

## NOTES ON LUZULA (JUNCACEAE) IN MALESIA, TASMANIA, AND AUSTRALIA.

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### SUMMARY

What was formerly known in Malesia as *Luzula campestris* (Linné) DC. var. *australasica* (Steud.) Buch. (*Juncaceae*) actually consists of two endemic species, one in the Philippines, the other in New Guinea. *L. australasica* s.s. is endemic to Tasmania, while a subspecies occurs in New South Wales and Victoria. For the latter a new combination is proposed. Recent misapplications of the name *L. australasica* Steud., *L. oldfieldii* Hook. f., and *L. modesta* Buch. are corrected.

### INTRODUCTION

Stuedel (1855) described *Luzula australasica* from a collection by Dumont d'Urville (*ex* Hb. Chauvin) now preserved in Paris. It may be noted that no rhizome is described and that none is present in the specimen. He vaguely indicated its origin as 'N. Holl.', but the sheet bears and additional label marked 'Hobarttown' presumably in Chauvin's handwriting, and indeed the plants belong to a species without rhizomes, endemic to Tasmania.

Buchenau (1890) saw original material and remarked that it did not originate from mainland Australia, but he neglected to give its exact origin, merely stating that in his concept the species occurred in Tasmania and New Zealand.

Hooker f. (1858) described *L. oldfieldii* from Tasmania, based on *Oldfield 138*. Bentham (1878) pointed out that it was possibly conspecific with *L. australasica* but, as he had not seen original material of the latter, he provisionally regarded it as a *nomen dubium*. He also identified some specimens from Australia as *L. campestris*; at least some of these belong to *L. novae-cambriae* Gand.

Buchenau (1898; 1906) included both Australian species in *L. campestris* (Linné) DC. var. *australasica* (Steud.) Buch. Simultaneously he described a new species, *L. modesta*, from Tasmania. Unfortunately, the latter's type (*Diels 6242*) has been lost, but the description and the plate are clear enough for identification. A striking feature of this species is among other things the well-developed rhizome.

Miss Edgar (1966) revised *Luzula* for New Zealand and concluded that true *L. campestris* occurs only as a very rare casual in these islands. In a later revision for Australia (1975; p. 782) she recorded it as 'not present in Australia and only introduced into New Zealand'. Specimens previously equated with *L. (campestris* var.) *australasica* in New Zealand belong to what she described as *L. rufa* Edg. var. *rufa*. In 1975 she included specimens in fact belonging to *L. australasica* in *L. oldfieldii* and applied the first name for what actually is *L. modesta* ('plants long rhizomatous', p. 795).

Miss Nordenskiöld (1969) also used the name *L. australasica*, but erroneously for plants from Tasmania and mainland Australia with rhizomes (see also her fig. 2B); the Australian ones were later recognized as a distinct species, *L. ovata*, by Miss Edgar (1975). The Tasmanian ones are clearly *L. modesta*, which she included as a synonym. She furthermore neotypified *L. australasica* with a specimen from mainland Australia, CANB 39098 (Nordenskiöld et al., s.n.), instead of using one from the 'terra typica', Tasmania. This neotypification must be rejected as Steudel's specimen is extant and, moreover, *L. australasica* s.s. does not occur in mainland Australia (Edgar, 1975).

Miss Nordenskiöld confused the issue even more because she had not studied the type specimen of *L. australasica* (now recored in Paris) and *L. modesta* (burned during W.W.II). She states that *L. australasica* as described by Steudel would not fit Buchenau's concept (1890). This is unacceptable because Buchenau stated he saw type material and his description agrees with the holotype. Contrary to Miss Edgar's previous remarks (1966), *L. australasica* was called *L. oldfieldii* by her. Miss Nordenskiöld recorded that species for Tasmania, Victoria, and New South Wales, describing the plants as 'loosely tufted' (see fig. 3A), indicating the absence of rhizomes. For the latter two areas she distinguished additionally *L. oldfieldii* var. *angustifolia* Nordensk.

