

FIVE NEW TAXA IN *PTILOTUS* R.Br. (AMARANTHACEAE) FROM THE NORTHERN TERRITORY

by

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ABSTRACT

Two new species and three new varieties of *Ptilotus* from the Northern Territory, Australia, are described and discussed. These are *P. comatus*, *P. rotundatus*, *P. lophotrichus* var. *villosus*, *P. aristatus* var. *exilis* and *P. exaltatus* var. *glaber*. The first three of these taxa are illustrated by analytical drawings and photographs of their type specimens. *P. eichlerianus* Benl is reduced in rank to *P. aristatus* var. *eichlerianus* (Benl) Benl & Hj. Eichler.

Three keys are provided, namely a key to *Ptilotus* taxa with more or less comose tepal apices (including the first three new taxa listed above), a key to the varieties of *P. aristatus* and a key to the varieties of *P. exaltatus*.

TAXONOMY

***Ptilotus lophotrichus* Benl var. *villosus* Benl, var. nov.**, praecipue ob flores minores, tepala exteriora latiora et indumentum dorsale perianthii manifeste amplius a varietate typica differt.

Distinguished from the type variety by different size, shape and pubescence of the outer floral organs. *Bracts* 2.5-3 x 1.4-1.8 mm; *bracteoles* 2-2.5 x 1-1.6 mm; *outer tepals* more limbate, 2.7-3.1 mm long x 1-1.3 mm wide; *inner tepals* 2.6-3 mm long x 0.7-1 mm wide; *apical hairs on tepals* attaining 1.5 mm and overtopping the segments by 1.1 mm; *outer basal hairs* almost straight, to 0.6 mm long, continued up to the middle of the tepals or sometimes even higher on the inner ones, hence consistently obscuring part of the median red area of the tepals. Figs 1, 2a, 4a.

Comparable characters for the var. *lophotrichus* are — *bracts* 4.7-5.5 x 1.8-2.2 mm; *bracteoles* 3.3-4 x 1.2-1.7 mm; *outer tepals* 3.8-4.1 x 0.9-1.2 mm; *inner tepals* 3.2-3.7 x 0.7-1 mm; *apical hairs on tepals* attaining 2 mm, overtopping the segments by 1.2 mm; *outer basal hairs* minute and not masking the median area of the tepals (see *Trans. Roy. Soc. S. Aust.* 88:57, fig. 2c (1964)).

TYPE COLLECTION: Near the Goyder River Crossing on the road to Gove, near 12° 51' S., 135° 02' E., Arnhem Land, Northern Territory, Symon 7723, 17.vi.1972. In open grassy *Eucalyptus* woodland. (Holotype: M. Isotype: ADW 40952).

NOTES:

Symon 7723 was initially regarded as a second collection of *Ptilotus lophotrichus* (see *Mitt. Bot. Staatssamml. München* 15: 167 (1979)), but on closer comparison with the holotype of *P. lophotrichus* the constant floral differences given above became evident. As the terminal pubescence of the tepals matches that of typical *P. lophotrichus*, infraspecific rather than specific recognition is justified.

***Ptilotus comatus* Benl sp. nov.**, affinis *P. lophotricho*, a quo praesertim pubescentia diversiformi perianthii et bractearum, forma tepalorum et bracteolarum recedit.

Planta annua tenera usque ad 0.6 m alta ramosa parce foliata plurispicata basi lignosa. *Caules* ramulique (curvati-) erecti et folia juvenilia pilis crispis albidis crassiusculis tomentosula. *Folia* angustissima linearia 0.5-2.5 cm longa. *Inflorescentiae* primo ovoideae dein cylindraceae ad c. 4 x 0.8 cm, solitariae vel 2-3 compositae, omnes ramulos terminantes. *Flores* c. 40-80 (100) conferti visu (pallide) rosei demum stramineo-flavescentes. *Bracteae* bracteolaeque acutae inaequales: bracteae elongatae vel elongati-ovatae, longitudinem perianthii vix attingentes, in dimidio superiore sparse

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Muelleria 5(4): 249-261 (1984).

