

Taxonomic and nomenclatural notes on *Luzula* and *Juncus* (*Juncaceae*)

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Summary

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New taxa and combinations are presented to be included in the prepared treatment of *Juncaceae* in the *Flora of the World*. A new section, *Luzula* sect. *Atlanticae*, and a new species, *Luzula indica*, are described, and three new combinations are made: *Luzula nipponica* (Satake) Kirschner & Miyamoto, *L. lutescens* (Koidzumi) Kirschner & Miyamoto, and *Luzula alpino-pilosa* subsp. *deflexa* (Kozuharov) Kirschner. A new name, *Juncus meianthus* K. Wilson is proposed for a later homonym, *J. gracilis* R. Br. The name *Luzula acuminata* Raf. is neotypified in order to retain its current usage.

Keywords: *Juncaceae*, *Luzula*, nomenclature.

A consortium of specialists in *Juncaceae* is preparing a treatment of the family to be published in the series, *Species Plantarum—Flora of the World* (cf. Orchard, 1999). During their study, some new taxa have been recognised and the necessity to publish new nomenclatural combinations has emerged. The World Flora itself is not designed to include new names or descriptions of new taxa. In what follows, the most important cases are discussed and names and combinations validated.

***Luzula* sect. *Atlanticae* Kirschner, sect. nov.** – Typus: *Luzula atlantica* Br.-Bl.

Plantae perennes, foliis apice acutis. Bractea infima subfoliacea vel saepius membranacea, inflorescentia conspicue brevior. Inflorescentia racemosa, decomposita, ramis primariis 3–8, tenuissimis, saepe flexuosis, ramulis secundariis rarissimis, capitulis parvis subglobosis (1–) 2–7-floris. Tepala membranacea, mucronata, vena media castanea distincta. Stylus brevissimus. Capsula subglobosa. Semina subglobosa, laevia, lucida, caruncula indistincta.

Perennials, leaf tip acute. Lower bract usually ± membranous, or subherbaceous, distinctly shorter than inflorescence. Inflorescence racemose, decompose, with 3–8 thin, often flexuose primary branches; secondary branches rare; flower clusters subglobose, small, (1–) 2–7-flowered. Tepals membranous, ± transparent, mucronate, with a prominent castaneous midrib. Style very short. Capsule almost globose. Seeds subglobose, smooth, shining, the appendage not distinct.

Luzula atlantica Br.-Bl., endemic to the high mountains of Morocco, exhibits a number of characters unique or very unusual in the genus. In particular, the ± globose, smooth, shining seeds, reduced style, membranous tepals with a castaneous midrib and mucro, are rarely found among other members of the genus. The acute leaf-tips place the species in the vicinity of *Luzula* sect. *Antheleae* Griseb. and *L.*

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sect. *Nodulosae* Chrtek & Křisa, both in the subg. *Luzula*, but the above characters show its distinctiveness.

This new section, which falls within *L.* subg. *Luzula*, is described to accommodate this isolated taxon, probably related to *L. elegans* Lowe of *L.* subg. *Marlenia* Ebinger, and *L. seubertii* Lowe of *L.* sect. *Antheleae* Griseb. (*L.* subg. *Luzula*).

***Luzula indica* Kirschner, sp. nov.** – Holotypus: India, Tamil Nadu, Udagamandalam: Ooty, 7000 ft, 26 Mar 1870, C. B. Clarke 11286B (Holotype: W!).

Species insignis tepalis suis exterioribus aristato-acuminatis, interioribus aristato-mucronatis, a speciebus similibus e sectione typica differt essentialiter carunculis minutissimis, habitu perlaxe caespitoso, pedunculis plerumque ramosis, laevibus, capsulis perigonio conspicue vel distincte brevioribus et foliis basalibus latis.

