Blumea 68, 2023: 73–84
www.ingentaconnect.com/content/nhn/blumea

RESEARCH ARTICLE

https://doi.org/10.3767/blumea.2023.68.02.01

New combinations in and typification of tropical African species of *Urochloa* (incl. *Brachiaria*) (*Poaceae*)

M. Oulo[1,2,3], A.P.M. van der Zon[4], M.S.M. Sosef[5]

Key words

Africa
grasses
nomenclature
Paniceae
taxonomy
typification

Abstract Detailed morphological and molecular research has led to the conclusion that the majority of the species of the genus *Brachiaria* have to move to the much smaller genus *Urochloa*. Although many of the necessary new combinations were made, in Africa a fair number of accepted species still do not yet have a name within *Urochloa*. Following work on West Africa, Central Africa and Madagascar, this paper now provides these new combinations for the remaining sub-Saharan African species, as well as a full synonymy for all East African ones, including typification. In total, the paper deals with 40 species, for 12 of these new combinations are created, while 55 lectotypes and one neotype of both accepted names and synonyms are designated.

Citation: Oulo M, Van der Zon APM, Sosef MSM. 2023. New combinations in and typification of tropical African species of Urochloa (incl. Brachiaria) (Poaceae). Blumea 68 (2): 73–84. https://doi.org/10.3767/blumea.2023.68.02.01.
Effectively published online: 11 September 2023.

INTRODUCTION

The pantropical genus *Brachiaria* (Trin.) Griseb. belongs to the subfamily *Panicoideae*, tribe *Paniceae*, and englobes some 100 species (Morrone et al. 2012). Its taxonomy has changed considerably over time (Webster 1987, 1988, Morrone & Zuloaga 1992, 1993, Veldkamp 2004). The taxonomic history of this genus can be traced back to 1826, when Trinius first described *Panicum* L. sect. *Brachiaria* Trin., based on its racemose primary inflorescence branches (Trinius 1826). Later, in 1853, this section was distinguished as an entity at genus level by Grisebach.

The genus *Urochloa* P.Beauv. was described in 1812 (Palisot de Beauvois 1812) and contained, in its former sense, 13 species. Traditionally, the distinction between *Brachiaria* and *Urochloa* was based on the presence or absence of a short awn or mucro arising from the top of the fertile lemma and the position of the spikelet (either with the lower glume facing the axis or turned away from it; Webster 1987, 1988). In their treatment for the Flora of tropical East Africa and their authoritative Genera Graminum, Clayton & Renvoize (1982, 1986) already noted that the boundary between the two genera was confused by a number of intermediate or anomalous species. Notably the work of Webster (1987, 1988), Morrone & Zuloaga (1992) and Torres González & Morton (2005), encompassing both morphological as well as phylogenetic research, has shown that their distinction cannot be upheld and they proposed to merge the two genera.

[1] CAS Key Laboratory of Plant Germplasm and Specialty Agriculture, Wuhan Botanical Garden, Chinese Academy of Sciences, Wuhan 430074, China; corresponding author e-mail: millicentoulo@gmail.com.
[2] Sino-Africa Joint Research Centre, Chinese Academy of Sciences, Wuhan 430074, China.
[3] Royal Botanic Gardens, Kew TW9 3AE, United Kingdom.
[4] Naturalis Biodiversity Center, P.O. Box 9517, 2300 RA Leiden, The Netherlands.
[5] Meise Botanic Garden, Nieuwelaan 38, 1860 Meise, Belgium.

As a result, and with *Urochloa* being the oldest generic name, most species of *Brachiaria* had to be transferred to *Urochloa* (Webster 1987, 1988, Morrone & Zuloaga 1992, 1993, Ashalantha & Nair 1997, Torres González & Morton 2005), with a few African annuals (*B. eruciformis* (Sm.) Griseb., *B. malacodes* (Mez & K.Schum.) H.Scholz and *B. schoenfelderi* C.E.Hubb. & Schweick.) being transferred to a new genus *Moorochloa* (Veldkamp 2004). The thus newly defined *Urochloa* s.lat. is characterized by a racemose inflorescence, with dorsi-ventrally compressed spikelets disarticulating at their base, which are encircled by the lower glume, and the palea of the upper floret enclosed at its apex by the lemma. Where Asian and American grass specialists have generally accepted the new taxonomy and published the necessary new combinations, most African grass specialists were seemingly reluctant to embrace the idea. Additionally, where the authoritative GrassBase (Clayton et al. 2006–present), maintained by authors with an African bias, still recognizes *Brachiaria* as an accepted genus, the equally authoritative GrassWorld (Simon et al. 2011), maintained by authors with an Asian/Australian bias, does not. As a consequence, a fair number of African *Brachiaria* species still have no name available in *Urochloa*, a complicating situation. Recently, Sosef (1999, 2016), Van der Zon (2019) and Vorontsova (2022) studied the taxonomy of respectively the Gabonese, the Central African, the West African and the Malagasy species of *Urochloa* and provided most of the necessary new combinations for these regions. The present paper provides the remaining ones for sub-Saharan Africa species, while all species occurring in East Africa (Kenya, Uganda, Tanzania) have been included along with their full synonymy and typification as far as they relate to African material. We felt that grass taxonomists specializing in other regions are better positioned to deal with the remainder of the synonyms.

Vorontsova (2022) left a group of c. 10 Malagasy species in *Brachiaria*, mostly endemics, awaiting further evidence, notably from molecular data. Amongst these is *B. comorensis* (Mez) A.Camus, which is also fairly widespread in continental Africa.

After studying the morphology in detail, we felt sufficiently confident to include it in *Urochloa*.

Our studies resulted in a total of twelve new combinations; lectotypes were assigned to 55 taxon names, while one needed a neotype.

MATERIALS AND METHODS

To arrive at a list of presently accepted species names for the genus *Urochloa* (incl. *Brachiaria*, excl. *Moorochloa*) in tropical Africa, the taxonomic status of all species treated in the Flora of tropical East Africa (Clayton & Renvoize 1982) as well as those treated in Fish et al. (2015) for southern Africa was checked using GrassBase (Clayton et al. 2006–present), which forms the basis for Plants of the World Online (https://powo.science.kew.org) and is also included into the World Flora Online (WFO) Plant List (2023), and other relevant literature, notably the grass treatments in Flora Zambesiaca (Clayton 1989), in Flora of Ethiopia and Eritrea (Phillips 1995) and Vorontsova (2022). To check whether a name of an accepted taxon in *Brachiaria* did not already have a name in *Urochloa*, we consulted both the International Plant Names Index (IPNI 2023) and the WFO Plant List (2023).

Standard author abbreviations were obtained through IPNI (2023). Standard abbreviations of journal and book titles follow the BPH Online and Taxonomic Literature online services: https://www.sil.si.edu/DigitalCollections/tl-2/. Herbarium acronyms are according to Thiers (continuously updated).

Type information was sourced from the JSTOR Global Plants database: https://plants.jstor.org and/or from physical or digital consultation of the herbarium collections at B, BM, BOL, BR, C, COI, E, EA, FI, FR, FT, G, GOET, H, HAL, HOH, JE, K, L, LD, LE, LG, LINN, M, MO, MPU, NBG, P, REG, S, STR, STU, TUB, US, W, WAG, YBI and Z.

All nomenclatural proposals are in accordance to the latest rules and regulations of the International Code of Nomenclature for algae, fungi, and plants (ICN) (Turland et al. 2018). In cases where a protologue mentions a single gathering, but fails to indicate which of the existing duplicates was studied (valid only before 1 Jan. 1990), we should formally consider all such duplicates as syntypes (ICN, Art. 9.6 and Art. 40, Note 1) and it is necessary to select a lectotype from amongst them. It is custom to select the specimen from the herbarium where the author was based. In such cases, we do not explain our choice of a lectotype; in all other cases the arguments used for the choice of the lectotype are provided in the Nomenclatural notes below each taxon.

RESULTS

Urochloa ambigens (Chiov.) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria ambigens Chiov., Webbia 8 (1951) 62. — Type: *Corradi 967* (holo FT [FT000193, FT000194]), Ethiopia, Vacille, 25-IX-1939.

Distribution — Native to Ethiopia, Kenya and Tanzania.

Nomenclatural notes — *Brachiaria ambigens* is quoted as an unplaced name in the WFO Plant List (2023), but it was accepted as a distinct species by Clayton & Renvoize (1982) and Phillips (1995). The protologue mentions a single collection; the type is located at FT (see their on-line database at https://www.jacq.org); it is composed of two sheets, which both clearly belong to the same specimen.

Urochloa arrecta (Hack. ex T.Durand & Schinz) Morrone & Zuloaga

Urochloa arrecta (Hack. ex T.Durand & Schinz) Morrone & Zuloaga (1992) 69. — *Panicum arrectum* Hack. ex T.Durand & Schinz (1894) 741. — *Brachiaria arrecta* (Hack. ex T.Durand & Schinz) Stent (1924) 263. — Lectotype (designated by Sosef 2016): *Drege s.n.* (lecto K [K000282184]; isolecto L [L0056266]), South Africa, Komgha D., near Kei River.

Brachiaria latifolia Stapf (1919) 526. — Lectotype (designated by Clayton & Renvoize 1982): *Kirk s.n.* (holo K [K000282075]), Malawi, Elephant marsh, Shire R., 1863.

Panicum multifolium Peter (1928) 44. — Syntypes: *Peter 14509* (B, lost), Tanzania, Tanga-Tangata; *Peter 23915* (B, lost), Tanzania, Amboni-Mo. See notes.

Brachiaria arrecta (Hack. ex T.Durand) Stent var. *madecassa* A.Camus (1954) 395. — Lectotype (designated here): *Perrier de la Bâthie 10756* (lecto P [P00450159]; isolecto P [P02040480]), Madagascar, Reg. Vakinankaratra (= Prov. Antananarivo), near Antsirabe, Jan. 1914.

Brachiaria radicans Napper (1963) 125. — Type: *Harker 727* (holo EA [EA000000384]; iso K [K000282137]), Uganda, off Entebbe-Kampala road, 15 Feb. 1959.

Distribution — Native to much of southern Africa, from the Republic of the Congo and the Democratic Republic of the Congo east to South Sudan and Ethiopia, south to South Africa, also in Madagascar; introduced in Ghana and a fair number of counties in South and Central America.

Nomenclatural notes — Sosef (2016) discussed its distinction from the closely related *U. mutica* (Forssk.) T.Q.Nguyen. Vorontsova (2022) provides a detailed description and discusses its presence in Madagascar.

The syntypes of *Panicum multifolium* could not be located at B, and were most likely lost during the WWII fire. No duplicates were found in several other herbaria (amongst which G, GOET, K, W), but since our search was not exhaustive, and hence an isotype may still be traced elsewhere, we decided to not yet designate a neotype.

Camus (1954) indicated a single collection at P to be the type of *Brachiaria arrecta* var. *madecassa*. However, there are two duplicates available of which we have chosen one to be the lectotype.

Urochloa bovonei (Chiov.) Torres Gonz. & C.M.Morton

Urochloa bovonei (Chiov.) Torres Gonz. & C.M.Morton (2005) 42. — *Panicum bovonei* Chiov. (1914) 42. — *Brachiaria bovonei* (Chiov.) Robyns (1932) 174. — Lectotype (designated here): *Bovone 89* (lecto TO; isolecto K, photo), Zaire, Bianos.

Brachiaria hians Stapf (1919) 514. — Lectotype (designated here): *Homblé 5* (lecto K [K000282155]; isolecto BR [BR0000008645128, BR0000008645135]), Zaire, Katanga, 1911.

Brachiaria viridula Stapf (1919) 515. — Lectotype (designated here): *W.J. Dowson 296* (lecto K [K000282080]), Zimbabwe, Salisbury, 27 Sept. 1915.

Distribution — From Angola and the Democratic Republic of the Congo east to Kenya and Ethiopia, south to Zimbabwe.

Nomenclatural notes — Although we did not see the lectotype of *Panicum bovonei*, its presence at TO was confirmed by the curator.

The protologue of *Brachiaria viridula* mentions six specimens, to be regarded as syntypes. From amongst these, we have chosen *W.J. Dowson 296* as the lectotype since it is the only syntype that carries a drawing showing a detailed analysis of the spikelet prepared by Stapf.

Urochloa breviglumis (Clayton) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria breviglumis Clayton, Kew Bull. 34 (1980) 557. — Lectotype (designated here): *Bally & Smith 14513* (lecto K [K000282052]; isolecto EA [EA000000359], K [K000282053]), Kenya, Northern frontier province, Wajir, 10 Dec. 1971.

Distribution — Native to Ethiopia, Somalia and Kenya.

Nomenclatural notes — Although the protologue indicates the holotype to be at K, the type collection is composed of 2 sheets. Since there is no clear indication of the two belonging to the same specimen, these are best regarded as duplicates (Art 8.3 of the ICN; Turland et al. 2018) and one of them has been selected as the lectotype.

