The Euro+Med treatment of Gramineae — a generic synopsis and some new names

Authors: Valdés, Benito, and Scholz, Hildemar

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BENITO VALDÉS & HILDEMAR SCHOLZ

The Euro+Med treatment of *Gramineae* – a generic synopsis and some new names

Abstract

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A synopsis of genera accepted for the Euro+Med project is presented. As a consequence of the generic treatment and reassessment of accepted specific and subspecific taxa, new names and new combinations are required in *Agrostis, Alopecurus, Anisantha, Arundo, Avellinia, Avenella, Avenula, Bromopsis, Bromus, Danthonia, Elymus, Elytrigia, Enneapogon, Eragrostis, Koeleria, Macrochloa, Neoschischkinia, Ochlopoa, Phalaroides, Rostraria, Secale, Setaria, Stipa, Triticum* and *Urochloa*. The genus name *Tripidium* is validated to substitute the illegitimate *Ripidium.*

Key words: Europe, Mediterranean area, Caucasia, grass genera, inventory, taxonomy, nomenclature.

Introduction

The Euro+Med PlantBase is an international cooperative research project sponsored by the European Union and other bodies. One of the aims of the project is to organize, co-ordinate and make available information on the vascular plants of the Euro-Mediterranean region using modern bioinformatic techniques.

The first author of this note took charge of editing the family *Gramineae* as a whole, but he has had the close cooperation of the second author, who has greatly contributed to the long reviewing process, and he sought the advice of several competent specialists, particularly Prof. C. Stace, who has advised on *Aveneae,* Dr B. Foggi, main responsible for the treatment of *Festuca* s.l., and Prof. W. Hempel, who has reviewed *Melica*. Prof. A. Petrova has advised on Bulgarian taxa.

Euro+Med area is a wide portion of the Old World comprising Europe, as delimited by Flora Europaea, the Mediterranean area, as delimited by Med-Checklist (circum-Mediterranean countries), Caucasia and the European Atlantic islands (Azores, Madeira and Canary Islands).

This note includes a synopsis of the family at generic rank for this area and gives also some required new combinations. Those on *Festuca* s.l. were published separately (Foggi, Scholz & Valdés in Willdenowia 35: 241-244. 2005).

Euro+Med *Gramineae* – a generic synopsis

The Euro+Med genera accepted by us, with their relevant synonyms, are listed in Table 1. They have been taxonomically arranged by tribes and, within each tribe, alphabetically by genera. Intergeneric hybrids have been omitted, except for the widely distributed ×*Calammophila* and ×*Schedolium* and, although it has a rather limited representation, ×*Festulolium.*

For tribe delimitation, the classification adopted in Flora Europaea (Tutin (ed.) in Fl. Eur. 5: 118-267. 1980) has basically been adopted. The only significant differences are that (1) genera included in *Arundinarieae* in Flora Europaea have been assigned to *Arundinarieae* and *Shibataeeae,* (2) the name *Cynodonteae* (including *Zoysieae*) is used instead of *Clorideae,* as it has priority over the latter, and (3) we have added *Arundinelleae,* because *Danthoniopsis barbata* (Nees) C. E. Hubb. of this tribe is native in Egypt, and *Bambuseae,* here considered separate from *Arundinarieae* and *Shibataeeae,* to include *Bambusa,* with some species widely cultivated in the Euro+Med area although only doubtfully naturalized.

At generic level, a narrower concept than in Flora Europaea has been adopted where we consider it more appropriate to separate what are in our view more uniform, natural groups. This is particularly the case with *Bromus* s.l., *Festuca* and *Panicum,* which, as considered in Flora Europaea, are very polymorphic and heterogeneous. Besides, many genera that are not native to Europe have been added, as shown in Table 1.

In *Bromeae, Bromus* s.l., as generally adopted in its widest sense, includes several groups of species that greatly differ in biological cycle and general morphology, including spikelet composition, glume, lemma and awn characters, etc. It is hard to include under the same generic name such different species as, e.g., *Bromus lanceolatus* Roth, *B. unioloides* Humb., *B. diandrus* Roth, etc., and we have considered it more appropriate to separate the genera *Anisantha, Boissiera, Bromopsis, Ceratochloa* and *Nevskiella* from *Bromus* s.l. In this way, each of these genera forms a rather natural group of closely related species, which share a series of distinct characters. *Anisantha* includes annual or biennial species with cuneate ripe spikelets, wider at the top, with 1-nerved lower and 3-nerved upper glume and long, usually flattened awn. *Boissiera* includes a single annual species (*B. squarrosa* (Banks & Soland.) Nevski) with laterally compressed spikelets with 3-nerved lower and 5-nerved upper glume and the lemma usually with 7 awns. *Bromopsis* is formed by perennial plants with narrow and more or less parallel-sided spikelets with 1-3 nerved lower and 3-5-nerved upper glume and the awn usually shorter than the lemma. *Bromus* s.s. includes annuals with lanceolate to ovate-terete or slightly compressed spikelets with 3-5-nerved lower and 5-7-nerved upper glume and the awn usually as long as the lemma, rarely absent. *Ceratochloa* is formed by short-living perennials with ovate to ovate-lanceolate and strongly compressed spikelets with 3-5-nerved lower and 5-7-nerved upper glume and the awn usually much shorter than the lemma and often absent. Finally, *Nevskiella* is represented in the Euro+Med area by only one annual species (*N. gracillima* (Bunge) V. Krecz. & Vved.) with ovate and rather small spikelets with 1-nerved lower and 3-nerved upper glume and the awn much longer than the lemma.

In *Brachypodieae, Trachynia,* formed by annual species with short, erect racemes with 1-2(-6) laterally compressed spikelets and anthers not more than 1 mm long, has been separated from *Brachypodium,* which now includes perennials with usually elongate and often nodding or drooping racemes with several terete or subterete spikelets and anthers at least 2.5 mm long.