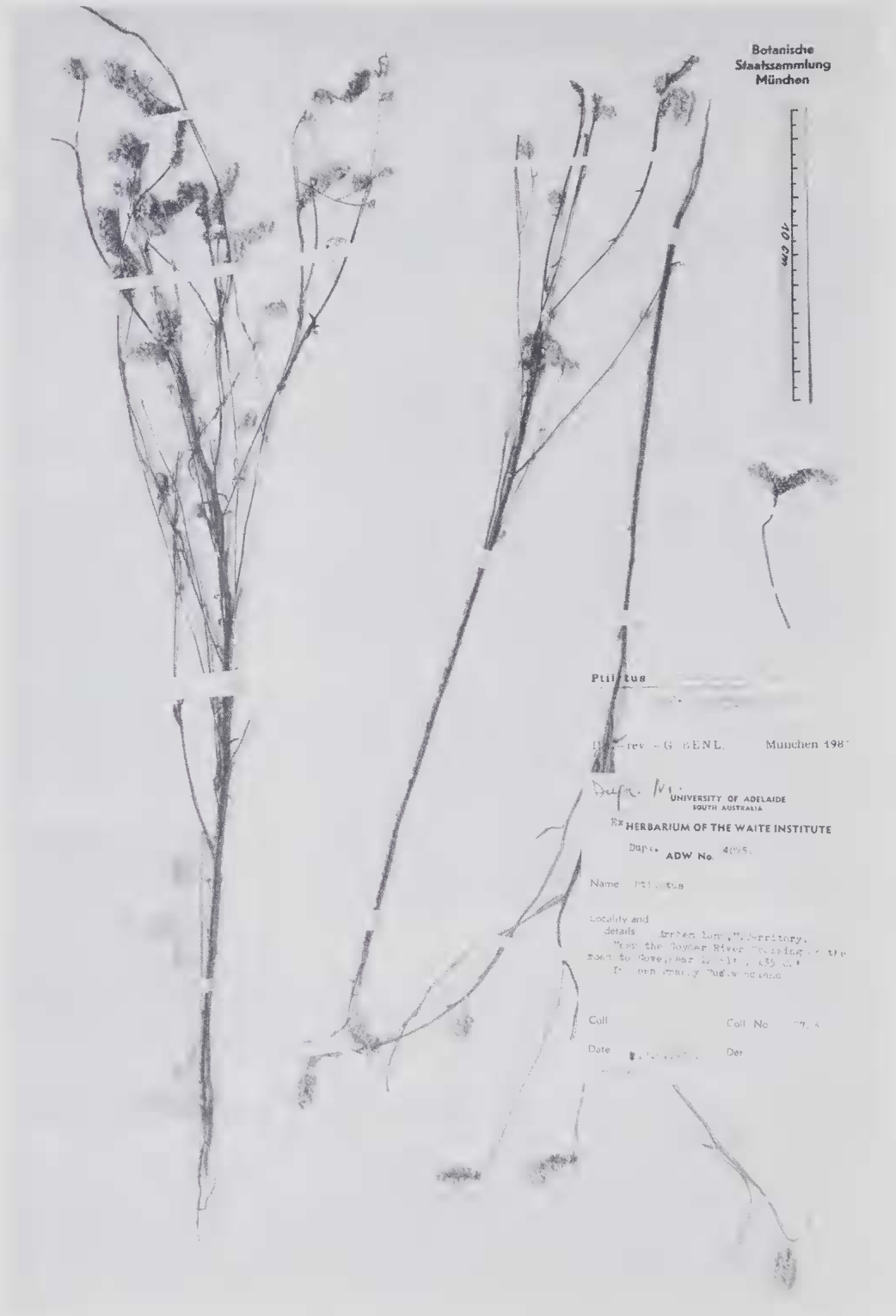


Fig 1. *Ptilotus lophotrichus* var. *villosus*. Holotype (Symon 7723, M).

