Notes on Grasses (Poaceae) for the *Flora of China*, IV

Sylvia M. Phillips
Herbarium, Royal Botanic Gardens, Kew, Surrey TW9 3AB, United Kingdom.
s.phillips@kew.org

Chen Shouliang
Herbarium, Jiangsu Institute of Botany, Academia Sinica, 1 Qianghuhuocun, Nanjing, Jiangsu 210014, China. herb_nas@yahoo.com.cn

Abstract. The following changes are made in Poaceae, necessary for the upcoming *Flora of China*. *Kengia chinensis* is lectotypified on a specimen of *K. hackelii*, and hence becomes a synonym of the latter. *Kengia gracilis* is synonymized under *K. mucronata*. *Isachne clarkei* is lectotypified. *Isachne beneckei* (also lectotypified) and *I. tenuis* are placed as synonyms of *I. clarkei*. *Isachne albens* var. *hirsuta* is lectotypified and placed as a synonym under *I. sylvestris*. *Isachne semitalis* is lectotypified and placed in synonymy of *I. schmidtii*. The distinctions between the closely related species *I. kunthiana*, *I. schmidtii*, and *I. repens* are discussed. The new species *Arundinella suniana*, from Yunnan province and related to *A. setosa*, is described. *Arundinella setosa* var. *esetosa* is validated. The name *Arundinella hupeiensis* is rejected as a homonym due to its similarity to the name *A. hubeiensis*. *Eccoilopus bambusoides* is transferred to *Spodiopogon*, necessary with the inclusion of *Eccoilopus* within *Spodiopogon*. The new species *Imperata flavida* is described from Hainan, distinguished from *I. cylindrica* mainly by its much shorter spikelet hairs. *Erianthus griffithii* var. *trichophyllus* is transferred to *Saccharum arundinaceum* as *S. arundinaceum* var. *trichophyllum*, as *Erianthus* is included within *Saccharum*. *Polytrias amaura* var. *nana* is transferred to *P. indica*, the correct name for *P. amaura*. *Coelorachis striata* var. *pubescens* is transferred to *Mnesithea*, a necessary transfer when *Coelorachis* is regarded as a synonym of *Mnesithea*. Discussion of the changes is provided throughout.

Key words: *Arundinella*, China, *Cleistogenes*, *Coelorachis*, *Eccoilopus*, *Erianthus*, *Eulalia*, *Imperata*, *Isachne*, *Kengia*, *Mnesithea*, *Polytrias*, *Saccharum*, *Spodiopogon*.

This paper continues the series for Poaceae in *Novon* for the publication of taxonomic novelties and nomenclatural changes that have arisen during the preparation of the grass family account for the *Flora of China*.

Eragrostideae

Kengia hackelii (Honda) Packer, Bot. Not. 113: 291. 1960. Basionym: *Diplachne hackelii* Honda, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 3: 112. 1930. *Cleistogenes hackelii* (Honda) Honda, Bot. Mag. (Tokyo) 50: 437. 1936. TYPE: Japan. Musashi Prov., Shirako, 1880, *Matsumura 4* (holotype, TI).

Kengia chinensis (Maximowicz) Packer, Bot. Not. 113: 291. 1960. Basionym: *Diplachne serotina* var. *chinensis* Maximowicz, Bull. Soc. Imp. Naturalistes Moscou 54: 70. 1879. *Cleistogenes chinensis* (Maximowicz) Y. L. Keng, Sinensia 5: 152. 1934. *Cleistogenes serotina* var. *chinensis* (Maximowicz) Handel-Mazzetti, Mazz. Symb. Sinicae 7(5): 1280. 1936. *Cleistogenes hackelii* var. *chinensis* (Maximowicz) Ohwi, Bot. Mag. (Tokyo) 55: 309. 1941. TYPE: Japan. Yokohama, "fine Septembris fl.," *C. Maximowicz* (lectotype, designated here, LE).

When Maximowicz described his variety *chinensis* of *Diplachne serotina* (now *Kengia serotina* (L.) Packer), he based the variety on five syntypes. These comprised three Bretschneider collections from near Peking (Takio-sze, Hei-lung-tau, Wanshou-, China), and two of his own collections, one from Mongolia and the other from Yokohama, Japan. The Japanese collection is a specimen of *Kengia hackelii* (Honda) Packer, the only species of *Kengia* present in Japan.

There has been confusion over the identity of the remaining syntypes, mainly comprising Bretschneider's plants from China. Confusion first resulted from mistakes in the paper by Keng (1934) erecting the genus *Cleistogenes* for a group of Eurasian grasses that had previously been included in *Diplachne*. Keng made the combination *Cleistogenes chinensis* (Maximowicz) Keng based on Maximowicz's variety, but his description, illustration, and

cited specimens all belong to a different species now known as *Kengia songorica* (Roshevitz) Packer. Keng later (1938: 299) realized his mistake and described the specimens he had used in his 1934 paper as *C. mutica* (a synonym of *K. songorica*). However, his combination *Cleistogenes chinensis* remains validly published.