Loosely caespitose perennials 12–35 (–50) cm tall, the rhizome long, ascending. Basal leaves ± numerous, to 11 (–24) cm long, 3–6 (–7.5) mm wide; cauline leaves 2 (–3), 3–6.5 (–11) cm long, 1.8–3.5 (–5.0) mm wide, the margins ciliate to densely ciliate, particularly near the sheath mouth, papillose-serrulate, the apex obtuse. Lower bract leaf-like, 2–4.5 cm long, shorter than inflorescence. Inflorescence to 7 cm long, composed of 1–3 sessile and 4–22 (–33) small, ± ovoid, (3–) 6–8 (–11)-flowered pedunculate clusters to 5 mm long and to 7 mm wide, the peduncles smooth; secondary branches almost always present, numerous, often distal (clusters sometimes subcongested on the distal part of primary branches). Bracteoles ± ovate, acuminate, to 1.5 mm long, entirely scariose or castaneous at base. Tepals ± equal or the inner slightly shorter, the outer lanceolate, acuminate and distinctly aristate, 2.5–3.2 mm long, the inner acute to subobtuse, aristate-mucronate, 2.2–2.7 mm long, all straw-brown to brown, with broad paler or membranous margins. Stamens 6; anthers 0.4–0.6 mm; filaments 0.5–0.6 mm. Style 0.4–0.7 (–0.9) mm; stigmas 1.0–1.5 (–2.5) mm. Capsule broadly ovoid, ± abruptly narrowed in a short mucro, smooth, pale brown to castaneous, shorter or conspicuously shorter than perianth; capsule segments 1.7–2.0 × c. 1.4 mm. Seeds ± narrowly ovoid, 0.9–1.0 mm long, 0.7 mm wide; appendage whitish, to 0.1 mm long, distinctly fibrillate.

Additional specimens seen:

India: Nilgheries [the Nilgiri Hills], H. R. Wright *s.n.* (K); Anamallays [the Anaimalai Hills], sine coll. (K); Anamallays, Beddorne *s.n.* (K).

Further records:

Luzula indica was reported from the Nilgiri and the Anaimalai Hills by J. D. Hooker (1892: 401) under the name *Luzula campestris*. No material was seen from Palni, a region recorded for *L. campestris* in several floras, e.g., Fyson (1932: 621; 1915: 424); both these floras give Kodaikanal as the locality; a general distribution [“Coimbatore, Madurai, Nilgiri”] was given in Henry & al. (1989: 51). The most important confirmation of the occurrence of *Luzula indica* in the Palni Hills is an excellent drawing, with numerous details, of plants from Palni (specimens RHT 40202 & 45184 cited as *L. campestris*). The drawing undoubtedly represents the southern form of *Luzula indica*, and was published in K. M. Matthew (1996: plate 759).

Endemic to the mountains of Kerala and Tamil Nadu: Nilgiri Hills and the Anaimalai and Palni Hills in SW India. It is not possible to characterise the species ecologically because no herbarium label data are available, except for an altitude record on one specimen, about 2250 m. The ecology of the new species (often reported under the name *Luzula campestris*; for references see below) is not mentioned in the literature either, except for the altitude range of 7000–8000 ft in Gamble & Fischer (1934: 1553).

Luzula indica represents a distinctive member of *L.* sect. *Luzula*. It is characterised by a loosely caespitose growth, a very short seed appendage (c. 0.1 mm), aristate tepals, secondary branches common in the inflorescence, the capsule much shorter than the perianth, and relatively broad basal leaves. This character combination clearly distinguishes *L. indica* from several European species with a similar appearance of the inflorescence [*L. pallescens* Sw. or *L. multiflora* (Ehrh.) Lej. s.l.]. In its general habit, it is most similar to the Australian *L. densiflora* (H. Nordensk.) Edgar but the ciliate leaf margins and the shorter seed appendages are diagnostic, and *L. indica* lacks the bulbous base of *L. densiflora*.

The species occurs in two disjunct mountain ranges, and there is variation corresponding to this pattern. Plants from the Anaimalai Hills, so far as the material goes, have longer styles and stigmas and less frequent secondary branches in the inflorescence. A field study is needed to determine whether this difference is constant.

