

Research Article

# New Names and New Combinations of *Jarava*, *Cinna*, *Coleanthus*, *Sclerochloa* and *Graphephorum* (Poales)

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## Abstract

When establishing a new genus, the utilization of incorrect genera or mere synonyms as comparative taxa will inevitably result in the emergence of a new synonym and leading to new taxonomic confusions. However, both traditional taxonomy and modern phylogeny have limitations in their objectivity and impartiality when it comes to accurately identifying taxa for scientific comparison. In order to scientifically identify the genus synonyms and resolving the taxonomic nomenclature confusions within three families of Stipaceae Burnett, Avenaceae Martinov and Poaceae (R.Br.) Barnh (Poales Small), using the minimum criterion PHS (phylogenetic similarity)  $\leq 0.928$  (inter genera) for genus classification by CPCG (chloroplast complete genomes) of Fructophyta D.L.Fu & H.Fu, total 19 current synonyms of the five genera of *Jarava* Ruiz et Pav, *Graphephorum* Desv., *Cinna* L., *Coleanthus* Seidl and *Sclerochloa* P.Beauv. have been identified, 4 current synonyms of the genus *Jarava* Ruiz et Pav including *Amelichloa* Arriaga & Barkworth, *Eriocoma* Nutt., *Nassella* (Trin.) É.Desv. and *Pseudoeriacoma* Romasch. et al., 6 current synonyms of the genus *Graphephorum* Desv. being *Cinnagrostis* Griseb., *Leptophyllochloa* C.E.Calderón ex Nicora, *Limnodea* Dewey, *Peyritschia* E.Fourn., *Sphenopholis* Scribn. and *Trisetopsis* Röser & A.Wätk, 7 current synonyms of the genus *Cinna* L. being *Aniselytron* Merr., *Arctagrostis* Griseb., *Dupontia* R.Br., *Festucella* E.B.Alexeev, *Hookerchloa* E.B.Alexeev, *Nicoraepoa* Soreng & L.J.Gillespie, *Saxipoa* Soreng et al. and *Sylvipoa* Soreng, 1 current synonym of the genus *Coleanthus* Seidl being *Phippisia* (Trin.) R.Br and 1 current synonym of the genus *Sclerochloa* P.Beauv. being *Puccinellia* Parl.. Additionally, 10 new specific names such as *Jarava thurberiana* Piper ex D.L.Fu, *Graphephorum prasinum* D.L.Fu and *Cinna trinii* D.L.Fu, along with 406 new specific combinations like *Jarava acuta* (Swallen) D.L.Fu, *Graphephorum cernuum* (Trin.) D.L.Fu, *Coleanthus algidus* (Sol.) D.L.Fu and *Sclerochloa acroxantha* (C.A.Sm. & C.E.Hubb.) D.L.Fu have been scientifically and validly published. These publications will effectively resolve taxonomic nomenclature confusions in a scientific manner and establish a solid foundation for evolutionary system research within the order Poales Small.

## Keywords

*Jarava*, *Cinna*, *Graphephorum*, *Coleanthus*, *Sclerochloa*, New Combination, CPCG (Chloroplast Complete Genome), Genus Minimum Criterion, Typical Algorithm

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Received: 2 June 2024; Accepted: 21 June 2024; Published: 4 July 2024



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## 1. Introduction

Established as early as 1794 with the single species, *Jarava ichu* Ruiz & Pav., the genus *Jarava* Ruiz et Pav. (Stipaceae Burnett) can be morphologically distinguished by the awn not plumose, the lemma usually less thickened than in many other genera of Stipeae, and the palea much shorter than the lemma. The first combination of *Jarava plumosa* (Spreng.) S.W.L.Jacobs & J.Everett (nom. inval.) was not published until 1997 by Jacobs & Everett [1], and the genus had been consistently considered as *Stipa* L. sect. *Jarava* (Ruiz et Pav.) Trin. et Rupr. since 1842. Over 60 specific combinations of this genus have now been published by taxonomists [2-6], but all of them are invalidly published according to the Article 37.1 “A name published on or after 1 January 1953 without a clear indication of the rank of the taxon concerned is not validly published” and other relevant articles of International Code of Botanical Nomenclature (Melbourne Code, 2011). Furthermore, most of these combinations lack a sufficiently scientific basis, as they mostly belong to the genera *Austrostipa* S.W.L.Jacobs & J.Everett [7] and *Pappostipa* (Speg.) Romasch. (nom. inval.) [8].

The phylogenetic analysis results [8-11] suggest that the genus *Jarava* Ruiz et Pav. is most closely related to the other four genera: *Amelichloa* Arriaga & Barkworth, *Eriocoma* Nutt., *Nassella* (Trin.) É.Desv. and *Pseudoeriacoma* Romasch. et al.. There is no general agreement upon the circumscription within the Stipeae tribe, and the genus *Nassella* (Trin.) É.Desv. can be easily distinguished by the presence of a usually very distinct, bone-like, often cupuliform corona at the apex of the lemma [12]. The genus *Amelichloa* Arriaga & Barkworth established in 2006, differs from other genera in its woody, sharp tips of the basal leaves, smooth longitudinal ribs on its caryopses, persistent stylar bases, and frequent presence of cleistogamous panicles in the axils of its basal leaf sheaths [13]. The genus *Pseudoeriacoma* Romasch. et al. established in 2019, differs from *Eriocoma* Nutt. in having bamboo-like culms commonly with up to 13 nodes, 3–6 mm thick below, with ramified branching at the middle and upper nodes [14]. However, there may be a scientific problem as compared to genus *Eriocoma* Nutt., owing to it may being a synonym of the genus *Jarava* Ruiz et Pav.. Similarly, the new genus *Nicoraepoa* Soreng & L.J.Gillespie [15] established in 2007, and the new genus *Saxipoa* Soreng [16] established in 2009 are closely related to *Festucella* E.B.Alexeev and *Hookerchloa* E.B.Alexeev [17], which may be the synonyms of the genus *Cinna* L. (Poaceae (R.Br.) Barnh., nom. cons.) based on the phylogenetic analysis results [18-20].

In another case, the new genus *Sylvipoa* Soren established in 2009 [16] was only compared to the genus *Poa* L. rather than to the close relative genera such as *Aniselytron* Merr., *Arctagrostis* Griseb., *Cinna* L., *Dupontia* R.Br., *Festucella* E.B.Alexeev, *Hookerchloa* E.B.Alexeev, *Nicoraepoa* Soreng & L.J.Gillespie and *Saxipoa* Soreng [18]. Likewise,

the new genus *Trisetopsis* Röser & A.Wälk established in 2013 [21] was only compared with the genus *Helictotrichon* Besser, without comparison to the closer genera like *Graphephorum* Desv., *Cinnagrostis* Griseb., *Sphenopholis* Scribn., *Limnodea* Dewey and *Peyritschia* E.Fourn (Avenaceae Martinov). [22-27].