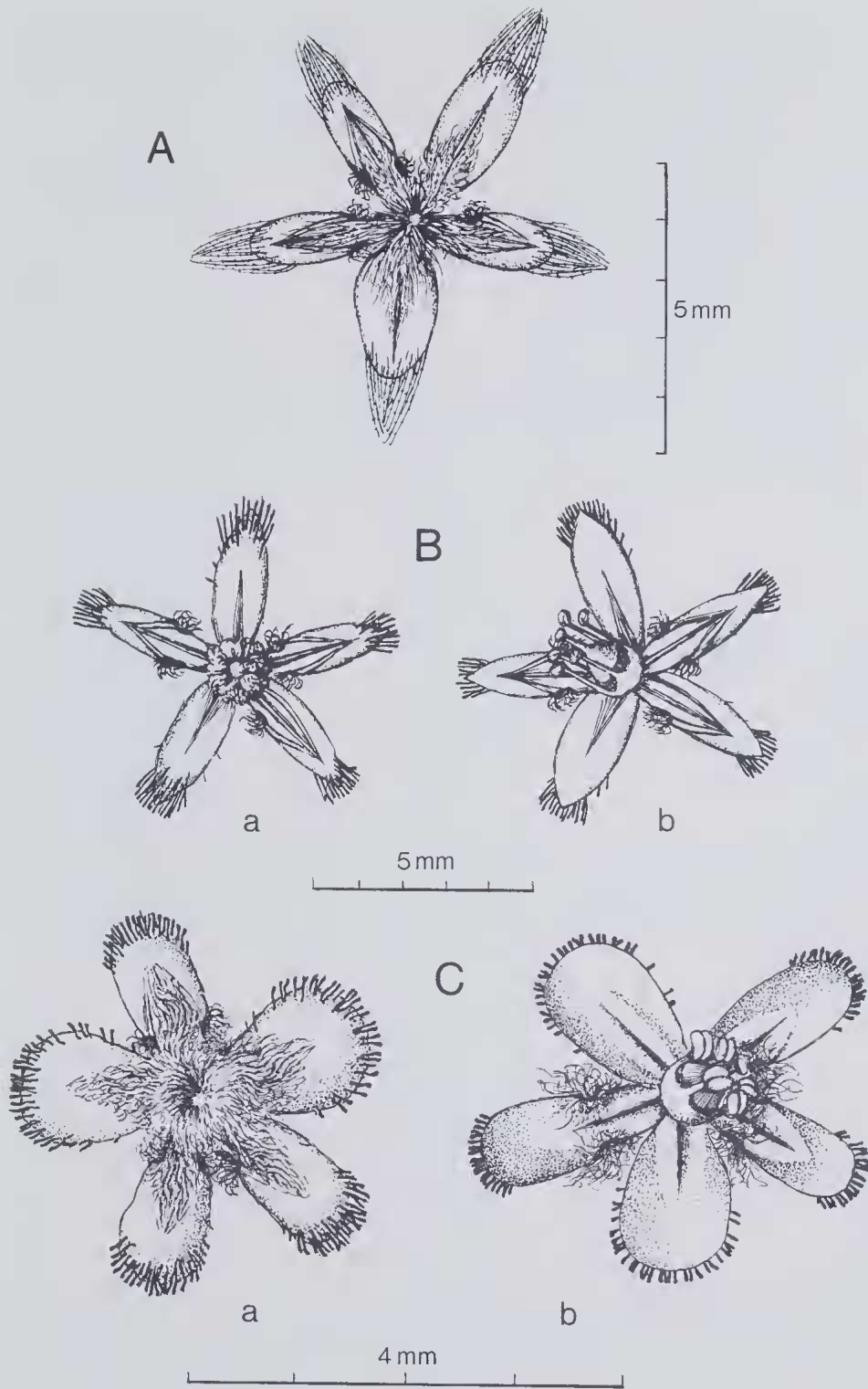


Fig. 2. Spread perianths of *Ptilotus* spp. A — *P. lophotrichus* var. *villosus*, outer view. B — *P. comatus*, outer view (a) and inner view (b). C — *P. rotundatus*, outer view (a) and inner view (b). All from the holotypes.

pilosae; bracteolae distincte minores (sub)ovatae ventricosae glabrae. *Perianthium* bicoloratum ima basi pilosula tantum contractum. *Tepala* libera acutiuscula, pilis niveis rectis crassiusculis conspicue (sub)fastigiatis breviter comata (Fig. 2B); 2 exteriora ad 3.8 x 1.2 mm, leviter carinata intus glabra; 3 interiora subaequilonga angustiora, extus distincte tricostata intus basim versus pilosiuscula, areola mediana purpurea. *Stamina* aequalia omnia fertilia, basi dilatata cupulam integram formantia. *Ovarium* complanati-globosum glaberrimum.

Ephemeral herb up to 60 cm tall. *Tap-root* slender, up to 3 mm diam. *Stem* upright, terete, finely striate, basally woody, producing near the base several arcuately ascending main branches (8 in the holotype), then continuing to c. 40 cm long and 1-1.5 mm in diameter near the middle, laxly branching again. *Stem and branches* all greyish green becoming reddish-tinged especially near the base, persistently hairy with crisp, rough, indistinctly articulate, whitish hairs to 1.2 mm long; all terminating in spikes. *Leaves* alternate, sessile or near-sessile, 3-33 mm apart, narrow-linear to narrow-elliptic with a slightly pointed tip and a somewhat tapering base, 5-15 (-25) mm long x 0.6-1.5 mm wide, pale green, hairy (as for stems) only when young, thickly coriaceous, becoming rugose when withering; margins \pm revolute, often obscuring the midrib. *Spikes* up to 30 per plant, usually solitary or 2-3 congested at a branch apex, rarely axillary; small spikes ovoid(-conical); large spikes cylindrical, 10-40 mm long x 5-8 mm wide, bearing up to > 80 tightly arranged flowers. *Rachis* lanate with articulate intricate hairs c. 1 mm long, concealing the minute pedicels. *Pedicels* woody, jointed above the bracteoles. *Bracts and bracteoles* membranous-scarious, entire, (convex-)acute, appressed to the perianth, persistent. *Bracts* narrowly oblong to oblong-ovate, (2.4-) 3 (-3.3) x 0.8-1.2 mm, slightly shorter than the mature perianth, faintly keeled, sparsely clothed over the distal dorsal halves with obscurely articulate hairs up to 1.7 mm long; hairs not projecting beyond the bract tip. *Bracteoles* inconspicuous, (broad-)ovate, (1.3-) 1.6-2 (-2.2) x 0.8-1.1 mm, glabrous or almost so, nerveless, transparently shining. *Perianth* straight, thickened and hard towards an open disc-like base; base somewhat notched due to the sunken attachment of the pedicel, externally finely pubescent with a mat of closely-curved accumbent hairs c. 0.2 mm long; lower perianths deciduous as spikes elongate. *Tepals* free to the perianth base, entire, subequal in length, slightly concave-acute in about the distal halves; dorsal surface pilose towards the apex with broad short tufts of snowy white hairs which project beyond the tepal tip by c. 0.25 mm, almost all hairs ending at the same level (especially in young flowers), thus giving the tepal a brush-like aspect and the whole spike a sharp outline; hairs of the tufts up to c. 30, c. 0.5-0.9 mm long, septate and many with a more or less club-like end cell, stouter than those on the bracts, more or less easily breaking off. *Outer tepals* (oblong-)elliptic, 3.2-3.6 (-3.8) x 1-1.2 mm in the holotype, with a narrow deltoid opaque area along a central externally prominent reddish line in lower halves, the larger transparent marginal zones shiny on both surfaces; tepals glabrous except for the comose apex, a few shorter marginal hairs and the basal mat of curly hairs. *Inner tepals* narrower, sublinear, (3-) 3.3-3.5 (-3.7) x 0.6-0.7 (-1) mm in the holotype, more rigid, with three bold ribs on the dorsal surface, the lateral ribs bordering a coriaceous, usually glabrous, distally tapered, \pm purplish centre; scarious marginal zones vanishing basally, enlarging upwards and fusing into a 0.7-1 mm long apical comose portion; margins with irregular constrictions or incisions above the ovary and with sparse, delicate, more or less inflexed hairs c. 0.5 mm long inserted at and below the constrictions; outermost of the three inner tepals often constricted and hairy on one margin only and then \pm similar to an outer segment in outline. *Androecium and gynoecium* much shorter than the perianth. *Stamens* five, perfect, basally united into a turbinate glabrous hyaline cup-shaped tube 0.5-0.6 mm high; tube attached to the perianth disc for about the basal 0.15 mm; free parts of filaments flattened, up to c. 1.2 mm long, subulate towards the apex, c. 0.1 mm wide near the middle and dilated downwards to 0.35 mm; anthers broad-ellipsoid, averaging 0.3 x 0.2 mm at anthesis; pseudostaminodes absent. *Gynoecium* glabrous, sessile; ovary obovoid (1.2 x 0.9 mm) to complanate-globose (0.8-1 mm largest diam.); style central, straight, slender, 0.5-0.8 mm long, c. 0.08 mm across near the middle and slightly thickened downwards; stigma papillose, level with the anthers. *Seed* thick, lenticular, reddish brown.