In *Triticeae* the main differences to Flora Europaea are the subdivision of *Elymus* and *Festucopsis*. *Elytrigia,* which includes rhizomatous perennials with spikelets of 5 or more flowers and glumes usually glabrous on the veins and obtuse to truncate or acute with a short mucro or awn, has been separated from *Elymus,* which includes caespitose perennials with spikelets of 3-5 flowers and glumes usually scabrid on the veins and gradually tapering into an awn. *Peridictyon,* comprising plants with basal leaf sheaths disintegrating into a mass of reticulate fibres and usually shortly awned glumes, has been segregated from *Festucopsis,* which remains to include the species with basal leaf sheaths disintegrating into a mass of more or less parallel fibres and unawned glumes.

In *Poeae,* the main differences to Flora Europaea result from the separation of *Brizochloa* from *Briza, Ochlopoa* from *Poa* s.s. and *Catapodium* from *Desmazeria*. For the separation of *Drymochloa, Leucopoa, Parafestuca* and *Schedonorus* from *Festuca* s.s., see elsewhere (Foggi, Scholz & Valdés in Willdenowia 35: 241-244. 2005). *Brizochloa* includes species with narrow, often linear, short-branched, subracemose panicles with peduncles shorter than the spikelets, while *Briza* comprises annual species with open, long-branched panicles with peduncles longer than the spikelets. A more natural grouping of the species usually included into *Desmazeria* s.l. results from the recognition of *Catapodium* as a separate genus. The latter includes species with basally glabrous lemmas rounded on the back or keeled only near the apex, while *Desmazeria* s.s. includes the species with strongly keeled lemmas with capitate hairs at the base. Finally, as considered by H. Scholz (in Ber. Inst. Landschafts-Pflanzenökol. Univ. Hohenheim, Beih. 16: 58-68. 2003), *Ochlopoa* includes gynomonoecious annual or short-living perennial species, formerly placed in *Poa* s.l., with flaccid stems, soft leaves and paleas with long-pilose (rarely glabrous) carinal veins

In *Aveneae,* the main differences to Flora Europaea concern *Agrostis, Phleum* and *Deschampsia,* which we have divided into three genera each. From *Agrostis, Linkagrostis* has been segregated as a separate genus (see Romero, Blanca & Morales in Ruizia 7. 1988), which includes perennials with contracted, interrupted panicles and more or less similar glumes, and *Neoschischkinia,* formed by annual or short-lived perennials with lax panicles often with more or less divaricate branches usually clavate at the apex. Regarding *Phleum,* we recognize *P.* sect. *Maillea* at generic level, to separate the species with glumes winged on the keel and 1-nerved palea from the typical *Phleum* species characterized by unwinged glumes and 2-nerved paleas. The extra-European genus *Pseudophleum* is also accepted. Finally, *Deschampsia* is considered for the Euro+Med area excluding *Avenella,* the species of which have filiform leaves without ridges on the upper surface instead of convolute leaves with ridges on the upper surface as in *Deschampsia,* moreover a rachilla prolonged by less than ¼ the length of the upper floret and an at least 2 mm long anther. Also excluded from *Deschampsia* is *Aristavena,* which, as proposed by Alberts & Butzin (in Willdenowia 8: 81-84. 1977), is a monotypic genus clearly separated by morphological, anatomical and karyological characters.

In *Phalarideae, Phalaroides,* characterized by its unwinged glumes and long rhizomes, has been recognized as a genus separate from *Phalaris* s.s. and includes annuals or perennials with short rhizomes and glumes winged on the keel.

In *Stipeae, Stipa* s.l. includes several groups of species, which clearly differ morphological and biologically. We have followed Vázquez & Barkworth (in Bot. J. Linn. Soc. 144: 483-495. 2004) to consider *Macrochloa* and *Celtica* as separate from *Stipa* s.l. Among other characters, *Macrochloa* clearly differs from typical *Stipa* by its ligule, substituted by a line of hairs (membranous in *Stipa* s.s.), by the presence of two long, lanate apical stiples in the leaf sheaths, especially of the lower leaves (stiples very short or missing in *Stipa* s.s.), and by the lemmas, which are uniformly pubescent (usually with 4-7 longitudinal unequal lines of hairs on their back in *Stipa* s.s.). *Celtica* is well characterized mainly by its bidentate and uniformly pubescent lemmas and its bifid paleas, the latter being a unique character within *Stipa* s.l.

Finally, in *Paniceae,* apart from the use of the name *Moorochloa* instead of *Brachiaria* (see Veldkamp in Reinwardtia 12: 138. 2004), the main difference compared to Flora Europaea is the treatment of *Panicum*. Two genera have been separated from *Panicum* s.s., which is restricted to include annuals or rhizomatous perennials without winter rosettes and smooth lemmas; *Dichanthelium* includes perennial species with basal leaves quite different from the cauline leaves and forming a winter rosette and panicles producing secondary inflorescences with cleistogamous spikelets; *Megathyrsus* comprises caespitose perennials with transversely rugose upper lemma.

New names and new combinations

Bromeae

Anisantha fasciculata subsp. ***delilei*** (Boiss.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus madritensis* var. *delilei* Boiss., Fl. Orient. 5: 649. 1884.

Anisantha madritensis subsp. ***tefedetica*** (Quézel) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus madritensis* subsp. *tefedeticus* Quézel in Bull. Soc. Hist. Nat. Afrique N. 46: 132. 1956.

Anisantha rubens subsp. ***kunkelii*** (H. Scholz) H. Scholz, **comb. nov.** ≡ *Bromus madritensis* subsp. *kunkelii* H. Scholz in Willdenowia 11: 251. 1981.

Anisantha sericea subsp. ***fallax*** (H. Scholz) H. Scholz, **comb. nov.** ≡ *Bromus sericeus* subsp. *fallax* H. Scholz in Willdenowia 19: 134. 1989.