In 1934 Keng had cited several specimens from China under *Cleistogenes serotina*. Two years later Handel-Mazzetti (1936) transferred Maximowicz's variety to *C. serotina* as *C. serotina* var. *chinensis*. These are the basis for reports of the distribution of *Kengia serotina* extending to China (e.g., Kit Tan, 1985: 579). Typical *K. serotina* occurs from southern and eastern Europe only as far east as western Turkmenistan and is not known from eastern Russia or China (Tsvelev, 1983: 949). Ohwi (1941: 309) recognized that the eastern Asian populations differ from European *Kengia serotina* and assigned both the Chinese and Japanese elements of *Diplachne serotina* var. *chinensis* to *Cleistogenes hackelii*, separating the Chinese plants as *C. hackelii* var. *chinensis*.

In recent Chinese literature *Kengia chinensis* has been recognized as a separate species distinct from *Kengia hackelii* (C. P. Wang, 1990: 47). Conert (1959: 232) put forward the suggestion that the Chinese element of *Diplachne serotina* var. *chinensis* (1879), based on Bretschneider's collections, may be conspecific with *Kengia kitagawae* (Honda) Packer (1936: 99).

Clearly a lectotypification is necessary to fix the use of the name *Diplachne serotina* var. *chinensis* and hence *Kengia chinensis*. A search was undertaken in the St. Petersburg herbarium (LE) to locate the original syntypes. Three Bretschneider specimens were found from the type localities near Peking, but labeled with the manuscript name "*Diplachne rigidula* n sp." in Maximowicz's hand. One is *Kengia kitagawae*, and the other a mixed collection. No specimen from Mongolia was located. However, there is a specimen collected by Maximowicz in Yokohama, and clearly labeled by him as *Diplachne serotina* var. *chinensis*. This is selected here as the lectotype. Hence *C. chinensis* becomes a synonym of *K. hackelii*, and the current use of the later name *K. kitagawae* for the Chinese taxon is preserved.

Kengia mucronata (Y. L. Keng ex P. C. Keng & L. Liou) Packer, Bot. Not. 113: 293. 1960. *Cleistogenes mucronata* Y. L. Keng ex P. C. Keng & L. Liou, Acta Bot. Sin. 9: 70. 1960. TYPE: China. Gansu: without locality or date, *T. P. Wang s.n.* (holotype, NAS).

Kengia gracilis (Y. L. Keng ex P. C. Keng & L. Liou) Packer, Bot. Not. 113: 293. 1960. *Cleistogenes gracilis* Y. L. Keng ex P. C. Keng & L. Liou, Acta Bot. Sin. 9: 69. 1960. Syn. nov. TYPE: China. Shaanxi: Wu-kung, Chang-kia-kang, 1940, *K. S. Tien s.n.* (holotype, NAS).

Additional specimens. CHINA. **Shanxi:** Sihsien, 7 Sep. 1935, *T. P. Wang 3568* (K). **Shaanxi:** Si Kuan ts'. . .(illegible), 16 Oct. 1916, *E. Licent 3020* (K).

Kengia mucronata and *K. gracilis* were described at the same time in 1960. Y. C. Keng distinguished them only by the number of florets in the spikelet (4 to 6 in *K. mucronata*; 5 to 8 in *K. gracilis*), and by the number of veins in the upper glume (often 3 in *K. mucronata*; 1 in *K. gracilis*). Two other specimens at Kew have 3 to 5 florets and 1-veined glumes.

The glumes in all *Kengia* species are variable. The cleistogamous spikelets found in the upper leaf sheaths generally have fewer florets and smaller hyaline glumes than the chasmogamous spikelets of the terminal panicle. The lower spikelets of the terminal panicle tend to have smaller, fewer-veined glumes than those above. When the glumes are predominantly 1-veined, small lateral veins can usually be found in some spikelets, sometimes only on one side of the glume. Hence glume nervation is a very unreliable character for distinguishing species in *Kengia*. When the spikelets have a larger number of florets, the spikelets overlap, giving the panicle branches a denser appearance.

Kengia mucronata can be characterized as follows: habit densely tufted, wiry, with basal clumps of old sheaths, lacking basal scaly buds; leaf blades numerous, stiff, patent, inrolled, uppermost blades very short; panicle exserted from uppermost leaf sheath, open; spikelets with inconspicuously mucronate lemmas.

Kengia mucronata is selected here to have priority over *K. gracilis* because the type specimen is better. The type of *K. gracilis* lacks a base.

