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SHORT COMMUNICATION

Review of infraspecific taxa in *Ptilotus gardneri* and *P. lophotrichus* and lectotypification of *P. conicus* (Amaranthaceae)

This short communication is part of continued work aimed at revising *Ptilotus* R.Br. in Australia (e.g. Bean 2008; Lally & Barker 2010; Davis 2011; Palmer & Lally 2011), in preparation for the *Flora of Australia* treatment of Amaranthaceae. Two infraspecific taxa are synonymised (*P. gardneri* var. *inermis* Benl under *P. gardneri* Benl, and *P. lophotrichus* var. *villosus* Benl under *P. lophotrichus* Benl) and a lectotype is selected for *P. conicus* R.Br. Notes on similar species are also provided for *P. conicus*, *P. gardneri* and *P. lophotrichus*.

Taxonomy

Ptilotus gardneri Benl, *Nuytsia* 2: 93–94 (1976). *Type*: 'Western Australia Boundary Survey 1936–38, Lat. 17° 30' 5"', 10 June 1936, *L. Stokes s.n.* (*holo*: PERTH 01555103 *n.v.*).

Ptilotus gardneri var. *inermis* Benl, *Mitt. Bot. Staatssamml. München* 15: 165 (1979), *syn. nov. Type*: 12 miles north-west of Margaret River Crossing, Fossil Downs Station, Western Australia, 29 May 1967, *J.R. Maconochie* 286 (*holo*: M *n.v.*; *iso*: AD 97114239!, NT *n.v.*).

Notes. Benl (1979) distinguished *P. gardneri* var. *inermis* from the typical variety by its glabrous ovary and wider, less fimbriate lobes on the staminal cup. There is considerable variation in these characters and they are not sufficiently consistent or distinct to allow recognition of infraspecific taxa. Benl (*loc. cit.*) also indicated the occurrence of intermediates between the varietal taxa in *P. gardneri*.

Ptilotus gardneri is very similar to the more widespread and common *P. clementii* (Farmar) Benl. *Ptilotus gardneri* occurs just to the north of the distribution of *P. clementii* in northern Western Australia, in the Fitzroy Creek–Halls Creek–Turkey Creek area, extending into the Northern Territory at Mistake Creek. It has a grey-green aspect, stems and leaves with soft, dense, crisped, lanate hairs, and leaves with a cuneate or obtuse-truncate base. By contrast, *P. clementii* is usually green to dark green in aspect, and with hairs that while dense as in *P. gardneri*, are much coarser and are usually basally 'thickened'. The leaves of *P. clementii* are basally attenuate, appearing petiolate. Inflorescences and perianths of both species are remarkably similar, although *P. gardneri* has shorter hairs on the lower half of the outer tepal surface, and the bracteoles are shorter than the bracts (they are more or less equal in *P. clementii*).

Ptilotus lophotrichus Benl, *Trans. Roy. Soc. South Australia* 88: 56 (1964). *Type*: Arnhem Land, Northern Territory, 1928, *H. Basedow* 63 (*holo*: AD 96206050!; *iso*: K, image seen).

Ptilotus lophotrichus var. *villosus* Benl, *Muelleria* 5: 249 (1984), *syn. nov*. *Type*: near the Goyder River Crossing on the road to Gove, Arnhem Land, Northern Territory, 17 June 1972, *D. Symon* 7723 (*holo*: M *n.v.*; *iso*: AD 98593508! (ex ADW 40952)).

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Notes. Benl (1964) described *P. lophotrichus* using the only collection known at the time. A second collection, *D. Symon* 7723, was initially regarded as being the same taxon by Benl (1984), and was subsequently described by him as *P. lophotrichus* var. *villosus*, again on the basis of a single collection. *Ptilotus lophotrichus* var. *villosus* was distinguished by its shorter bracts, bracteoles and tepals, and 'straighter' basal hairs on the tepals, which also extend further towards the median area of the tepal surface. With the benefit of subsequent collections, it has become apparent that there is a continuum in bract, bracteole and tepal size, shape and pubescence. Based on available material, the outer floral organs appear to decrease in size from west to east. The type of *P. lophotrichus* var. *villosus* represents the most easterly collection of this species.

Two very similar species, *P. comatus* Benl and *P. rotundatus* Benl, share their distribution in the far north of the Northern Territory with *P. lophotrichus*. All three species are low, perennial herbs with white or pale pink flowers and ovoid to cylindrical inflorescences, some of which are clustered terminally. Perianths (flowers) of all three have tepals with comose or dense tufts of hairs apically, and appressed, straight, crisped or bent hairs basally, with the remainder of the tepal glabrous. The style is central and all five stamens are fertile.