Urochloa brizantha (Hochst. ex A.Rich.) R.D.Webster

Urochloa brizantha (Hochst. ex A.Rich.) R.D.Webster (1987) 233. — *Panicum brizanthum* Hochst. ex A.Rich. (1850) 363. — *Brachiaria brizantha* (Hochst. ex A.Rich.) Stapf (1919) 531. — Lectotype (collection designated by Veldkamp 1996, duplicate designated here): *Schimper 89* (lecto P [P00442084]; isolecto B?, BM [BM000923191], BR [BR0000008645142, BR0000008366955], FI [FI001039], G [G00015881, G00015882, G00015884], GOET [GOET006080], HOH [HOH008887], K [K000282126, K000282127], L [L0043836, L0043837], LG [LG0000090036057, LG0000090036200], M [M0103976, M0103977], MO [MO-1742002], MPU [MPU024477, MPU024478], P [P00442082, P00731455, P02284802, P02284803], PRE [PRE0664145-0], REG [REG000276], S [S08-12407], STU [STU000125], US [US00133117]), Abyssinia, plantae Adoënses, Scholoda, 3 Oct. 1837.

Panicum brizanthum Hochst. ex A.Rich. var. *latifolium* Oliv. (1875) 170. — Type: *Speke & Grant s.n.* (holo K [K000282129]), Uganda, Unjoro Plateau, Nov. 1862.

Panicum brizanthum Hochst. ex A.Rich. var. *polystachyum* De Wild. & T.Durand (1900) 3. — Lectotype (designated here): *Thonner 78* (lecto BR [BR0000024935609]; isolecto BR [BR0000018400601, BR0000018400618, BR0000024935616]), Democratic Republic of the Congo, Yabosumba (près de Ndobo), 11 Sept. 1896.

Panicum brizanthum Hochst. ex A.Rich. var. *lasiochloa* Chiov. (1919) 65. — Lectotype (designated here): *Bovone 75* (lecto TO), Zaire, Katanga, Plateaux des Bianos, 1800 m, Feb. 1916.

Brachiaria gangangalaensis Vanderyst (1925) 664. — Lectotype (designated by Sosef 2016): *Vanderyst 5000* (lecto BR [BR0000024935593]), Democratic Republic of the Congo, Jardin agrost. Leverville, Jan. 1919.

Panicum brizanthum Hochst. ex A.Rich. var. *pandanifolium* Peter (1929) 31. — Type: *Peter 35122* (holo B?, see notes), Tanzania, Tabora District, SE of Goweko.

Brachiaria brizantha (Hochst. ex A.Rich.) Stapf var. *angustifolia* Stent & J.M.Rattray (1933) 23. — Lectotype (designated here): *Eyles 1921* (lecto K [K000282057]; isolecto US [US00902238]), Zimbabwe, Salisbury, Nov. 1919.

Distribution — Native to most of tropical and southern Africa; introduced in most other tropical regions of the world.

Nomenclatural notes — Although Veldkamp (1996) designated the duplicate at P as the lectotype of *Panicum brizanthum*, it turned out that no less than 5 sheets are available, some of which appeared to have been in other, private, herbaria before. We selected one of them, likely to have been available to Richard, as the lectotype; the others are best regarded as duplicates, and hence isolectotypes.

The protologue of *Panicum brizanthum* var. *lasiochloa* mentions two syntypes, *Bovone 29* and *75*. At TO, a sheet carrying both specimens was located, of which the plant representing *Bovone 75* has more leaves and inflorescences, and hence was chosen as the lectotype.

The holotype of *Panicum brizanthum* var. *pandanifolium* was probably lost at B during the WWII fire, and no isotypes have as yet been located, although we checked a fair number of herbaria likely to have such. Because we did not perform an exhaustive search, an isotype might still be present elsewhere, reason why we have refrained from designating a neotype.

The protologue of *Brachiaria brizantha* var. *angustifolia* mentions a large number of specimens, all to be regarded as syntypes. Not one of these has ever, as far as we could check, been assigned as the lectotype. Since the collection *Eyles 1921* was the only one explicitly mentioned in both the grass treatment for Flora of tropical East Africa (Clayton & Renvoize 1982) and Flora Zambesiaca (Clayton 1989), and is available on-line through the JSTOR Global Plants facility (at https://plants.jstor.org), we have chosen it as the lectotype.

Urochloa chusqueoides (Hack.) Rudov

Urochloa chusqueoides (Hack.) Rudov in Rudov et al. (2020) 30. — *Panicum chusqueoides* Hack. (1895) 377. — *Brachiaria chusqueoides* (Hack.) Clayton (1980) 558. — Lectotype (designated here): *Rehmann 8648* (lecto W [W19160024803]; isolecto K [K000281964]), South Africa, Durban, 8 June 1848.

Distribution — Native to eastern Africa, from Ethiopia to South Africa, also in Yemen.

Nomenclatural notes — Although the collection *Rehmann 8648* has often been mentioned as the type of the basionym, or the duplicate at K indicated as the isotype, as far as we know the holotype has never been indicated. Here, we explicitly choose the specimen at W, where the author of the basionym, Ernst Hackel, worked, as the lectotype.

Urochloa comata (Hochst. ex A.Rich.) Sosef

Urochloa comata (Hochst. ex A.Rich.) Sosef (1999) 64. — *Panicum comatum* Hochst. ex A.Rich. (1850) 376. — *Brachiaria comata* (Hochst. ex A.Rich.) Stapf (1919) 561. — Lectotype (designated by Sosef 2016): *Schimper 1196* (lecto P [P00442087]; isolecto BM [BM000923206], BR [BR0000008366900], E [E00200288], G [G00015879, G00015880, G00087100], GOET [GOET006082], JE [JE00007255], K [K000282197, K000282199, K000282200], LG [LG0000090036187], M [M0103974, M0103975], MO [MO-1660899], MPU [MPU024470, MPU024472], P [P00442086, P00731451], US [US00147781, US00931397], W [W000023389, W19160023362, W188900236402], WAG [WAG0003678]), Ethiopia, prope Gafta, 15 Sept. 1838.

Panicum indutum Steud. (1853) 68. — Type: *Jardin 56* (holo P [P00731466]), Gabon, près de la rivière de Gabon, Ile du Prince, 1847.

Panicum kotschyanum Steud. (1853) 68. — Lectotype (designated here): *Kotschy 254* (lecto P [P02047216]; isolecto BM [BM000923204], BR [BR0000008645173, BR0000090019647], E [E00200287], G [G00015875, G00015876, G00015877], HOH [HOH008979], K [K000282202, K000282203], LD [1755028], M [M0103972, M0103973], MO [MO-1742004], MPU [MPU024440], P [P00731441, P02047212, P02047214, P02047215], REG [REG000278], TUB [TUB006470, TUB006471], US [US00132920, US00902277], W [W0000278, W18890236403, W19040010262], WAG [WAG0001479]), Sudan, Tekele, Kohn Mt., 9 Nov. 1839.

Panicum stuhlmannii K.Schum. (1895) 102. — Type: *Stuhlmann 4092* (B, lost), Tanzania, Bukoba. — Neotype (designated here): *Maitland 253* (neo K [K000282051]), Uganda, Entebbe, Oct. 1922.

Panicum scalare Mez (1904) 138, *nom. illeg.*, non *P. scalarum* Schweinfurth (1894). — *Brachiaria scalaris* Pilg. (1928) 269. — Lectotype (designated here): *Volkens 657* (lecto B [B 10 0168687]; isolecto BR [BR0000008756275, BR0000008756541], JE [JE00007255], K [K000282049), Tanzania, Moshi District, Kilimandscharo, Marangu, 15 Aug. 1893.

Panicum villosum Lam. var. *erythraeum* Chiov. (1908) 302. — Lectotype (designated here): *Pappi 496* (lecto FT [FT000196]; isolecto MO [MO-1742129], S [S14-5630]), Eritrea, Saraè, Lungo il fiume Mareb presso Debarroa, 8 Oct. 1902.

Panicum secernendum Mez (1917) 68. — *Brachiaria secernendum* (Mez) Henrard (1940) 432. — Lectotype (designated here): *Schimper 1612* (lecto B [B 10 0168266]; isolecto BM [BM000923200], BR [BR0000008366917, BR0000008639691], FR [FR0030331], G [G00087099, G00087100, G00087159], GOET [GOET006081, GOET006251], K [K000282197], LG [LG0000090036194], M [M0103957, M0103958], S [S08-5504], TUB [TUB006478, TUB006479], US [US00902281], W [W19160024297]), Ethiopia, versus fluvium Tacaze prope Djeladjeranne, 1 Sept. 1841.

Brachiaria epaleata Stapf (1919) 555. — Lectotype (designated here): *Schimper 1612* (lecto K [K000282197]; isolecto: see previous entry under *Panicum secernendum*), Ethiopia, versus fluvium Tacaze prope Djeladjeranne, 1 Sept. 1841.

Brachiaria coronifera Pilg. (1936) 262. — Lectotype (designated here): *Schlieben 439* (lecto B [B 10 0168268]; isolecto HBG [HBG506462], K [K000282048], LE [LE00009216], LISC [LISC003453, LISC003454], MO [MO-1742040], PRE [PRE0664143-0], US [US00131832, US00902276], WIS [v0254098WIS]), Tanzania, Lupembe Bez. Iringa, Likanga, 30 Mar. 1931.

Distribution — Senegal, Benin, Nigeria and most of Central and East Africa, south to Zambia and Zimbabwe, north to Ethiopia and Eritrea, also in Yemen.

Nomenclatural notes — The protologue of *Panicum kotschyanum* mentions a single collection, *Kotschy 254*. The herbarium of Steudel being at P, the lecotype is preferably selected from their material. However, at P there are five sheets of this collection, some with still other collections mounted on them. The sheet we have chosen as the lectotype is where the label indicates it originated from the herbarium of Steudel. The others should be regarded as duplicates and hence isolectotypes.

The type of *Panicum stuhlmannii* has been lost at B, probably during the WWII fire, and no duplicates could be located. We have chosen *Maitland 253* at K as the neotype, since it carries a label where C.E. Hubbard states he has compared it with the type of *P. stuhlmannii* in 1934, when that type was still available. The protologue of *Panicum villosum* var. *erythraeum* cites six specimens, all syntypes and collected by Pappi in Eritrea. We have chosen *Pappi 496* as the lectotype, since it has several duplicates.

The protologue of *Panicum secernendum* cites two collections, 'coll. Paris' *710* and *Schimper 1612.* The first has not been traced at P, while there is a specimen at W that might represent it with some uncertainty. There are no such doubts about the second one, which also has numerous duplicates, which is why it was the obvious choice for the lectotype.

The protologue of *Brachiaria epaleata* mentions two specimens from Ethiopia, *Schweinfurth 1146* and *Schimper 1612*. At Kew, both are mounted on the same sheet, but with different barcodes, and carry an analysis of the spikelet and annotations by Stapf. We preferred choosing the *Schimper 1612* collection as lectotype, because it has more duplicates in other herbaria, and since it is also the (lecto)type of *Panicum secernendum* thus tightly linking the two names.

Urochloa comorense (Mez) Oulo, Zon & Sosef, *comb. nov.*

Panicum comorense Mez, Bot. Jahrb. Syst. 57 (1921) 185. — *Brachiaria comorensis* (Mez) A.Camus (1947) 280, f. 2D, 3. — Lectotype (designated by Vorontsova 2022): *Holst 549* [*459*] (lecto B [B 10 1037908]; isolecto B [B 10 1037909], P [P00450172], US (fragm.) [US-80594]), Tanzania, Reg. Tanga, Usambara, Mlalo, Apr. 1892.

Brachiaria capuronii A.Camus (1957) 278. — Lectotype (designated by Vorontsova 2022): *Humbert & Capuron 29688* (lecto P [P00450171]; isolecto MO [MO-3147840], P [P03652846, P03652847]), Madagascar, Reg. Atsimo-Andrefana [Prov. Toliara], vallée de l'Hazoroa, bassin de l'Onilahy, au S de Sakaraha, 30 Mar. 1955.

Brachiaria decaryana A.Camus (1957) 278. — Lectotype (designated by Vorontsova 2022): *Decary 2078* (lecto P [P00450173]; isolecto P [P00450174]), Madagascar, Reg. Sofia [Prov. Mahajanga], Ankaizinana, 27 Apr. 1923.

Distribution — Native to Ghana, Cameroon, Nigeria, and in East Africa from South Sudan and Ethiopia south to Mozambique, also in Madagascar and the Comores.

Nomenclatural notes — See Vorontsova (2022).

Urochloa deflexa (Schumach.) H.Scholz

Urochloa deflexa (Schumach.) H.Scholz (1990) 443. — *Panicum deflexum* Schumach. (1827) 63. — *Panicum ramosum* L. var. *deflexum* (Schumach.) Peter (1930) 177. — *Brachiaria deflexa* (Schumach.) C.E.Hubb. ex Robyns (1932) 181. — *Pseudobrachiaria deflexa* (Schumach.) Launert (1970) 158. — Lectotype (indirectly designated by Vorontsova 2022): *Thonning 390* (lecto C [C10004257]; isolecto C [C10004258]), Ghana.