ISACHNEAE

Isachne clarkei Hooker f., Fl. Brit. India 7: 24. 1897 [1896]. TYPE: NE India. Kohima, 1520 m, "5000 ft" [1520 m], 20 Oct. 1885, *C. B. Clarke s.n.* (lectotype, designated here, K).

Isachne beneckei Hackel, Oesterr. Bot. Z. 51: 459. 1901. Syn. nov. TYPE: Indonesia. Java, Prigen, 23 Mar. 1891, *F. F. Benecke 22* (lectotype, designated here, W).

Isachne tenuis Y. L. Keng ex P. C. Keng, Acta Phytotax. Sin. 10: 15. 1965. TYPE: China. Yunnan: Ping-bien Hsien, Shi-tuen, 29 Sep. 1939, *C. W. Wang 82192* (type, PE [at NAS, 2004]).

This is a delicate annual species with narrowly lanceolate leaf blades, and an open panicle of small (1–1.5 mm) scattered spikelets on slender glandular pedicels. The specimen selected as the lectotype for *Isachne clarkei* is one of two sheets at Kew collected by Clarke at Kohima in the Naga Hills, and bears the name "clarkei" on the label in Hooker's handwriting. The syntype specimens from Sikkim included by Hooker in the protologue are *I. sikkimensis* Bor, a species with longer (2–2.4 mm) elliptic spikelets and an eglandular panicle.

When Hackel described *I. beneckei* he compared it with the protologue of *I. clarkei* and apparently had difficulty finding real differences, mentioning little more than the thin texture of the leaf blades of *I. clarkei*. In fact, the type specimens of the two taxa agree very well. Hackel based his species on two syntype specimens from Java, *Benecke 22* and *30*. The better specimen, *Benecke 22*, is selected here as the lectotype.

Isachne tenuis was first established by Y. L. Keng (1957: 117, 218) and described by him two years later (1959: 642, t. 580), but both these publications lack a Latin diagnosis. In the 1965 protologue *I. tenuis* is said to differ from *I. beneckei* by its smaller spikelets, fewer-nerved glumes, and glandular pedicels. However, the type of *I. beneckei* does also have glandular pedicels, and the other characters fall within the normal range for *I. clarkei*.

Isachne sylvestris Ridley, J. Straits Branch Roy. Asiat. Soc. 44: 206. 1905. *Isachne albens* var. *sylvestris* (Ridley) Jansen, Reinwardtia 2: 280. 1953. TYPE: Malaysia. Perak, Telok Sera, 17 Mar. 1896, *H. N. Ridley 7265* (holotype, K).

Isachne albens var. *hirsuta* Hooker f., Fl. Brit. India 7: 23. 1897 [1896]. Syn. nov. *Isachne hirsuta* (Hooker f.) P. C. Keng, Acta Phytotax. Sin. 10: 11. 1965. TYPE: NE India. Cachar, *R. L. Keenan* (lectotype, designated here, K).

This is one of the more vigorous species of *Isachne*, with culms up to 65 cm tall and a much-branched panicle about 20 cm long. It is similar to the widespread southeast Asian species *I. albens* Trinius and was first described from northeastern India as a variety of this. However, it is clearly specifically distinct, as set out in the following key couplet.

KEY TO DISTINGUISH *ISACHNE ALBENS* AND *I. SYLVESTRIS*

1a. Leaf sheaths glabrous; leaf blades 0.8–1.8 cm wide; culm nodes and panicle eglandular; spikelets 1–1.5 mm, whitish green . . . . . *I. albens*

1b. Leaf sheaths densely hirsute; leaf blades 1.3–2.4 cm wide; culm nodes and panicle branches glandular; spikelets 1.3–1.9 mm, green or purplish green . . . . . *I. sylvestris*

A separate specific status for *Isachne albens* var. *hirsuta* was recognized by P. C. Keng, who raised it to specific rank as *I. hirsuta*. However, this grass had already been described at specific rank as *I. sylvestris* by Ridley, based on a specimen from the Malay peninsula. The types of both are at Kew, and are clearly conspecific.

Isachne albens var. *hirsuta* was described by J. D. Hooker based on two syntype specimens from northeast India (Silhet, *de Silva in Wall. Cat. 8657* and Cachar, *Keenan s.n.*). The more complete collection from Cachar collected by Keenan is selected here as the lectotype. The other cited collection, from Silhet by De Silva, consists only of the top of a culm with one leaf and a panicle.

THE CIRCUMSCRIPTION OF *ISACHNE KUNTHIANA* (WIGHT & ARNOTT EX STEUDEL) MIQUEL, *I. SCHMIDTII* HACKEL, AND *I. REPENS* KENG

This group of three species has been much confused in the literature. They are low-growing species with lanceolate leaf blades, eglandular panicles, spikelets over 2 mm long, and similar florets. The differences between them are set out here in order to clear up the confusion.