For Tasmania only the type specimen of *L. oldfieldii* (Oldfield 138) was cited. Miss Edgar (1975) reversed her previous opinion and called this *L. oldfieldii* subsp. *oldfieldii*, endemic of that island. The specimens from Australia were described by Miss Edgar as *L. oldfieldii* subsp. *dura* Edg. As *L. oldfieldii* is a synonym of *L. australasica*, obviously a new combination is required. *L. oldfieldii* var. *angustifolia* was reduced to *L. novae-cambriae* by her.

In the survey below the various applications of the name will be briefly enumerated again.

The name *L. campestris* (L.) DC. var. *australasica* (Steud.) Buch. has also been applied to specimens from Malesia by Backer (1954), who reported it for the Philippines and New Guinea. Miss Edgar's revision (1975) suggested a closer examination and it now appears that *L. australasica* does not occur in that area, as could be expected for a Tasmanian endemic. Instead, two distinct species can be recognized, one for the Philippines, *L. philippinensis* M. Jansen, and one for New Guinea, *L. papuana* M. Jansen.

#### METHOD

The ratio of the seed is the ratio of the length of the caruncle to the total length of the seed (Edgar, 1975: see p. 784).

#### KEY TO THE MALESIAN SPECIES

Replace the lead to *L. campestris* in Backer, Fl. Mal. I, 4 (1954) 214 by:

- 1a. Rhizomes absent. Inflorescence consisting of compact raceme-like spikelets; bracts of the spikelets 5—8. Bracteoles entire. Filaments 0.6—1.0 mm. Anthers 0.3—0.6 mm, much shorter than the filaments. Style 0.2—0.4 mm long. Stigmatic branches 0.6—1.1 mm long. . . . . 1. *L. papuana*

- 1b. Rhizomes present. Inflorescence a spike-like raceme; each spikelet with one bract up to  $\frac{1}{2} \times$  the inflorescence. Bracteoles dentate. Filaments 0.2—0.3 mm. Anthers *c.* 1 mm, much longer than the filaments. Style up to 0.7 mm long. Stigmatic branches *c.* 1.8 mm long . . . . . **2. *L. philippinensis***

**1. *Luzula papuana* M. Jansen, *sp. nov.*—Fig. 1a.**

*Luzula campestris* (Linné) DC. var. *australasica* auct. non Buch.: Diels, Bot. Jahrb. 32 (1929) 461; v. Steenis, Bull. Jard. Bot. Btzg. III, 13 (1934) 221 *p.p.*; Backer, Fl. Mal. I, 4 (1954) 215 *p.p.*; Johns & Stevens, Bot. Bull. Lae 6 (1971) 12; Coode & Stevens, Proc. P. N. G. Sc. Soc. 23 (1972) 25.

*Herba* rhizomatosa. *Folia* marginibus subdense ciliatis. *Inflorescentia* uno capitulo multifloro compacto et usque ad tres capitulis lateralibus minoribus sessilibus vel pedunculatis. *Bracteae* 5—8, subimae 6—9 nervatae. *Tepala* membranacea, atro-fusca, acuminata. *Stamina* 6, antheris 0.4—0.7-plo filamentis maioribus. *Capsulae* fulvae vel atro-fuscae, tepalis plus minusve aequilongae. Ratio carunculi *seminis* que 0.09—0.27.

*Type*: Croft & Vinas LAE 61433, (L, holotype; A, BRI, CANB, E, K, LAE, M, *n.v.*)

