowers* few (3-12), green and purplish, in loose spike 3-6 cm long. *Ovary* sessile, pyriform, about 4 x 3 mm, tumescent; subtending bract, quadrate, 1.5-2 x 1.5-2 mm, more or less truncate. *Dorsal sepal* green, ovate, c. 4 x 2 mm; lateral sepals greenish, lanceolate, 4-5 x 1.5 mm, free and divergent, margins only slightly incurved, apex

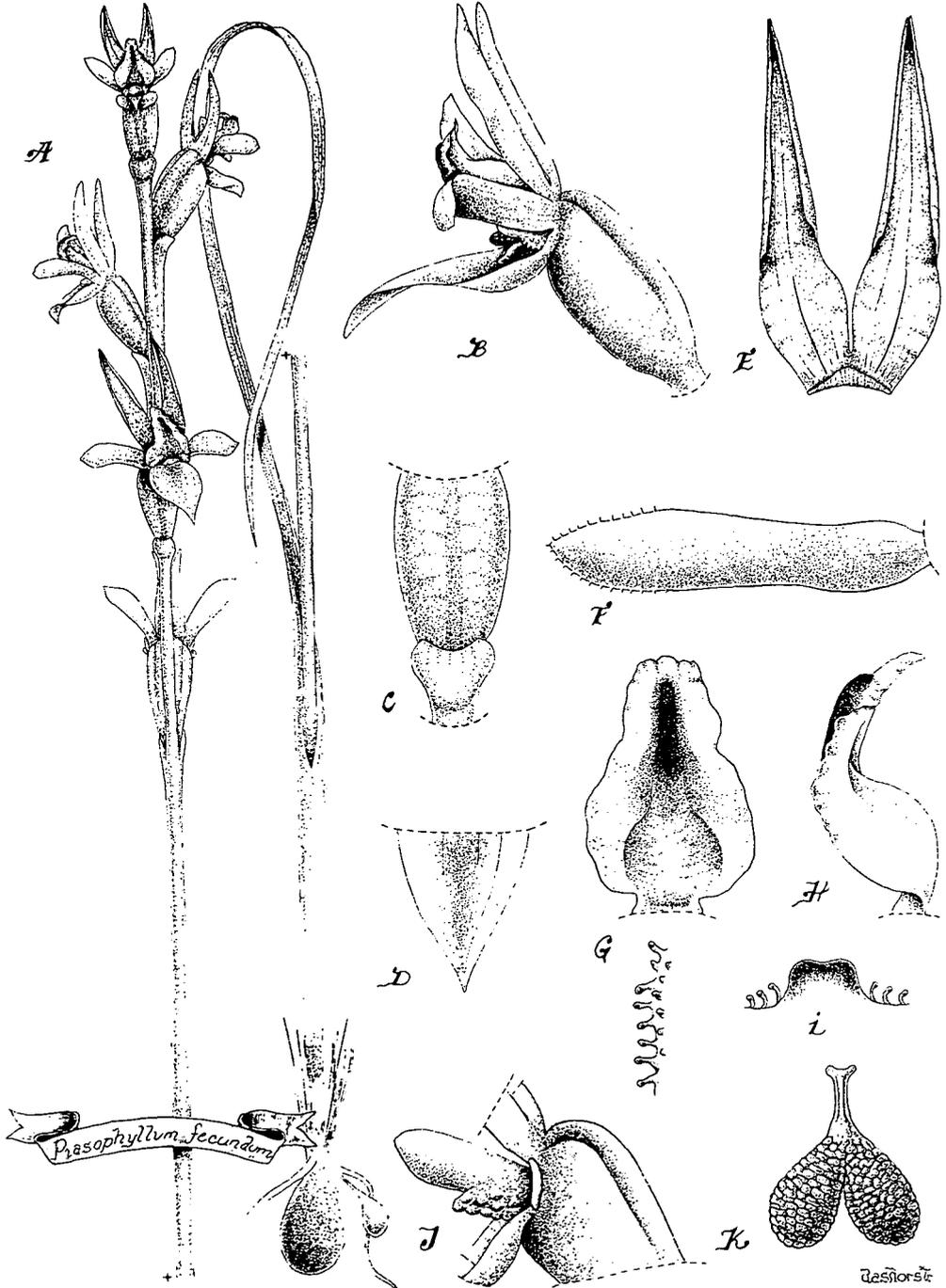


Fig. 1. *Prasophyllum fecundum*. A, plant; B, flower & ovary in side view, x10; C, ovary & bract in front view, x10; D, dorsal sepal, x10; E, lateral sepals, x10; F, petal, x15; G, labellum front view, x10, with magnified view of margin; H, labellum in side view, x10; I, labellum callus, cross section, X15; J, column appendage, x15; K, pollinia, x20. Voucher spec. R. Bates 6395, holotype (AD).