The oldest name is *Isachne kunthiana*, originally described from India by Steudel as *Panicum kunthianum*. This grass is apparently confined to India and Sri Lanka and has spikelets with the glumes clearly longer than the florets. The confusion arose when Miquel transferred the name from *Panicum* to *Isachne*, while misapplying it to a similar species in southeast Asia with long glumes. Since then *I. kunthiana* has been widely described as occurring in southeast Asia (e.g., Gilliland, 1971; Davidse, 1994; Lazarides, 1980; Iskandar & Veldkamp, 2004). The correct name for this southeast Asian species is *I. schmidtii*.

In 1899 Hackel (1899: 721) assigned a grass from the Ryukyu islands (Japan) to a new variety *nudiglumis* of *Isachne myosotis*. Later Koyama (1962) correctly recognized its affinity to the southeast Asian species known as *I. kunthiana* and transferred it as *I. kunthiana* var. *nudiglumis*, hence compounding the misapplication of the species name *I. kunthiana*. Meanwhile Y. L. Keng (1933: 129) had described this grass at the species level as *I. repens*, based on specimens from southern mainland China. Koyama knew this, and cited *I. repens* as a synonym of *I. kunthiana* var. *nudiglumis*.

Brief descriptions follow, setting out the most important differences, with relevant synonymy. A key to distinguish these three taxa is given below.

KEY TO DISTINGUISH *ISACHNE KUNTHIANA*, *I. SCHMIDTII*, AND *I. REPENS*

1a. Plant with underground rhizomes; leaf blade base cordate; glumes with a few long setae or glabrous, longer than florets . . . . . *I. kunthiana*
1b. Plant with surface stolons; leaf blade base obtuse to rounded; glumes densely scabrid-hispidulous, longer than or equaling florets.
  2a. Glumes longer than florets; leaf blades 2.6–4.5 cm; panicle contracted, 0.5–1 cm wide, branches erect . . . . . *I. schmidtii*
  2b. Glumes equaling florets; leaf blades 5–7.5 cm; panicle open, 1.4–2.8 cm wide, branches ascending or spreading . . . . . *I. repens*

Isachne kunthiana (Wight & Arnold ex Steudel) Miquel, Fl. Ned. Ind. 3: 460. 1857. *Panicum kunthianum* Wight & Arnold ex Steudel, Syn. Pl. Glumac. 1: 96. 1854. TYPE: India. "Penins. Ind. or.," *Herb. Wight 1659* (isotype, K).

Plant with underground rhizomes. Leaf blades 1–11 cm, hispid, base cordate, basal margins pectinate. Panicle contracted to open, branches appressed to widely spreading, scabrid, pilose at least in the axils. Glumes chartaceous, longer than florets, contracted above florets, acuminate-cuspidate, with a few long tubercle-based setae or glabrous; florets elliptic, the upper slightly shorter, more convex and often pubescent.

Miquel transferred the epithet *kunthiana* to *Isachne* in 1857, on the basis of a specimen from Java that had been tentatively placed under *Panicum kunthianum* by Steudel. J. D. Hooker (1896: 21) cited a Ridley collection from Singapore that is a syntype of *I. semitalis* (syn. of *I. schmidtii*). Jansen (1953: 285) placed *I. schmidtii* in synonymy under *I. kunthiana*, but he does not appear to have examined specimens from India.

In fact, although *I. kunthiana* and *I. schmidtii* are similar in facies and in possessing long glumes, they are clearly distinguishable by the characters given here in the key and descriptions.

Isachne schmidtii Hackel, Bot. Tidsskr. 24: 97. 1901. TYPE: Thailand. Koh Chang island, *J. Schmidt s.n.* (holotype,W).

Isachne semitalis Ridley, Fl. Malay. Penin. 5: 237. 1925. TYPE: Malaysia. Selangor, Rantau Panjang, *C. B. Kloss 78* (lectotype, designated here, K).

Plant with surface stolons. Leaf blades 2.6–4.5 cm, glabrous or with thinly scattered hairs, base obtuse to rounded, margins not pectinate. Panicle contracted, 0.5–1 cm wide, branches erect, almost smooth, slightly scaberulous, glabrous or with occasional scattered setae. Glumes herbaceous, longer than florets, evenly narrowing above florets, densely scabrid-hispidulous; florets ovate to subrotund, monomorphic, slightly glossy, pubescent only on inrolled margins.

Ridley cited five syntype specimens in the protologue of *Isachne semitalis*. All are in the Kew herbarium and are a good match with the type of *I. schmidtii*. The best example is selected here as lectotype.