Figs 2b, 3, 4b.

HERBARIUM
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(CANB)
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Ptilotus comatus Benth.

AMARANTACEAE

Det. - rev. - G. BENL. München 1983

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HERBARIUM OF THE NORTHERN TERRITORY
DARWIN (DNA) AUSTRALIA

Ptilotus calceolatus (P. Muell.)
P. Muell.

Locality 1 km W. Nabarlek airstrip

Lat. 12°20' Long. 145°20'

Notes *Puc. teleodonia* open forest on sand
Herb about 50cm flowers white and pink

Coll. B. Rice 3118 Date 23 April 1979

Det. M.O. Frankin Date

Reps. DNA CANB

Family AMARANTHACEAE

Fig. 3. *Ptilotus comatus*. Holotype (Rice 3118, CANB).

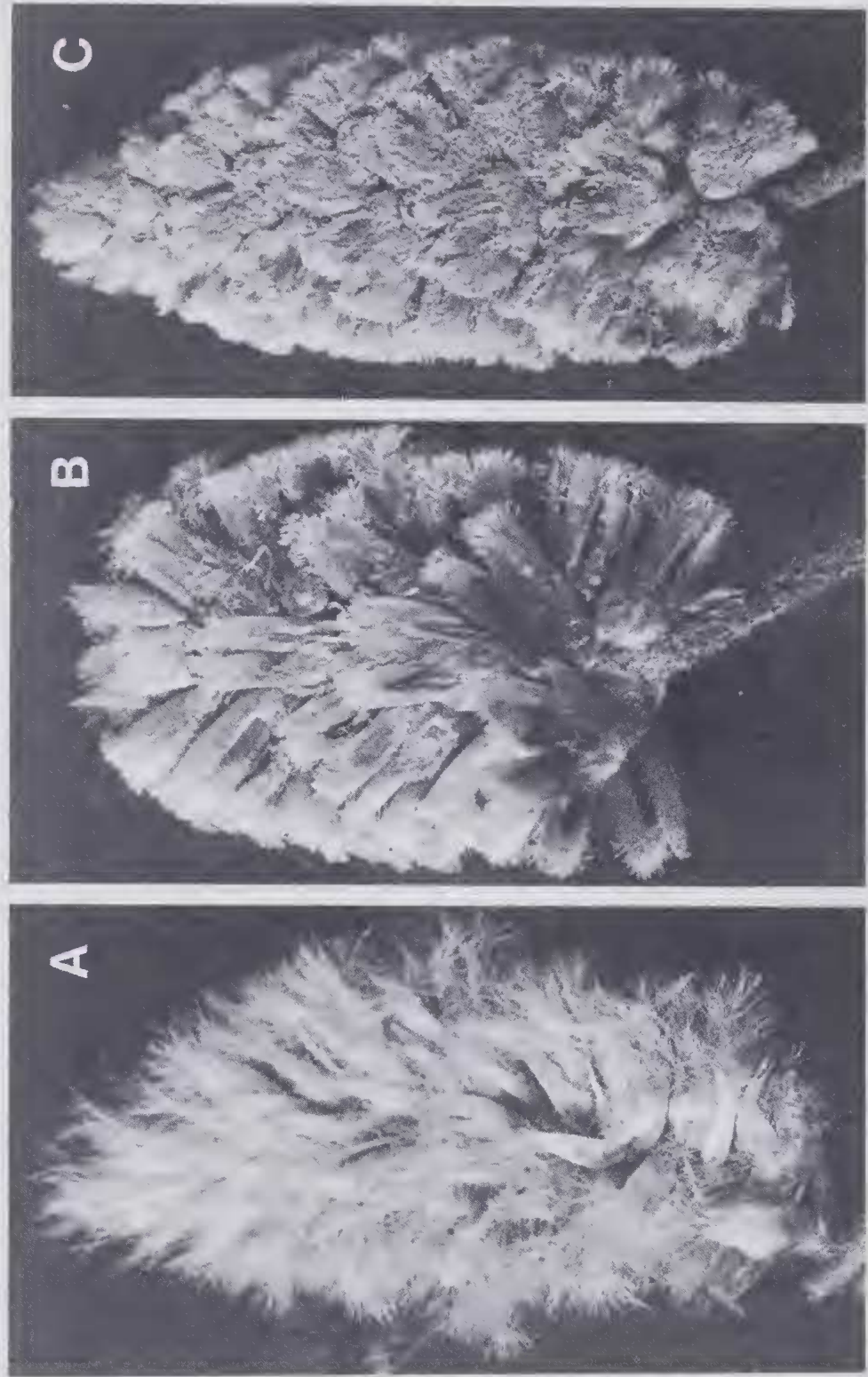


Fig 4. Spikes of *Ptilopus* spp., x 9. A — *P. lophotrichus* var. *villosus*. B — *P. comatus*. C — *P. rotundatus*. All from the holotypes.