Rhizomatous herb, not tufted, up to 45 cm high; shoots bulbous at the base. Sheaths 1—5 cm long, shorter than the flowering stems, at throat with a brush of white up to 1.5 cm long hairs; blades flat, 3.5—26 cm by 1—4 mm, margins sometimes papillose, densely (apically moderately) fringed with white hairs, apex obtuse, thickened, sometimes blackish. Flowering stems (2—)3—11(—15) cm long. *Inflorescence* consisting of 1—4 ovate, (3—)7—14(—21) mm long by (3—)5—8(—10) mm wide clusters of 5—10 spikelets; the apical cluster with an up to 3.7 cm long peduncle, lower clusters with 0—7 cm long peduncles; spikelets 4—12-flowered, apical ones sessile, basal ones with an up to 7 mm long pedicel. Bracts 5—8; lowest (0.8—)1.0—3.0(—6.5) cm, up to 4 times as long as the cluster, leaf-like, sometimes papillose, 6—9-nerved; apical ones smaller, ovate, apex acuminate, not thickened, membranous. Bracteoles entire, 1—1.5 by 0.8—1.0 mm. *Flowers* (1.6—)1.8—2.5(—2.9) mm long. Tepals ovate-oblong, canaliculate,  $\pm$  equal in length, dark brown, margins entire, white, apex acuminate (inner tepals sometimes mucronate), white. Stamens 6; filaments (6—)8—10 mm long; anthers 3—6 mm long, 0.4—0.7 times as long as the filaments. Style 2—4 mm, stigmatic branches 8—12 mm long. *Capsule* globose,  $\pm$  as long as the tepals, light to dark brown at maturity, dull. *Seeds* (0.9—)1.2—1.5 mm long; caruncle 0.05—0.3(—0.4) mm long, ratio (0.05—)0.09—0.27(—0.29).

*Distribution*. New Guinea: Mt. Wilhelmina, Star Mts., Burgers Mt., Yobobos, Mt. Wilhelm, Mt. Abilala, Mt. Enggom, Mt. Strong, W. Dome Albert Edward, Mt. Scratchley, Mt. Suckling.

*Habitat*. Along gullies in subalpine grasslands, with *Carex sarawakensis*, *Epilobium*, *Cardamine*; on better drained parts of wet, boggy, peaty soil; sandy banks of streams; in *Cyathea*-grasslands; in shade of rock. Altitudinal range: 2830—3800 m.

*Vernacular name*. *Tailju'emban* (Enga, Wapanamanda).

*Note*. It seems that two forms might be distinguished, differing in the number of bracts, in the length of the anthers (3—5 vs. 5—6 mm), and in their relation to the length of the filaments (resp.  $\frac{1}{2}$  and  $\frac{2}{3}$  as long as the filaments). But as the species is rather rare and is easily overlooked in the field, I feel the material is still insufficient to distinguish infraspecific taxa.