Glume length is variable in this species. The glumes typically exceed the florets by 0.5–1 mm. However, some spikelets may have glumes scarcely longer than the florets in panicles where most spikelets have clearly longer glumes. Possibly *I. repens* may better placed as a subspecies under *I. schmidtii*, as done by Koyama (1962, 1987 as *I. kunthiana* subsp. *nudiglumis*), but we do not wish to do this here as we have seen insufficient specimens to be certain.

Isachne repens Y. L. Keng, Sunyatsenia 1: 129. t. 33. 1933. TYPE: China. Guangdong: Ting Wu Shan, 18 Oct. 1929, *C. L. Tso 21292* (holotype, IBSC).

Isachne myosotis var. *nudiglumis* Hackel, Bull. Herb. Boiss. 7: 721. 1899. *Isachne firmula* Buse var. *nudiglumis* (Hackel) Rendle, J. Linn. Soc. Bot. 36: 322. 1904. *Isachne kunthiana* var. *nudiglumis* (Hackel) Koyama, J. Jap. Bot. 37: 236. 1962. *Isachne kunthiana* subsp. *nudiglumis* (Hackel) Koyama, Grass. Jap. Neighb. Reg.: 511. 1987. TYPE: Japan. Ryukyu Is., Liu-kiu I., Mt. Yonahadake, *Tashiro ex collect. Matsumura s.n.* (holotype, W).

Plant with surface stolons. Leaf blades 5–7.5 cm, glabrous or pilose, base obtuse to rounded, margins not pectinate-hispidulous. Panicle open, 1.4–2.8 cm wide, branches ascending or spreading, smooth, glabrous. Glumes herbaceous, equal to florets or upper very slightly shorter, densely scabrid; florets ovate to subrotund, monomorphic, slightly glossy, pubescent only on inrolled margins.

Isachne repens is a slightly larger grass than *I. schmidtii*, with bigger leaf blades and a less contracted panicle. However, the spikelets are similar except for the shorter glumes.

The taxon is incorrectly named as *I. kunthiana* in the recently published *Flora of Taiwan* (Hsu, 2000: 449), where *I. schmidtii* is cited in synonymy. The text therein refers to the glumes exceeding the florets, but the accompanying illustration clearly

shows them subequal and is a good representation of *I. repens*.

For distribution within China, see Chen (1990: 178).

ARUNDINELLEAE

Arundinella suniana S. M. Phillips & S. L. Chen, sp. nov. TYPE: China. Yunnan: "reg. bor., Yunnanfu," 19 Sep. 1922, *J. Cavalerie s.n.* (holotype, BM).

Haec species *Arundinellae setosae* affinis, sed nodis barbatis, inflorescentia contracta, ramis spiculis congestis, spiculis longioribus (6.8–7.8 mm non 5–6.5 mm), lemmate inferiore spicula aequilongo, lemmate superiore bilobato, lobis triangularibus setosis differt.

Base absent; culm ca. 85 cm tall, 3 mm diam., 3-noded, nodes lanate. Leaf sheaths smooth, upper margin and mouth villous, otherwise glabrous; ligule ca. 0.5 mm, membranous, ciliolate; leaf blades narrowly linear, ca. 22 × 2.5–3.5 mm, glabrous, scabrous, apex finely acuminate. Panicle lanceolate, contracted, ca. 10 × 2.5 cm, branches densely spiculate, lowest branch ca. 3.5 cm; main axis and branches scabrous puberulous on edges; pedicels very unequal, the longer 2.5–3 mm, the shorter 0.5–1 mm, not setose at apex. Spikelets 6.8–7.8 mm, dark gray; glumes lanceolate, conspicuously setose on veins with stiff tubercle-based trichomes, apex acuminate-caudate; lower glume ca. 6 mm, 3-veined, upper glume ca. 7.3 mm, 5-veined; lower floret staminate or sterile, ca. 6.5 mm, equaling upper glume, lemma smooth, glabrous, 3-veined; upper floret bisexual, elliptic-oblong, ca. 3.8 mm, apex clearly 2-dentate, shortly pilose on upper flanks and apical lobes, awned from sinus, lobes triangular, each tipped by 0.7–0.9 mm awnlet; awn geniculate, column ca. 2 mm, limb 4–4.3 mm; anthers 3, 2.5–2.7 mm. Caryopsis not seen.

This species is named after B. S. Sun, the eminent agrostologist from Yunnan province, and is at present known only from the type. It is clearly related to the widespread and variable *Arundinella setosa* Trinius by the possession of lateral bristles on the upper lemma, but differs by the combination of characters set out in the diagnosis above. The contracted panicle of dark-colored, setose spikelets is particularly noteworthy and reminiscent of that found in *Arundinella hookeri*. However, that species has broader (up to 1.2 cm), densely villous leaf blades, and an emarginate upper lemma lacking lateral bristles.