Bromopsis cappadocica subsp. ***lacmonica*** (Hausskn.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus lacmonicus* Hausskn. in Mitt. Thüring. Bot. Vereins 13: 53. 1899.

Bromopsis cappadocica subsp. ***sclerophylla*** (Boiss.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus sclerophyllus* Boiss., Diagn. Pl. Orient., ser. 1, 13: 65. 1854.

Bromopsis erecta subsp. ***microchaeta*** (Font Quer), H. Scholz & Valdés, **comb. nov.** ≡ *Bromus microchaetus* Font Quer in Cavanillesia 4: 26. 1931 ≡ *Bromus erectus* subsp. *microchaetus* (Font Quer) Maire & Weiller in Jahandiez & Maire, Cat. Pl. Maroc 3: 866. 1934.

Bromopsis erecta subsp. ***permixta*** (H. Lindb.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus erectus* subsp. *permixtus* H. Lindb. in Acta Soc. Sci. Fenn., ser. 2, B 1(2): 14. 1932.

Bromopsis erecta subsp. ***stenophylla*** (Link) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus stenophyllus* Link, Enum. Hort. Berol. Alt. 1: 94. 1821.

Bromopsis erecta subsp. ***syriaca*** (Boiss. & Blanche) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus syriacus* Boiss. & Blanche in Boiss., Diagn. Pl. Orient., ser. 2, 4: 139. 1869.

Bromopsis erecta subps. ***transsilvanica*** (Steud.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus transsilvanicus* Steud., Syn. Pl. Glum. 1: 320. 1854.

Bromopsis ramosa subsp. ***atlantica*** (H. Lindb.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus atlanticus* H. Lindb. in Acta Soc. Sci. Fenn., ser. 2, B 1(2): 13. 1932.

Bromopsis sipylea (Boiss.) H. Scholz & Valdés, **comb. nov.** ≡ *Bromus sipyleus* Boiss., Diagn. Pl. Orient., ser. 1, 3: 65. 1854.

Bromopsis tomentella subsp. ***nivalis*** (Bornm.) H. Scholz, **comb. nov.** ≡ *Bromus tomentellus* var. *nivalis* Bornm. in Bull. Herb. Boissier, ser. 2, 8: 825. 1909 ≡ *Bromus tomentellus* subsp. *nivalis* (Bornm.) H. Scholz & A. J. Byfield in Turk. J. Bot. 24(4): 263. 2000.

Bromus depauperatus H. Scholz, **sp. nov.** – Holotypus: Hispania, "Sevilla: entre Cantillana y Alcolea del Río, Km 90-91, olivar, arroyo seco", 11.5.1986, *C. López & F. J. Molina* (SEV).

A *Bromo lanceolato* Roth inflorescentiis 1-3-spiculatis dense compactis, spiculis minoribus 1.5-2.5 × 0.5-0.8 mm et antheribus c. 0.6 mm longis differt. Gramen annuum cleistogamum culmis erectis 10-25 cm altis.

Bromus racemosus subsp. ***lusitanicus*** (Sales & P. M. Sm.) H. Scholz & L. M. Spalton, **comb. nov.** ≡ *Bromus lusitanicus* Sales & P. M. Sm. in Edinburgh J. Bot. 47: 361. 1990.

Triticeae

Elymus marginatus subsp. ***kabylicus*** (Maire & Weiller) Valdés & Scholz, **comb. nov.** ≡ *Agropyron marginatum* subsp. *kabylicum* Maire & Weiller in Bull. Soc. Hist. Nat. Afrique N. 24: 232. 1933.

Elytrigia caespitosa subsp. ***gypsicola*** (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus nodosus* subsp. *gypsicolus* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 82. 1984.

Elytrigia caespitosa subsp. ***platyphylla*** (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus nodosus* subsp. *platyphyllus* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 80. 1984.

Elytrigia clivorum (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus clivorum* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 77. 1984.

Elytrigia deweyi (K. B. Jensen & al.) Valdés & H. Scholz, **comb. nov.** ≡ *Pseudoroegneria deweyi* K. B. Jensen & al. in Canad. J. Bot. 70: 907. 1992.

Elytrigia elongata subsp. ***haifensis*** (Rech. f.) Valdés & H. Scholz, **comb. nov.** ≡ *Elytrigia elongata* var. *haifensis* Rech. f. in Ark. Bot. 2(5): 304. 1952.

Elytrigia elongata subsp. ***salsa*** (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus elongatus* subsp. *salsus* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 77. 1984.

Elytrigia elongata subsp. ***turcica*** (McGuire) Valdés & H. Scholz, **comb. nov.** ≡ *Elytrigia turcica* McGuire in Folia Geobot. Phytotax. (Praha) 18: 108. 1983 ≡ *Elymus elongatus* subsp. *turcicus* (McGuire) Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 81. 1984.

Elytrigia embergeri (Maire) Valdés & H. Scholz, **comb. nov.** ≡ *Agropyron embergeri* Maire in Bull. Soc. Hist. Nat. Afrique N. 33: 100. 1942.

Elytrigia erosiglumis (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus erosiglumis* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 78. 1984.

Elytrigia intermedia subsp. ***mucronata*** (Bercht.) Valdés & H. Scholz, **comb. nov.** ≡ *Agropyron mucronatum* Bercht., Oekon.-Techn. Fl. Böhm. 1: 408. 1836.

Elytrigia intermedia subsp. ***varnensis*** (Velen.) Valdés & H. Scholz, **comb. nov.** ≡ *Triticum varnense* Velen. in Abh. Königl. Böhm. Ges. Wiss. 1894(29): 28. 1894.

Elytrigia lazica (Boiss.) Valdés & H. Scholz, **comb. nov.** ≡ *Agropyron lazicum* Boiss., Fl. Orient. 5: 661. 1884 ≡ *Elymus lazicus* (Boiss.) Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 79. 1984.