When establishing a new genus, the utilization of incorrect genera or mere synonyms as comparative taxa will inevitably lead to the emergence of a novel synonym. However, both traditional taxonomy and modern phylogeny encounter limitations in their objectivity and impartiality when it comes to accurately and validly identifying compared taxa. To overcome these shortcomings, the new science evolutionomy has been developed with the publications of the evolutionary continuity principle, the evolutionary particularity principle, the theoretical monograph as *the Theory and Practice of Evolutionomy*, and so on [28-34]. The establishment, publication, and implementation of the minimum criterion  $PHS \leq 0.928$  (inter genera, CPCG) for the classification of genus of Fructophyta D.L.Fu & H.Fu have scientifically identified 34 current synonyms of the genus *Phyllostachys* Sieb. & Zucc., 15 ones of *Bambusa* Schreb., 3 ones of *Dinochloa* Büse and 4 ones of *Guadua* Kunth within the subfamily Bambusoideae, and the taxonomic confusions of the subfamily have also been scientifically resolved to a certain extent [31-34].

To scientifically identify the synonyms of certain genera and resolve the taxonomic confusions within the three families of Stipaceae Burnett, Avenaceae Martinov and Poaceae (R.Br.) Barnh of Poales Small, some relevant CPCG sequences from the NCBI (National Center for Biotechnology Information, USA) database have been downloaded and the evolutionary analyses on these sequences have been conducted, and the results are as follows.

## 2. Materials and Methods

### 2.1. CPCG of Poales

Total 24 CPCG of representative species of three families of Poales Small were selected from the NCBI database. Their current names, scientific names and CPCG numbers of NCBI are listed in Table 1 to Table 5.

### 2.2. Evolutionary Analyses of CPCG

The evolutionary analyses of CPCG mainly use the typical algorithm [28-33] to determine the relative evolutionary relationships between different taxa by comparing the phylogenetic similarity (PHS) between the designated type and target taxa. The formula is as follows:

$$PHS = \frac{SPHL}{APHL}$$

PHS = phylogenetic similarity between the type and objective taxon; SPHL = the number of same phylogenetic loci between the type and objective taxon; APHL = the number of all phylogenetic loci of the type; statistics of phylogenetic loci using Nucleotide Barcodes (17bp).

### 3. Results

#### 3.1. Synonyms of the Genus *Jarava*

The PHS of CPCG of 7 species of Stipaceae using the type *Jarava ichu* Ruiz et Pav. and the results are shown in Table 1.

**Table 1.** PHS of CPCG between *Jarava ichu* and some representative species of Stipaceae.

No.	Scientific Names and Numbers of CPCG in NCBI	Current Names	PHL/17bp	PHS
1	<i>Jarava ichu</i> _NC058913.1	<i>Jarava ichu</i>	115654	1
2	<i>Jarava brachychaet</i> _NC042701.1	<i>Amelichloa brachychaet</i>	112000	0.968
3	<i>Jarava hyalina</i> _MF480753.1	<i>Nassella hyalina</i>	111783	0.967
4	<i>Jarava hymenoides</i> _NC027464.1	<i>Eriocoma hymenoides</i>	107788	0.932
5	<i>Achnatherum inebrians</i> _MW423581.1	<i>Achnatherum inebrians</i>	103221	0.893
6	<i>Stipellula capensi</i> _NC062958.1	<i>Stipellula capensi</i>	102771	0.889
7	<i>Trikeria hookeri</i> _MW699773.1	<i>Trikeria hookeri</i>	95077	0.822

From Table 1, it is evident that *Amelichloa*, *Eriocoma* and *Nassella* are synonyms of the genus *Jarava* using the type of *Jarava ichu* Ruiz & Pav., because of their evolutionary relationships with the type all not meeting the minimum criterion of genus evolution:  $PHS(17bp) \leq 0.928$  (inter genera).

Although the genus *Pseudoeriacoma* Romasch currently lack CPCG, it can also be confirmed that it is the synonyms of *Jarava* based on Table 1 and previous research results [8-14]. Therefore, it is scientific to combine the genus *Jarava* Ruiz & Pav. as follows.

*Jarava* Ruiz & Pav., Fl. Peruv. Prodr. 2. 1794. Type: *Jarava ichu* Ruiz & Pav. — *Amelichloa* Arriaga & Barkworth, Sida 22(1): 146. 2006. Type: *Jarava ambigua* (Speg.) D.L.Fu. — *Eriocoma* Nutt., Gen. N. Amer. Pl. 1: 40. 1818.

Type: *Jarava hymenoides* (Roem. & Schult.) D.L.Fu. — *Nassella* (Trin.) É.Desv., Fl. Chil. [Gay] 6: 263. 1853. Type: *Jarava chilensis* (Trin.) D.L.Fu. — *Pseudoeriacoma* Romasch., P.M.Peterson & Soreng, PhytoKeys 126: 112. 2019. Type: *Jarava eminens* (Cav.) D.L.Fu.

About 159 species in America, including 1 new specific name and 157 new specific combinations.

#### 3.2. Synonyms of the Genus *Grapphephorum*

The PHS of CPCG of 7 species of Avenaceae using the type *Grapphephorum cernuum* (Trin.) D.L.Fu and the results are shown in Table 2.

**Table 2.** PHS of CPCG between *Grapphephorum cernuum* and some representative species of Avenaceae.

No.	Scientific Names and Numbers of CPCG in NCBI	Current Names	PHL/17bp	PHS
1	<i>Grapphephorum cernuum</i> _NC027487.1	<i>Trisetum cernuum</i>	113374	1
2	<i>Grapphephorum deyeuxioides</i> _NC059969.1	<i>Peyritschia deyeuxioides</i>	110059	0.971
3	<i>Grapphephorum elongatum</i> _MT089575.1	<i>Trisetopsis elongata</i>	110009	0.97
4	<i>Grapphephorum intermedium</i> _MT094331.1	<i>Sphenopholis intermedia</i>	108757	0.959
5	<i>Acrospelon glaciale</i> _NC059973.1	<i>Trisetum glaciale</i>	103344	0.912
6	<i>Koeleria nitidula</i> _NC042404.1	<i>Koeleria nitidula</i>	98454	0.868
7	<i>Arrhenatherum elatius</i> _NC042673.1	<i>Arrhenatherum elatius</i>	94713	0.835

Table 2 shows that *Peyritschia* E.Fourn., *Trisetopsis* Röser & A.Wölk and *Sphenopholis* Scribn. are synonyms of the genus *Graphephorum* Desv. using the type of *Graphephorum cernuum* (Trin.) D.L.Fu, on account of their evolutionary relationships with the type all not meeting the minimum criterion  $\text{PHS}(17\text{bp}) \leq 0.928$  (inter genera) for genus classification.

Although other three genera of *Cinnagrostis* Griseb., *Leptophyllochloa* C.E.Calderón ex Nicora and *Limnodea* Dewey currently lack CPCG, it can also be confirmed that they all are the synonyms of *Graphephorum* based on Table 2 and previous research results [22-27]. Therefore, it is scientific to combine the genus *Graphephorum* Desv. as follows.