TYPE COLLECTION: 1 km N. of Nabarlek airstrip, 12° 20' S., 133° 20' E., Northern Territory, *B. Rice 3118*, 23.iv.1979 (Holotype: CANB 286446. Isotype: DNA).

ALSO EXAMINED:

Northern Territory — Myra Falls vicinity, Tin Camp Creek, 12° 28' S., 133° 20' E., 29.v.1973, *T. Hartley 13799* (CANB 244844, NT 45931). Nabarlek area, near water supply dam, 12° 20' S., 133° 19' E., 20.iv.1979, *M. O. Rankin 2047* (AD, DNA).

DISTRIBUTION:

Probably endemic in the Northern Territory, occurring in a restricted area east of Oenpelli, Arnhem Land.

ECOLOGY:

Collection labels state "*Eucalyptus tetradonta* forest on sand", "sandy depression in broken sandstone" and "dry open sandy area".

NOTES:

There is a superficial similarity to *Ptilotus calostachyus* (F.Muell.) F.Muell. var. *calostachyus* but the latter has long-ciliate pseudostaminodes. *P. comatus* resembles *P. lophotrichus* in the structure of the inner floral parts but it is distinguished from that species by the different shape and pubescence of the outer floral organs. In *P. lophotrichus* the bracteoles are carinate and differ very little in length and pubescence from the bracts, which more or less reach or surpass the perianth. The generally more obtuse tepals of *P. lophotrichus* are much exceeded by their apical tufts of longer, thinner, flaccid, distinctly articulate hairs, thus rendering the spikes soft and obscuring their outline in contrast to those of *P. comatus*. The brush-like apical pubescence consisting of septate hairs with somewhat claviform end cells clearly demarcates *P. comatus* from all other known comparable taxa.

Hartley 13799 and *Rankin 2047* differ from the holotype in having narrower spikes, differently shaped bracts and bracteoles, and the apical hairs of the perianth usually shorter and stouter and often with a more thickened end cell. However, they show gradations towards the holotype.

Ptilotus rotundatus Benl, sp. nov., imprimis floribus juvenilibus subglobosis, tepalis exterioribus valde rotundatis et pilis brevibus apicem tepalorum marginantibus a speciebus adhuc cognitibus distinguitur.

Planta annua tenera usque ad 0.5 m alta ramosa basi lignosa modice foliata plurispicata. *Caules* ramulique erecti et folia juvenilia pilis crispis albidis tomentosuli. *Folia* anguste linearia ad 4 cm longa. *Inflorescentiae* solitariae vel 2-4 compositae ramulos terminantes, multi- et confertiflorae, primo conici-ovoideae ad 1 cm longae, demum ad c. 2 cm elongatae, 0.5 cm in diametro. *Bracteae* bracteolaeque inconspicuae sparse pilosae inaequales: bracteae acutae ovatae, bracteolae late ovatae. *Perianthium* convexum pubescentia albidum, ima basi in tubum brevem constrictum. *Tepala* in apice rotundato pilis conspicue brevibus crassis marginata, tricostata, costae intus pulvinas includentes (Fig. 2 C b) extus indumento villosulo obtectae; 2 exteriora suborbicularia ad 1.8 x 1.3 mm visu ciliata intus glabra; 3 interiora paulo longiora angustiora plus minusve bipartita, intus inferne pilis marginalibus copiosis tenuibus intricatis obsessa. *Stamina* aequalia omnia fertilia basi dilatata in cupulam hyalinam integram coalita. *Ovarium* subglobulare glaberrimum; stylo brevi.

Annual herb c. 35-50 cm tall, pubescent with whitish, rough, closely-curved, almost appressed hairs c. 0.5 mm long over the stems, branches and foliage, the latter subglabrous with age. *Tap-root* slender, fusiform, up to 3 mm diam. *Stem* up to 3.5 mm thick, laxly producing erect wiry branches from near the base upwards; branch apices becoming the peduncles and rachises of narrow inflorescences. Stem and branches terete and reddish basally, striate and light to yellowish green in upper portions, often purplish towards young spikes, leafy throughout. *Leaves* cauline, alternate with internodes of 1-2 cm, spreading, greyish green, linear-lanceolate, tapering on both ends, c. 5 to 40 mm long x to 1.2 mm wide, cuspidate with a purplish point when juvenile; margins almost parallel and entire; midrib prominent on lower surface; upper leaves sometimes becoming bract-like and purplish tinged. *Spikes* to c. 40 per plant, terminal, solitary or 2-4 together

HERBARIUM
AUSTRALIENSE
(CANB)
273665



HERBARIUM AUSTRALIENSE CSIRO, CANBERRA, ACT
Staff collection of new records & specimens would be appreciated.
Herb. No. 273665 Date of receipt: 10/05/73

FLORA OF NORTHERN TERRITORY
Loc: 12° 30' S Long: 132° 53' E Alt: 20 m.
Grid ref: KG 702012 Date of collection: 21 Feb. 1973
Collector(s): L.G. Adams
Institution/Project name(s): Number: 3053

Family: Asteraceae
Sub. name: *Ptilotus rotundatus*
Det.:
Date:
Locality, Habitat, Notes etc.: Boggy Plain Creek, near Jabiru.