Elytrigia lazica subsp. ***divaricata*** (Boiss. & Balansa) Valdés & H. Scholz, **comb. nov.** ≡ *Agropyron divaricatum* Boiss. & Balansa in Bull. Soc. Bot. France 4: 307. 1857 ≡ *Elymus lazicus* subsp. *divaricatus* (Boiss. & Balansa) Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 79. 1984.

Elytrigia lazica subsp. ***lomatolepis*** (Melderis) Valdés & H. Scholz, **comb. nov.** ≡ *Elymus lazicus* subsp. *lomatolepis* Melderis in Notes Roy. Bot. Gard. Edinburgh 42: 79. 1984.

Secale strictum subsp. ***balcanum*** (Ganchev) Valdés & H. Scholz, **comb. nov.** ≡ *Secale montanum* var. *balcanum* Ganchev, Fl. Rep. Pop. Bulg. 1: 486. 1963.

Triticum monococcum subsp. ***sinskajae*** (A. A. Filatenko & U. K. Kurkiev) Valdés & H. Scholz, **comb. nov.** ≡ *Triticum sinskajae* A. A. Filatenko & U.K. Kurkiev in Trudy Prikl. Bot. 54(1): 239. 1975.

Triticum timopheevii subsp. ***militinae*** (Zhuk. & Migush.) Valdés & H. Scholz, **comb. nov.** ≡ *Triticum militinae* Zhuk. & Migush. in Vestn. Sel'skokhoz. Nauki 2: 16. 1969.

Triticum turgidum subsp. ***pyramidale*** (Percival) Valdés & H. Scholz, **comb. nov.** ≡ *Triticum pyramidale* Percival, Wheat Pl.: 156, 262. 1921.

Triticum turgidum subsp. ***subspontaneum*** (Tzvelev) Valdés & H. Scholz, **comb. nov.** ≡ *Triticum dicoccon* subsp. *subspontaneum* Tzvel. in Novosti Sist. Vyss. Rast. 10: 41. 1973.

Poeae

Ochlopoa annua subsp. ***notabilis*** (Chrtek & V. Jirasek) H. Scholz & Valdés, **comb. nov.** ≡ *Poa annua* subsp. *notabilis* Chrtek & V. Jirasek in Biologia (Bratislava) 19: 494. 1964.

Ochlopoa annua subsp. ***pilantha*** (Ronniger) H. Scholz &Valdés, **comb. nov.** ≡ *Poa annua* var. *pilantha* Ronniger in Ber. Deutsch. Bot. Ges. 81: 17. 1968.

Ochlopoa annua subsp. ***raniglumis*** (Fröhner) H. Scholz & Valdés, **comb. nov.** ≡ *Poa annua* var. *raniglumis* Fröhner in Wiss. Z. Martin-Luther-Univ. Halle-Wittenberg, Math.-Naturwiss. Reihe 12: 670. 1963.

Ochlopoa dimorphantha (Murb.) H. Scholz & Valdés, **comb. nov.** ≡ *Poa dimorphantha* Murb. in Acta Univ. Lund., sect. 2, 36(1): 20. 1900.

Ochlopoa harveyi (Chrtek) H. Scholz & Valdés, **comb. nov.** ≡ *Poa harveyi* Chrtek in Časopis Nár. Muz., Odd. Přír. 165: 128. 1996.

Ochlopoa ×nannfeldtii (Jirásek) H. Scholz, **comb. nov.** ≡ *Poa ×nannfeldtii* Jirásek in Dostal, Květena ČSR: 1959. 1950.

Ochlopoa annua (L.) H. Scholz × *Ochlopoa supina* (Schrad.) H. Scholz.

Ochlopoa rivulorum (Maire & Trabut) H. Scholz & Valdés, **comb. nov.** ≡ *Poa rivolorum* Maire & Trabut in Bull. Soc. Hist. Nat. Afrique N. 15: 395. 1924.

Ochlopoa speluncarum (Edmondson) H. Scholz & Valdés, **comb. nov.** ≡ *Poa speluncarum* Edmonson in Davis, Fl. Turkey 9: 623. 1985.

Ochlopoa supina (Schrad.) H. Scholz & Valdés, **comb. nov.** ≡ *Poa supina* Schrad., Fl. Germ.: 289. 1806.

Aveneae

Agrostis gigantea subsp. ***glaucescens*** (Widén) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis gigantea* var. *glaucescens* Widén in Fl. Fenn. 5: 104. 1971.

Agrostis stolonifera subsp. ***gaditana*** (Boiss. & Reut.) Valdés & H. Scholz, **comb. nov.** ≡ *Sporobolus gaditanus* Boiss. & Reut., Pugill. Pl. Nov. Afr. Bor. Hispan.: 125. 1852.

Agrostis stolonifera subsp. ***karsensis*** (Litv.) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis karsensis* Litv. in Spisok Rast. Gerb. Russk. Fl. Bot. Muz. Rossijsk. Akad. Nauk 8: 147. 1922.

Agrostis vinealis subsp. ***ericetorum*** (Préaub. & Bouvet) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis ericetorum* Préaub. & Bouvet in Bull. Soc. Études Sci. Angers, ser. 2, 18: 86. 1899.

Alopecurus magellanicus subsp. ***glaucus*** (Less.) Valdés & H. Scholz, **comb. nov.** ≡ *Alopecurus glaucus* Less. in Linnaea 9: 206. 1834.

Avellinia festucoides (Link) Valdés & H. Scholz, **comb. nov.** ≡ *Bromus festucoides* Link in J. Bot. (Schrader) 1799(2): 315. 1800.

Avenella flexuosa subsp. ***corsica*** (Tausch) Valdés & H. Scholz, **comb. nov.** ≡ *Aira corsica* Tausch in Flora 20: 102. 1837.