*Graphephorum* Desv., in Nouv. Bull. Soc. Philom. ii. 189. 1810. Type: *Graphephorum melicoides* (Michx.) Desv. — *Cinnagrostis* Griseb., Abh. Königl. Ges. Wiss. Göttingen 19: 256. 1874. Type: *Graphephorum polygamum* (Griseb.) D.L.Fu — *Leptophyllochloa* C.E.Calderón ex Nicora, Fl.

Patagonica 3: 69. 1978. Type: *Graphephorum micrathetum* (É.Desv.) D.L.Fu. — *Limnodea* Dewey, Contr. U.S. Natl. Herb. 2: 518. 1894. Type: *Graphephorum arkansanum* (Nutt.) D.L.Fu. — *Peyritschia* E.Fourn., Mexic. Pl. 2: 109. 1886. Type: *Graphephorum koelerioides* (Peyr.) D.L.Fu. — *Sphenopholis* Scribn., Rhodora 8(no. 92): 142. 1906. Type: *Graphephorum obtusatum* (Michx.) D.L.Fu. — *Trisetopsis* Röser & A.Wölk, Schlechtendalia 25: 57. 2013. Type: *Graphephorum elongatum* (A.Rich.) D.L.Fu.

About 131 species in America and Asia, including 6 new specific name and 122 new specific combinations.

### 3.3. Synonyms of the Genus *Cinna*

The PHS of CPCG of 5 species of Poaceae were analyzed using the type of *Cinna arundinacea* L. and the results are shown in Table 3.

Table 3. PHS of CPCG between *Cinna arundinacea* and some representative species of Poaceae.

No.	Scientific Names and Numbers of CPCG in NCBI	Current Names	PHL/17bp	PHS
1	<i>Cinna arundinacea</i> _NC059959.1	<i>Cinna arundinacea</i>	114205	1
2	<i>Cinna latiphylla</i> _MT094313.1	<i>Arctagrostis latifolia</i>	108913	0.954
3	<i>Beckmannia syzigachne</i> _MT653696.1	<i>Beckmannia syzigachne</i>	105251	0.924
4	<i>Arctopoa saltuensis</i> _NC050408.1	<i>Poa saltuensis</i>	103911	0.910
5	<i>Alopecurus pratensis</i> _NC067048.1	<i>Alopecurus pratensis</i>	102198	0.895

From Table 3, it can be concluded that using the type of *Cinna arundinacea* L., the genus *Arctagrostis* Griseb. is a synonym of the genus *Cinna* L., owing to its evolutionary relationship with the type being 0.954, not meeting the minimum criterion  $\text{PHS}(17\text{bp}) \leq 0.928$  (inter genera) for genus evolution.

Based on Table 1, combined with the results of relevant phylogenetic analysis [18-20], it can also be confirmed that there are 7 current synonyms of the genus *Cinna* L., including *Aniselytron* Merr., *Dupontia* R.Br., *Festucella* E.B.Alexeev, *Hookerchloa* E.B.Alexeev, *Nicoraepoa* Soreng & L.J.Gillespie, *Saxipoa* Soreng et al. and *Sylvipoa* Soreng. Therefore, it is scientific to combine the genus *Cinna* L. as follows.

*Cinna* L., Sp. Pl. 1: 5. 1753. Type: *Cinna arundinacea* L.—*Aniselytron* Merr., Philipp. J. Sci., C 5: 328. 1910. Type: *Cinna agrostoides* (Merr.) D.L.Fu. — *Arctagrostis* Griseb., Fl. Ross. (Ledeb.) 4(13): 434. 1852. Type: *Cinna latiphylla* D.L.Fu. — *Dupontia* R.Br., Chlor. Melvill. 32. 1823. Type: *Cinna fisheri* (R.Br.) D.L.Fu. — *Festucella* E.B.Alexeev,

Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 90(5): 104. 1985. Type: *Cinna eriopoda* (Vickery) D.L.Fu. — *Hookerchloa* E.B.Alexeev, Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 90(5): 106. 1985. Type: *Cinna hookeriana* (Hook.f.) D.L.Fu. — *Nicoraepoa* Soreng & L.J.Gillespie, Ann. Missouri Bot. Gard. 94(4): 842. 2007. Type: *Cinna andina* (Trin.) D.L.Fu. — *Saxipoa* Soreng, L.J.Gillespie & S.W.L.Jacobs, Austral. Syst. Bot. 22(6): 406. 2009. Type: *Cinna saxicola* (R.Br.) D.L.Fu. — *Sylvipoa* Soreng, L.J.Gillespie & S.W.L.Jacobs, Austral. Syst. Bot. 22(6): 404. 2009. Type: *Cinna queenslandica* (C.E.Hubb.) D.L.Fu.

About 19 species in America, Asia, Europe and Oceania, including 2 new specific names and 14 new specific combinations.

### 3.4. Synonyms of the Genus *Coleanthus*

The PHS of CPCG of 5 species of Poaceae were analyzed using the type *Coleanthus subtilis* Seidl ex Roem. & Schult. and the results are shown in Table 4.

**Table 4.** PHS of CPCG between *Coleanthus subtilis* and relevant species of Poaceae.

No.	Scientific Names and Numbers of CPCG in NCBI	Current Names	PHL/17bp	PHS
1	<i>Coleanthus subtilis</i> _NC062353.1	<i>Coleanthus subtilis</i>	113770	1
2	<i>Coleanthus algidus</i> _NC059982.1	<i>Phippsia algida</i>	109695	0.964
3	<i>Sclerachloa distans</i> _NC054281.1	<i>Puccinellia distans</i>	98916	0.869
4	<i>Scolochloa festucacea</i> _NC042709.1	<i>Scolochloa festucacea</i>	89163	0.784
5	<i>Cinna arundinacea</i> _NC059959.1	<i>Cinna arundinacea</i>	88743	0.780

From Table 4, it is obvious that using the type of *Coleanthus subtilis* Seidl ex Roem. & Schult., the genus *Phippsia* (Trin.) R.Br. is a synonym of the genus *Coleanthus* Seidl, for its evolutionary relationship with the type being 0.964, far from reaching the minimum criterion  $PHS(17bp) \leq 0.928$  (inter genera) for genus classification. Therefore, it is scientific to combine the genus *Coleanthus* Seidl (nom. cons.) as follows.

*Coleanthus* Seidl, Syst. Veg., ed. 15 bis [Roemer & Schultes] 2: 11, 276. 1817, nom. cons. Type: *C. subtilis*

(Trattinick) W. B. Seidl. — *Phippsia* (Trin.) R.Br., Chlor. Melvill. 27. 1823. Type: *Coleanthus algidus* (Sol.) D.L.Fu.

About 4 species, in America, Asia & Europe, including 3 new specific combinations.

### 3.5. Synonyms of the Genus *Sclerachloa*

The PHS of CPCG of 5 species of Poaceae were analyzed using the type *Sclerachloa dura* (L.) Beauv. and the results are shown in Table 5.