Altitude: 20 m terrace with sparse Pandanus - Melaleuca woodland and sedges, in damp sandy loam soil.

Ptilotus rotundatus (L.)

L.G. Adams

Det. - rev. - G. BENL. Munchen 4983

Fig. 5. *Ptilotus rotundatus*. Holotype (Adams 3053, CANB).

at or near a branch apex, rarely sessile in leaf axils, ovoid- to oblong-conical, to c. 2 cm long and consistently 0.5 cm wide, bearing up to 30 (-40) short-pedicellate flowers; flowers densely crowded (lowest ones sometimes distant), subglobose when young, campanulate at anthesis. *Rachis* rigid, averaging 0.4 mm diam., tinged dark purplish when young, villous; hairs crisp to almost straight, articulate, thinner than those on stems, c. 1 mm long and enveloping lower parts of the flowers. *Pedicels* hairy, c. 0.2 mm long, dilated to 0.3 mm diam. at the joint above the bracteoles. *Bracts and bracteoles* membranaceous, straw-coloured, entire, concavely appressed to the perianth, persistent, sparsely clothed initially with some short straight thickish hairs over the distal halves but soon turning glabrous; midrib not evident. *Bracts* oblong-ovate, acute, (1.1-) 1.3-1.5 (-1.6) x 0.8-1 (-1.1) mm, with a dark purple spot when young, initially longer than but finally \pm equal to the perianth. *Bracteoles* (sub)cordate-ovate, 0.8-1 (-1.1) x 0.8-0.9 (-1) mm. *Perianth* thickened and constricted to a callose short-tubular base; base c. 0.3 mm long in juvenile flowers, then flattening, finally concave below due to sunken attachment of the pedicel, densely villous-pubescent outside with waved faintly articulate hairs 0.7-0.9 mm long, the hairs also extending over the opaque median area of the tepals and obscuring the lower half or more of the outer perianth surface. *Tepals* entire, convex in upper regions; outer surface villous-pubescent below (see perianth) and glabrous between that pubescence and a distinctive apical vestiture of c. 15-30 thick hairs; apical hairs hyaline, short-septate with an obvious claviform terminal cell, 0.1-0.3 (-0.5) mm long, \pm tuft-like on inner tepals and there mostly exceeding the tip by up to 0.25 mm, usually less dense, shorter, more fringe-like and extended further downwards along about half of the margin on outer tepals. *Outer tepals* broad-obovate or almost circular, (1.4-) 1.6-1.8 x (0.9-) 1.1-1.2 (-1.3) mm, the midrib of each keeled on the lower half, the keel obscured by the vestiture; inner surfaces glabrous, the midveins obvious and depressed, the two lateral veins fainter and with a small cushion between each of them and the midvein; outer transparent portions shiny on both surfaces. *Inner tepals* slightly longer, narrower, (1.5-) 1.8-2 mm long and 0.7-0.8 (-0.9) mm wide above the middle, more or less clearly divided into a linear claw-like and an expanded scarious limb-like part; inner surface pilose or woolly inside with beards of delicate loosely intricate hairs up to 0.7 mm long originating from and below the constriction and usually incurved along either side of the "claw"; division between "claw" and "limb" indistinct when beard is on one side only; "claw" 0.4 to 1.2 mm long, made rigid by the lower portions of the three externally prominent but hidden ribs; lateral veins convergent towards the apex without reaching it, ventrally enclosing two cushions (as with the outer tepals). *Stamens* five, perfect, basally united to a glabrous membranous turbinate cupula 0.6-0.7 mm high; cupula adnate at the base to the perianth disc; free parts of filaments flattened, 0.4-0.6 mm long, tapering upwards, about 0.1 mm wide near middle, broadened to 0.25 mm at base; anthers roundish in outline, c. 0.35 x 0.3 mm, reddish when very young; pseudostaminodes absent. *Gynoecium* glabrous, short-stipitate in young flowers, at length sessile; ovary obconical, 0.7 x 0.6 mm, becoming sub-globose (1.1 x 0.9-1 mm) with maturity; style central, straight, c. 0.25 mm long, 0.04-0.06 mm in diam. near middle, slightly thickened at base; stigma capitellate, to 0.1 mm wide, papillate, level with the anthers. *Seed* globose, reddish brown.

Figs 2c, 4c, 5.

TYPE COLLECTION: Boggy Plain Creek, near Jabiru, 12° 38' S., 132° 53' E., 20 m alt., Grid KG 701012, Northern Territory, *L. G. Adams* 3053, 21.ii.1973 (Holotype: CANB 273665).

ECOLOGY:

"Alluvial terrace with sparse *Pandanus-Melaleuca* woodland and sedges, in damp sandy loam; rare" (Adams).

NOTES:

This species, represented only by the type collection, is noteworthy for its rotund outer tepals (hence the specific epithet) and their unique apical pubescence giving the flowers a quite unusual aspect. In general appearance as well as inner floral organs *P.*

rotundatus shows affinities with other species bearing more or less tufted perianth hairs, viz. *P. lanatus* Cunn. ex Moq., *P. lophotrichus* (var. *lophotrichus* and var. *villosus*) and *P. comatus*, but it is readily differentiated as shown by the following key.