Panicum regulare Nees (1841) 41. — *Brachiaria regularis* (Nees) Stapf (1919) 544. — Lectotype (designated by Clayton & Renvoize 1982): *Thonning s.n.* (lecto S [S-G-4503]), Ghana.

Panicum nudiglume Hochst. (1844) 253. — *Panicum petiveri* Trin. var. *nudiglume* (Hochst.) Chiov. (1908) 303. — Lectotype (designated here): *Kotschy 53* (lecto TUB [TUB006472]; iso B [B 10 01686165, B 10 0168616], BM [BM000923192, BM000923193], E [E00200286], HOH [HOH008973, HOH-008974], JE [JE00006104, JE00006105], K [K000282210], M [M0103955, M0103956], S [S05-8800], TUB [TUB006473, TUB006474], W [W1889-0017077, W18890236404, W19040010284, W19160024302, W191600-24315]), Ethiopia, Cordofan, 1837–1838.

Panicum petiveri Trin. var. *robustissimum* Chiov. (1903) 32. — Lectotype (designated here): *Pappi 3418* (lecto FT [FT000203]), Ethiopia, Eritrea, Assaorta, Monte Urug, 22 Mar. 1893.

Brachiaria clavuliseta Chiov. (1926) 106. — Lectotype (designated here): *Gorini 19* (lecto FT [FT000202]; isolecto FT [FT000201], K [K000282209]), Somalia, Chisimaio, 1925.

Brachiaria stapfiana Basappa & Muniy. (1983) 379. — *Urochloa stapfiana* (Basappa & Muniy.) Ashal. & V.J.Nair (1997) 30. — Type: *Bassapa & Muniyamma 2100* (holo CAL; iso BSI, BSJo, MGM, MH), India, Karnataka, Hampi, 20 Sept. 1979.

Distribution — Widely distributed, throughout tropical Africa, from the Cape Verde Islands east to Egypt, south to South Africa and Madagascar, to the Arabian Peninsula, Pakistan, Nepal and India; introduced in Florida (United States of America).

Nomenclatural notes — The protologue of *Panicum deflexum* does not mention any specimens, but the work of Schumacher (1827) is based on the collections of Thonning at C. Formely, Clayton & Renvoize (1982) already selected a lectotype, by quoting 'C, holo', where the indication 'holo' is an implicit lectotypification (see ICN Art. 9.10). However, C holds three sheets of Thonning, one without a number (C10004259) and two with number 390, while the one without number and one of those labelled as '390' originate from the Herbarium of Hornemann (C10004258), and the third originates from the Herbarium of Schumann (C10004257). This indicates not all of them may belong to the same collection and therefore we deem it more appropriate to treat the first as a syntype of the second and third. Vorontsova (2022) rightfully selected one of the sheets as 'holotype', which is to be regarded as an implicit lectotypification. There is a fragment at K, only indicating it came from 'the type', but because it is unclear from which of the syntypes, we prefer not to take it into consideration.

In the protologue of *Panicum regulare* Nees (1841) states he saw a specimen in the herbarium of Lehmann. This herbarium was incorporated in that of Stockholm (S) (Nordenstam 1980) where Clayton & Renvoize probably found a specimen collected by Thonning, which carries the full diagnosis of the protologue in Nees' hand. They logically denoted it at the 'holotype', which in fact was a lectotypification.

The protologue of *Panicum nudiglume* mentions three syntype collections, *Kotschy s.n.*, *Kotschy 53a* and *Kotschy 53b*. The author of the name, Hochstetter, worked at TUB, hence it is logic to select the lectotype from there. Indeed, this herbarium holds two sheets marked 53a and one marked 53b. However, in other herbaria the duplicates lack these additional letters, and it seems best to treat them all as duplicates of the lectotype material at TUB. However, to avoid any future discussion or confusion, we selected one of the 53a sheets as the lectotype.

Urochloa dictyoneura (Fig. & De Not.) Veldkamp

Urochloa dictyoneura (Fig. & De Not.) Veldkamp (1996) 418. — *Panicum dictyoneurum* Fig. & De Not. (1853) 13. — *Brachiaria dictyoneura* (Fig. & De Not.) Stapf (1919) 512. — Lectotype (collection indirectly indicated by Clayton & Renvoize 1982, sheet selection designated here): *Figari s.n.* (lecto FI [FI001119]; isolecto FI [FI001120]), Sudan, Nubia Superiore a Fazogl, no date.

Panicum albovellereum K.Schum. ex Engl. (1895) 101. — Lectotype (designated here): *Holst 4015* (lecto B [B 10 0366175]; isolecto K (fragm.) [K000282138]), Tanzania, Usambaras, Bonda, Sept. 1892.

Panicum humidicola Rendle (1899) 169. — *Brachiaria humidicola* (Rendle) Schweick. in Hubbard et al. (1936) 297. — *Urochloa humidicola* (Rendle) Morrone & Zuloaga (1992) 80. — *Brachiaria dictyoneura* (Fig. & De Not.) Stapf subsp. *humidicola* (Rendle) Catasús (2001) 16. — Lectotype (desig-

nated here): *Welwitsch 2678* (lecto LISU [LISU226058]; isolecto K [K000282076], LISU [LISU226059]), Angola, Huilla Distr., Monino river, no date.

Brachiaria obvoluta Stapf (1919) 511. — Lectotype (designated here): *Kassner 451* (lecto BM [BM000923177]; isolecto K (fragm.) [K000282219]), Kenya, Kilifi District, Mariakani, 25 Mar. 1902.

Brachiaria keniensis Henrard (1940) 432. — Type: *Hitchcock 24998* (holo L [L0043838]; iso BR [BR0000008756336], EA [EA000000383], K [K000282214], US [US00131829]), Kenya, Uasin Gishu District, Eldoret, 20 Sept. 1929.

Distribution — Native to eastern Africa, from the Democratic Republic of the Congo to Ethiopia and south to Mozambique, Zambia and South Africa; introduced in most parts of South America, in Central America and some scattered regions in South-East Asia.

Nomenclatural notes — The type of *Panicum dictyoneurum* was already identified by Clayton & Renvoize (1982) as being a collection of Figari at FI. However, there are two sheets at FI, which have slightly different labels, and we have chosen the one with the original label from the herbarium of Figari as the lectotype. The other seems to be a duplicate that may have been located elsewhere (Florence?) before it came (back) to FI.

The protologue of *Panicum albovellerum* cites two syntypes, *Holst 4015* from Usambara-Bonda and *Hildebrandt 2663* from Kitui. Apart from a fragment at K, the second could not be located, but a fine specimen of the first is present at B and forms the obvious choice as the lectotype; there is also a fragment at K.

Urochloa distachyos (L.) T.Q.Nguyen

Urochloa distachyos (L.) T.Q.Nguyen (1966) 13. — *Panicum distachyon* L. (1767) 183. — *Digitaria distachyos* (L.) Pers. (1805) 85. — *Brachiaria distachyos* (L.) Stapf (1919) 565. — Lectotype (designated by Henrard 1950): *Koenig s.n.* (lecto LINN [80.41]), India, no date.

Panicum subquadriparum Trin. (1826) 145. — *Brachiaria subquadripara* (Trin.) Hitchc. (1931) 214. — *Urochloa subquadripara* (Trin.) R.D.Webster (1987) 252. — Lectotype (designated by Veldkamp 1996): *Chamisso s.n.* (lecto LE [Hb. Trinius 0974.01]), Mariane Islands, Guam, no date.

Panicum miliiforme J.Presl in Presl (1830) 300. — *Brachiaria miliiformis* (J.Presl) Chase (1920) 35. — Lectotype (designated by Chase 1920): *Haenke s.n.* (lecto PR; isolecto B [B 10 0367348], HAL [HAL0063364], MO [MO-157631], W [W0006077, W0006079, W18890237977]), Philippines, Luzon.

Distribution — Native to much of southern Asia and Australia; introduced to South and Central America, West Africa (Ivory Coast, Ghana), East Africa (Uganda, Kenya, Tanzania) and Madagascar.

Nomenclatural notes — See Sosef (2016) and Vorontsova (2022) for a description and more details about the species and its nomenclature.

Urochloa dura (Stapf) Torres Gonz. & C.M.Morton

Urochloa dura (Stapf) Torres Gonz. & C.M.Morton (2005) 42. — *Brachiaria dura* Stapf (1919) 531. — Lectotype (designated here): *Gossweiler 2665* (lecto K [K000282059]; isolecto BM [BM000923189, BM000923190], COI [COI00068961]), Angola, Benguella, country of the Ganguellas and Ambuellas.

Brachiaria dura Stapf var. *pilosa* J.G.Anderson in Anderson et al. (1961) 104. — *Urochloa dura* (Stapf) Torres Gonz. & C.M.Morton var. *pilosa* (J.G. Anderson) Torres Gonz. & C.M.Morton (2005) 42. — Type: *Esterhuysen 2269* (holo PRE [PRE0020609-1, PRE0020609-2]; iso K [K000282182]), South Africa, Hay Div., Witsand, Apr. 1940.

Distribution — Native to Angola, Zambia, Zimbabwe, Namibia, Botswana and South Africa.

Nomenclatural notes — Stapf (1919) indicated a single collection as the type of *Brachiaria dura*, which has several duplicates in various herbaria. The specimen at K, where Stapf worked, is the logical choice for the lectotype, moreover because an analysis (drawing of various spikelet elements) by Stapf is attached to that sheet.

Urochloa eminii (Mez) Davidse

Urochloa eminii (Mez) Davidse in Davidse & Brako (1993) 1258. — *Panicum eminii* Mez (1904) 135. — *Brachiaria eminii* (Mez) Robyns (1932) 176. — Lectotype (designated by Robyns 1932): *Stuhlmann 4633* (lecto B, lost?; isolecto BR [BR0000008756312], K [K000282133]), Tanzania, Mwanza [Muansa], May 1892.

Brachiaria decumbens Stapf (1919) 528. — *Urochloa decumbens* (Stapf) R.D.Webster (1987) 234. — Lectotype (designated by Sosef 2016): *Dümmer 1070* (lecto K [K000282130]; isolecto BM [BM000923187], BOL [BOL139359], BR [BR0000008639684], PRE [PRE0664142-0]), Uganda, Kampala, Mengo Distr., Mpumu, Oct. 1914.

Brachiaria ruziziensis R.Germ. & C.M.Evrard (1953) 373. — *Urochloa ruziziensis* (R.Germ. & C.M.Evrard) Crins (1991) 269. — Type: *Germain 6214* (holo BR [BR0000008756558]; iso EA [EA000000400], YBI [YBI143266063]), Democratic Republic of the Congo, plaine de la Ruzizi, Tsimuka, Feb. 1950.

Distribution — Native to the most of tropical Central and East Africa, as well as in parts of West Africa (Ivory Coast, Togo, Benin, Burkina Faso); introduced in Madagascar, most of South America and part of Central America, South-East Asia and Australia.

Nomenclatural notes — The designation of *Stuhlmann 4633* as the lectotype of *Panicum eminii* by Robyns (1932) was effectuated by adding the word ‘type’ behind the citation of the specimen at B. According to Art. 9.10 of the ICN (Turland et al. 2018), this is to be treated as an error to be corrected. The holotype specimen at B may have been destroyed during the WWII fire, but since we could not be sure, we refrained from designating one of the duplicates as such.

Urochloa glomerata (Stapf) Oulo, Zon & Sosef, *comb. nov.*

Panicum glomeratum Hack. ex Schinz (1888) 141, *nom. superfl.*, *illeg.*, non Moench (1794). — *Leucophrys glomerata* Stapf, Fl. Trop. Afr. 9 (1919) 504, 547. — *Brachiaria glomerata* (Stapf) A.Camus (1931) 640. — Lectotype (designated here): *H. Schinz 640* (lecto Z [Z-000073332]; isolecto K [K000281968]), Namibia, Gross-Namaland, near Gubub, Feb. 1885.

Distribution — Native to Angola, Namibia, Botswana and South Africa.

Nomenclatural notes — Schinz (1888) cited three specimens from Namibia: *H. Schinz 640, Luderitz s.n.* and *S.T. Hoepfner 79*. The first is selected as the lectotype collection because the author himself collected the specimen. Duplicates were found in K and Z; since Schinz worked in Z, that duplicate was selected as the lectotype. W and US hold specimens collected by Schinz in the same locality, but since they do not carry a number, it seems best not to regard them as duplicates of the same collection.

Urochloa grossa (Stapf) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria grossa Stapf, Fl. Trop. Afr. 9 (1919) 547. — Lectotype (designated here): *Gossweiler 1652* (lecto K [K000282072]; isolecto BM [BM000923196]), Angola, Benguella, country of the Ganguellas and Ambuellas, Banco, Mar. 1905.