**Table 5.** PHS of CPCG between *Sclerachloa dura* and relevant species of Poaceae.

No.	Scientific Names and Numbers of CPCG in NCBI	Current Names	PHL/17bp	PHS
1	<i>Sclerachloa dura</i> _MT094329.1	<i>Sclerachloa dura</i>	113302	1
2	<i>Sclerachloa distans</i> _NC054281.1	<i>Puccinellia distans</i>	105596	0.932
3	<i>Coleanthus subtilis</i> _NC062353.1	<i>Coleanthus subtilis</i>	97054	0.857
4	<i>Scolochloa festucacea</i> _NC042709.1	<i>Scolochloa festucacea</i>	88910	0.785
5	<i>Cinna arundinacea</i> _NC059959.1	<i>Cinna arundinacea</i>	88494	0.781

Table 5 indicates that the genus *Puccinellia* Parl. is a synonym of the genus *Sclerachloa* P.Beauv., because the evolutionary relationship between *Sclerachloa dura* (L.) Beauv. and *Puccinellia distans* (Jacq.) Bab. is 0.932, not meeting the minimum criterion  $PHS(17bp) \leq 0.928$  (inter genera) for genus evolution. Therefore, the latest combination of the genus *Puccinellia* Parl. are as follows.

*Sclerachloa* P.Beauv., Ess. Agrostogr. 97. 1812. Type: *Sclerachloa dura* (L.) Beauv. — *Puccinellia* Parl., Fl. Ital. (Parlatore) 1: 366. 1848. Type: *Sclerachloa distans* (Jacq.) Bab.

About 116 species, in Africa, America, Asia, Europe & Oceania, including 1 new specific name and 107 new specific combinations.

## 4. New Names and New Combinations

*Acrospelion distichophyllum* (Vill.) D.L.Fu, sp. transl. nov. *Avena distichophylla* Vill., Prosp. Hist. Pl. Dauphin é 2: 144. 1787; *Acrospelion distichophyllum* (Vill.) Barber á J. Syst. Evol. 58(4): 523. 2019, nom. inval.

*Acrospelion glaciale* (Bory) D.L.Fu, sp. transl. nov. *Avena glacialis* Bory, Ann. G. é. Sci. Phys. 3: 6. 1820; *Acrospelion glaciale* (Bory) Barber á Soreng & Quintanar, Molec. Phylogen. Evol. 159-107110: 9. 2021.

*Arctopoa saltuensis* (Fernald & Wiegand) D.L.Fu, sp. transl. nov. *Poa saltuensis* Fernald & Wiegand, Rhodora 20: 122. 1918.

*Cinna agrostoides* (Merr.) D.L.Fu, sp. transl. nov. *Aniselytron agrostoides* Merr., Philipp. J. Sci., C 5: 329. 1910.

*Cinna andina* (Trin.) D.L.Fu, sp. transl. nov. *Poa andina*



Trin., Linnaea 10: 306. 1836. — *Nicoraepoa andina* (Trin.) Soreng & L.J.Gillespie, Ann. Missouri Bot. Gard. 94(4): 843. 2007.

*Cinna chonotica* (Phil.) D.L.Fu, sp. transl. nov. *Poa chonotica* Phil., Linnaea 29: 97. 1858.

*Cinna eriopoda* (Vickery) D.L.Fu, sp. transl. nov. *Festuca eriopoda* Vickery, Contr. New South Wales Natl. Herb. 1: 10. 1939. — *Festucella eriopoda* (Vickery) E.B.Alexeev, Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 90(5): 104. 1985.

*Cinna fisheri* (R.Br.) D.L.Fu, sp. transl. nov. *Dupontia fisheri* R.Br., Chlor. Melvill. 33. 1823.

*Cinna fulva* (Trin.) D.L.Fu, sp. transl. nov. *Poa fulva* Trin., Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 1: 378. 1830.

*Cinna hookeriana* (Hook.f.) D.L.Fu, sp. transl. nov. *Festuca hookeriana* F.Muell. ex Hook.f., Fl. Tasman. 2: 127. 1858. — *Hookerchloa hookeriana* (F.Muell. ex Hook.f.) E.B.Alexeev, Byull. Moskovsk. Obshch. Isp. Prir., Otd. Biol. 90(5): 106. 1985.

*Cinna latiphylla* D.L.Fu, sp. nom. nov. *Colpodium latifolium* R.Br., Chlor. Melvill. 28. 1823. non *Cinna latifolia* (Trevir. ex Göpp.) Griseb. — *Arctagrostis latifolia* Griseb., Fl. Ross. (Ledeb.) 4(13): 434. 1852.

*Cinna pugionifolia* (Speg.) D.L.Fu, sp. transl. nov. *Poa pugionifolia* Speg., Anales Mus. Nac. Buenos Aires 7: 199. 1902.

*Cinna queenslandica* (C.E.Hubb.) D.L.Fu, sp. transl. nov. *Poa queenslandica* C.E.Hubb., Bull. Misc. Inform. 1934: 449. 1934. — *Sylvipoa queenslandica* (C.E.Hubb.) Soreng, L.J.Gillespie & S.W.L.Jacobs, Austral. Syst. Bot. 22(6): 404. 2009.

*Cinna robusta* (Steud.) D.L.Fu, sp. transl. nov. *Poa robusta* Steud., Syn. Pl. Glumac. 1: 426. 1854.

*Cinna saxicola* (R.Br.) D.L.Fu, sp. transl. nov. *Poa saxicola* R.Br., Prodr. Fl. Nov. Holland.: 180. 1810. — *Saxipoa saxicola* (R.Br.) Soreng, L.J.Gillespie & S.W.L.Jacobs, Austral. Syst. Bot. 22(6): 407. 2009.

*Cinna stepparia* (Nicora) D.L.Fu, sp. transl. nov. *Poa stepparia* Nicora, Hickenia 1: 101. 1977.

*Cinna subenervis* (Hack.) D.L.Fu, sp. transl. nov. *Poa subenervis* Hack., Ark. Bot. 7(2): 7. 1907.

*Cinna treutleri* (Kuntze) D.L.Fu, sp. transl. nov. *Milium treutleri* Kuntze, Revis. Gen. Pl. 2: 780. 1891.

*Cinna trinii* D.L.Fu, sp. nom. nov. *Vilfa arundinacea* Trin., Gram. Unifl. Sesquifl.: 157. 1824, non *Cinna arundinacea* L.

*Coleanthus algidus* (Sol.) D.L.Fu, sp. transl. nov. *Agrostis algida* Sol. in C.J.Phipps, Voy. North Pole: 200. 1774. — *Phippsia algida* (Sol.) R.Br., Chlor. Melvill. 27. 1823.

*Coleanthus concinnus* (Th.Fr.) D.L.Fu, sp. transl. nov. *Catabrosa concinna* Th.Fr. in Öfvers. Kongl. Vetensk.-Akad. Förh. 26(2): 140. 1869 publ. 1870.

*Coleanthus wilczekii* (Hack) D.L.Fu, sp. transl. nov. *Phippsia wilczekii* Hack., Repert. Spec. Nov. Regni Veg. 7: 321. 1909.

*Graphephorum cernuum* (Trin.) D.L.Fu, sp. transl. nov.