KEY TO PTILOTUS TAXA WITH MORE OR LESS COMOSE TEPAL APICES

To replace, on page 151, part of the key to *Ptilotus* species by Benl in *Mitt. Bot. Staatssamml. München* 9 : 135–176 (1971)

37. Dorsal surface of perianth with a tuft or fringe of apical hairs isolated from the proximal zone of hairs; inner tepals \pm pubescent towards the base on the ventral surface
- a Tepals, bracts and bracteoles terminated by an elongated tuft of thin flexible hairs >1 mm long *P. lophotrichus*
- b Base of perianth covered on the dorsal surface with a mat of minute, slightly curved hairs var. *lophotrichus*
- b+ Base of perianth villous with longer crisp to straight hairs to 0.6 mm long continued up to about the middle of the tepals var. *villosus*
- a+ Tepals and bracts terminated by shorter thicker rigid hairs
- c Spikes to 4 x 0.8 cm, white and purplish; perianth up to 3.8 mm long, pubescent at the base on the dorsal surface; tepal apices attenuate, terminated by tufts of hairs c. 0.5–0.9 mm long; inner tepals slightly pilose inside, the veins clearly visible *P. comatus*
- c+ Spikes to 2 x 0.5 cm, whitish; perianth c. 2 mm long, the dorsal surface pubescent over the base and the lower halves of the tepals; tepal apices broadly rounded, wreathed by very short hairs to 0.3 (–0.5) mm long; inner tepals \pm densely pilose inside, the veins partly obscured *P. rotundatus*
- 37+. Dorsal surface of perianth with hairs throughout; inner tepals glabrous on the ventral surface *P. lanatus*

***Ptilotus aristatus* Benl var. *exilis* Benl, var. nov.**, a varietate typica imprimis spicis conspicue angustioribus, bracteis bracteolisque vix coloratis, bracteolis breviter acuminatis differt.

Differs from the type variety (see Benl, *Mitt. Bot. Staatssamml. München* 4 : 79–82, fig. 2 (1961)) chiefly in having much narrower spikes and almost colourless bracts and bracteoles with the bracteoles being short-acuminate.

Spikes 10 to 15 or more per plant, hemispherical and 1.4–1.8 cm diam. or ovoid or (sub)cylindric and then to 3.6 x 1.6 cm, sometimes very small with as few as 5 flowers; *bracts* pale, to 5.2 mm long x 1.8 mm wide, villous with hairs 1.7–2 mm long, the awn-like point c. 1 mm long; *bracteoles* colourless or nearly so, c. 4.6 mm long x 2.6 mm broad, the mucro 0.7 mm long at most; *outer tepals* 8.5–10 mm long x 0.8–1 mm wide, with a glabrous truncate apical part to 1.7 mm long; dorsal hairs to 2 mm long; *inner tepals* 7.5–9 mm long x 0.6 mm broad, the incurved apex c. 1.2 mm long; *free part of fertile filaments* c. 3 mm long; *anthers* averaging 0.6 x 0.3 mm; *style* c. 1.8 mm long.

Comparable characters for the var. *aristatus* are — *spikes* 8–12 per plant, (ob)ovoid to subcylindric, up to 4 x 2.5 cm, each with up to 40 or more densely-crowded flowers; *bracts* brown(ish), up to 7 x 2 mm, with hairs up to 2.5 mm and an awn of 2–3 mm; *bracteoles* slightly brownish towards the midrib, c. 6.5 x 3.5 mm, the awn 2–3 mm; *outer tepals* 13–14 x 1.2 mm, the apical part up to 2.5 mm, the dorsal hairs to 4 mm; *inner tepals* 11.5–12.5 x 1 mm, the \pm incurved tips to 2 mm; *free part of fertile filaments* up to c. 6 mm; *anthers* averaging c. 0.8 x 0.45 mm; *style* up to 3.8 mm.

TYPE COLLECTION: 54 miles (86.4 km) NW. of Alice Springs, Northern Territory, Chippendale 8799, 3.v.1962 (Holotype: M. Isotypes: AD, CANB, NSW, NT). Plate 8 (col.) in *Aust. Pl.* 4: 124 (1967), sub *Ptilotus aristatus*.

ALSO EXAMINED:

Northern Territory — Amburla Creek, WNW. of Alice Springs, 23.ii.1978, Benl (Au 48), Maconochie & Lois Ulyatt (CANB, M, NT). Milton Park, WNW. of Alice Springs, 12.xii.1973, C. Lendon s.n. (NT).



Fig. 6. The distribution of the varieties of *Ptilotus aristatus*.

▲ — var. *aristatus*
* — var. *eichlerianus*

● — var. *exilis*
+ — var. *stenophyllus*

DISTRIBUTION (Fig. 6):

Apparently restricted to a comparatively small area WNW. of Alice Springs.

ECOLOGY:

Recorded on specimen labels as “infrequent on *Astrebla pectinata* plain” and “on heavy clay soil plains with Mitchell grass”. We found it on red cracking clay soil with perennial tussock grassland. Fl. Dec.—May.

Ptilotus aristatus var. *eichlerianus* (Benl) Benl & Hj. Eichler, stat. nov.

Basionym: *Ptilotus eichlerianus* Benl, *Mitt. Bot. Staatssamml. München* 7 : 310–314, fig. p. 312 (1970).

Ptilotus aristatus var. *eichlerianus* differs from the type variety chiefly in having broader spikes, deeper coloured bracts (these usually smaller than the bracteoles) and a denser, longer indumentum of young shoots and often also of the perianth.

With the recognition of three varieties of *P. aristatus*, i.e. var. *aristatus*, var. *exilis* (described above) and var. *stenophyllus* Benl (*J. Adelaide Bot. Gard.* 1 : 204 (1979)) since *P. eichlerianus* was described, it has become clear that the latter belongs to a

complex within *P. aristatus*. It resembles *P. aristatus* var. *aristatus* more closely than do the other two varieties and is therefore reduced to varietal rank.