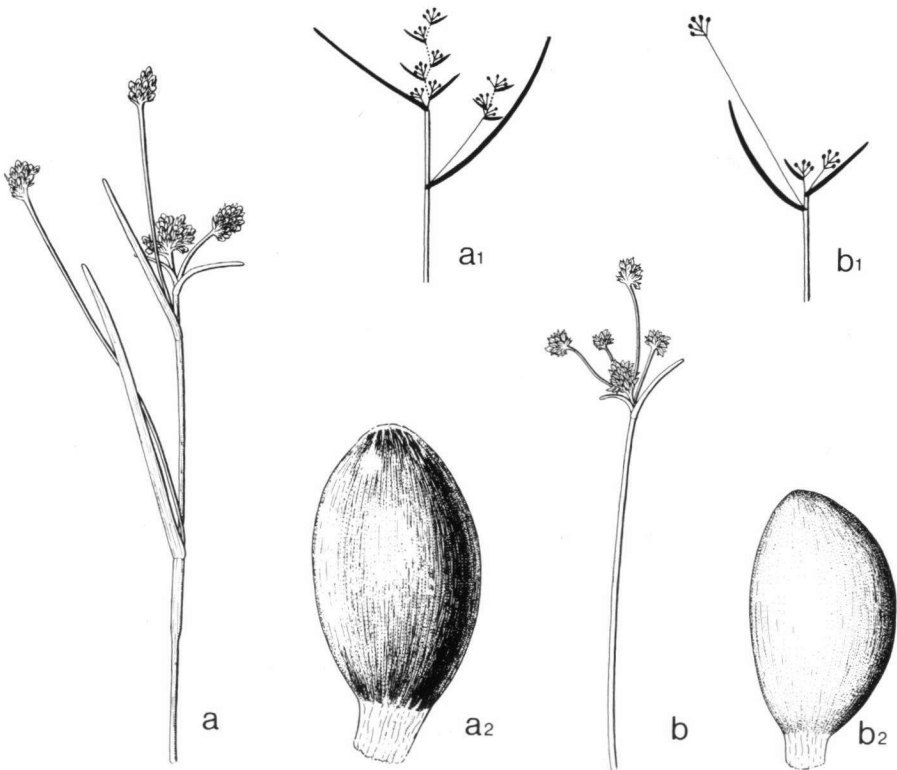


Fig. 1. *Luzula papuana*. — a. general habit,  $\times 3/4$ ; a1. diagram of inflorescence; a2. seed with the carunculus,  $\times 30$  (Croft & Vinas LAE 61433). — *Luzula philippinensis*. — b. general habit,  $\times 3/4$ ; b1. diagram of inflorescence; b2. seed with the carunculus,  $\times 30$  (Clemens 17127).

## 2. *Luzula philippinensis* M. Jansen, *sp. nov.*—Fig. 1 b.

*Luzula campestris* auct. non DC.: Villar, Nov. App. (1882) 273; Merrill & Merritt, Phil. Journ. Sc. 5 (1910) 337; Merrill, Enum. Phil. Fl. Pl. 1 (1922) 201; 5 (1925) 201. — *Luzula campestris* (Linné) DC. var. *australasica* auct. non Buch.: Steen., Bull. Jard. Bot. Btzg. III, 13 (1934) 221 p.p.; Backer, Fl. Mal. I, 4 (1954) 215 p.p.

*Herba* arhizomata. *Folia* marginibus dense ciliatis. *Inflorescentia* una bractea suffulta e capitulis 4–5 pedunculatis globosis et sine vel basi uno solitario (sub-)sessili consistens. *Tepala* acuminata membranacea, apice et marginibus fulvis. *Stamina* 6, antheris 3–5-plo filamentis maioribus. *Cap-sula* fulva vel atro-fusca, tepalis plus minusve aequilonga. Ratio carunculi *seminis* que 0.16–0.24.

*T y p e*: Clemens 17127 (B, holo; L; UC. n.v.).

Tufted herb, without rhizomes, 22–25 cm high; shoots bulbous at the base. Sheaths (1.0–)1.7–2.0(–2.8) cm long, longer than the flowering stems, at throat with a brush of white 0.5–1.0 cm long hairs; blades flat, 4–8(–10) cm by 2–3 mm, margins papillose, somewhat thickened, with long white hairs, apex obtuse, thickened. Flowering stems 7.5–10.5(–12.5) cm long. *Inflorescence* a

spike-like raceme, consisting of 2—6 globose spikelets; spikelets (4—)7—10(—16)-flowered, 3—5(—7) by 2—6 mm, (0.3—)0.9—2.2(—3.5) cm long peduncled, basal one sometimes very shortly peduncled to sessile. Bract 1, 1.1—1.7(—2.0) cm, up to  $\frac{1}{2}$  as long as the inflorescence, margins papillose, 3—4-nerved. Bracteoles dentate, 1.3—1.9(—2.4) by *c.* 1 mm. Flowers 2.5—3.2 mm long. Tepals ovate-oblong to ovate-lanceolate, the outer 2.7—3.0(—3.2) by (0.6—)0.8—1.1 mm, the inner 2.6—2.8(—3.0) by 0.6—1.0 mm, the first more canaliculate than the latter, dark brown, margins light brown. Stamens 6; filaments 0.2—0.3 mm long; anthers *c.* 1 mm long, 3—5 times as long as the filaments. Style up to 0.7 mm long; stigmatic branches *c.* 1.8 mm long. *Capsule* globose, somewhat shorter than the tepals, light to dark brown at maturity, dull. *Seeds* (0.85—)1.15—1.3 mm long; caruncle 0.15—0.3(—0.35) mm long, ratio (0.13—)0.16—0.24 (—32).