The remarkable geographical range of *L. indica*, widely isolated from other *Luzula* species in the Indian subcontinent, should be emphasized. The genus is generally rare in the tropics, with few notable exceptions: of the section *Luzula*, to which *L. indica* is referred, *L. papuana* M. E. Jansen and *L. philippinensis* M. E. Jansen are found in the Malesian Region, *L. taiwaniana* Satake in Taiwan, *L. caricina* E. Mey. in Mexico, *L. ulei* Buchenau in southern Brazil, and *L. mannii* (Buchenau) Kirschner & Cheek and *L. abyssinica* Parl. in Tropical Africa.

***Luzula alpinopilosa* (Chaix) Breistr. subsp. *deflexa* (Kozuharov) Kirschner, comb.**

- nov.** ≡ *Luzula deflexa* Kozuharov, Fl. Bulg. 2: 402 (1965) ≡ *Luzula glabrata* subsp. *deflexa* (Kozuharov) Kozuharov in N. Andreev & al., Opred. Visš. Rast. B'lgar. 786 (1992). – Holotype: Bulgaria, Vitoša [Mtns], Javásev (SOM!).
- = *Luzula spadicea* var. *sarplaninae* Rohlena, Věstn. Král. Čes. Spol. Nauk 1937/16: 7 (1938). – Holotype: F.Y.R. Macedonia, Šar Planina, Crni vrh, 2400–2500 m, 14 Jul 1934, Hrubý, Jirásek & Martinec (PRC!).
- *Luzula spadicea* “var. *velenovskyi* Kozuharov”, Izv. Bot. Inst. Bulg. Akad. 11: 130 (1963), nom. inval. (Art. 37.1); *Luzula alpinopilosa* “subsp. *velenovskyi* [Kozuharov ex] Chrték & Křisa”, Preslia 46: 212 (1974), nom. inval. (Art. 37.1). Authentic material: Bulgaria, “Rila, Rodopi”, Strěbrný (PRC!, SOM!).

The variable complex of *Luzula alpinopilosa* includes long- and broad-leaved plants with short anthers, found especially in the mountains of the Balkan Peninsula. They most often appear with the epithet *velenovskyi* (at the rank of variety and subspecies) but the name used by Chrték & Křisa (1980) has never been validly published [the basionym, *L. spadicea* var. *velenovskyi* Kozuharov (1963) was published without a type being designated, in conflict with Art. 37.1 of the *Code*].

An examination of the type of the name *Luzula deflexa* Kozuharov showed that this is another name for the taxon previously referred to under the epithet *velenovskiyi*. In 1992, the epithet *deflexa* was published at the rank of subspecies, and must be adopted for the common Balkan subspecies.

Luzula nipponica (Satake) Kirschner & Miyamoto, **comb. nov.** \equiv *Luzula sudetica* var. *nipponica* Satake in Nakai & Honda, Nova Fl. Jap. 1: 40 (1938). – Holotype: Honshu, Prov. Kai, Mt. Komagatake, 28 Jul 1932, Y. Satake (TI).

This east Asian taxon is known from Japan and N Korea, and may occur in the adjacent parts of China. It is very similar to the European *Luzula sudetica* (Willd.) Schult. and was described as a variety of that species. However, a detailed examination of their morphology and karyology shows that the specimens from Asia represent a species distinct from the European taxon. *Luzula nipponica* is a true diploid with 12 chromosomes. There is a series of inconspicuous but constant quantitative differences between the two taxa: *L. nipponica* has longer capsule segments, tepals of equal length, slightly longer caruncle (seed basal appendage), and usually more densely caespitose growth with shorter rhizome. A full description is given below.