Ptilotus rotundatus is distinguished from both *P. comatus* and *P. lophotrichus* by its smaller perianths (1.7–2.2 mm long vs 2.5–4.3 mm) and shorter bracts, bracteoles, style and stamens. Tepals in *P. rotundatus* have rounded apices (vs acute or obtuse), and the apical hairs just exceed the apices (vs well exceeding the tepals, especially in *P. lophotrichus*). Inflorescences in *P. rotundatus* are usually slightly narrower (4–5 mm wide vs 5–10 mm wide) and, at 10–20 mm long, are a third to half the length of most inflorescences in *P. comatus* and *P. lophotrichus*.

Ptilotus comatus differs from *P. lophotrichus* and *P. rotundatus* in having bracts that are usually half or less than half the length of the bracteoles (vs more or less equal). *Ptilotus comatus* and *P. lophotrichus* are morphologically very similar, but may be further distinguished by differences in the hairs on the tepal apices. In *P. comatus*, the hairs are short, moderately dense and barely exceed the tepal apex, and are septate and clavate or rounded to more or less obtuse. In *P. lophotrichus*, the hairs are usually much longer and denser, exceeding the tepal apices by more than twice the hair length, and are nodose and acute.

Ptilotus conicus R.Br., *Prodr. Fl. Nov. Holland.* 415 (1810).

Trichinium conicum (R.Br.) Spreng., *Syst. Veg.* 1: 816 (1825). *Type*: Carpentaria, Island p [Winchelsea Island, Northern Territory], 16 January 1803, *R. Brown s.n.*, *and* Carpentaria, Point S [vicinity of Point Blane, Northern Territory], 28 January 1803, *R. Brown* Bennett No. 3056 (*lecto*, here chosen: BM 000895566 image seen). *Syntypes*: Gulf of Carpentaria, *s. dat.*, *R. Brown s.n.* (MEL 074109A *n.v.*); Carpentaria, *s. dat.*, *R. Brown s.n.* (BRIAQ 0332681, E 00279882, E 00279883, P 04944047, P 04944050, images seen for all); North Coast, *s. dat.*, *R. Brown s.n.* (BM 000895568, image seen); Nov. Holland., *s. dat.*, *R. Brown s.n.* (C 10005455, image seen).

Ptilotus amabalis Span., *Linnaea* 15: 345 (1841), *nom. inval*., *nom. nud.*

Ptilotus conicus var. *timorensis* Engl., *Bot. Jahrb. Syst.* 7: 454 (1886). *Type*: Atapupu, Timor, 29 May 1875, *F.C. Naumann s.n.* (*holo*: ?B *n.v.*).

Notes. Of the syntypes of *P. conicus*, BM 000895566 has been chosen as the lectotype as it is the largest

and most complete of the available original material seen by Brown and it bears labels in Brown's hand, with specific localities. One of Brown's labels is attached to a Bennett label numbered 3056, the other is attached directly on the sheet, but there is no indication as to which of the labels (with different locality information) relates to which of the four specimens on the sheet. Accordingly, all specimens on the sheet are considered to comprise the lectotype. As it is not clear whether the remaining type material is part of the same gathering as the lectotype, these collections are regarded as syntypes.

Ptilotus conicus is often confused with *P. corymbosus* R.Br. and *P. spicatus* F.Muell. ex Benth., with which it co-occurs. All have a similar herbaceous habit, usually with reddish stems and few linear or narrowly elliptic leaves. The perianths are also similar in all three taxa: 3.8–6.2 mm long, glabrous in the upper half, with five fertile stamens and a central style.

Ptilotus conicus is readily distinguished by its staminal filaments, which are flared apically just below the point of anther insertion, a character unique to this taxon. *Ptilotus conicus* differs further from *P. spicatus* in having shorter inflorescences (7–30 mm long vs (10–)25–70 mm), and an outer tepal surface with hairs attached basally and extending to near the middle of the tepal. *Ptilotus spicatus* has an outer tepal surface with hairs attached basally and either side of the ribs on the lower half (forming combs). The ovary in *P. conicus* is glabrous whereas it is apically hairy in *P. spicatus*.

Ptilotus conicus differs from *P. corymbosus* in having tepals of equal width for their entire length and with no discernible ribbing on their lower half (vs tepals that are broader in their upper half and with prominent ribbing in their lower half), and a glabrous ovary (vs hairy or apically hairy).

Ptilotus corymbosus can be distinguished from *P. spicatus* by its shorter inflorescences (5–24 mm long vs (10–)25–70 mm long in *P. spicatus*). The outer tepal surface in *P. corymbosus* is glabrous except for basally attached hairs, whereas *P. spicatus* has short hairs either side of the ribs in the lower part of the tepals, in addition to short, basally attached hairs.

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