Distribution — Native to East and southern tropical Africa: Kenya, Tanzania, Angola, Zambia, Zimbabwe, Malawi, Namibia, Botswana and Northern Provinces of South Africa.

Nomenclatural notes — In the protologue of *Brachiaria grossa*, Stapf (1919) cites eight specimens, all from Angola: *Gossweiler 191, 1652* and *1667, Welwitsch 7362c* in part and *7469*, *Pearson 2367, 2514* and *2440*. *Gossweiler 1652* is chosen as the type collection, since it comprises the richest

material. Since Stapf worked at K, that duplicate material is selected as lectotype; the duplicate at BM carries an original label.

Urochloa jubata (Fig. & De Not.) Sosef

Urochloa jubata (Fig. & De Not.) Sosef (1999) 64. — *Panicum jubatum* Fig. & De Not. (1853) 15. — *Brachiaria jubata* (Fig. & De Not.) Stapf (1919) 563. — Lectotype (designated here): *Figari s.n.* (lecto FI [FI058709]; isolecto FI [FI058708]), Nubia superiore (= Sudan), Fazogl, Apr. 1844.

Brachiaria brevis Stapf (1919) 519. — Lectotype (designated here): *Johnson 724* (lecto K [K000282231]), Gold Coast (= Ghana), Afram Plains, Mar. 1900.

Brachiaria fulva Stapf (1919) 518. — Lectotype (designated here): *Schweinfurth 2174* (lecto K [K000282140]; isolecto K [K000282141], W [W1916-0023664]), Lande der Bongo (= Sudan), Addai, 29 July 1869.

Brachiaria soluta Stapf (1919) 519. — Lectotype (designated here): *Dummer 677* (lecto K [K000282218]; isolecto BM [BM000923185], NBG [NBG0121719-0], PRE [PRE0664141-0], US [US00902283]), Uganda, Kipayo-Mpumu, Jan. 1914.

Brachiaria bomaensis Vanderyst (1925) 665. — Lectotype (designated here): *Claessens 1219* (lecto BR [BR0000016152205]), Zaire, Bunia, 7 Apr. 1921.

Distribution — A common species distributed throughout sub-Saharan tropical Africa, from the Sahel region south to Angola, Zambia and Zimbabwe; introduced to Madagascar and Brazil.

Nomenclatural notes — The protologue of *Panicum jubatum* was published and effectively distributed as a preprint in 1853, before it appeared as part of the journal Memorie della Reale Accademia delle Scienze di Torino in 1854.

Clayton & Renvoize (1982) and Vorontsova (2022) indicate that the holotype of *Panicum jubata* is a collection of *Figari s.n.* at FI. However, there are two sheets that match the protologue details. They are likely to belong to the same collection, but it seems best to avoid future confusion and select one of them as the lectotype. The one chosen above has richer material (including plants bases) and carries the original label.

The protologue of *Brachiaria brevis* mentions three syntypes, *Chevalier 12659bis, Krause s.n.* and *Johnson 724.* The first is at P, the two others at K. Since Stapf worked at Kew, and the Johnson material is richer than that of Krause, *Johnson 724* was selected as the lectotype.

The protologue of *Brachiaria fulva* cites 21 syntypes. Clayton & Renvoize (1982) cite only one, *Schweinfurth 2174* at K, stating there are many more syntypes. The quality of the Schweinfurth specimen is as good as most other syntypes, and while two sheets are available at K there is another duplicate at W. We have chosen one of the K sheets, the one that carries the original label, as the lectotype.

The protologue of *Brachiaria soluta* cites four syntypes, three from Uganda, and one from the Democratic Republic of the Congo, although the latter is not mentioned by Clayton & Renvoize (1982). The specimens are fairly comparable, without doubt about their identity, and we decided to designate the *Dummer 677* collection as the type, since it seems to have slightly more duplicates. The duplicate present at K, where Stapf worked, is the richer material and holds an analysis by Stapf; it was the logical candidate for the lectotype.

The protologue of *Brachiaria bomaensis* indicates a single specimen collected by Claessens at Boma (Dem. Rep. Congo) but does not cite the number. At BR, *Claessens 1219* matches the protologue, has been annotated by Vanderyst and carries the name *Brachiaria bomaensis* in his hand. It is here selected as the lectotype.

Urochloa lachnantha (Hochst.) Torres Gonz. & C.M.Morton

Urochloa lachnantha (Hochst.) Torres Gonz. & C.M.Morton (2005) 42. — *Panicum lachnanthum* Hochst. (1855) 195. — *Brachiaria lachnantha* (Hochst.) Stapf (1919) 536. — Type: *Schimper 1210* (holo STR [STR040635, STR040636]; iso BR [BR0000008366948], P [P00442090, P00442091], W [W0021494]), Ethiopia, Dscha Dscha, Asow, 3 Sept. 1853.

Distribution — Native to Eritrea, Ethiopia, Somalia, Uganda, Kenya and Tanzania.

Nomenclatural notes — In the introduction to the article containing the protologue of *Panicum lachnanthum*, Hochstetter clearly states he worked on a set of Schimper plants send to him by Buchinger from Strasbourg. Assuming this set was returned to Strasbourg afterwards, the STR specimen (we regard the two sheets as belonging to the same specimen) is to be regarded as the holotype.

Urochloa leersioides (Hochst.) Torres Gonz. & C.M.Morton

Urochloa leersioides (Hochst.) Torres Gonz. & C.M.Morton (2005) 42. — *Panicum leersioides* Hochst. (1855) 196. — *Brachiaria leersioides* (Hochst.) Stapf (1919) 551. — Type: *Schimper 1173* (holo STR [STR040633, STR040634]; iso P [P02047189, P02047200]), Ethiopia, Dscha Dscha, Delhi Dikeno, 19 July 1853.

Distribution — From the eastern part of the Democratic Republic of the Congo east to Tchad and Egypt in the north and Mozambique in the south, also in the Arabian Peninsula.

Nomenclatural notes — The same reasoning as in the previous species with regards to the holotype applies here.

Urochloa lindiensis (Pilg.) Oulo, Zon & Sosef, *comb. nov.*

Panicum lindiense Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 13 (1936) 261. — *Brachiaria lindiensis* (Pilg.) Clayton (1981) 234. — Lectotype (designated here): *Schlieben 6243* (lecto: BR [BR0000008756442]; iso BM [BM000923209], BR [BR0000008756473], G [G00022440], LISC [LISC003464], M [M0103970], MA [MA175756], P [P00442092], PRE [PRE0592248-0], S [S-G-4492]), Tanzania, Bezirk Lindi, 40 km N. Lindi, Lutambasee, 6 Apr. 1935.

Distribution — Native to Kenya and Tanzania.

Nomenclatural notes — The protologue of *Panicum lindiense* cites a single gathering but without its location. The original material at B, the obvious lectotype, could not be located, where it was probably lost during the WWII fire. The fair number of duplicates are all rather poor in terms of the number of spikelets present. We have selected one of the sheets at BR as the lectotype since we could study it up close.

Urochloa longiflora (Clayton) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria longiflora Clayton, Kew Bull. 34 (1980) 558. — Type: *Pohlhill & Paulo 674* (holo K [K000282109]; iso EA [EA000000360], PRE [PRE0664140]), Kenya, Tana River Dist., Kurawa, 30 ml S of Garsen, 28 Oct. 1961.

Distribution — Native to Ethiopia, Somalia and Kenya.

Urochloa marlothii (Hack.) Oulo, Zon & Sosef, *comb. nov.*

Panicum marlothii Hack., Bot. Jahrb. Syst. 11 (1889) 398. — *Brachiaria marlothii* (Hack.) Stent (1924) 263. — Lectotype (designated here): *Marloth 1147* (lecto W [W19160023606]; isolecto K [K000282176], US [US00148277]), South Africa, Betschuanaland, prope pagum Manjeering, Feb. 1886.

Distribution — Native to southern Africa: Namibia, Botswana, Lesotho and South Africa.

Urochloa mutica (Forssk.) T.Q.Nguyen

Urochloa mutica (Forssk.) T.Q.Nguyen (1966) 13. — *Panicum muticum* Forssk. (1775) 20. — *Brachiaria mutica* (Forssk.) Stapf (1919) 526. — Type: *Forsskål 86* (holo C [C10002726]), Egypt, Rosettae, no date.

Panicum numidianum Lam. (1791) 172. — *Brachiaria numidiana* (Lam.) Henrard (1940) 434. — Type: *Poiret s.n.* (holo P-LAM [P00563876]; iso BAA (fragm.) [BAA00002372], P [P02251376]), Numidia [Algeria], no date.

Panicum purpurascens Raddi (1823) 47. — *Brachiaria purpurascens* (Raddi) Henrard (1940) 434. — Lectotype (designated by Baldini & Longhi Wagner 2006): *Raddi s.n.* (lecto PI [PI000236]; isolecto FI [FI004585], K [K000282110], US [US00345322]), Brazil, Rio de Janeiro, no date.

Distribution — Native to much of northern, western and Central Africa; introduced to Somalia, Tanzania, Madagascar, Israel, Syria and Yemen, and to most of Central and South America, South and South-East Asia and Australia.

Nomenclatural notes — Vorontsova (2022) cites a duplicate of the type of *Panicum muticum* being present at BM, but we have not seen that. Since she also cites a locality different from that given in the protologue (Rosettae), we have some doubts as to whether it actually represents a duplicate.

Urochloa nigropedata (Munro ex Ficalho & Hiern) Torres Gonz. & C.M.Morton

Urochloa nigropedata (Munro ex Ficalho & Hiern) Torres Gonz. & C.M.Morton (2005) 42. — *Panicum nigropedatum* Munro ex Ficalho & Hiern (1881) 29. — *Brachiaria nigropedata* (Munro ex Ficalho & Hiern) Stapf (1919) 535. — Lectotype (designated here): *Burchell 2610* (lecto K [K000282179]), South Africa, between Knegts Fontein & Klip Fontein, 26 Dec. 1812.

Panicum melanotylum Hack. (1889) 398. — *Brachiaria melanotyla* (Hack.) Henrard (1940) 436. — Lectotype (designated here): *Marloth 1091* (lecto W [W19160023602]; isolecto K [K000282181], US [US00148290, US00902279]), Bechuanaland [Botswana], prope Kuruman, Feb. 1886.

Distribution — Kenya, Tanzania, Angola and further south throughout southern Africa.

Nomenclatural notes — The protologue of *Panicum nigropedatum* cites four syntypes, three collected in South Africa by Burchell (numbers *2391*, *2577* and *2610*) and one other collected in 1870 by Baines (s.n.) in the South-African Gold-fields. All material was located at K. Because *Burchell 2391* and *2577* are mounted on the same sheet, and the Baines collection is on a sheet together with *Marlot 1091*, the type of *P. melanotylum*, which might cause some confusion in the future, we decided to select *Burchell 2610* as the lectotype. It is also the richest material amongst the four syntypes.

Urochloa orthostachys (Mez) K.M.Ibrahim & P.M.Peterson

Urochloa orthostachys (Mez) K.M.Ibrahim & P.M.Peterson in Ibrahim et al. (2018) 125 — *Panicum orthostachys* Mez (1917) 66. — *Brachiaria orthostachys* (Mez) Clayton (1966) 265. — Lectotype (designated by Ibrahim et al. 2018): *Leprieur 21* (lecto B [B 10 0367313]), Senegal, Walo (= Wale), 1827.

Brachiaria hagerupii Hitchc. (1929) 303. — Type: *Hagerup 271* (holo US [US00131828]; iso C [C10001136], K [K000282245], P [P00442093]), Soudan français (= Mali), Timbuktu, 17 Aug. 1927.

Distribution — Mauritania, Senegal, Mali, Burkina Faso, Niger, Chad and Sudan.

Nomenclatural notes — See Scholz (1978) for more information on the type of *Brachiaria hagerupii*.

Urochloa ovalis (Stapf) Zon

Urochloa ovalis (Stapf) Zon (2019) 214. — [*Panicum ovale* R.Br. (1814) lxiii (lxii in error), *nom. nud*.] — *Brachiaria ovalis* Stapf (1919) 546. — Lectotype (designated by Van der Zon 2019): *Salt s.n.* (lecto K (fragm. + illustr.) [K000282117]; isolecto BM [BM000923148]), Abyssinia, no date.

Panicum nudiglume Hochst. var. *major* Balf.f. (1888) 311. — Type: *B. Balfour 47* (holo K [K000244735]), Socotra, near Galonsir, Feb.–Mar. 1880.

Brachiaria glauca Stapf (1919) 550. — Lectotype (designated here): *B. Balfour 47* (lecto K [K000244735]), Socotra, near Galonsir, Feb.–Mar. 1880.

Brachiaria somalensis C.E.Hubb. (1941) 189. — Type: *Gillet 4903* (holo K [K000282119]; iso K [K000282118]), Somalia, Buramo-Warieto, 31 Jan. 1933.