DISTRIBUTION (Fig. 6):

Southern Northern Territory and northern South Australia from about Andado Station, N.T. south to Evelyn Downs, S. Aust. Thirteen collections examined.

NOTES:

Intermediate forms between var. *aristatus* and var. *eichlerianus* exist, e.g. 16 km E. of Hamilton homestead, South Australia, 26° 39' S., 135° 11' E., 31.x.1974, *P. L. Milthorpe 3063* (NSW 139395) — location details provided by Milthorpe in litt., viii.1983.

KEY TO THE VARIETIES OF *PTILOTUS ARISTATUS*

1. Basal leaves narrow-lanceolate, to 8 cm long x 0.5 cm wide (spike c. 1.7 cm diam.; bracteole point 0.7 mm long) var. *stenophyllus*
1. Basal leaves obovate to spatulate or broad-lanceolate, to 18 cm long x 2.8 cm wide
 2. Spikes to 1.8 cm diam.; bracteoles short-pointed, the point to 0.7 mm long var. *exilis*
 2. Spikes broader, to 2.5 or 3.5 cm diam.; bracteoles long-pointed, the awn attaining 3 mm
 3. Spikes mostly (sub)hemispherical heads up to 3.5 cm diam.; perianth to 17.5 mm long; bract and bracteoles unequal in length var. *eichlerianus*
 3. Spikes (ob)ovoid to subcylindric, up to 2.5 cm diam.; perianth to 14 mm long; bract and bracteoles subequal in length var. *aristatus*

The four varieties of *P. aristatus* all possess the following characters — *stem base* pilose; *leaves* marginate apiculate or mucronate; *bracts and bracteoles* with a \pm awn-like point; *tepals* narrow, violet or reddish fading apically to white, with two kinds of dorsal hairs and a short keel above the long perianth tube, also with glabrous finely serrulate apices; *fertile stamens* 2 (rarely 3), the *stamens and staminodes* markedly widened towards the base to form an entire cup; *ovary* long-stalked, clavate, usually biserial pilose near the summit; *style* eccentric.

***Ptilotus exaltatus* Nees var. *glaber* Benl, var. nov.**, differt a varietate typica ob omnes partes florum glabras vel glabratas.

This taxon is distinctly separate from the other varieties of *Ptilotus exaltatus* by the total or almost total lack of pubescence on the bracts and the perianth as well as on the gynoecium. Traces of hairs may sometimes be found with the aid of a lens.

TYPE COLLECTION: 4.8 miles (7.7 km) E. of Ormiston Gorge turnoff on Glen Helen road, 23° 42' S., 132° 42' E., Northern Territory, *N. M. Henry 438*, 19.vi.1972. Erect annual with bright crimson glabrous flowers. Very rare in gravelly soil on edge of roadside. (Holotype: NT 35691. Isotypes: NY, MO).

ALSO EXAMINED:

Northern Territory — 72 miles (115 km) W. of Alice Springs on Glen Helen Road, *B. M. Alright 138*, 17.vi.1972. Flowers dark mauve, not hairy and stiff. 10 cm long x 45 mm diam. Only one bush seen, in rocky soil beside road. (NT 36091).

KEY TO THE VARIETIES OF *PTILOTUS EXALTATUS*

1. Flowers hairless var. *glaber*
(Benl. *Muelleria* 5:260 (1984); Northern Territory west of Alice Springs — see localities above.)
1. Flowers more or less hairy
 2. Foliage persistently tomentose on both sides var. *villosus*
(Benl. *Mitt. Bot. Staatssamml. München* 7 : 314 (1970);
Western Australia, at Lake Moore and nearby Mollerin.)
 2. Foliage glabrescent
 3. Spikes conical lengthening to cylindric, attaining 30 x 5 cm var. *exaltatus*
(All mainland States, locally abundant.)
 3. Spikes capitate, 3-4 cm diam.
 4. Bracts and bracteoles brown(ish); all leaves narrow-linear (forms intermediate with the type variety exist) var. *semilanatus*
(Lindl.) Maiden & Betche, 'Census N.S.W. Pl.' 72 (1916); all mainland States except Western Australia, but primarily from Queensland and New South Wales.)
 4. Bracts and bracteoles uncoloured; basal leaves subspathulate var. *pallidus*
(Benl. *Mitt. Bot. Staatssamml. München* 15 : 164 (1979);
Northern Territory at Mt Olga, one collection only.)

ACKNOWLEDGEMENTS

The material for the above studies was made available to me during my visits to the herbaria of AD (+ ADW), CANB, DNA and NT; it was afterwards sent to München for a more thorough examination. I wish to express my appreciation to the Directors and Curators of these herbaria for working facilities in their institutions and for loans of the selected specimens. Sincerest thanks are due to Mrs and Mr John R. Maconochie for amicable hospitality in Alice Springs and for arranging field trips, also to Dr Barbara Rice (Sydney) and John Maconochie for valuable assistance with locality details. My deep gratitude is extended especially to Dr H.J. Eichler, Canberra, who has helped me in many ways and read the text of this paper concerning *P. aristatus*, to Mr A. Böhm, München, who prepared figures 2 and 6 and to Mr K. Liedl, München, who produced the photographs. I finally wish to express my sincerest appreciation to the editor, Miss Helen Aston, for generous assistance and advice on the manuscript.

Manuscript received 19 July 1983.