Avenella flexuosa subsp. ***iberica*** (Rivas Martínez) Valdés & H. Scholz, **comb. nov.** ≡ *Deschampsia flexuosa* subsp. *iberica* Rivas Martínez in Trab. Dep. Bot. Fisiol. Veg. Univ. Madrid 3: 113. 1971.

Avenula blaui subsp. ***aenigmatica*** (Lange) H. Scholz & Valdés, **comb. nov.** ≡ *Helictotrichon blaui* subsp. *aenigmaticum* Lange in Biblioth. Bot. 145: 181. 1995.

Avenula hookeri subsp. ***schelliana*** (Hack.) H. Scholz & Valdés, **comb. nov.** ≡ *Avena schelliana* Hack. in Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 419. 1892.

Avenula praeusta subsp. ***pseudoviolacea*** (Dalla Torre) H. Scholz & Valdés, **comb. nov.** ≡ *Avena pseudoviolacea* Dalla Torre, Atl. Alpenfl.: 228. 1882.

Avenula pubescens subsp. ***longiflora*** (Boiss.) H. Scholz & Valdés, **comb. nov.** ≡ *Avenula pubescens* var. *longifolia* Boiss., Fl. Orient. 5: 545. 1884.

Avenula versicolor subsp. ***caucasica*** (Holub) H. Scholz & Valdés, **comb. nov.** ≡ *Helictotrichon versicolor* proles *caucasicum* Holub in Preslia 31: 51. 1959.

Koeleria macrantha subsp. ***helvetica*** (Domin) H. Scholz & Valdés, **comb. nov.** ≡ *Koeleria gracilis* subsp. *helvetica* Domin in Biblioth. Bot. 65: 226. 1907.

Neoschischkinia pourretii (Willd.) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis pourretii* Willd. in Mag. Neuesten Entdeck. Gesamten Naturk. Ges. Naturf. Freunde Berlin 2: 290. 1808.

Neoschischkinia reuteri (Boiss.) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis reuteri* Boiss., Voy. Bot. Espagne 2: 645. 1844.

Neoschischkinia truncatula (Parl.) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis truncata* Parl., Fl. Ital. 1: 185. 1848.

Neoschischkinia truncatula subsp. ***durieui*** (Willk.) Valdés & H. Scholz, **comb. nov.** ≡ *Agrostis durieui* Willk., Suppl. Prodr. Fl. Hisp.: 15. 1893.

Agrostis durieui Willk. is not a nomen nudum as considered by Castroviejo & Charpin (in Candollea 38: 676. 1983) and Romero & al. (in Ruiza 7: 141. 1988), because it is validated by the description of n. 237, "*A. capillaris"* sensu Willk. [non L.] in Willkomm & Lange, Prodr. Fl. Hisp. 1: 55. 1861.

Rostraria pumila subsp. ***fuscescens*** (Pomel) H. Scholz & Valdés, **comb. nov.** ≡ *Trisetum fuscescens* Pomel, Nouv. Mat. Fl. Atl.: 387. 1874.

Arundineae

Arundo collina subsp. ***hellenica*** (Danin & al.) H. Scholz, **comb. nov.** ≡ *Arundo hellenica* Danin & al. in Willdenowia 32: 191. 2002.

Danthonieae

Danthonia glaberrima (Post) Valdés & H. Scholz, **comb. nov.** ≡ *Triodia glaberrima* Post., Fl. Syria: 874. 1896.

Pappophoreae

Enneapogon foxii (Post) Valdés & H. Scholz, **comb. nov.** ≡ *Pappophorum foxii* Post, Fl. Syria: 873. 1896.

Stipeae

Macrochloa antiatlantica (Barreña & al.) H. Scholz & Valdés, **comb. nov.** ≡ *Stipa antiatlantica* Barreña & al. in Novon 16: 13. 2006.

Macrochloa tenacissima subsp. ***gabensis*** (Moraldo & al.) H. Scholz & Valdés, **comb. nov.** ≡ *Stipa gabensis* Moraldo & al. in Candollea 44: 78. 1986.

Stipa letourneuxii subsp. ***tunetana*** (H. Scholz) H. Scholz, **comb. nov.** ≡ *Stipa tunetana* H. Scholz in Willdenowia 20: 79. 1991.

Stipa scholzii Valdés, **nom. nov.** ≡ *Stipa martinovskyi* Moraldo in Webbia 37: 25. 1983 [non Klokov in Novosti Sist. Vysš. Nizš. Rast. 1975: 37. 1976].

Paniceae

Setaria italica subsp. ***moharia*** (Alef.) H. Scholz, **comb. nov.** ≡ *Panicum italicum* convar. *moharium* Alef., Landwirtsch. Fl.: 315. 1866.

Urochloa leersioides (Hochst.) H. Scholz & Valdés, **comb. nov.** ≡ *Panicum leersioides* Hochst. in Flora 38: 196. 1855.

Phalarideae

Phalaroides arundinacea subsp. ***oehleri*** (Pilg.) Valdés & H. Scholz, **comb. nov.** ≡ *Phalaris arundinacea* subsp. *oehleri* Pilg. in Bot. Jahrb. Syst. 43: 91. 1909.

Phalaroides arundinacea subsp. ***rotgesii*** (Husn.) Valdés & H. Scholz, **comb. nov.** ≡ *Baldingera arundinacea* var. *rotgesii* Husn., Gram.: 87. 1899.

Eragrostideae

Eragrostis barrelieri subsp. ***ambigua*** (Dobignard & Portal) H. Scholz & Valdés, **comb. nov.** ≡ *Eragrostis barrelieri* var. *ambigua* Dobignard & Portal in Portal, Eragrostis France & Eur. Occid.: 173. 2002.