Distribution — Chad, Sudan, Djibouti, Eritrea, Ethiopia, Somalia, Kenya, most of the Arabian Peninsula and Pakistan.

Nomenclatural notes — Van der Zon (2019) selected the K specimen of *Salt s.n.* as the lectotype of *Brachiaria ovalis* because Stapf based his name on the invalid name *Panicum ovale* of Brown (1814), a nomen nudum, which links to that material. The K specimen consists of a few spikelets and a pencil drawing of the material deposited by Salt at BM.

Rudov et al. (2020) published the same combination in *Urochloa*, *U. ovalis,* which was therefore superfluous.

Urochloa platynota (K.Schum.) Pilg.

Urochloa platynota (K.Schum.) Pilg. (1940) 35. — *Panicum platynotum* K.Schum. (1895) 101. — *Brachiaria platynota* (K.Schum.) Robyns (1932) 174. — Lectotype (designated here): *Stuhlmann 1095* (lecto K [K000282220]; isolecto BR [BR0000008756596], US [US00902280]), Tanzania, Bukoba, 19 Nov. 1890.

Panicum bifalcigerum Stapf (1906) 531. — *Urochloa bifalcigera* (Stapf) Stapf (1920) 588. — Lectotype (designated here): *Dawe 826* (lecto K [K000282222]; isolecto K [K000282221]), Uganda, Bunyoro District, Unyoro, 1905.

Panicum geometra Chiov. (1919) 64. — Lectotype (designated here): *Bovone 10* (lecto TO), Catanga (= Democratic Republic of the Congo), Ditunguru, 25 Feb. 1914.

Distribution — Eastern part of the Democratic Republic of the Congo, Rwanda, Burundi, Uganda, Kenya, Tanzania and Zambia.

Nomenclatural notes — The original material of *Panicum platynotum* stored at B could not be traced, and was most likely lost during the WWII fire. From amongst the three remaining duplicates we have chosen the richest material, present at K, as the lectotype.

At K, there are two sheets of the type material of *Panicum bifalcigerum*, *Dawe 826*. One of them (K000282222) has a more complete plant and carries an original label. The second (K000282221) is less complete, carries a less elaborate label, and also holds a drawing of a different collection (*Powell 15*), which might be confusing. For these reasons, the first, was chosen as the lectotype.

The protologue of *Panicum geometra* indicates the type is *Bovone 14*. However, this sheet represents the type of *Isachne margaritifera* Chiov. (= *Panicum margaritiferum* (Chiov.) Robyns). It seems Chiovenda (1919) has made an error, citing the same specimen below two species, but in his plant list following the article (p. 77) he cites another and probably the correct specimen, *Bovone 10*, for *Panicum geometra*, which is located at TO.

Urochloa psammophila (Welw. ex Rendle) Oulo, Zon & Sosef, *comb. nov.*

Panicum psammophilum Welw. ex Rendle, Cat. Afr. Pl. 2(1) (1899) 171. — *Leucophrys psammophila* (Welw. ex Rendle) Dandy (1931) 54. — *Brachiaria psammophila* (Welw. ex Rendle) Launert (1970) 149. — Lectotype (designated here): *Welwitsch 2624* (lecto BM [BM000923210]; isolecto BM [BM000923211], K [K000282068], LISU [LISU226114, LISU226115, LISU226116], MPU [MPU024608]), Angola, between Cabo Negro and Mossamedes, Cazimba prope Rio Caroca, Sept. 1859.

Distribution — Angola and Namibia.

Nomenclatural notes — Rendle (1899) worked on the collections of Welwitsch at BM when producing the Catalogue of African Plants in which *P. psammophilum* was published, which would then be the obvious location for the holotype. However, BM holds two sheets: BM000923210, which carries a full original label, and BM000923211, on which only part of the information is present. Therefore, the first specimen has been selected as a lectotype.

Urochloa ramosa (L.) T.Q.Nguyen

Urochloa ramosa (L.) T.Q.Nguyen (1966) 13. — *Panicum ramosum* L. (1767) 29. — *Brachiaria ramosa* (L.) Stapf (1919) 542. — *Echinochloa ramosa* (L.) Roberty (1954) 398. — Lectotype (designated by Cope 1982: 207): *Anonymous s.n.* (lecto LINN [LINN 80.44]), India, cult. at Uppsala.

Panicum arvense Kunth (1831) t. 109. — Lectotype (designated here): *Lelièvre s.n.* (lecto B [B 10 0366167]), Senegal, Richard-Tol, 1829.

Panicum brachylachnum Steud. (1853) 62. — Lectotype (designated by Clayton & Renvoize 1982: 600): *Leprieur s.n.* (lecto P [P00731431]; isolecto K [K000282188]), Senegal, 1830.

Panicum ozogonum Steud. (1853) 68. — Lectotype (designated here): *Leprieur s.n.* (lecto P [P00731448]; isolecto K [K000282187]), Senegal, 1830.

Panicum cognatissimum Steud. (1853) 69. — Lectotype (chosen by Clayton & Renvoize 1982: 600): *Leprieur s.n.* (lecto P [P00731463]), Senegal, 1830.

Panicum breviradiatum Hochst. (1855) 195. — Type: *Schimper 1513* (holo STR [STR031525]; iso P [P00442094, P00442095]), Abyssinica [Ethiopia], Dscha-Dscha, 22 Aug. 1853.

Panicum nidulans Mez (1904) 136. — Lectotype (designated here): *Schweinfurth 1171* (lecto G [G00002374]; isolecto K [K000282111], US (fragm.) [US00139796]), Nubia (= Sudan), Ssoturba Mts., 5 Mar. 1865.

Panicum petiveri Trin. var. *puberulum* Chiov. (1908) 302. — Lectotype (designated here): *Pappi 4006* (lecto FT [FT000220]; iso K [K000282213], US [US00811043]), Eritrea, Amasen, pianura di Sabarguma, 2–10 Mar. 1902.

Panicum pallidum Peter (1928) 45. — Type: *Peter 12274* (B, lost), Tanzania, Pare District, Makanya; lectotype (designated here, drawing): Taf. VIII-3a-h in Peter (1929).

Brachiaria multispiculata H.Scholz (1982) 287. — Type: *M. Kappel s.n.* (holo B [B100168263]), Sudan, Kordofan, Kawahla, Gerih el Sarha, 13 Aug. 1981.

Distribution — Native to the dryer parts of tropical Africa, from Senegal east to Egypt and Sudan, and from Ethiopia south to Mozambique and South Africa, absent from Central Africa, extending to Madagascar, the Arabian Peninsula and southern Asia to the Malesian region; introduced in Peru, the south-eastern part of the United States and Australia.

Nomenclatural notes — The protologue of *Panicum arvense* cites material collected by Lelièvre around Richard-Tol (in Hb. Kunth) and of Leprieur, both from Senegal. Material of the second could not be found, but B holds a sheet of the first exactly matching the protologue and hence it was selected as the lectotype.

The protologue of *Panicum nidulans* cites two specimens: *Schweinfurth 1171* from the Ssoturba Mts. near the Red Sea, and *Ehrenberg s.n.* from an unknown locality. Material from the first is present in G, K and US, while at B there is an Ehrenberg specimen from Abyssinica that seems to match the protologue. Because of the slight doubt about the second specimen (why did Mez explicitly state it was without a locality indication?) and the fact that the Schweinfurth specimen at G carries an identification label from Mez, we prefer to select that material as the lectotype. It also has several duplicates in contrast to the Ehrenberg material.

The species *Panicum pallidum* was described by Peter (1928) in the key to a group of *Panicum* species, without referring to any material or locality. One year later, Peter (1929) provided information of the single specimen, *Peter 12274*, with locality data (see above), which would logically serve as the type, but which was destroyed at B during the WWII fire. The 1929 publication is accompanied by a drawing which can only have been drawn after the type material and hence belongs to the original material following the ICN (Art. 9.4; Turland et al. 2018). It shows sufficient detail to be able to identify the species, and hence we selected it as the lectotype.

Urochloa reptans (L.) Stapf

Urochloa reptans (L.) Stapf (1920) 601. — *Panicum reptans* L. (1759) 870. — *Panicum grossarium* L. (1759) 871, nom. illeg., superfl. — *Brachiaria reptans* (L.) C.A.Gardner & C.E.Hubb. (1938) t. 3363. — *Echinochloa reptans* (L.) Roberty (1954) 398. — Lectotype (designated by Hitchcock 1908: 119): *Browne s.n.* (lecto LINN [LINN 80.52, upper part]), Jamaica.

Distribution — A pantropical weed; in Africa, notably abundant in North-East and East Africa, from Egypt south to Mozambique and Madagascar, also in Togo, Benin and Cameroun.

Nomenclatural notes — Hitchcock argued that Linnaeus had erroneously described two species, *P. reptans* and *P. grossarium*, based on the same material.

Urochloa rugulosa (Stapf) Sosef

Urochloa rugulosa (Stapf) Sosef (2016) 361. — *Brachiaria rugulosa* Stapf (1919) 529. — Lectotype (designated by Sosef 2016: 361): *Lyne 154* (lecto K [K000282136]), Kenya, Nairobi, Mar. 1902.

Brachiaria umboensis Stent & J.M.Rattray (1933) 23. —Type: *Jack 6234* (holo SRGH [SRGH106869-0]; iso K [K000282175]), Zimbabwe, Lomagundi, Umboe, 20 Feb. 1933.

Distribution — Democratic Republic of the Congo, Burundi, Kenya, Tanzania, Zambia and Zimbabwe.

Urochloa semiundulata (Hochst. ex A.Rich.) Ashal. & V.J.Nair

Urochloa semiundulata (Hochst. ex A.Rich.) Ashal. & V.J.Nair (1997 ‘1993’) 30. — *Panicum semiundulatum* Hochst. ex A.Rich. (1850) 364. — *Brachiaria semiundulata* (Hochst. ex A.Rich.) Stapf (1919) 556. — Lectotype (designated here): *Schimper 289* (lecto P [P02232950]; isolecto BM [BM000923203], BR [BR0000008366818, BR0000008756572,], G [G00015872], GOET [GOET006085], HOH [HOH008976], K [K000282190, K000282193, K000282195, K000282196], L [L 0043855, L 0043856, L 0043857, L 1295650], LG [LG0000090036088], M [M0103963], MO [MO-1660976], MPU [MPU024590], P [P02232953], REG [REG000292], S [S05-8817, S05-8818], TUB [TUB006487, TUB006488], US [US00139989, US00955507, US00955508], W [W0000269, W18890243316], WAG [WAG0001481]), Ethiopia, prope Adoam, 25 Sept. 1837.

Distribution — Native to Rwanda, Burundi, South Sudan, Ethiopia, Uganda, Kenya, Tanzania and southern Asia.

Nomenclatural notes — The protologue of *Panicum semiundulatum* mentions two syntypes, *Schimper 289* and *1833*. We have chosen the first, because of the large number of duplicates elsewhere, and the sheet at P, where Richard worked, as the lectotype. P holds a second sheet, with both numbers *289* and *1833* mounted on it; it seems best to regard that material as a duplicate rather than part of the lectotype material.

The protologue of *Urochloa semiundulata* indicates the volume is from 1993, but it was actually published in 1997.

Several varieties were described from India, but which are generally regarded as synonyms of a single variable species.

Urochloa serrata (Thunb.) Sosef

Urochloa serrata (Thunb.) Sosef (2016) 361. — *Holcus serratus* Thunb. (1794) 20. — *Sorghum serratum* (Thunb.) Roem. & Schult. (1817) 839. — *Panicum serratum* (Thunb.) Spreng. (1824) 309. — *Brachiaria serrata* (Thunb.) Stapf (1919) 537. — Lectotype (designated here): *Thunberg s.n.* (lecto UPS [V-143103]; isolecto LD [LD1240877], SBT [SBT10755, SBT10756]), South Africa, Cap. bon. sp., no date.

Panicum gossypinum A.Rich. (1850) 365, nom. illeg., non Hook. & Arn. (1832). — *Panicum serratum* (Thunb.) Spreng. var. *gossypinum* T.Durand & Schinz (1894) 765. — *Brachiaria serrata* (Thunb.) Stapf var. *gossypina* (T.Durand & Schinz) Stapf (1919) 538. — Lectotype (designated here):

Schimper 174 (lecto P [P00731453]; isolecto BR [BR0000008254849], GOET [GOET006087], HOH [HOH008881], K [K000282121, K000282122, K000282123], LG [LG0000090036170, LG0000090036071], M [M0103959, M0103960], REG [REG000232], S [S10-22776, S10-22777], TUB [TUB006490, TUB006491], US [US00902452], WAG [WAG0001482]), Ethiopia, Selleuda prope Adoua, 20 June 1837.

Panicum andongense Rendle (1899) 167. — *Brachiaria andongensis* (Rendle) Stapf (1919) 560. — Type: *Welwitsch 2793* (holo BM [BM000923205]; iso K [K000282060], LISU [LISU226046, LISU226047], MPU [MPU024310]), Angola, Pungo Andongo, Feb. 1857.