**Distribution.** Philippines: Luzon (Benguet Province).  
**Habitat** not recorded.

#### INDEX OF COLLECTIONS

*v. Balgooy* 577: 1, 823: 1, 832: 1; *Brass* 9175: 1; *BS* 31787 (*Santos*): 2; *Clemens* 17127: 2; *Hoogland & Schoedde* 7570: 1; *LAE* 51485 (*Stevens & Coode*): 1, 61433 (*Croft & Vinas*): 1; *NGF* 16165a (*v. Royen*): 1, 46181 (*Stevens & Coode*): 1; *Veldkamp* 6231: 1, 7513: 1; *Veldkamp & Stevens* 5847: 1.

#### NOMENCLATORIAL SURVEY

##### 1. *Luzula australasica* Steud.

*L. australasica* Steud., Syn. Pl. Glum., 2 (1855) 294; Buchenau, Bot. Jahrb. 12 (1890) 154. — **T y p e:** *Dumont d'Urville* 64a (P, holo). — *L. campestris* (Linné) DC. var. *australasica* Buch. (*pro speciminibus Tasmaniae*), Oesterr. Bot. Zeitschr. 48 (1898) 216; Buch. in Engl., Pfl. R. IV, 36 (1906) 85—92.  
*L. oldfieldii* Hook. f., Fl. Tasm. 2 (1858) 68; Hook. f., Handb. N. Z. Fl. (1864) 293; Bentham, Fl. Austr. 7 (1878) 122; Nordenskiöld, Bot. Not. 122 (1969) 80; Edgar, N. Z. Journ. Bot. 13 (1975) 781—802. — **T y p e:** *Oldfield* 138 (K, holo).

##### 2. *Luzula australasica* Steud. subsp. *dura* (Edg.) M. Jansen, *comb. nov.*

*L. oldfieldii* Hook. f. subsp. *dura* Edg., N. Z. Journ. Bot. 13 (1975) 789. — **T y p e:** *M. Gray* 6591 (CANB, holo, sheet 246146, n.v.).

##### 3. *Luzula modesta* Buchenau

*L. modesta* Buch., in Engl., Pfl. R. IV, 36 (1906) 80. — **T y p e:** *Diels* 6242 (B, holo, †).  
*L. australasica* auct. non Steud.: Nordenskiöld, Bot. Not. 122 (1969) 79 (*pro speciminibus Tasmaniae*); Edgar, N. Z. Journ. Bot. 13 (1975) 781—802.

##### 4. *Luzula novae-cambriae* Gand.

*L. novae-cambriae* Gand., Bull. Soc. Bot. Fr. 46 (1899) 392; 49 (1902) 182; Edgar, N. Z. Journ. Bot. 13 (1975) 790. — **T y p e:** *J. H. Maiden* s.n. (n.v.).  
*L. campestris* auct. non DC.: Bentham, Fl. Austr. 7 (1878) 122 (*Austr. cont. et Tasm. p.p.*).  
*L. oldfieldii* Hook. f. var. *angustifolia* Nordenskiöld, Bot. Not. 122 (1969) 81. — **T y p e:** *M. Gray* 5903 (CANB, holo, sheet 165568, n.v.).  
*L. campestris* (Linné) DC. var. *australasica* (Steud.) Buch. (*pro speciminibus Australiae*) in Engl., Pfl. R. IV, 36 (1906) 92.

**5. *Luzula ovata* Edg.**

*L. ovata* Edg., N. Z. Journ. Bot. 13 (1975) 788. — Type: *Briggs s.n.* (NSW, holo, sheet 89769, n.v.).

*L. australasica auct. non* Steud.: Nordenskiöld, Bot. Not. 122 (1969) 79 (*pro speciminibus Austr. cont.*).

## LITERATURE

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