subacute, not bidentate. *Petals* linear-oblong, greenish with purple tips, 4 x 1 mm, widely spreading, subacute, apical margins minutely ciliate. *Labellum* almost sessile, ovate, c. 4 x 2.5 mm, pale purple, recurved near middle, basal portion gibbous with entire margins; recurved part triangular, lamina minutely papillose, margins crenulate and minutely ciliate, apex subacute, callus plate slightly more than 1 mm long, greatly raised, rounded, purple-red, ending well before the bend, smooth and shining near centre but with minutely papillose margins. *Column* appendages pale, quadrate, c. 1 x 1 mm, obtuse, basal lobe a mere thickening; anther suborbicular, c. 1 mm long; stigmatic plate 1.2 mm long, stigma semicircular, rostellum very short; pollinia connected directly to viscid disk. Fig. 1.

#### Flowers

September to early October. The flowers are short lived, apparently apomictic, although fragrant and attractive to insects. Blooming occurs freely and is not facilitated by fires.

#### Distinguishing features

*P. fecundum* is a small plant with tiny flowers set on comparatively large ovaries. The very short labellum with its much raised callus, shiny in the middle, papillose near the edges, is unlike that of any other species.

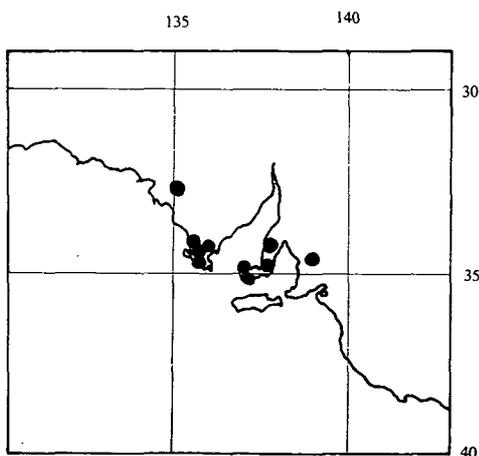
#### Distribution

Endemic to South Australia where it is found on southern Eyre Peninsula, Yorke Peninsula and the Barossa Valley. Map 1.

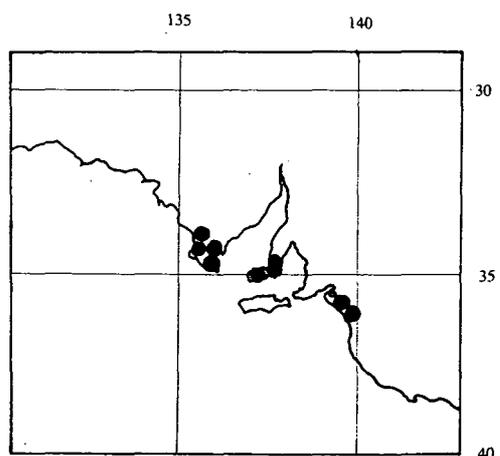
#### Habitat

Mallee-broombush or *Callitris* scrub in the more fertile terra-rossa soils, or in deep yellow sands, which have largely been cleared for farming so that only small isolated populations of *P. fecundum* remain.

*Conservation status*: 3RC.



Map 1. Distribution of *Prasophyllum fecundum*.



Map 2. Distribution of *Prasophyllum occultans*.

*Notes*

The new species is closest to *P. fitzgeraldii* with which it is occasionally sympatric. *P. fitzgeraldii* flowers later, has more crowded, larger flowers with comparatively smaller ovaries, a more voluminous labellum, the callus not greatly raised and in most forms pubescent over its whole surface.

*Specimens examined*

SOUTH AUSTRALIA: Eyre Peninsula: *R. Bates* 372, Mount Wedge, 26.ix.1974 (AD); *M.G. Clark* 32, Hundred of Koppio, 11.x.1965 (AD); *Mrs Fagg per R.C. Nash s.n.*, Hincks Conservation Park, 7.x.1969 (AD); *J.Z. Weber* 6009, Marble Range, 30.ix.1979 (AD); *J.R. Wheeler* 1020, Hincks "National Park", 11.x.1968 (AD). Yorke Peninsula: *R. Bates* 3450, Maitland to Moonta, 15.ix.1983 (AD); *R. Bates s.n.*, Stansbury-Minlaton Road, 18.ix.1976 (AD wet coll.).

*Etymology*

From fecund, referring to the tumid ovary which is usually larger than the flower.