In *Arundinella setosa* the lower floret is shorter than the glumes, or at least clearly shorter than the upper glume, and the upper lemma is scabrous, the lateral bristles arising more or less directly from the awn base. In contrast, in *Arundinella suniana* the lower floret is as long as the upper glume, and the lateral bristles arise from definite membranous apical lobes.

Arundinella setosa Trinius var. **esetosa** Bor ex S. M. Phillips & S. L. Chen, var. nov. TYPE: India. "Hab. Himal. Bor. Occ., regio trop.," 31 Aug. 1849, *T. Thomson s.n.* (holotype, K).

Bor (1960: 425) provided a Latin description when establishing this variety and cited three specimens (*T. Thomson s.n.*; *Stainton, Sykes & Williams 4255, 4461*). However, he neglected to indicate a type, a necessary requirement of valid publication after 1958. The *Thomson* specimen is selected here as type because it clearly shows the setose pedicels of *A. setosa*, and also lacks any trace of apical lateral bristles on the upper lemma, the defining character for this variety.

NOTE ON *ARUNDINELLA HUPEIENSIS* KENG & X. P. LIOU, FL. HUBEIENSIS 4: 312. 2001.

The species epithet "*hupeiensis*" is confusingly similar to the epithet "*hubeiensis*," already in use in *Arundinella* for the previously published *A. hubeiensis* D. M. Chen (1983). Both are named after the Chinese province of Hubei. According to Article 53.3 of the *International Code of Botanical Nomenclature* (Greuter et al., 2000) such names are to be treated as homonyms, and are therefore illegitimate. *Arundinella hupeiensis* is based on the collection *L. Y. Tai & C. H. Chien 465*, stated to be in the herbarium of Nanjing University. However, it could not be found there on enquiry by the second author. It seems likely that it is a specimen of *Arundinella setosa* var. *esetosa*.

ANDROPOGONEAE

Spodiopogon bambusoides (P. C. Keng) S. M. Phillips & S. L. Chen, comb. nov. Basionym: *Eccoilopus bambusoides* P. C. Keng, in B. J. Geng & G. Q. Song, Guihaia 13: 320. 1993. TYPE: China. Guangxi: Guilin, Qixingyan, 27 Oct. 1953, *Guangxi Expedition 3820* (holotype, PE [PB in error, 1993], not seen).

This species was originally published as *Spodiopogon bambusoides* by Y. L. Keng (1957: 139, 235) with a brief Chinese description as part of a key, but without a Latin diagnosis. Two years later he provided a full description (1959: 768), but again only in Chinese. The name was therefore not validly published. His son P. C. Keng later provid-

ed the necessary Latin description and type information, but placed it in the genus *Eccoilopus*, as noted above.

The genus *Eccoilopus* Steudel comprises a small group of species in Asia distinguished from *Spodiopogon* s. str. by a tough raceme rachis (articulations are present but do not actually fracture), with both spikelets of a pair pedicellate, rather than one sessile and the other pedicelled. The genus *Eccoilopus* will be included within *Spodiopogon* in the upcoming treatment for Poaceae in *Flora of China*.

Imperata flavida Y. L. Keng ex S. M. Phillips & S. L. Chen, sp. nov. TYPE: China. Hainan: Ton Fao Kacheh river, sandy river shore, 91 m ["300 ft"], 14 Jan. 1923, *Eryl Smith s.n.* (holotype, K).

Haec species *Imperatae cylindricae* affinis sed pilis calli spicula aequilonga non 3-plo longiore, stigmatibus flavido-brunneis non atropurpureis differt.

Rhizomatous perennial; rhizomes spreading, woody, internodes closely packed, 3–5 mm; old leaf sheaths fibrous; culms solitary, erect, 70–125 cm tall, 3–7 mm diam.; nodes glabrous. Leaf sheaths crowded near base, longer than internodes, smooth, glabrous except for silky trichomes at mouth, uppermost sheath spathelike with vestigial blade and enclosing base of panicle; ligule ca. 1 mm, brown, margin densely ciliolate; leaf blades linear, flat, 20–60 × 0.5–1.0 cm (upper culm blades much shorter), smooth, glabrous, base narrowed to prominent midrib, apex acuminate. Panicle cylindrical, 12–17 × 2.5 cm; branches short, erect; pedicels of a pair unequal, long-pilose, expanded upward. Spikelets narrowly elliptic oblong, 3–4 mm, membranous; callus trichomes equal to spikelet or slightly shorter; glumes pilose on back in lower third, trichomes equaling spikelet, lower glume 5-veined, upper glume 7-veined, upper margins ciliate, apex obtuse or erose; lower lemma broadly oblong, ca. 2 mm, ciliate, irregularly denticulate; upper lemma and palea ca. 1.5 mm, ciliate, irregularly lobed; anthers 2, 2.5–2.8 mm; stigmas yellowish brown. Caryopsis not seen.