*Trisetum cernuum* Trin., Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 1: 61. 1830 publ. 1831; *Graphephorum cernuum* (Trin.) Röser & Tkach, Taxon 69(2): 265. 2020, nom. inval..

*Graphephorum canescens* (Buckley) D.L.Fu, sp. transl. nov. *Trisetum canescens* Buckley, Proc. Acad. Nat. Sci. Philadelphia 14: 100. 1863; *Graphephorum canescens* (Buckley) Röser & Tkach, Taxon 69(2): 265. 2020, nom. inval..

*Graphephorum album* (J.Presl) D.L.Fu, sp. transl. nov. *Deyeuxia alba* J.Presl, in C.B.Presl, Reliq. Haenk. 1: 248. 1830.

*Graphephorum boliviense* (Hack.) D.L.Fu, sp. transl. nov. *Calamagrostis boliviensis* Hack., Repert. Spec. Nov. Regni Veg. 6: 156. 1908.

*Graphephorum breviaristatum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia breviaristata* Wedd., Bull. Soc. Bot. France 22: 177. 1876.

*Graphephorum brevifolium* (J.Presl) D.L.Fu, sp. transl. nov. *Deyeuxia brevifolia* J.Presl in C.B.Presl, Reliq. Haenk. 1: 248. 1830.

*Graphephorum cabreræ* (Parodi) D.L.Fu, sp. transl. nov. *Calamagrostis cabreræ* Parodi, Revista Argent. Agron. 15: 59. 1948.

*Graphephorum calderillense* (Pilg.) D.L.Fu, sp. transl. nov. *Calamagrostis calderillensis* Pilg., Bot. Jahrb. Syst. 42: 72. 1908.

*Graphephorum chrysophyllum* (Phil.) D.L.Fu, sp. transl. nov. *Deyeuxia chrysophylla* Phil., Verz. Antofagasta Pfl.: 83. 1891.

*Graphephorum ciliatum* (Rúgolo & Villav.) D.L.Fu, sp. transl. nov. *Deyeuxia ciliata* Rúgolo & Villav., Bol. Soc. Argent. Bot. 31: 126. 1995.

*Graphephorum coarctatum* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia coarctata* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 143. 1816.

*Graphephorum crispum* (Rúgolo & Villav.) D.L.Fu, sp. transl. nov. *Deyeuxia crispa* Rúgolo & Villav., Bol. Soc. Argent. Bot. 31: 128. 1995.

*Graphephorum cryptolophum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia cryptolopha* Wedd., Bull. Soc. Bot. France 22: 176. 1876.

*Graphephorum curtum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia curta* Wedd., Bull. Soc. Bot. France 22: 176. 1876.

*Graphephorum curvulum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia curvula* Wedd., Bull. Soc. Bot. France 22: 178. 1876.

*Graphephorum cuzcoense* (Tovar) D.L.Fu, sp. transl. nov. *Calamagrostis cuzcoensis* Tovar, Publ. Mus. Hist. Nat. "Javier Prado", Ser. B, Bot. 33: 11. 1985.

*Graphephorum confertiflorum* D.L.Fu, sp. nom. nov. *Deyeuxia densiflora* J.Presl in C.B.Presl, Reliq. Haenk. 1: 247. 1830, non *Graphephorum densiflorum* E.Fourn.

*Graphephorum deserticolum* (Phil.) D.L.Fu, sp. transl. nov. *Deyeuxia deserticola* Phil., Fl. Atacam.: 55. 1860.

- Grapphephorum divergens* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis divergens* Swallen, Contr. U.S. Natl. Herb. 29: 262. 1949.
- Grapphephorum fiebrigii* (Pilg.) D.L.Fu, sp. transl. nov. *Calamagrostis fiebrigii* Pilg., Bot. Jahrb. Syst. 42: 68. 1908.
- Grapphephorum filifolium* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia filifolia* Wedd., Bull. Soc. Bot. France 22: 178. 1876.
- Grapphephorum fuscatum* (J.Presl) D.L.Fu, sp. transl. nov. *Deyeuxia fuscata* J.Presl in C.B.Presl, Reliq. Haenk. 1: 249. 1830.
- Grapphephorum glaciale* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia glacialis* Wedd., Bull. Soc. Bot. France 22: 178. 1876.
- Grapphephorum heterophyllum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia heterophylla* Wedd., Bull. Soc. Bot. France 22: 177. 1876.
- Grapphephorum hieronymi* (Hack.) D.L.Fu, sp. transl. nov. *Calamagrostis hieronymi* Hack., Oesterr. Bot. Z. 52: 109. 1902.
- Grapphephorum hirsutum* (Rúgolo & Villav.) D.L.Fu, sp. transl. nov. *Deyeuxia hirsuta* Rúgolo & Villav., Bol. Soc. Argent. Bot. 31: 136. 1995.
- Grapphephorum hirtum* (Mille) D.L.Fu, sp. transl. nov. *Deyeuxia hirta* Sodiro ex Mille, Revista Colegio Nac. Vincento Rocafuerte 11(40-41): 76. 1930.
- Grapphephorum intermedium* (J.Presl) D.L.Fu, sp. transl. nov. *Deyeuxia intermedia* J.Presl in C.B.Presl, Reliq. Haenk. 1: 249. 1830.
- Grapphephorum involutum* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis involuta* Swallen, Contr. U.S. Natl. Herb. 29: 259. 1949.
- Grapphephorum jamesonii* (Steud.) D.L.Fu, sp. transl. nov. *Calamagrostis jamesonii* Steud., Syn. Pl. Glumac. 1: 191. 1854.
- Grapphephorum lagurus* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia lagurus* Wedd., Bull. Soc. Bot. France 22: 176. 1876.
- Grapphephorum leiophyllum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia leiophylla* Wedd., Bull. Soc. Bot. France 22: 177. 1876.
- Grapphephorum macrophyllum* (Pilg.) D.L.Fu, sp. transl. nov. *Deyeuxia macrophylla* Pilg., Bot. Jahrb. Syst. 25: 711. 1898.
- Grapphephorum macrostachyum* (Sodiro) D.L.Fu, sp. transl. nov. *Deyeuxia macrostachya* Sodiro, Revista Colegio Nac. Vincento Rocafuerte 11(40-41): 74. 1930.
- Grapphephorum malamalense* (Hack.) D.L.Fu, sp. transl. nov. *Calamagrostis malamalensis* Hack., Anales Mus. Nac. Buenos Aires, ser. 3, 6: 478. 1906.
- Grapphephorum mandonianum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia mandoniana* Wedd., Bull. Soc. Bot. France 22: 179. 1876.
- Grapphephorum micratherum* (É.Desv.) D.L.Fu, sp. transl. nov. *Trisetum micratherum* É.Desv. in C.Gay Fl. Chil. 6: 352. 1854. — *Leptophyllochloa micrathera* (É.Desv.) Calderón ex Nicora, Fl. Patagonica 3: 70. 1978.
- Grapphephorum minimum* (Pilg.) D.L.Fu, sp. comb. nov. *Calamagrostis vicinarum* var. *minima* Pilg., Bot. Jahrb. Syst. 42: 63. 1908; *Calamagrostis minima* (Pilg.) Tovar, Mem. Mus. Hist. Nat. "Javier Prado" 11: 52. 1960.
- Grapphephorum molle* (Pilg.) D.L.Fu, sp. transl. nov. *Calamagrostis mollis* Pilg., Bot. Jahrb. Syst. 42: 61. 1908.
- Grapphephorum mulleri* (Lucas) D.L.Fu, sp. transl. nov. *Calamagrostis mulleri* Lucas, Bol. Soc. Venez. Ci. Nat. 15: 9. 1953.
- Grapphephorum nitidulum* (Pilg.) D.L.Fu, sp. transl. nov. *Calamagrostis nitidula* Pilg., Bot. Jahrb. Syst. 42: 69. 1908.
- Grapphephorum orbignyanum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia orbignyana* Wedd., Bull. Soc. Bot. France 22: 178. 1876.
- Grapphephorum patagonicum* (Speg.) D.L.Fu, sp. transl. nov. *Deyeuxia patagonica* Speg., Anales Mus. Nac. Buenos Aires 7: 191. 1902.
- Grapphephorum polygamum* (Griseb.) D.L.Fu, sp. transl. nov. *Cinnagrostis polygama* Griseb., Abh. Königl. Ges. Wiss. Göttingen 19: 257. 1874.
- Grapphephorum preslii* (Kunth) D.L.Fu, sp. transl. nov. *Agrostis preslii* Kunth, Enum. Pl. 1: 225. 1833.
- Grapphephorum rauhii* (Tovar) D.L.Fu, sp. transl. nov. *Calamagrostis rauhii* Tovar, Mem. Mus. Hist. Nat. "Javier Prado" 11: 78. 1960.
- Grapphephorum rectum* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia recta* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 144. 1816.
- Grapphephorum reitzii* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis reitzii* Swallen, Sellowia 7: 11. 1956.
- Grapphephorum rigescens* (J.Presl) D.L.Fu, sp. transl. nov. *Agrostis rigescens* J.Presl in C.B.Presl, Reliq. Haenk. 1: 237. 1830.
- Grapphephorum rigidum* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia rigida* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 144. 1816.
- Grapphephorum roseum* (Griseb.) D.L.Fu, sp. transl. nov. *Agrostis rosea* Griseb. in Abh. Königl. Ges. Wiss. Göttingen 19: 253. 1874.
- Grapphephorum rupestre* (Trin.) D.L.Fu, sp. transl. nov. *Calamagrostis rupestris* Trin., Gram. Panic.: 28. 1826.
- Grapphephorum scaberulum* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis scaberula* Swallen, Contr. U.S. Natl. Herb. 29: 261. 1949.
- Grapphephorum scleranthum* (Hack.) D.L.Fu, sp. transl. nov. *Calamagrostis sclerantha* Hack. in Oesterr. Bot. Z. 52: 108. 1902.
- Grapphephorum setiflorum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia setiflora* Wedd., Bull. Soc. Bot. France 22: 176. 1876.
- Grapphephorum spicigerum* (J.Presl) D.L.Fu, sp. transl. nov. *Deyeuxia spicigera* J.Presl in C.B.Presl, Reliq. Haenk. 1: 247. 1830.