**2. *Prasophyllum occultans* Bates, sp. nov.**

*P. occidentali* affine sed floribus paucioribus in ovariis marginis, perianthii segmentis brevioribus, sepalis lateralis discretio divergentibusque, labello brevioribus pubescentia minuta circum calli suggesta indistincto differt.

*Holotype*: *R. Bates* 2334 Lincoln Conservation Park, Eyre Peninsula, scrub adjacent boat ramp on eastern side, 20.ix.1982 (AD).

Slender herb (5-) 10-30 (-35) cm tall; tuberoid ovoid, c. 1 cm diam., outer surface often separating and becoming parchment-like when dry; new tuber produced adjacent to old; base of plant below soil level with 2 cylindrical truncate hyaline sheaths, the lower less than 1 cm long, the upper to 3 cm long. *Leaf* 10-30 mm long, hollow-terete, 3-5 mm diam., purple-red near base, apex filiform, suberect, about as high or higher than flower spike. *Scape* green, emerging from the mid-point or higher up the leaf, 2-4 mm diam.; *flowers* few, mostly less than 10, greenish, well spaced on spike, 3-8 cm long; subtending bract oblong, shorter than broad, c. 3 x 2 mm with a short apiculus. *Ovary* subsessile, ovoid, 4-6 x 1.5-2.3 mm, swelling to 10 x 5 mm after flowering, minutely tuberculate, strongly ribbed. *Dorsal sepal* ovate-lanceolate, 6-8 x 2-3 mm, green with brownish apex; lateral sepals free almost to base, slightly divergent, lanceolate, 2-3 x 7-8 mm, almost straight, thick textured, margins slightly incurved, apex acute, subconical, not bidentate, green with dull brown tints; petals linear-oblong, 5-6 x 1 mm, slightly spreading, green with dull brown apical stripe, thick textured; labellum almost sessile, ovate-lanceolate, 5-6 x c. 2 mm, thick textured, greenish-white, recurved at middle, basal portion slightly gibbous with largely entire margins, apical portion triangular, crisped with crenulate margins, callus green-brown, occupying about half the labellum surface, hardly raised, extending almost to short acute labellum apex, smooth and channelled in centre, with some sparsely papillose areas toward the margins and onto labellum lamina. *Column*: appendages oblong, 2 x 1.5 mm, pale green, thick, basal lobe connate, reaching to mid-point of main lobe; anther almost 2 mm long, red-brown, yellow edged, often with a filiform mucro; stigmatic plate c. 1.5 x 1 mm, stigma reniform near the top; rostellum very short; viscid disk green attached to pollinia by a less than 1 mm long caudicle.

*Flowers*

The short mid-September to early October flowering season is typical of several other apomictic *Prasophyllum* species in South Australia. Flowers emit a pleasant fragrance in warm conditions.