Distribution. China, Hainan island, in mixed forest along rivers and in valley bottoms (L. Liu, 1997: 35).

This species was originally published by Y. L. Keng (1957: 138, 234) with a brief Chinese description as part of a key, but without a Latin diagnosis. Two years later he provided a full description with an illustration (1959: 756, fig. 701) based on the specimen *McClure 7791*, but again only in Chinese. The name was therefore not validly published. L. Liu (1997: 35) included the species under *Imperata*, with the reference "Keng ex L. Liu, Pl. Res. Gram. 11: 31. 1989." However, this work has in fact never been published. The name is validated here, and the opportunity is taken to provide a full description in English. It has not been possible to trace *McClure 7791*, so the species is typified on another collection at Kew.

As far as is known, *Imperata flavida* is confined to the island of Hainan. It can be readily distinguished from the much commoner *I. cylindrica* (L.) Raeuschel by its shorter spikelet trichomes. The species difference in stigma color is also noteworthy.

Paratypes. CHINA. **Hainan:** Ton Fao Kacheh river, sandy river shore, 300 ft., 14 Jan. 1923, *Eryl Smith s.n.* (K); sine loc., 18 Nov. 1932, *N. K. Chun 44282* (NAS); sine loc., sine dat., *F. A. McClure 7791* (whereabouts unknown).

Saccharum arundinaceum Retzius var. **trichophyllum** (Handel-Mazzetti) S. M. Phillips & S. L. Chen, comb. nov. Basionym: *Erianthus griffithii* J. D. Hooker var. *trichophyllus* Handel-Mazzetti, Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 58: 154. 1921. *Erianthus trichophyllus* (Handel-Mazzetti) Handel-Mazzetti, Akad. Wiss. Wien, Math.-Naturwiss. Kl., Anz. 62: 254. 1926. TYPE: China. Yunnan: 19 Mar. 1914, *H. Handel-Mazzetti 745* (lectotype, designated by Handel-Mazzetti (1936: 1308), WU).

Distribution. China (Yunnan), Sikkim (Sikkim Himalaya, 21 May 1874, *collector illegible 128* (K)).

Erianthus is included within *Saccharum* in the upcoming treatment for Poaceae in the *Flora of China*. Handel-Mazzetti's variety is best placed under *Saccharum arundinaceum*. The species *Saccharum griffithii* is a different taxon with much longer, yellowish callus hairs. It occurs in Pakistan and Afghanistan and is not known from China.

Handel-Mazzetti cited two of his own collections in the 1921 protologue, numbers 745 and 11016. However, later in another publication (1936: 1308) he cited 745 as "typus," which therefore can be accepted as the lectotype. *Handel-Mazzetti 11016* (WU) is a specimen of *Saccharum procerum* Roxburgh. Variety *trichophyllum* appears to be a rather small, locally occurring form of *S. arundinaceum* distinguished mainly by the pilose upper glume of the sessile spikelet. It can be distinguished from the normal form as follows:

Key to Distinguish Two Varieties of *Saccharum arundinaceum*

1a. Culms up to 6 m; upper glume of sessile spikelet glabrous . . . . . *S. arundinaceum* var. *arundinaceum*

1b. Culms up to 1.5 m; upper glume of sessile spikelet thinly pilose . . *S. arundinaceum* var. *trichophyllum*

Polytrias indica (Houttuyn) Veldkamp var. **nana** (Keng & S. L. Chen) S. M. Phillips & S. L. Chen, comb. nov. Basionym: *Eulalia nana* Keng & S. L. Chen, Fl. Hain. 4: 454. 539. f. 1243. 1977. *Polytrias amaura* var. *nana* (Keng & S. L. Chen) S. L. Chen, Fl. Reipubl. Popularis Sin. 10(2): 101. 1997. TYPE: China. Hainan: Dong Fang, along bank of Chang Hua river, 7 Jan. 1956, *Hainan Exped. 531* (lectotype, designated here, IBSC).

This variety, apparently confined to Hainan Island, differs from the typical variety in *Polytrias indica* by the shorter pubescence on the lower glume of the sessile spikelet, as shown in the illustration accompanying the protologue of *Eulalia nana* in *Flora Hainanica* (1997). It was later reduced to varietal level under the species name *Polytrias amaura*, the widely used name for this grass until recently. However, the correct name for the species is *P. indica*, *P. amaura* being a superfluous name, as explained by Veldkamp (1991: 180).

There is a type specimen in the Guangzhou herbarium (IBSC), but because it is uncertain whether this is the holotype, it is selected here as lectotype.