Perennials 12–15 (–20) cm, caespitose to laxly caespitose, the rhizome short. Basal leaves usually up to 8–10 cm long, 2–3 mm wide; cauline leaves 1–2, up to 6 cm long, c. 2.5 mm wide, the margin hairy, densely papillose-serrulate, the apex obtuse. Inflorescence composed of 2–4 subsessile and 1–3 pedunculate clusters (clusters usually less than 7); clusters \pm ovoid, usually 6–11-flowered; peduncles straight, unbranched, smooth, usually 1.5–2.0 (–4.0) cm long. Lower bract herbaceous, exceeding inflorescence, usually 3–5 cm long, the margin hairy, densely papillose-serrulate; bracteoles \pm ovate, often brown at base, ciliate above, c. 1.5 mm. Tepals equal, entire, acute to acuminate, 2.2–2.5 mm long, dark brown to castaneous brown, the margins distinct, pale brownish to membranous. Stamens 6; anthers 0.6–0.7 mm; filaments c. 0.5 mm. Style 0.2–0.3 mm; stigmas up to 1.2 (–1.5) mm. Capsule shorter than to equalling perianth, subacuminate; capsule segments brown to dark brown, usually 2.1–2.3 mm long, c. 1.2 mm wide. Seeds 1.0–1.1 mm long, (0.5–) 0.6 (–0.7) mm wide; appendage 0.1–0.2 mm long, usually fibrillate. $2n = 12$, (Kirschner, 1992: 34).

Selected specimens studied: JAPAN: Honshu, Yamanashi Pref., Mt. Yatsugatake, 5 Aug 1927, K. Kimra 271068 (TI). KOREA: NE Korea, Pektu-san Mtns, 2000–2700 m, 6 Oct 1986, J. Dostálek, J. Kolbek & I. Ostrý L102 (PRA).

Luzula lutescens (Koidzumi) Kirschner & Miyamoto, **comb. nov.** \equiv *Luzula campestris* var. *lutescens* Koidzumi, in Matsum. Icon. Pl. Koisikaw. 1: 105, fig. 53, 1912. \equiv *Luzula multiflora* var. *lutescens* (Koidzumi) Satake, J. Fac. Sci. Imp. Univ. Tokyo, sect. III, Bot., 4/2: 200, 1933. – Typus: “Nippon media et Shikoku”; icon in Matsumura, Icon. Pl. Koisikaw. 1: fig. 53 (1912); Syntype: Japan, Yamaguchi Pref., Yoshiki-gun, Ouchi-mura, 12 May 1892, J. Nikai 88 (TI).

Relatively common plants of *Luzula* sect. *Luzula* in Honshu and Shikoku, Japan, usually are found under the name *Luzula multiflora* in herbarium collections and the literature. However, they are characterised by capsules conspicuously exceeding the

perianth, few-flowered clusters and \pm obtuse, broadly bordered inner tepals, features not found in the variable *L. multiflora*. A detailed comparison with the other members of the section allows us to conclude that the Japanese plants should be treated as a separate species. *Luzula lutescens* was studied by H. Nordenskiöld (1956); her material with characters of *L. lutescens* at UPS shows that the species comprises a complex of diploid and tetraploid populations. The tetraploid plants (e.g., *Fujita s.n.*, see below) have all the typical features of the species, and substantially differ from *L. multiflora* s.l. in having seed appendages up to 0.7 mm long. The complex requires further study. A full description is given below, together with a list of representative specimens.