*Grapphephorum steyermarkii* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis steyermarkii* Swallen, Contr. U.S. Natl. Herb. 29: 258. 1949.

*Grapphephorum tarmense* (Pilg.) D.L.Fu, sp. transl. nov. *Calamagrostis tarmensis* Pilg., Bot. Jahrb. Syst. 42: 70. 1908.

*Grapphephorum trichodontum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia trichodonta* Wedd., Bull. Soc. Bot. France 22: 176. 1876.

*Grapphephorum velutinum* (Nees & Meyen) D.L.Fu, sp. transl. nov. *Deyeuxia velutina* Nees & Meyen, F.J.F.Meyen, Observ. Bot. 1: 349. 1834.

*Grapphephorum vicunarum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia vicunarum* Wedd., Bull. Soc. Bot. France 22: 177. 1876.

*Grapphephorum violaceum* (Wedd.) D.L.Fu, sp. transl. nov. *Deyeuxia violacea* Wedd., Bull. Soc. Bot. France 22: 179. 1876.

*Grapphephorum viridiflavescens* (Poir.) D.L.Fu, sp. transl. nov. *Arundo viridiflavescens* Poir. in J.B.A.M.de Lamarck, Encycl. 6: 271. 1804.

*Grapphephorum prasinum* D.L.Fu, sp. nom. nov. *Deyeuxia viridis* Phil., Linnaea 33: 288. 1864, non *Grapphephorum viride* (Kunth) D.L.Fu.

*Grapphephorum arkansanum* (Nutt.) D.L.Fu, sp. transl. nov. *Greenia arkansana* Nutt., Trans. Amer. Philos. Soc., n.s., 5: 142. 1835. — *Limnodea arkansana* (Nutt.) L.H.Dewey, Contr. U.S. Natl. Herb. 2: 518. 1894.

*Grapphephorum swallenii* D.L.Fu, sp. nom. nov. *Trisetum angustum* Swallen, Phytologia 4: 423. 1953, non *Grapphephorum angustum* (C.E.Hubb.) D.L.Fu.

*Grapphephorum pringlei* (Beal) D.L.Fu, sp. transl. nov. *Calamagrostis pringlei* Beal, Grass. N. Amer. 2: 345. 1896.

*Grapphephorum confertum* (Pilg.) D.L.Fu, sp. transl. nov. *Trisetum confertum* Pilg., Bot. Jahrb. Syst. 25: 714. 1898.

*Grapphephorum curvisetum* (Morden & Valdés-Reyna) D.L.Fu, sp. transl. nov. *Trisetum curvisetum* Morden & Valdés-Reyna, Brittonia 35: 375. 1983.

*Grapphephorum deyeuxioides* (Kunth) D.L.Fu, sp. transl. nov. *Avena deyeuxioides* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 147. 1816.

*Grapphephorum divaricatum* (P.M.Peterson & Soreng) D.L.Fu, sp. transl. nov. *Calamagrostis divaricata* P.M.Peterson & Soreng, Sida 21: 315. 2004.

*Grapphephorum durangense* (Finot & P.M.Peterson) D.L.Fu, sp. transl. nov. *Trisetum durangense* Finot & P.M.Peterson, Ann. Missouri Bot. Gard. 91: 19. 2004.

*Grapphephorum erectifolium* (Hitchc.) D.L.Fu, sp. transl. nov. *Calamagrostis erectifolia* Hitchc. in N.L.Britton et al. (eds.), N. Amer. Fl. 17: 507. 1937.

*Grapphephorum erianthum* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia eriantha* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 145. 1816.

*Grapphephorum linearifolium* D.L.Fu, sp. nom. nov. *Trisetum filifolium* Scribn. ex Beal, Grass. N. Amer. 2: 375. 1896, non *Grapphephorum filifolium* (Wedd.) D.L.Fu.