Panicum nigropedatum Ficalho & Hiern var. *basipiliferum* Chiov. (1914) 42. — Type: *Bovone 29?* (holo TO?), Catanga [Democratic Republic of the Congo], Kapiri, Mar. 1913.

Brachiaria brachylopha Stapf (1919) 539. — *Panicum brachylophum* (Stapf) A.Chev. (1920) 724. — *Panicum serratum* (Thunb.) Spreng. var. *brachylophum* (Stapf) A.Chev. (1920) 730. — Lectotype (designated here): *Barter 1397* (lecto K [K000282241]; isolecto B [B 10 0168270], GOET [GOET006086], W [W0023760, W19160023474]), Nigeria, Nupe, 1857–1859.

Distribution — Widely distributed from Burkina Faso to Sudan, Ethiopia, Ouganda, Kenya and south to South Africa.

Nomenclatural notes — The protologue of *Panicum gossypinum* states that the species is based on *Eriochloa purpurascens* Hochst. (Hochstetter 1841), an invalid name (nom. nud.) and an unnamed variety of *Panicum holosericeum*. It cites two collections, *Schimper 175* (an obvious error for #174, which matches the description and locality data in all aspects) and *Schimper 1196*. We have chosen the first as the lectotype, because the second is also the (lecto)type of *Panicum comatum* (= *Urochloa comata*).

The protologue of *Panicum nigropedatum* var. *basipiliferum* clearly mentions *Bovone 29* as the type, but the specimen with this number at TO (a syntype of *Panicum brizanthum* var. *lasiochloa*, see below *U. brizantha*) does not match with the locality and date provided by the protologue. Hence, the whereabouts of the type is uncertain.

The protologue of *Brachiaria brachylopha* mentions a fair number of specimens. We have chosen one present at Kew, where Stapf worked and which carries the name written by Stapf, as lectotype. It has several duplicates, some of which erroneously carry the number 1392.

Urochloa serrifolia (Hochst.) Zon

Urochloa serrifolia (Hochst.) Zon (2019) 214. — *Panicum serrifolium* Hochst. (1855) 196. — *Brachiaria serrifolia* (Hochst.) Stapf (1919) 548. — Lectotype (indirectly designated by Clayton & Renvoize 1982 and Van der Zon 2019): *Schimper 2171* (lecto K [K000282206]; iso BM [BM000923195], BR [BR0000008366986], GOET [GOET006088], JE [JE00007253], P [P00442096], US [US00148018, US00153832]), Ethiopia, Dschadscha, 29 Sept. 1854.

Distribution — From Niger, Chad and northern Cameroon to Eritrea, Ethiopia, Uganda, Kenya, Tanzania and Zimbabwe.

Nomenclatural notes — Clayton & Renvoize (1982) selected the K duplicate of *Schimper 2171* as the isotype, an error to be corrected to isolectotype. However, Van der Zon (2019) accepted it as a lectotypification of the K duplicate, thus probably unintentionally formally denoting it as lectotype. Given Art. 9.10 of the ICN (Turland et al. 2018), we follow that typification here.

Urochloa subulifolia (Mez) Torres Gonz. & C.M.Morton

Urochloa subulifolia (Mez) Torres Gonz. & C.M.Morton (2005) 42. — *Panicum subulifolium* Mez (1904) 135. — *Brachiaria subulifolia* (Mez) Clayton (1980) 559. — Lectotype (collection designated by Clayton 1980, sheet designated here): *Wahlenberg s.n.* (lecto S [S-G-4511]; isolecto S [S07-17144]), South Africa, Cap B. Spei, no date.

Brachiaria filifolia Stapf (1919) 516. — Lectotype (designated here): *Gossweiler 2001* (lecto K [K000282084]; isolecto BM [BM000923179], COI [COI00068962]), Angola, Benguella, country of Gangauellas and Ambellas, Sept. 1905.

Distribution — Southern Democratic Republic of the Congo, Tanzania, Angola, Zambia, Malawi, Zimbabwe, and northern South Africa.

Nomenclatural notes — Clayton (1980) already indicated the holotype to be at S. This should be regarded as a lectotypification. However, at S there are two sheets, which do not seem to be elements of the same specimen and are to be regarded as duplicates. We have selected the richer material, S-G-4511, as the lectotype, thus refining the previous selection.

The protologue of *Brachiaria filifolia* mentions three syntypes, *Gossweiler 2001*, *Mundi s.n.* and *Colon. Herb. 2107*. We have chosen the first as lectotype, since it has the richer material and there are duplicates in at least two other herbaria.

Urochloa trichopus (Hochst.) Stapf

Urochloa trichopus (Hochst.) Stapf (1920) 589. — *Panicum trichopus* Hochst. (1844) 254. — Lectotype (designated here): *Kotschy 74* (lecto TUB [TUB006436]; isolecto BM [BM000923215, BM000923216], G [G00022708], K [K000281979, K000281980], MO [MO-1660898], S [S05-8793], US [US-1125963], W [W0030714, W0030715, W18890243303, W19160023511]), (Sudan), cultivated in Cordofan, 1837.

Panicum mosambicense Hack. (1888) 140. — *Urochloa pullulans* Stapf (1920) 590, nom. superfl. — *Urochloa pullulans* Stapf var. *mosambicensis* (Hack.) Stapf (1920) 592. — *Urochloa mosambicensis* (Hack.) Dandy (1931) 54. — Lectotype (collection designated by Clayton & Renvoize 1982, specimen by Sosef 2016): *de Carvalho 19* (lecto W [W19160023605]; isolecto K [K000281991], US [US00139770]), Mozambique, continente fronteiro, 1884.

Eriochloa trichopus (Hochst.) Benth. var. *glabrata* Schweinf. (1894) 17. — Lectotype (designated here): *Schweinfurth & Riva 258* (lecto K [K000281981]), Eritrea, Dogali, 13 Feb. 1892.

Panicum trichopus Hochst. var. *chiovendae* Lanza & Mattei (1910) 46. — Syntypes: *Senni 695* (PAL), Eritrea, Beni-Amer, Sciotel R., 4 Aug. 1896; *Senni 696* (PAL), Bogos, Cheren, 25 Aug. 1896; *Senni 697* (PAL), Beni-Amer, Agordat, 15 May 1897.

Urochloa rhodesiensis Stent in Stent & Rattray (1933) 26. — Lectotype (designated by Sosef 2016): *Stent 5547* (lecto SRGH [SRGH0009464-0]; isolecto K [K000281997], PRE [PRE0664119-0]), Zimbabwe, Salisbury, grass plots, 22 Feb. 1932.

Brachiaria stolonifera Gooss. (1934) 195. — *Urochloa stolonifera* (Goossens) Chippind. (1955) 381. — Type: *Pole Evans & Pentz 8327* (holo PRE [PRE0020612-0]), South Africa, Cape Province, Gordonia Distr., along Molopo River, 27 Dec. 1929.

Urochloa engleri Pilg. (1941) 450. — Lectotype (designated by Clayton & Renvoize 1982): *Engler 6406* (lecto B [B 10 0168949]), Ambo- und Nord-Hereroland (= Namibia), Tsumeb, 14 Apr. 1913.

Urochloa brachyphylla Gilli (1966) 40. — Type: *Gilli 45* (holo W [W19730026988]), Kenya, Mombassa, 27 Aug. 1958.

Distribution — Native almost throughout sub-Saharan tropical Africa, including Madagascar, east to the Arabian Peninsula; probably introduced to southern Asia and Australia, also to Brazil, Argentina and the United States.

Nomenclatural notes — The protologue of *Panicum trichopus* mentions a single collection: *Kotschy 74*. Since Hochstetter worked at Tubbingen, which holds a duplicate, that material was chosen as the lectotype.

The protologue of *Panicum mosambicense* does not provide any information about the type, apart from its origin being Mozambique. Clayton & Renvoize (1982) denoted the isotype as being *Carvalho 19* at K, unfortunately without any explanation, but which is, according to ICN Art. 9.10 (Turland et al. 2018), to be regarded as a lectotypification of the gathering. Subsequently, Sosef (2016) denoted the duplicate at W, where Hackel worked, as the lectotype. Although its label suggests it is a duplicate from COI, no specimen could be traced there.

The protologue of *Panicum trichopus* var. *chiovendae* mentions three specimens collected by L. Senni, which are to be regarded as syntypes. Since we were unable to study any of these, we refrain from designating a lectotype.

The protologue of *Urochloa engleri* cites two syntypes, *Engler 6406* and *Diels 2908*. The first was indicated by Clayton & Renvoize (1982) as the 'holotype', to be regarded as a lectotypification (ICN, Art. 9.10; Turland et al. 2018).

Urochloa umbellata (Trin.) Oulo, Zon & Sosef, *comb. nov.*

Panicum umbellatum Trin., Gram. Panic. (1826) 238. — *Brachiaria umbellata* (Trin.) Clayton (1980) 559. — Lectotype (designated here): *Sieber 34* (lecto LE [Hb. Trinius 996.1]; isolecto BR [BR0000008756435], G [G00022428, G00022429], H [H1048911, H1568372], K [K000244716], L [L0043865, L0043866], MO [MO-1742146], P [P00450345, P00450346], US [US00730999], W [W0000261, W0000263, W0000264, W1889-0236431, W1889-0211252]), Mauritius, 1825.

Panicum nossibense Steud. (1853) 419. — *Panicum umbellatum* Trin. subsp. *nossibense* (Steud.) A.Camus (1959) 414. — Lectotype (designated by Vorontsova 2022): *Boivin 1962* (lecto P [P00450237]; isolecto K [K000805712], P [P00450238, P00450239], US (fragm.) [US-1389878], W [W0023752]), Madagascar, Reg. Diana (= Prov. Antsiranana), Nosy Be, June 1847.

Distribution — Tanzania, Malawi, Mozambique, Zambia, Madagascar, the Comores, the Seychelles, Réunion and Mauritius.

Nomenclatural notes — Clayton (1980) and Clayton & Renvoize (1982) only mention the presence of the isotype of *Panicum umbellatum* at K. Vorontosova (2022) located the holotype at LE, which is to be regarded as the designation of the lectotype.

Urochloa umbratilis (Napper) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria umbratilis Napper, Kirkia 3 (1963) 124. — Type: *A. Bogdan 2719* (holo EA [EA000000503]; iso K [K000282050]), Kenya, 6 km NW of Meru, 14 dec. 1949.

Distribution — Uganda, Kenya and Tanzania; the presence of this species in Rwanda, reported by Clayton & Renvoize (1982), could not be confirmed.

Urochloa uzondoiensis (Sánchez-Ken) Oulo, Zon & Sosef, *comb. nov.*

Brachiaria uzondoiensis Sánchez-Ken, Kew Bull. 62(3) (2007) 516. — Type: *S. Bidgood, I. Darbyshire, K. Hoenselaar, G. Leliyo, G. Sánchez-Ken & K. Vollesen 5535* (holo K [K000468889]; iso BR [BR0000005270538], EA, MO [MO-2246482], NHT, P [P02644086]), Tanzania, Mpanda District, Uzondo Plateau, 16 Apr. 2006.

Distribution — Endemic to Tanzania.

Urochloa villosa (Lam.) T.Q.Nguyen

Urochloa villosa (Lam.) T.Q.Nguyen (1966) 14. — *Panicum villosum* Lam. (1791) 173. — *Brachiaria villosa* (Lam.) A.Camus in Camus & Camus (1922) 433. — Type: *Sonnerat s.n.* (holo P-LAM [P00563962]), India.

Panicum distichophyllum Trin. (1826) 147. — *Brachiaria distichophylla* (Trin.) Stapf (1919) 557. — Lectotype (designated by Clayton & Renvoize 1982): *Sabine s.n.* (lecto LE [Hb. Trinius 680.01]), Ghana, Accra, no date.

Panicum serrulatum Schumach. (1827) 62, nom. inval., non Roxb. (1820). — Type: *Thonning 395* (holo C [C10004274]; iso C [C10004275, C10004276], K (fragm.) [K000282163]), Ghana.

Panicum viviparum Schumach. (1827) 62. — Type: *Thonning 385* (holo C [C10004287]; iso S [S-G-4517]), Ghana, no date.

Panicum despreauxii Steud. (1853) 58. — Lectotype: *Despreaux 15* (lecto P [P00731449]), Senegambia (= Senegal), 1830.

Panicum pauperulum Steud. (1853) 58. — Type: *Leprieur s.n.* (whereabouts uncertain, not traced at P, P-JU or P-LAM), Senegambia (= Senegal).

Distribution — Widely distributed in tropical Africa, from Cape Verde and Mauritania to Sudan and Ethiopia, south to Zimbabwe, also in tropical Asia east to Japan and New Guinea.

Nomenclatural notes — The type of *Panicum villosum* was recovered from the de Lamarck herbarium at P.