Densely caespitose and ciliate perennial. Stems usually 12–35 cm; basal leaves 8–15 cm long and 4–5 mm wide; cauline leaves 2 (–3), 6–8 cm long and 3–4 mm wide; all leaves with obtuse tip and papillose-serrulate margins. Lower bract usually shorter, rarely longer than inflorescence, 1–2 (–4) cm long. Inflorescence composed of one subsessile and 3–5 (7)-pedunculate clusters; peduncles smooth, straight to flexuose, 2–4 (–7) cm long, unbranched; clusters hemispherical to subglobular, not dense, (2) 4–6 (8)-flowered. Bracteoles \pm ovate, ciliate-fimbriate above, c. 1 mm long. Tepals \pm equal, entire, 2.0–2.2 mm long, the inner \pm obtuse and short mucronate, the outer ovate-lanceolate, both with a broad membranaceous margin above, and the middle part brown to castaneous brown. Anthers 0.5–0.7 mm; filaments 0.3–0.5 mm. Ovary 1.0–1.2 mm long; style 0.4–0.5 mm; stigmas usually 1.5–2.0 mm. Capsule oblong-ovoid, slightly trigonous above, usually substantially exceeding tepals, yellowish straw-brown to pale brownish; capsule segments 2.2–2.6 mm long. Seeds c. 1.0 mm long, 0.7–0.8 mm wide; appendage 0.4–0.5 (–0.7) mm long. $2n = 12$ (Nordenskiöld, 1956: 10–11); $2n = 24$ (Nordenskiöld, pers. comm.).

Selected specimens studied:

Japan: Honshu, Kyoto, Matsuo-bashi, 260 m, 20 May 1991, *T. Takahashi s.n.* (KYO); Honshu, Kii, Owase-shi, Kowa-dani, 29 Apr 1959, *M. Furuse s.n.* (S); Shimotsuke, Nikko, Semjooga-hara, 25 Jun 1957, *M. Furuse s.n.* (S); Nikko, N side of Lake Chuuzenji, 14 Jul 1954, *M. Furuse s.n.* (S); Shinano, Kitasaku-gun, Mt Hanare-yama, 8 Jun 1956, *M. Furuse s.n.* (S); Shinano, Minami-karuizawa, 10 Jun 1962, *M. Furuse s.n.* (S); Suruga, Oyama, 9 May 1913, [without collector's name] (S); Mt. Kongo, *Matsumoto s.n.* [cultivated by *H. Nordenskiöld*, Z2] (UPS); Gumma Pref., Oze, 15 Aug 1950, *Fujita s.n.* (UPS); cultivated as *H. Nordenskiöld U10* (UPS).

Neotypification of *Luzula acuminata* Raf.

Luzula acuminata Raf., Autikon Bot. 193 (1829). – Neotypus (designated here): [U.S.A.] Orono, Maine, open woods and thickets, 14 May 1902, *M. L. Fernald* in *Plantae exsiccae Grayanae*, no. 85 (GH photo!; isoneotypes: GH photo!, K, NY photo!, PH photo!, PRC!, US photo!, W).

The name *Luzula acuminata* Raf. has frequently been used for a member of *Luzula* subg. *Pterodes* (Griseb.) Buchenau occurring in southern Canada and the eastern U.S.A. The name has been adopted in many Floras and taxonomic treatments (e.g., Gleason & Cronquist, *New Britton & Brown Illustr. Fl. Northeast. U. S. &*

Adjac. Can. 1: 401. 1952; Strausbaugh & Core, *Fl. West Virg.* 1: 220. 1952; Nordenskiöld in *Bot. Not.* 110: 1–15. 1957; Ebinger in *Rhodora* 64: 74–83. 1962; Ebinger in *Mem. New York Bot. Gard.* 10: 284. 1964; Marie-Victorin, *Fl. Laurent.*: 677. 1969; Coffey in *Castanea* 35: 75. 1970; Voss, *Mich. Fl.* 1: 381. 1972; Rousseau, *Géogr. Flor. Québec-Labrador*: 128. 1974; Scoggan, *Fl. Can.* 2: 480. 1979 (“1978”); Godfrey & Wooten, *Aquat. Wetl. Plants Southeast. U. S.*: 567. 1979; Kartesz & Kartesz, *Synon. Checkl. Vasc. Fl. U.S.A. Can. & Greenl.* 2: 259. 1980; Clemants in *New York State Mus. Bull.* 475: 48. 1990; Gleason & Cronquist, *Man. Vasc. Pl. Northeast. U. S. Adjac. Can.*, ed. 2, 666. 1991; Kartesz, *Synon. Checkl. Vasc. Fl. U.S.A. Can. & Greenl.*, ed. 2, 1: 342. 1994). When the name was first published, no type was designated. Rafinesque only gave “Boreal America” as a place of origin of his plant. No original material of the name is known to be extant nor has any been found either by Ebinger (1964) or during our work on the *Juncaceae* treatment.