*Grapphephorum foliosum* (Swallen) D.L.Fu, sp. transl. nov. *Trisetum foliosum* Swallen, Contr. U.S. Natl. Herb. 29: 256. 1949.

*Grapphephorum howellii* (Hitchc.) D.L.Fu, sp. transl. nov. *Trisetum howellii* Hitchc., Proc. Calif. Acad. Sci., ser. 4, 21: 296. 1935.

*Grapphephorum humile* (Louis-Marie) D.L.Fu, sp. transl. nov. *Trisetum humile* Louis-Marie, Rhodora 30: 244. 1929.

*Grapphephorum irazuense* (Kuntze) D.L.Fu, sp. transl. nov. *Calamagrostis irazuensis* Kuntze, Revis. Gen. Pl. 2: 763. 1891.

*Grapphephorum killipii* (Swallen) D.L.Fu, sp. transl. nov. *Calamagrostis killipii* Swallen, Contr. U.S. Natl. Herb. 29: 257. 1949.

*Grapphephorum koelerioides* (Peyr.) D.L.Fu, sp. transl. nov. *Aira koelerioides* Peyr., Linnaea 30: 5(-6). 1859. — *Peyritschia koelerioides* (Peyr.) E.Fourn., Mexic. Pl. 2: 110. 1886.

*Grapphephorum martha-gonzaleziae* (P.M.Peterson & Finot) D.L.Fu, sp. transl. nov. *Trisetum martha-gonzaleziae* P.M.Peterson & Finot, Ann. Missouri Bot. Gard. 91: 21. 2004.

*Grapphephorum orizabae* (E.Fourn.) D.L.Fu, sp. transl. nov. *Deyeuxia orizabae* Rupr. ex E.Fourn., Bull. Soc. Bot. France 24: 181. 1877.

*Grapphephorum palmeri* (Hitchc.) D.L.Fu, sp. transl. nov. *Trisetum palmeri* Hitchc., Contr. U.S. Natl. Herb. 17: 325. 1913.

*Grapphephorum pinetorum* (Swallen) D.L.Fu, sp. transl. nov. *Trisetum pinetorum* Swallen, Phytologia 4: 424. 1953.

*Grapphephorum planifolium* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia planifolia* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 145. 1816.

*Grapphephorum kochianum* H.Torres ex D.L.Fu, sp. nom. nov. *Deschampsia pringlei* Scribn., Proc. Acad. Nat. Sci. Philadelphia 43: 306. 1891, non *Grapphephorum pringlei* Scribn.; *Trisetum kochianum* Hern.Torres, Phytologia 61: 454. 1987.

*Grapphephorum spellenbergii* (Soreng) D.L.Fu, sp. transl. nov. *Trisetum spellenbergii* Soreng, Finot & P.M.Peterson, Ann. Missouri Bot. Gard. 91: 23. 2004.

*Grapphephorum tolucense* (Kunth) D.L.Fu, sp. transl. nov. *Deyeuxia tolucensis* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 143. 1816.

*Grapphephorum tonduzii* (Hitchc.) D.L.Fu, sp. transl. nov. *Trisetum tonduzii* Hitchc. in N.L.Britton et al. (eds.), N. Amer. Fl. 17: 558. 1939.

*Grapphephorum validum* (Sohns) D.L.Fu, sp. transl. nov. *Calamagrostis valida* Sohn, J. Washington Acad. Sci. 46: 385. 1957.

*Grapphephorum viride* (Kunth) D.L.Fu, sp. transl. nov. *Avena viridis* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 147. 1816.

*Grapphephorum virletii* (E.Fourn.) D.L.Fu, sp. transl. nov. *Trisetum virletii* E.Fourn., Mexic. Pl. 2: 108. 1886.

*Grapphephorum vulcanicum* (Swallen) D.L.Fu, sp. transl.



nov. *Calamagrostis vulcanica* Swallen, Phytologia 4: 424. 1953.

*Grapphephorum coahuilense* (P.M.Peterson) D.L.Fu, sp. transl. nov. *Calamagrostis coahuilensis* P.M.Peterson, Soreng & Valdés-Reyna, Sida 21: 312. 2004.

*Grapphephorum filiforme* (Chapm.) D.L.Fu, sp. comb. nov. *Eatonia pensylvanica* var. *filiformis* Chapm., Fl. South. U.S.: 560. 1860; *Eatonia filiformis* (Chapm.) Vasey, Bot. Gaz. 11: 117. 1886.

*Grapphephorum rydbergii* D.L.Fu, sp. nom. nov. *Eatonia intermedia* Rydb., Bull. Torrey Bot. Club 32: 602. 1905, non *Grapphephorum intermedium* (J.Presl) D.L.Fu.

*Grapphephorum interruptum* (Buckley) D.L.Fu, sp. transl. nov. *Trisetum interruptum* Buckley, Proc. Acad. Nat. Sci. Philadelphia 14: 100. 1863.

*Grapphephorum nitidum* (Biehler) D.L.Fu, sp. transl. nov. *Aira nitida* Biehler, Pl. Nov. Herb. Spreng.: 8. 1807.

*Grapphephorum obtusatum* (Michx.) D.L.Fu, sp. transl. nov. *Aira obtusata* Michx., Fl. Bor.-Amer. 1: 62. 1803. — *Sphenopholis obtusata* (Michx.) Scribn., Rhodora 8: 144. 1906.

*Grapphephorum pensylvanicum* (L.) D.L.Fu, sp. transl. nov. *Avena pensylvanica* L., Sp. Pl.: 79. 1753.

*Grapphephorum angustum* (C.E.Hubb.) D.L.Fu, sp. transl. nov. *Helictotrichon angustum* C.E.Hubb., Bull. Misc. Inform. Kew 1936: 330. 1936.

*Grapphephorum arctum* (Cope) D.L.Fu, sp. transl. nov. *Helictotrichon arctum* Cope, Kew Bull. 61: 243(-244). 2006.

*Grapphephorum asperum* (Thwaites) D.L.Fu, sp. transl. nov. *Avena aspera* Munro ex Thwaites, Enum. Pl. Zeyl.: 372. 1864.

*Grapphephorum barbatum* (Nees) D.L.Fu, sp. transl. nov. *Trisetum barbatum* Nees, Fl. Afr. Austral. III.: 345. 1841.

*Grapphephorum capense* (Schweick.) D.L.Fu, sp. transl. nov. *Helictotrichon capense* Schweick., Bothalia 3: 193. 1937.

*Grapphephorum dodii* (Stapf) D.L.Fu, sp. transl. nov. *Avena dodii* Stapf in W.H.Harvey Fl. Cap. 7: 475. 1899.

*Grapphephorum elongatum* (A.Rich.) D.L.Fu, sp. transl. nov. *Danthonia elongata* Hochst. ex A.Rich., Tent. Fl. Abyss. 2: 419. 1850. — *Trisetopsis elongata* (Hochst. ex A.Rich.) Röser & A.Wölk, Schlechtendalia 25: 58. 2013.