The type of *Panicum pauperulum* could not be traced at P, where most of the Leprieur collections are located, nor elsewhere. It seems likely that, similar to the situation in *Panicum despreauxii*, where the protologue indicated a collection by Leprieur, while the actual collector was Despreaux, the type was not collected by Leprieur himself, but was included in his herbarium, which renders its discovery problematic. Meanwhile, it remains unclear as to who actually was the first to regard the name as a synonym of *U. villosa*, since that person would presumably have seen the type.

Urochloa xantholeuca (Hack. ex Schinz) H.Scholz

Urochloa xantholeuca (Hack. ex Schinz) H.Scholz (1990) 443. — *Panicum xantholeucum* Hack. ex Schinz (1888) 141. — *Brachiaria xantholeuca* (Hack. ex Schinz) Stapf (1919) 541. — Lectotype (designated here): *Schinz 639* (lecto K [K000821967] (left hand specimen on sheet); iso US? [US00140094], W? [W 1916-0023475]), Namibia, Olukunda, Jan. 1886.

Panicum distichophylloides Mez (1904) 137. — Lectotype (designated by Scholz 1978): *Barter 1367* (lecto B [B 10 0167762]), Nigeria, Nupe, 1857–1859.

Panicum pubifolium Mez (1904) 137, nom. illeg., non Nash (1899). — *Brachiaria pubifolia* (Mez) Stapf (1919) 549. — *Brachiaria ukambensis* Henrard (1940) 436. — Lectotype (designated here): *Hildebrandt 2665* (lecto B [B 10 0168702]; isolecto BM [BM000923198], JE [JE00007247], K [K000282054], L [L0819904], US [US00139910]), Kenya, Machakos/Kitui Districts, Ukamba (= Ukambani), Apr. 1877.

Panicum anisotrichum Mez (1917) 70. — Type: *Lécard 118* (B, lost), Mali.

Distribution — From Mauritius to Sudan and Ethiopia, and in East Africa from the Democratic Republic of the Congo, Rwanda, Burundi and Uganda south to Mozambique, also in Saudi Arabia.

Nomenclatural notes — Clayton & Renvoize (1982) have chosen the K duplicate of *Schinz 639* as the isotype of the name *Panicum xantholeucum*, which should be considered as the assignment of an isolectotype (ICN Art. 9.10; Turland et al. 2018). With the original material at B lost, it seemed best to designate the K specimen as the lectotype.

According to Scholz (1978), duplicates of the type of *Panicum distichophylloides*, at least the one at K, do not belong to the same species.

The type of *Panicum anisotrichum* was destroyed at B during the WWII fire. So far, no duplicates have been located, but since Lécard material was distributed to a fair number of herbaria, there could still be duplicates elsewhere. For this reason, we refrained from selecting a neotype.

Urochloa xantholeuca (Hack. ex Schinz) H.Scholz var. ***leucacrantha*** (K.Schum.) Sosef

Urochloa xantholeuca (Hack. ex Schinz) H.Scholz var. *leucacrantha* (K.Schum.) Sosef (2016) 362. — *Panicum leucacranthum* K.Schum. (1895) 102. — *Brachiaria leucacrantha* (K.Schum.) Stapf (1919) 540. — Lectotype (designated by Sosef 2016): *Holst 2805* (lecto B [B 10 0168735]; isolecto K [K000282055], M [M0103971]), Tanzania, Amboni, 14 June 1893.

Distribution — Southern Ethiopia, Somalia, north-eastern Democratic Republic of the Congo, Uganda, Kenya, Tanzania and Mozambique.

Acknowledgements We would like to sincerely thank the curators and keepers of the following herbaria for providing access to their collections and assisting in our work: BR, EA, K, L and P (see Thiers continuously updated). Several others, in herbaria not visited by us, have been most helpful in tracking down type specimens in their respective herbaria, for which we are most grateful; these are: Marc Appelhans (GOET, Universität Göttingen, Germany), Gisèle Archipoff (STR, Institut de Botanique, Strassbourg, France), Christopher Chapano (SRGH, National Herbarium, Harare, Zimbabwe), Filipe Covelo (COI, Herbarium of the University of Coimbra, Portugal), Anna Donatelli (FI, Natural History Museum, Florence, Italy), Laura Guglielmone (TO, Herbarium

- Department of Life Sciences and Systems Biology, Torino, Italy), Germinal Rouhan & Cécile Aupic (P, Muséum National d'Histoire Naturelle, Paris, France) and Paul Mutuku Musili (East African Herbarium, Nairobi, Kenya).

REFERENCES

Anderson JG, Codd LE, Dyer RA, et al. 1961. New and interesting taxa from southern Africa. Kirkia 1: 100–118.

Ashalantha VN, Nair VJ. 1997. Brachiaria Griseb. and Urochloa P.Beauv. (Poaceae) in India – a conspectus. Bulletin of the Botanical Survey of India 35: 27–31.

Baldini RM, Longhi Wagner H-M. 2006. Poaceae Raddianae: an updated nomenclatural and taxonomical evaluation of G. Raddi's Brazilian Poaceae. Taxon 55(2): 469–482.

Balfour B. 1888. Botany of Socotra. Transactions of the Royal Society of Edinburgh 31: i–lxxv, 1–446.

Bassappa GP, Muniyamma M. 1983. New taxa in Brachiaria Griseb. (Poaceae). Proceedings of the Indian National Science Academy, part B, 49(4): 377–384.

Brown R. 1814. List of new and rare plants, collected in Abyssinia during the years 1805 and 1810. In: Salt H (ed), Voyage to Abyssinia, and travels into the interioir of that country, executed under the orders of the British Government, in the years 1809 and 1810, Appendix V (IV in error): lxiii–lxv. F.C. & J. Rivington, London.

Camus A. 1931. Graminées nouvelles de Madagascar. Bulletin de la Société Botanique de France 77: 638–641.

Camus A. 1947. Sur les graminées des prairies de Madagascar (suite). Journal d'Agriculture Traditionnelle et de Botanique Appliquée 27: 271–281.

Camus A. 1954. Espèces et variétés nouvelles de Graminées malgaches. Bulletin de la Société Botanique de France 101: 394–397.

Camus A. 1957. Contribution a l'étude des graminées de Madagascar. Bulletin du Muséum nationale d'Histoire naturelle, sér. 2, 29: 274–281.

Camus A. 1959. Schizachyrium, Poecilostachys et Panicum de Madagascar. Notulae Systematicae 15(4): 410–415.

Camus EG, Camus A. 1922. Graminées. In: Gagnepain F (ed), Flore Générale de l'Indo-Chine 7: 202–650. Masson & Cie, Paris.

Catasús Guerra L. 2001. De poaceis cubensibus notulae, III (in floram novam cubensem stvdia intendentia). Fontqueria 55(4): 15–17.

Chase A. 1920. The North American species of Brachiaria. Contributions from the United States National Herbarium 22: 33–43.

Chevalier A. 1920. Exploration botanique de l'Afrique occidentale 1, Énumération des plantes récoltées. Paul Lechevallier, Paris.

Chiovenda E. 1903. Fam. Graminaceae. In: Pirotta R (ed), Flora della colonia Eritrea, Parte I, 1. Annuario del Reale Istituto Botanico di Roma 8: 21–70.

Chiovenda E. 1908. Fam. Graminaceae. In: Pirotta R (ed), Flora della colonia Eritrea, Parte I, 3. Annuario del Reale Istituto Botanico di Roma 8: 275–380.

Chiovenda E. 1914. Gramina nova ex Catanga (Africa tropica meridionalis). Annali di Botanica 13: 35–58.

Chiovenda E. 1919. Plantae e Catanga a Cl. Dr. H. Bovone lectae. Nuovo Giornale Botanico Italiano, nuova serie 26: 58–85.

Chiovenda E. 1926. Contributo alla conoscenza della Flora Somala Transjubense. L'Agricoltura Coloniale 20: 103–109.

Chiovenda E. 1951. Missione biologica Sagan-Omo, Monocotiledoni. II. Webbia 8(1): 1–120.

Chippindall LKA. 1955. A guide to the identification of grasses in South Africa. In: Meredith D (ed), The grasses and pastures of South Africa: 7–527. Central News Agency, Johannesburg.

Clayton WD. 1966. Studies in the Gramineae: IX. Kew Bulletin 20(2): 257–273.

Clayton WD. 1980. Some new African grasses. Kew Bulletin 34(3): 557–560.

Clayton WD. 1981. New grasses from Tanzania. Kew Bulletin 36(2): 234.

Clayton WD. 1989. Gramineae. XXIV. Paniceae. In: Launert E, Pope GV (eds), Flora Zambesiaca 10(3): 1–192. Flora Zambesiaca Managing Committee, London.

Clayton WD, Renvoize SA. 1982. Gramineae (Part 3). In: Polhill RM (ed), Flora of tropical East Africa. Balkema, Rotterdam.

Clayton WD, Renvoize SA. 1986. Genera Graminum, Grasses of the World. Kew Bulletin, Additional Series 13: 283–285.

Clayton WD, Vorontsova MS, Harman KT, et al. 2006–present. GrassBase - The Online World Grass Flora. http://www.kew.org/data/grasses-db.html [accessed 18 Jan. 2023].

Cope TA. 1982. Poaceae. In: Nasir E, Ali SI. (ed), Flora of Pakistan 143. Pakistan Agricultural Research Council, Islamabad, University of Karachi, Karachi.

Crins WJ. 1991. The genera of Paniceae (Gramineae: Panicoideae). Journal of the Arnold Arboretum, Supplementary Series 1: 171–312.

Dandy JE. 1931. Some new names in the Monocotyledones – I. Journal of Botany, British and Foreign 69: 53–55.

Davidse G, Brako L. 1993. Poaceae. In: Brako L, Zarucchi JL (eds), Catalogue of the flowering plants and gymnosperms of Peru. Monographs in Systematic Botany from the Missouri Botanical Garden 45: 926–977, 1257–1258.

De Lamarck JBAPM. 1791. Tableau encyclopédique et méthodique des trois règnes de la nature. Botanique, tome 1, 1(1). Pancoucke, Paris.

De Wildeman E, Durand TA. 1900. Plantae Thonnerianae congolenses ou énumération des plantes récoltées en 1896 par M. Fr. Thonner dans le district des Bangales. Oscar Schepens & Cie, Bruxelles.

Durand T, Schinz H. 1894. Conspectus florae africae ou énumération des plantes d'Afrique 5. Jardin botanique de l'État, Bruxelles.

Engler A. 1895. Die Pflanzenwelt Ost-Afrikas und der Nachbargebiete. Theil C, Verzeichnis der bis jetzt aus Ost-Afrika bekannt gewordenen Pflanzen. In: Anonymous (ed), Deutsch ost-Afrika 5. Reimer, Berlin.

Ficalho C, Hiern WP. 1881. On Central African plants collected by Major Serpa Pinto. Transactions of the Linnean Society of London, sér. 2, Botany 2(1): 11–36.

Figari AB, De Notaris G. 1853. Agrostographiae aegyptiacae fragmenta. Officina Regia, Torino.

Fish L, Mashau AC, Moeaha MJ, et al. 2015. Identification guide to southern African grasses. Strelitzia 36. SANBI, Pretoria.

Forsskål P. 1775. Flora aegyptiaco-arabica. Möller, Kjøbenhavn.

Gardner CA, Hubbard CE. 1938. Brachiaria occidentalis C.A. Gardner et C.E. Hubbard. Hooker's Icones Plantarum 34: t. 3363.

Germain R, Évrard CM. 1953. Un nouveau Brachiaria de l'est du Congo Belge. Bulletin du Jardin Botanique de l'État à Bruxelles 23: 373–377.

Gilli A. 1966. Beiträge zur Kenntnis der Flora von Tanganyika und Kenya II. Monocotyledones. Annalen des Naturhistorischen Museums in Wien 69: 35–56.

Goossens AP. 1934. Notes on African grasses: XVI. Bulletin of Miscellaneous Information 1934(5): 195–202.

Grisebach AHR. 1853. Ordo CXLII Gramineae Juss. In: Ledebour CF (ed), Flora Rossica 4(14): 324–484. Schweizerbart, Stuttgart.

Hackel E. 1888. Gramineae. Boletim da Sociedade Broteriana 6(3): 140–143.

Hackel E. 1889. Gramineae. In: Kuhn M, Hackel E, Böckeler O, et al., Plantae Marlotianae, Nachträge. Botanische Jahrbücher fur Systematik, Pflanzengeschichte und Pflanzengeographie 11: 398–406.

Hackel E. 1895. Gramineae. In: Schinz H (ed), Beitraege zur Kenntniss der Afrikanischen Flora. Bulletin de l'Herbier Boissier 3: 377–393.

Henrard JT. 1940. Notes on the nomenclature of some grasses. Blumea 3: 411–480.

Henrard JT. 1950. Monograph of the genus Digitaria. Universitaire Pers, Leiden.

Hitchcock AS. 1908. Types of American grasses: a study of the American species of grasses described by Linnaeus, Gronovius, Sloane, Swartz, and Michaux. Contributions from the United States National Herbarium 12(3): I–V, 113–158.