Eragrostis cilianensis subsp. ***thyrsiflora*** (Willk.) H. Scholz & Valdés, **comb. nov.** ≡ *Eragrostis megastachya* var. *thyrsiflora* Willk. in Willkomm & Lange, Prodr. Fl. Hispan. 1: 83. 1861 ≡ *Eragrostis cilianensis* var. *thyrsiflora* (Willk.) Dobignard & Portal in Portal, Eragrostis France & Eur. Occid. 197. 2002.

Andropogoneae

Tripidium H. Scholz, **nom. nov.** ≡ *Ripidium* Trin., Fund. Agrost.: 169. 1820 [non Bernhardi in J. Bot. (Schrader) 1800(2): 127. 1801] ≡ *Erianthus* sect. *Ripidium* (Trin.) Henrard in Feddes Repert. 22: 350. 1926.

The New World members of *Erianthus* Michx. (sect. *Erianthus*) are quite distinct from the Old World members (*E.* sect. *Ripidium* with tri- instead of bistaminate flowers, as in American species). The distinctness is substantiated by recent isozyme, flavonoid and molecular marker studies and consequently the Old World species are treated as a separate genus with the (illegitimate) name *Ripidium* so far.

Tripidium bengalense (Retz.) H. Scholz, **comb. nov.** ≡ *Saccharum bengalense* Retz., Observ. Bot. 5: 16. 1789 ≡ *Erianthus bengalensis* (Retz.) Bharadw. & al. in Agra Univ. J. Res., Sci. 5: 311. 1957 ≡ *Ripidium bengalense* (Retz.) Grassl in Proc. 14th Congr. Int. Soc. Sugar Cane Technologists 1972: 244. 1972 = *Saccharum sara* Roxb., Fl. Ind. 1: 244. 1832.

Tripidium ravennae (L.) H. Scholz, **comb. nov.** ≡ *Andropogon ravennae* L., Sp. Pl., ed. 2, 2: 1481. 1763 ≡ *Erianthus ravennae* (L.) P. Beauv., Ess. Agrostogr.: 14. 1812 ≡ *Ripidium ravennae* (L.) Trin., Fund. Agrost.: 169. 1820 ≡ *Saccharum ravennae* (L.) L., Syst. Veg., ed. 13: 88. 1774.

Tripidium ravennae subsp. ***parviflorum*** (Pilg.) H. Scholz, **comb. nov.** ≡ *Erianthus parviflorus* Pilg. in Bot. Jahrb. Syst. 120: 63. 1917 ≡ *Erianthus ravennae* subsp. *parviflorus* (Pilg.) H. Scholz in Willdenowia 6: 291. 1971 ≡ *Saccharum ravennae* subsp. *parviflorum* (Pilg.) Maire, Étud. Fl. Vég. Sahara: 54. 1933.

Tripidium strictum (Host) H. Scholz, **comb. nov.** ≡ *Andropogon strictus* Host, Gram. Austr. 2: 2. 1802 ≡ *Ripidium strictum* Trin., Fund. Agrost.: 169. 1820 = *Erianthus adpressus* Ják., Magyar Fl.: 62. 1924.

Addresses of the authors:
Prof. Dr Benito Valdés, Departamento de Biología Vegetal y Ecología, Facultad de Biología, Universidad de Sevilla, Avda. Reina Mercedes s/n, 41012 Sevilla, Spain.

Prof. Dr Hildemar Scholz, Botanischer Garten und Botanisches Museum Berlin-Dahlem, Freie Universität Berlin, Königin-Luise-Str. 6-8, D-14195 Berlin, Germany.

Table 1. The Euro+Med genera of *Gramineae*. – Accepted names appear in bold-face type and synonyms in italics. Genera not native to the Euro+Med area are included in square brackets.

Arundinarieae

[***Arundinaria*** Michx.]
Pleioblastus Nakai]
= *Arundinaria* Michx. p.p.
[***Pseudosasa*** Nakai]
[***Sasa*** Makino & Shibata]
[***Sasaella*** Makino]

Shibataeeae

[***Phyllostachys*** Siebold & Zucc., nom. cons.]
[***Semiarundinaria*** Nakai]

Bambuseae

[***Bambusa*** Schreb., nom. cons.]

Seslerieae

Ammochloa Boiss.
Echinaria Desf.
Oreochloa Link
Sesleria Scop.
= *Psilathera* Link
= *Sesleriella* Deyl

Meliceae

Melica L.
Schizachne Hack.

Glycerieae

Glyceria R. Br., nom. cons.
Pleuropogon R. Br.

Bromeae

Anisantha K. Koch
= *Bromus* sect. *Genea* Dumort.
Boissiera Steud.
Bromopsis Fourr.
= *Bromus* sect. *Pnigma* Dumort.
= *Zerna* Panzer
Bromus L.
= *Serrafalcus* Parl.
[***Ceratochloa*** P. Beauv.]
= *Bromus* sect. *Ceratochloa* (P. Beauv.) Griseb.
Nevskiella Krecz. & Vved.
= *Bromus* L., p.p.

Brachypodieae

Brachypodium P. Beauv.
= *Brevipodium* Á. Löve & D. Löve
Trachynia Link
= *Brachypodium* sect. *Trachynia* (Link) Nyman