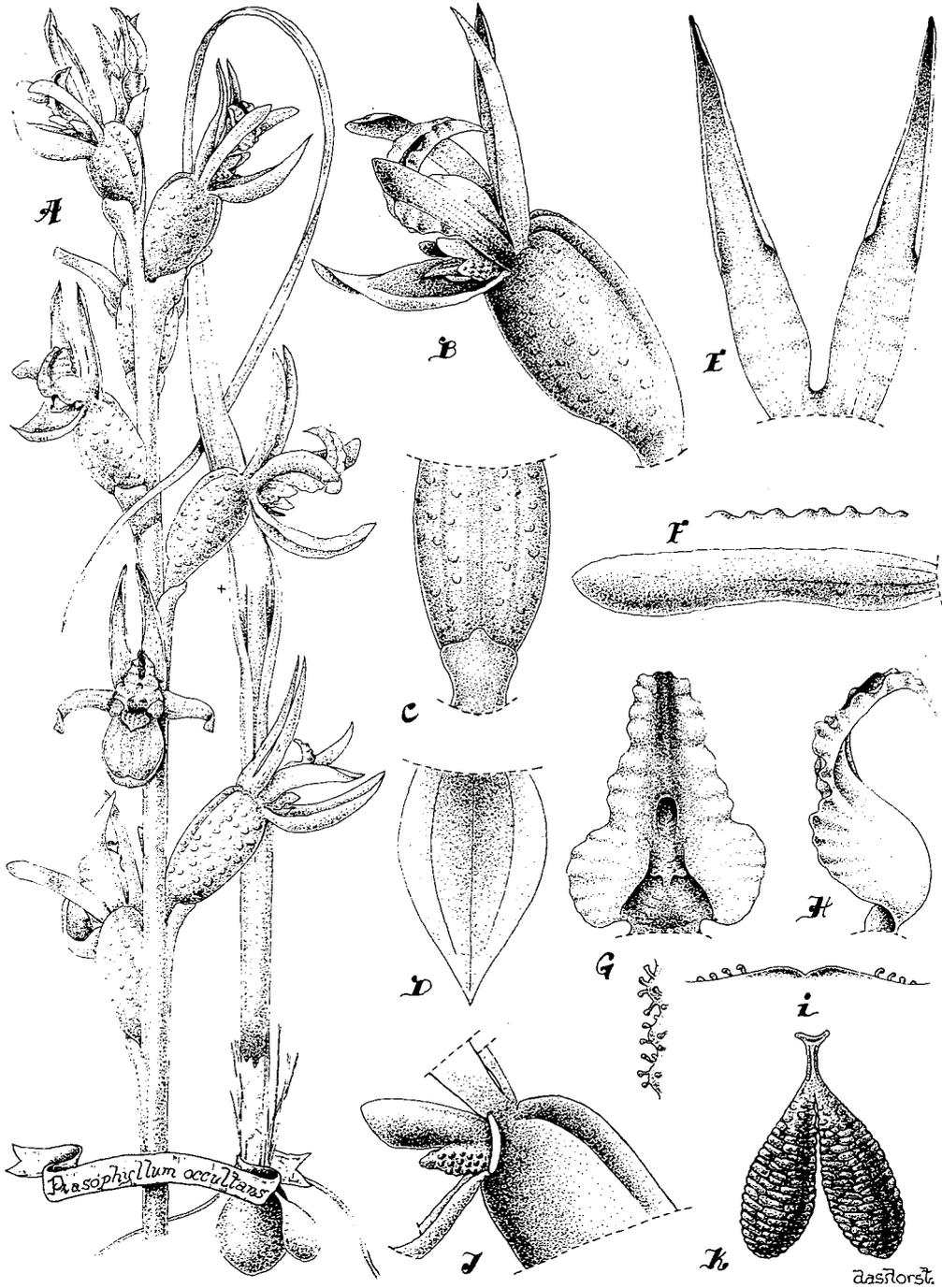


Fig. 2. *Prasophyllum occultans*. A, plant, x5; B, flower & ovary side view, x10; C, ovary & bract, x10; D, dorsal sepal, x10; E, lateral sepals, x10; F, petal x10 with magnification of margin, x20; G, labellum front, x10, with magnification of margin, x20; H, labellum side view, x10; I, cross section of labellum callus, x20; J, column appendage, x15; K, pollinia, x20. Voucher spec. R. Bates 3450 (AD).

*Distinguishing features*

The sparse, few-flowered inflorescence, the very dull coloured, thick textured apparently apomictic flowers, the spreading, flat lateral sepals and the hardly-raised, but broad callus plate with its sparse marginal papillae is a distinctive set of characters for *P. occultans*.

*Distribution*

Endemic to South Australia on southern Eyre Peninsula, Yorke Peninsula and the upper South-East but probably also on Kangaroo Island. Map 2.

*Habitat*

Commonly in mallee-broombush associations in brown earths or terra rossa soils over limestone, flowering freely without fire.

*Variation*

Little variation has been noted in colour or morphology but many plants seen had flowers which were teratological.

*Conservation status:* 3RC.

*Specimens examined*

SOUTH AUSTRALIA: South-East: *R. Bates 3403*, Mt Boothby Conservation Park, on limestone, 21.ix.1983 (AD, BA, MEL). Yorke Peninsula: *R. Bates 2292*, Warrenben Conservation Park, 25.ix.1982 (AD); *R. Bates 6811*, Warrenben Conservation Park on limestone, ix.1985 (AD); *R. Bates 515*, Stansbury-Minlaton Road, ix.1979 (AD); *P. Hornsby s.n.*, Stansbury scrub, 5 km NNW of 'Yakka' Trig Point, 23.ix.1979 (AD 98011247).

*Etymology*

*Occultans* = hidden, a reference to the dull coloured flowers which are not easily seen and also to the sparse papillae on the labellum which are difficult to see without magnification.

*Affinities*

*P. occultans* approaches both *P. fitzgeraldii* as well as *P. occidentale* with which it has previously been confused. It is closest to *P. fitzgeraldii* from which it differs in flower colour and particularly in characteristics of the labellum. *P. fitzgeraldii* has a purple labellum with a largely pubescent surface and papillose margins.

From *P. occidentale* it differs in the characters of lateral sepals and labellum; the lateral sepals of *P. occidentale* are largely conjoined not spreading, longer and often bidentate, and the labellum is totally glabrous and has a narrower more raised callus plate.