The protologue of the name is rather ambiguous, and Jones (1951) expressed some doubts about its correct interpretation. In contrast, Ebinger (1962) argued that the original description agreed with the appearance of young, early flowering plants of what we accept under the name *L. acuminata*.

Two entities have been recently recognised within the species, nowadays generally treated at the rank of variety. It is difficult to interpret to which of the two varieties the original Rafinesque’s material might have belonged. Ebinger (1962: 75) concluded from the original indication “Boreal America” that Rafinesque was referring to the northern variety. However, which territory was exactly understood by Rafinesque as “Boreal America” is uncertain. We therefore decided to maintain the current application of the name *Luzula acuminata* Raf. as well as to preserve the current use of *L. acuminata* var. *acuminata* by designation of an appropriate neotype cited above. The plants preserved in a widely distributed exsiccate collection agree very well with the modern use of the name *L. acuminata* var. *acuminata* characterized by a ± simple inflorescence and a more northerly distribution, while plants with compound inflorescence and a rather southern range have been named *L. acuminata* var. *carolinae* (S. Wats.) Fern.

A new name for *Juncus gracilis* R. Br.

The name under which a distinct Australasian member of *Juncus* sect. *Graminifolii* Engelm. is known, *Juncus gracilis* R.Br., is a later homonym of *J. gracilis* Roth. A new name, originally introduced by the late L. A. S. Johnson, is now proposed by K. L. Wilson of Sydney to replace the illegitimate name:

Juncus meianthus L. A. S. Johnson ex K. L. Wilson, **nom. nov.** ≡ *Juncus gracilis* R. Br., Prodr. 259. 1810, nom. illeg. substitutum, non Roth 1787 nec Sm. 1800. – [type citation: “M” [= Ora Meridionalis], *R. Brown*]; Holotypus: King George’s Sound, *R. Brown s. n. [Bennett 5782]*; (BM).

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Literature cited

- Chrtěk, J. & Křísa, B. 1980. *Luzula* DC. Pp. 111–116 in: Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds.), *Flora Europaea*, vol. 5. Cambridge.
- Ebinger, J. E. 1962. The varieties of *Luzula acuminata*. *Rhodora* 64: 74–83.
- 1964. Taxonomy of the subgenus *Pterodes*, genus *Luzula*. *Mem. New York Bot. Gard.* 10: 285.
- Fyson, P. F. 1915. *Flora of Nilgiri and Pulney hill-tops*, vol. 1. Dehra Dun.
- 1932. *Flora of South Indian hillstations*, vol. 1. Dehra Dun.
- Gamble, J. S. & Fischer, C. E. C. 1934. *The Flora of Presidency of Madras*. Dehra Dun.
- Hooker, J. D. 1892. *Flora of British India*, vol. 6. Dehra Dun.
- Jones, G. N. 1951. On the nomenclature of *Luzula saltuensis*. *Rhodora* 53: 242–244.
- Kirschner, J. 1992. Karyological differentiation of *Luzula* sect. *Luzula* in Europe. *Thaiszia, J. Bot.*, 2: 11–39.
- Matthew, K. M. 1996. *Flora of the Palni Hills*. Vol. 1: *Illustrations on the flora of the Palni Hills, South India*. Tiruchirapalli.
- Henry, A. N., Chithra, V. & Balakrishnan, N. P. (eds.). 1989. *Flora of Tamil Nadu*. Howrah.
- Nordenskiöld, H. 1956. Cyto-taxonomical studies in the genus *Luzula* II. *Hereditas* 42: 7–73.
- Orchard, A. E. 1999. *Species Plantarum: Flora of the World. Introduction to the series*. Canberra.