Triticeae

= *Hordeae*
Aegilops L.
= *Aegilemma* Á. Löve
= *Aegilonearum* Á. Löve
= *Aegilopodes* Á. Löve
= *Chennapyrum* Á. Löve
= *Comopyrum* (Jaub. & Spach) Á. Löve
= *Cylindropyrum* (Jaub. & Spach) Á. Löve
= *Gastropyrum* (Jaub. & Spach) Á. Löve
= *Kiharapyrum* Á. Löve
= *Orrhopygium* Á. Löve
= *Patropyrum* Á. Löve
= *Sitopsis* Jaub. & Spach
Agropyron Gaertn.
= *Agropyrum* Roem. & Schult., var. orth.
Amblyopyrum (Jaub. & Spach) Eig
= *Aegilops* L., p.p.
Crithopsis Jaub. & Spach
Dasypyrum (Coss. & Durieu) T. Durand
= *Haynaldia* Schur
= *Pseudosecale* Schur
Elymus L.
= *Agropyrum* (Host.) Dumort.
= *Clinelymus* (Griseb.) Nevski
= *Goulardia* Husn.
= *Roegneria* W. D. J. Koch
Elytrigia Desv.
= *Elymus* L., p.p.
= *Lophopyrum* Á. Löve
= *Psammopyrum* (Pers.) Á. Löve
= *Pseudoroegneria* (Nevski) Á. Löve
= *Thinopyrum* Á. Löve
= *Trichopyrum* Á. Löve
Eremopyrum (Ledeb.) Jaub. & Spach
Festucopsis (C. E. Hubb.) Melderis
Henrardia C. E. Hubb.
Heteranthelium Hochst.
Hordelymus (Jessen) C. O. Harz
= *Cuviera* DC.
Hordeum L.
= *Critesion* Rafin.
Leymus Hochst.
= *Aneurolepidium* Nevski

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Peridictyon Seberg & al.
= *Festucopsis* (C. E. Hubb.) Melderis p.p.
Psathyrostachys Nevski
Secale L.
Taeniatherum Nevski
Triticum L.
= *Crithodium* Link
= *Gigachilon* Seidl

Poeae

Agropyropsis (Batt. & Trab.) A. Camus
= *Catapodium* subg. *Agropyropsis* Batt. & Trab.
Arctagrostis Griseb.
Arctophila (Rupr.) N. J. Andersson
Beckmannia Host
Bellardiochloa Chiov.
Briza L.
= *Macrobriza* (Tzvel.) Tzvel.
Brizochloa V. Jirásek & Chrtek
= *Briza* L., p.p.
Castellia Tineo
Catabrosa P. Beauv.
Catabrosella (Tzvel.) Tzvel.
Catapodium Link
= *Scleropoa* Griseb., p.p.
Cinna L.
Colpodium Trin.
Ctenopsis De Not.
Cutandia Willk.
Cynosurus L.
= *Falona* Adans.
Dactylis L.
Desmazeria Dumort.
= *Scleropoa* Griseb., p.p.
Drymochloa Holub
= *Festuca* sect. *Montanae* Hack.
Dupontia R. Br.
Eremopoa Roshev.
Festuca L.
×***Festulolium*** Asch. & Graebn.
Hyalopoa (Tzvel.) Tzvel.
= *Colpodium* subgen. *Hyalopoa* Tzvel.
Lamarckia Moench, nom. & orth. cons.
Leucopoa Griseb.
= *Festuca* sect. *Leucopoa* (Griseb.) Krivot.
Libyella Pamp.
Lindbergella Bor
= *Lindbergia* Bor, non Kindberg
Loliolum Krecz. & Bobrov
Lolium L.
Mibora Adans.
= *Chamagrostis* Wibel
Micropyropsis Romero Zarco & Cabezudo
Micropyrum Link
Narduroides Rouy
Nephelochloa Boiss.
Ochlopoa (Asch. & Graebn.) H. Scholz
= *Poa* sect. *Ochlopoa* Asch. & Graebn.
Oreopoa H. Scholz & Parolly
Paracolpodium (Tzvel.) Tzvel.
Parafestuca E. B. Alexeev
Phippsia (Trin.) R. Br.
Poa L.
Pseudosclerochloa Tzvel.
Psilurus Trin.
Puccinellia Parl., nom. cons.
= *Atropis* Rupr.
×***Schedolium*** Soreng & Terrell
Schedonorus P. Beauv.
= *Festuca* subg. *Schoedonorus* (P. Beauv.) Peterm.
= *Festuca* sect. *Bovinae* (Anderss.) Hackel
Sclerochloa P. Beauv.
Sphenopus Trin.
Vulpia C. C. Gmel.
= *Loretia* Duval-Jouve
= *Nardurus* Rchb.
Vulpiella (Trab.) Burollet
Wangenheimia Moench

Aveneae

Agrostis L.
= *Vilfa* Adans.
= *Trichodium* Michx.
Aira L.
Airopsis Desv.
Alopecurus L.
= *Colobachne* P. Beauv.
Ammophila Host
= *Psamma* P. Beauv.
Anthoxanthum L.
Antinoria Parl.
Apera Adans.
Aristavena Albers & Butzin
= *Deschampsia* P. Beauv., p.p.
Arrhenatherum P. Beauv.
Avellinia Parl.
Avena L.
= *Anelytrum* Hack.

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Avenella Drejer
= *Deschampsia* P. Beauv., p.p.
= *Lerchenfeldia* Schur
Avenula (Dumort.) Dumort.
= *Avenochloa* Holub
= *Avenastrum* Opiz
Calamagrostis Adans.
= *Deyeuxia* P. Beauv.
×Calammophila Brand
= ×*Ammocalamagrostis* P. Fourn.
Chaetopogon Janchen
= *Chaeturus* Link, non Willd.
Cornucopiae L.
Corynephorus P. Beauv., nom. cons.
= *Anachortus* Jirásek & Chrtek
= *Weingaertneria* Bernh.
Danthoniastrum (Holub) Holub
Deschampsia P. Beauv.
Gastridium P. Beauv.
Gaudinia P. Beauv.
Gaudiniopsis Eig
Helictotrichon Besser
Hierochloë R. Br., nom. cons.
= *Savastana* Schrank
Holcus L., nom. cons.
= *Homalachne* Kuntze
Koeleria Pers.
= *Airochloa* Link
Lagurus L.
Linkagrostis Romero García & al.
Maillea Parl.
= *Phleum* sect. *Maillea* (Parl.) Horn
Molineriella Rouy
= *Molineria* Parl., non Colla
Neoschischkinia Tzvel.
Parvotrisetum Chrtek
Periballia Trin.
Phleum L.
= *Chilochloa* P. Beauv.
Pilgerochloa Eig
Polypogon Desf.
Pseudophleum Dogan
Pseudarrhenatherum Rouy
= *Thorea* Rouy
Rhizocephalus Boiss.
Rostraria Trin.
= *Lophochloa* Rchb.
Triplachne Link
Trisetaria Forssk.
Trisetum Pers.
Vahlodea Fries
Ventenata Koeler, nom. cons.