Hitchcock AS. 1929. Three new grasses from French Sudan. Journal of the Washington Academy of Sciences 19: 303–304.

Hitchcock AS. 1931. Grasses of Canton and vicinity. Lingnan Science Journal 7: 177–265.

Hochstetter CF. 1841. Ankündigung verkäuflicher Pflanzen des würtembergischen Reisevereins. Erste Lieferung der vom Reiseverein ausgegebenen durch Wilhelm Schimper gesammelten Abyssinischen Pflanzen. Flora 24(1), Intelligentzblatt I(2)): 17–32.

Hochstetter CF. 1844. Gramina nova Africana. Flora 27(16): 241–254.

Hochstetter CF. 1855. Plantas novas africanas. Flora 38: 193–206.

Hooker WJ, Arnott GAW. 1832. Botany of Captain Beechey's Voyage. Henry G. Bohn, London.

Hubbard CE. 1941. Gramineae. In: Gillett JB (ed), The plant formations of western British Somaliland and the Harar Province of Abyssinia. Bulletin of Miscellaneous Information 1941: 187–199.

Hubbard CE, Schweickerdt HG, Snowden JD. 1936. Notes on African grasses: XIX. Bulletin of Miscellaneous Information 1936: 293–335.

Ibrahim KM, Dube S, Peterson PM, et al. 2018. Grasses of Mali. Smithsonian Contributions to Botany 108. Smithsonian Institution Scholarly Press, Washington D.C.

IPNI. 2023. International Plant Names Index. http://www.ipni.org. The Royal Botanic Gardens, Kew, Harvard University Herbaria & Libraries and Australian National Herbarium [retrieved 2 Mar. 2023].

Kunth CS. 1831. Révision des graminées publiées dans les Nova genera et species plantarum de Humboldt et Bonpland 2. Gide fils, Paris

Lanza D, Mattei GE. 1910. Plantae erythraeae a L. Senni annis 1905-07 lectae. Bollettino del Reale Orto Botanico di Palermo 9: 3–75.

Launert E. 1970. Miscellaneous taxa of Gramineae from South West Africa and adjacent areas. Mitteilungen der Botanischen Staatssammlung München 8: 147–163.

Linnaeus C. 1759. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis, ed. 10, 2. Laurentii Salvii, Stockholm.
Linnaeus C. 1767. Mantissa plantarum. Laurentii Salvii, Stockholm.
Mez CC. 1904. Gramineae africanae. V. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 34: 131–148.
Mez CC. 1917. Nova species Panicearum. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 7: 44–78.
Mez CC. 1921. Gramineae Africanae XIV. Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie 57: 185–201.
Moench C. 1794. Methodus plantas horti botanici et agri marburgensis. Officia Nova Libraria Academiae, Marburgi Cattorum.
Morrone LA, Scataglini MA, Salariato DL, et al. 2012. Phylogeny of the Paniceae (Poaceae: Panicoideae): integrating plastid DNA sequences and morphology into a new classification. Cladistics 28: 333–356.
Morrone O, Zuloaga FO. 1992. Revision de la especies sudamericanas nativas e introducas de los generos Brachiaria y Urochloa (Poaceae: Panicoideae:Paniceae). Darwiniana 31: 43–109.
Morrone O, Zuloaga FO. 1993. Sinopsis del genero Urochloa (Poaceae: Panicoideae: Paniceae) Para Mexico y America Central. Darwiniana 32: 59–75.
Napper DM. 1963. Notes on East African grasses. Kirkia 3: 112–131.
Nash GV. 1899. The dichotomous Panicums. Some new species – 1. Bulletin of the Torrey Botanical Club 26: 568–581.
Nees von Esenbeck CG. 1841. Florae Africae australioris illustrationes monographicae. Prausnitzianis, Glogaviae.
Nguyen TQ. 1966. Notulae criticae de gramineis florae Vietnamensis 1. Novitates Systematicae Plantarum Vascularium 1966: 10–14.
Nordenstam B. 1980. The herbaria of Lehmann and Sonder in Stockholm, with special reference to the Ecklon and Zeyher collection. Taxon 29(2/3): 279–288.
Oliver D. 1875. The botany of the Speke and Grant expedition, an enumeration of the plants collected during the journey of the late Captain J.H. Speke and Captain (now Lieut. Col.) J.A. Grant from Zanzibar to Egypt. Part III. Transactions of the Linnean Society of London 29: 103–186.
Palisot de Beauvois AMFJ. 1812. Essai d'une nouvelle agrostographie ou nouveaux genres des graminées. Paris.
Persoon CH. 1805. Synopsis plantarum 1. C.F. Cramerum, Paris & J.G. Cottam, Tubbingae.
Peter A. 1928. Wasserpflanzen und Sumpfgewächse in Deutsch-Ostafrika. Abhandlungen der Gesellschaft der Wissenschaften zu Göttingen, Mathematisch-Physikalische Klasse, Neu Folge, 13(2): 1–129.
Peter A. 1929. Flora von Deutsch-Ostafrika – Plantarum novarum Africae orientalis …. Repertorium Specierum Novarum Regni Vegetabilis, Beihefte 40(1, Anhang): 1–111.
Peter A. 1930. Flora von Deutsch-Ostafrika. Repertorium Specierum Novarum Regni Vegetabilis, Beihefte 40(1, 3): 145–208.
Phillips S. 1995. Poaceae (Gramineae). In: Hedberg I, Edwards S (eds), Flora of Ethiopia and Eritrea 7: 1–420. The National Herbarium, Addis Ababa & Department of Systematic Botany, Uppsala.
Pilger RFK. 1928. Beiträge zur Kenntnis der Flora des Kenia, Mt. Aberdare und Mt. Elgon XI. Gramineae III. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 10: 266–272.
Pilger RKF. 1936. Gramineae V. In: Mildbraed J (ed), Neue und seltene Arten aus Ostafrika (Tanganyika-Territ. Mandat) leg. H.J. Schlieben, XI. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 12: 260–264.
Pilger RKF. 1940. Gramineae III: Unterfamilie Panicoideae. In: Engler A, Prantl K (eds), Die natürlichen Pflanzenfamilies, 2nd ed., 14e: 1–208. Engelmann, Leipzig.
Pilger RKF. 1941. Gramineae. In: Mildbraed J (ed), XIX. Beiträge zur Flora von Deutsch-Südwestafrika. Notizblatt des Botanischen Gartens und Museums zu Berlin-Dahlem 15(3): 448–453.
Presl CB. 1830. Reliquiae haenkeanae 1(4/5). Calve, Pragae.
Raddi G. 1823. Agrostografia brasiliensis sive enumeratio plantarum ad familias naturales graminum et ciperoidarum spectantium, quas in Brasilia collegit et descripsit Josephus Raddius. Tipografia ducale, Lucca.
Rendle AB. 1899. Monocotyledons and Gymnosperms. In: Hiern WP (ed), Catalogue of the African Plants collected by Dr. F. Welwitsch in 1853–61, 2(1). British Museum Natural History, London.
Richard A. 1850. Tentamen florae abyssinicae 2. Arthus Bertrand, Paris.
Roberty G. 1954. Petite Flore de l'Ouest-Africain. Office de la Recherche Scientifique et Technique Outre-Mer, Paris.
Robyns W. 1932. Contribution à l'étude des Graminées du Congo Belge et du Ruanda-Urundi. II. Panicées. Bulletin du Jardin Botanique de l'État à Bruxelles 9(3): 171–202.
Roemer JJ, Schultes JA. 1817. Caroli a Linné equitis Systema vegetabilium secundum classes ordines genera species, ed. 15bis, 2. J.G. Cottae, Stuttgardtiae.
Roxburgh W. 1820. Flora Indica 1. Mission Press, Serampore.
Rudov A, Mashkour M, Djamali M, et al. 2020. A review of C4 plants in Southwest Asia: An ecological, geographical and taxonomical analysis of a region with high diversity of C4 Eudicots. Frontiers in Plant Science 11: 546518.
Sánchez-Ken G. 2007. Two new species of Eragrostis and Brachiaria (Poaceae) from Tanzania. Kew Bulletin 62(3): 513–518.
Schinz H. 1888. Beiträge zur Kenntnis der Flora von Deutsch-Südwest-Afrika und der angrenzenden Gebiete. Verhandlungen des Botanischer Vereins der Provinz Brandenburg 30: 138–276.
Scholz H. 1978. Bemerkungen über Gramineen aus dem Berliner Herbar: Brachiaria und Megalachne. Willdenowia 8: 383–387.
Scholz H. 1982. Brachiaria deflexa und B. multispiculata sp. nova (Gramineae). Willdenowia 12(2): 287–290.
Scholz H. 1990. Gramineae. In: Hiepko P, Scholz H (eds), Additions et corrections à la "Flore analytique du Togo". Bulletin du Muséum nationale d'Histoire naturelle, Paris, 4e sér., sect. B, Adansonia 11: 441–443.
Schumacher FC. 1827. Beskrivelse af Guineeinsche Planten. Popps, Kobenhavn.
Schumann K. 1895. Fam. Gramineae. In: Engler A (ed), Die Pflanzenwelt Ost-Afrikas und der Nachbargebiete. Teil C. Verzeichniss der bis jetzt aus Ost-Afrika bekannt gewordenen Pflanzen: 95–117. Dietrich Reimer, Berlin.
Schweinfurth G. 1894. Sammlung Arabisch-Aethiopischer Pflanzen, Ergebnisse von Reisen in den Jahren 1881, 88, 89, 91 und 92. Bulletin de l'Herbier Boissier 2 (App. II): 1–113.
Simon BK, Clayton WD, Harman KT, et al. 2011. GrassWorld. http://grassworld.myspecies.info/ [retrieved 11 Nov. 2019].
Sosef MSM. 1999. Gramineae (Supplément). Flore du Gabon 5 bis. Muséum national d'Histoire naturelle, Paris.
Sosef MSM. 2016. Taxonomic novelties in Central African grasses (Poaceae), Paniceae 1. Plant Ecology and Evolution 149(3): 356–365.
Sprengel C. 1824. Caroli Linnaei, ... Systema Vegetabilium, ed. 16, 1. Librariae Dieterichianae, Gottingae.
Stapf O. 1906. Plantae novae Daweanae in Uganda lectae. The Journal of the Linnean Society, Botany 37: 495–532.
Stapf O. 1919. Order CLVII. Gramineae, part 3. In: Prain D (ed), Flora of tropical Africa 9: 385–576. Reeve & Co. Ltd., Ashford.
Stapf O. 1920. Order CLVII. Gramineae, part 4. In: Prain D (ed), Flora of tropical Africa 9: 577–768. Reeve & Co. Ltd., Ashford.
Stent SM. 1924. South African Gramineae. Bothalia 1(4): 222–303.
Stent SM, Rattray JM. 1933. The grasses of southern Rhodesia. Proceedings and Transactions of the Rhodesia Scientific Association 32: 1–64.
Steudel EG. 1853. Synopsis plantarum glumacearum 1(1). Metzler, Stuttgart.
Thiers BM (continuously updated). Index Herbariorum. https://sweetgum.nybg.org/science/ih.
Thunberg CP. 1794. Prodromus Plantarum Capensium 1. Joh. Edman, Uppsala.
Torres González AM, Morton CM. 2005. Molecular and morphological phylogenetic analysis of Brachiaria and Urochloa (Poaceae). Molecular Phylogenetics and Evolution 37(1): 36–44.
Trinius CB. 1826. De Graminibus paniceis. Academiae Imperialis Scientiarum, St Petersburg.
Turland NJ, Wiersema JH, Barrie FR, et al. (eds). 2018. International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. Regnum Vegetabile 159. Koeltz Botanical Books, Glashütten. https://doi.org/10.12705/Code.2018.
Van der Zon APM. 2019. New combinations in Cenchrus and Urochloa (Gramineae). Blumea 64: 214–215.
Vanderyst H. 1925. Aide-mémoire pour faciliter la recherche des Paniceae. Bulletin Agricole du Congo Belge 16: 652–689.
Veldkamp JF. 1996. Brachiaria, Urochloa (Gramineae–Paniceae) in Malesia. Blumea 41: 413–437.
Veldkamp JF. 2004. Miscellaneous notes on mainly southeast Asian Gramineae. Reinwardtia 12: 135–140.
Vorontsova MS. 2022. Revision of some Malagasy forage grasses and their relatives within Brachiaria, Echinochloa, Moorochloa, and Urochloa. Candollea 77(2): 199–236.
Webster RD. 1987. The Australian Paniceae (Poaceae). Cramer, Berlin & Stuttgart.
Webster RD. 1988. Genera of the North American Paniceae (Poaceae: Panicoideae). Systematic Botany 13: 576–609.
WFO Plant List 2023. December 2022 snapshot available at https://wfoplantlist.org [accessed 18 Jan. 2023]. Data set at https://doi.org/10.5281/zenodo.7467360.