Mnesithea striata (Steudel) Koning & Sosef var. **pubescens** (Hackel) S. M. Phillips & S. L. Chen, comb. nov. Basionym: *Rottboellia striata* var. *pubescens* Hackel, in A. & C. de Candolle, Monogr. Phan. 6: 302. 1889. *Coelorachis striata* var. *pubescens* (Hackel) Bor, Grasses Burma, Ceyl. India Pak.: 121. 1960. TYPE: India. Khasia, *J. D. Hooker & T. Thomson s.n.* (type, K).

Veldkamp et al. (1986) reduced *Coelorachis* to a synonym of *Mnesithea*. Hairy forms of *M. striata* are separated at the varietal level in the upcoming treatment for Poaceae in the *Flora of China*, requiring this new combination.

Acknowledgment. We thank the director of the herbarium at the Vienna Museum (W) for sending the type of *Isachne benekei* on loan to Kew.

Literature Cited

Bor, N. L. 1960. The Grasses of Burma, Ceylon, India, and Pakistan. Pergamon Press, Oxford, London, New York, Paris.

Chen, D. M. 1983. A new species of *Arundinella* from Hubei province. Acta Phytotax. Sin. 21: 207–208.

Chen, S. L. 1990. *Isachne*. *In* Flora Reipublicae Popularis Sinicae. 10(1): 176–191. Science Press, Beijing.

Conert, H. J. 1959. Beiträge zur Monographie der Gattungen *Cleistogenes* und *Neyraudia*. Bot. Jahrb. 78: 208–245.

Davidse, G. 1994. *Isachne*. *In:* Dassanayake, F. R. Fosberg & W. D. Clayton (editors), Flora of Ceylon, Vol. 8. Amerind, New Delhi.

Gilliland, H. B. 1971. A revised Flora of Malaya, Vol. 3. Grasses of Malaya. Government Printer, Singapore.

Greuter, W., J. McNeill, F. R. Barrie, H. M. Burdet, V. Demoulin, T. S. Filgueiras, D. H. Nicolson, P. C. Silva, J. E. Skog, P. Trehane, N. J. Turland & D. L. Hawksworth (editors). 2000. International Code of Botanical Nomenclature (Saint Louis Code). Regnum Veg. 138.

Hackel, E. 1899. Enumeratio Graminum Japoniae. Bull. Herb. Boiss. 7: 637–726.

Handel-Mazzetti, H. 1936. Symbolae Sinicae, Vol. 7. Springer, Vienna.

Hooker, J. D. 1896. Flora of British India, Vol. 7. 1897. Reeve, Ashford.

Hsu, C. C. 2000. Flora of Taiwan, Ed. 2, Vol. 5. Gramineae. Department of Botany, National Taiwan University, Taipai.

Iskandar, E. A. P. & J. F. Veldkamp. 2004. A revision of Malesian *Isachne* sect. *Isachne* (Gramineae, Panicoideae, Isachneae). Reinwardtia 12: 159–179.

Jansen, P. 1953. Notes on Malaysian grasses I. Reinwardtia 2: 225–350.

Keng, Y. L. 1933. Two new grasses from Kwangtung. Sunyatsenia 1: 128–130.

———. 1934. A new generic name, *Cleistogenes*, in the grasses of Eurasia. Sinensia 5: 147–157.

———. 1938. New grasses from Peiling Miao, Suiyuan Province, China. J. Wash. Acad. Sci. 28: 298–308.

———. 1957. Claves Generum et Specierum Gramineararum Primarum Sinicarum. Scientific Books Publishers, Shanghai.

———. 1959. Flora Illustralis Plantarum Primarum Sinicarum. Science Publishing House, Peking.

Kit Tan. 1985. *Cleistogenes*. *In* Flora of Turkey, Vol. 9. Univ. Press, Edinburgh.

Koyama, T. 1962. Nomenclatural remarks on some grasses. J. Jap. Bot. 37: 231–241.

———. 1987. Grasses of Japan and its Neighboring Regions. Kodansha, Tokyo.

Lazarides, M. 1980. The Tropical Grasses of Southeast Asia. Cramer, Vaduz.

Liu, L. 1997. *Imperata*. *In* Flora Reipublicae Popularis Sinicae 10(2): 30–35. Science Press. Beijing.

Ohwi, J. 1941. An account of the tribe Eragrosteae of Japan II. Bot. Mag. (Tokyo) 55: 309–313.

Tsvelev, N. N. 1983. Grasses of the Soviet Union. Oxonian Press, New Delhi, Calcutta.

Veldkamp, J. F. 1991. Miscellaneous notes on southeast Asian Gramineae. VI. Blumea 36: 179–181.

———, R. De Koning & M. S. M. Sosef. 1986. Generic delimitation of *Rottboellia* and related genera (Gramineae). Blumea 31: 281–307.

Wang, C. P. 1990. *Cleistogenes*. *In* Flora Reipublicae Popularis Sinicae 10(1): 41–54. Science Press, Beijing.