Hainardieae

= *Monermeae*
Hainardia Greuter*
= *Monerma* P. Beauv., nom. illeg.
= *Lepturus* auct., non R. Br.
Parapholis C. E. Hubb.
= *Lepidurus* Janch.
Pholiurus Trin.

Phalarideae

Phalaris L.
Phalaroides Wolf
= *Baldingera* Gaertn.
= *Digraphis* Trin.
= *Typhoides* Moench

Coleantheae

Coleanthus Seidl, nom. cons.

Scolochloeae

Scolochloa Link, nom. cons.
= *Fluminia* Fries

Milieae

Milium L.
Zingeria P. Smirnov
Zingeriopsis Probat.

Stipeae

Achnatherum P. Beauv.
= *Aristella* (Trin.) Bertol.
= *Lasiagrostis* Link
Celtica F. M. Vázquez & Barkworth
[***Jaraba*** Ruíz & Pavón]
Macrochloa Kunth
[***Nassella*** (Trin.) Desv.]
Piptatherum P. Beauv.
= *Oryzopsis* auct. eur., non Michx.
= *Urachne* Trin.
Stipa L.

Ampelodesmeae

Ampelodesmos Link
= *Ampelodesma* Durand. & Schinz, var. orth.

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* The authors use *Hainardia* Greuter as the correct name for *Monerma* P. Beauv. while completing a study on the legitimacy of both names.

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Arundineae
Arundo L.
Phragmites Adans.
[***Rytidosperma*** Steud.]

Cortaderieae
[***Cortaderia*** Stapf, nom. cons.]

Danthonieae
Centropodia Rchb.
= *Asthenatherum* Nevski
Danthonia DC.
= *Sieglingia* Bernh.
= *Triodia* auct., non R. Br.
Schismus P. Beauv.

Arundinelleae
Danthoniopsis Stapf

Molinieae
Molinia Schrank

Aristideae
Aristida L.
= *Chaetaria* P. Beauv.
Stipagrostis Nees

Nardeae
Nardus L.

Lygeeae
Lygeum L.

Pappophoreae
Enneapogon P. Beauv.

Aeluropodeae
Aeluropus Trin.

Eragrostideae
Coelachyrum Hochst. & Nees
Crypsis Aiton
= *Heleochloa* Host
Dactyloctenium Willd.
Desmostachya Stapf
Dinebra Jacq.
[***Diplachne*** P. Beauv.]
Eleusine Gaertn.
Eragrostis Wolf
= *Diandrochloa* de Winter
Kengia Packer
= *Cleistogenes* Keng, nom. inval.
Leptochloa P. Beauv.
[***Muhlenbergia*** Schreb.]
Ochtochloa Edgew.
Sporobolus R. Br.
Trichoneura Andersson
Triraphis R. Br.

Cynodonteae
= *Chlorideae*
= *Zoysieae*
[***Bouteloua*** Lag.]
Chloris Swartz
Cynodon L. C. M. Richard, nom. cons.
= *Dactylon* Roem. & Schult
Enteropogon Nees
Leptothrium Kunth
= *Latipes* Kunth
Melanocenchris Nees
Oropetium Trin.
Schoenefeldia Kunth
Tetrapogon Desf.
Tragus Haller, nom. cons.
= *Lappago* Schreb.
= *Nazia* Adans.
Tripogon Roem. & Schult.

Spartineae
Spartina Schreb.

Ehrharteae
Ehrharta Thunb.

Oryzeae
Leersia Swartz, nom. cons.
[***Oryza*** L.]
[***Zizania*** L.]
= *Homalocenchrus* Mieg

Paniceae
Anthephora Schreb.
[***Axonopus*** P. Beauv.]
Cenchrus L.
[***Dichanthelium*** (Hitchc. & Chase) Gould]
= *Panicum* subg. *Dichanthelicum* Hitchc. & Chase
Digitaria Haller, nom. cons.
Echinochloa P. Beauv.
Eriochloa Kunth
Megathyrsus (Pilg.) B. K. Simon & S. W. L. Jacobs

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Melinis P. Beauv.
= *Mellinus* Endl., var. orth.
= *Rhynchelytrum* Nees
Moorochloa Veldk.
Oplismenus P. Beauv.
Panicum L.
Paspalidium Stapf
[***Paspalum*** L.]
Pennisetum Rich.
Setaria P. Beauv.
[***Stenotaphrum*** Trin.]
Tricholaena Schrad.
Urochloa P. Beauv.

Andropogoneae

Andropogon L.
Arthraxon P. Beauv.
Bothriochloa Kuntze
Chrysopogon Trin., nom. cons.
= *Pollinia* Spreng.
= *Vetiveria* Bory
[***Coix*** L.]
Cymbopogon Spreng.
Dichanthium Willemet
= *Eremopogon* Stapf
Elionurus Willd.
[***Euchlaena*** Schrad.]
Hemarthria R. Br.
Heteropogon Pers.
Hyparrhenia E. Fourn.
Imperata Cyrillo
Lasiurus Boiss.
Microstegium Nees
= *Pollinia* Trin.
[***Miscanthus*** Andersson]
Phacelurus Griseb.
Saccharum L.
Sorghum Moench
Spodiopogon Trin.
Themeda Forssk.
Tripidium H. Scholz
= *Erianthus* auct., non Michx.
= *Ripidium* Trin., nom. illeg.
= *Saccharum* L., p.p.
[***Tripsacum*** L.]
[***Zea*** L.]