*Grapphephorum galpinii* (Schweick.) D.L.Fu, sp. transl. nov. *Helictotrichon galpinii* Schweick., Bothalia 3: 192. 1937.

*Grapphephorum himalayense* (H.Singh et al.) D.L.Fu, sp. transl. nov. *Trisetopsis himalayensis* Harsh Singh, D.Prasad & S.K.Barik, Nordic J. Bot. 2022(4)-e03390: 2. 2022.

*Grapphephorum hirtulum* (Steud.) D.L.Fu, sp. transl. nov. *Trisetum hirtulum* Steud., Syn. Pl. Glumac. 1: 228. 1854.

*Grapphephorum imberbe* (Nees) D.L.Fu, sp. transl. nov. *Trisetum imberbe* Nees, Fl. Afr. Austral. III.: 347. 1841.

*Grapphephorum junghuhnii* (Buse) D.L.Fu, sp. transl. nov. *Avena junghuhnii* Buse, F.A.W.Miquel, Pl. Jungh., prepr.: 5. 1854.

*Grapphephorum lachnanthum* (A.Rich.) D.L.Fu, sp. transl. nov. *Trisetum lachnanthum* Hochst. ex A.Rich., Tent. Fl.

Abyss. 2: 416. 1850.

*Grapphephorum leoninum* (Steud.) D.L.Fu, sp. transl. nov. *Avena leonina* Steud., Flora 12: 484. 1829.

*Grapphephorum longum* (Stapf) D.L.Fu, sp. transl. nov. *Avena longa* Stapf, Bull. Misc. Inform. Kew 1897: 292. 1897.

*Grapphephorum longifolium* (Nees) D.L.Fu, sp. transl. nov. *Trisetum longifolium* Nees, Fl. Afr. Austral. III.: 348. 1841.

*Grapphephorum mannii* (Pilg.) D.L.Fu, sp. transl. nov. *Avenastrum mannii* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem 9: 520. 1926.

*Grapphephorum milanjanum* (Rendle) D.L.Fu, sp. transl. nov. *Bromus milanjanus* Rendle, Trans. Linn. Soc. London, Bot. 4: 59. 1894.

*Grapphephorum namaquense* (Schweick.) D.L.Fu, sp. transl. nov. *Helictotrichon namaquense* Schweick., Bothalia 3: 189. 1937.

*Grapphephorum natalense* (Stapf) D.L.Fu, sp. comb. nov. *Avenastrum caffrum* var. *natalense* Stapf in W.H.Harvey Fl. Cap. 7: 477. 1899; *Helictotrichon natalense* (Stapf) Schweick., Bothalia 3: 194. 1937.

*Grapphephorum newtonii* (Stapf) D.L.Fu, sp. transl. nov. *Avena newtonii* Stapf, Bull. Misc. Inform. Kew 1897: 291. 1897.

*Grapphephorum pirpanjalense* (D.Prasad & P.Agnihotri) D.L.Fu, sp. transl. nov. *Trisetopsis pirpanjalensis* D.Prasad & P.Agnihotri, Nordic J. Bot. 39(11)-e03291: 2. 2021.

*Grapphephorum quinquesetum* (Steud.) D.L.Fu, sp. transl. nov. *Avena quinqueseta* Steud., Flora 12: 485. 1829.

*Grapphephorum rogerellisii* (Mashau et al.) D.L.Fu, sp. transl. nov. *Helictotrichon rogerellisii* Mashau, Fish & A.E.Wyk, Bothalia 40: 179. 2010.

*Grapphephorum roggeveldense* (Mashau et al.) D.L.Fu, sp. transl. nov. *Helictotrichon roggeveldense* Mashau, Fish & A.E.Wyk, Bothalia 40: 179. 2010.

*Grapphephorum umbrosum* (Steud.) D.L.Fu, sp. transl. nov. *Trisetum umbrosum* Hochst. ex Steud., Syn. Pl. Glumac. 1: 227. 1854.

*Grapphephorum virescens* (Steud.) D.L.Fu, sp. transl. nov. *Trisetum virescens* Nees ex Steud., Syn. Pl. Glumac. 1: 226. 1854.

*Jarava acuta* (Swallen) D.L.Fu, sp. transl. nov. *Stipa acuta* Swallen, J. Washington Acad. Sci. 30: 212. 1940.

*Jarava airoides* (Ekman) D.L.Fu, sp. transl. nov. *Stipa airoides* Ekman, Ark. Bot. 11(4): 31. 1912.

*Jarava alta* (Swallen) D.L.Fu, sp. transl. nov. *Stipa alta* Swallen, Proc. Biol. Soc. Washington 56: 79. 1943.

*Jarava ambigua* (Speg.) D.L.Fu, sp. transl. nov. *Stipa ambigua* Speg., Revista Argent. Bot. 1: 27. 1925; *Jarava ambigua* (Speg.) Peñail., Gayana, Bot. 59: 30. 2002, nom. inval. — *Amelichloa ambigua* (Speg.) Arriaga & Barkworth, Sida 22(1): 147. 2006.

*Jarava ancoraimensis* (F.Rojas) D.L.Fu, sp. transl. nov. *Nassella ancoraimensis* F.Rojas, Gayana, Bot. 54(2): 165 (-166). 1997 publ. 1998.

*Jarava arcaensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa*

*arcaensis* Speg., Anales Mus. Nac. Montevideo 4(2): 131. 1901.

*Jarava arcuata* (R.E.Fr.) D.L.Fu, sp. transl. nov. *Stipa arcuata* R.E.Fr., Nova Acta Regiae Soc. Sci. Upsal., ser. 4, 1(1): 172. 1905.

*Jarava arechavaletae* (Speg.) D.L.Fu, sp. transl. nov. *Stipa arechavaletae* Speg., Anales Mus. Nac. Montevideo 4(2): 85. 1901.

*Jarava argentinensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa argentinensis* Speg., Revista Argent. Bot. 1: 45. 1925.

*Jarava arida* (M.E.Jones) D.L.Fu, sp. transl. nov. *Stipa arida* M.E.Jones, Proc. Calif. Acad. Sci., ser. 2, 5: 725. 1895.

*Jarava arnowiae* (S.L.Welsh & N.D.Atwood) D.L.Fu, sp. transl. nov. *Stipa arnowiae* S.L.Welsh & N.D.Atwood, Utah Fl., ed. 3: 799. 2003.

*Jarava asplundii* (Hitchc.) D.L.Fu, sp. transl. nov. *Nassella asplundii* Hitchc., Contr. U.S. Natl. Herb. 24: 394. 1927.

*Jarava ayacuchensis* (Tovar) D.L.Fu, sp. transl. nov. *Stipa ayacuchensis* Tovar, Opusc. Bot. Pharm. Complut. 4: 85. 1988.

*Jarava barbinodis* (Phil.) D.L.Fu, sp. transl. nov. *Stipa barbinodis* Phil., Anales Univ. Chile 93: 721. 1896.

*Jarava brachychaeta* (Godr.) D.L.Fu, sp. transl. nov. *Stipa brachychaeta* Godr., Mém. Sect. Med. Acad. Sci. Montpellier 1: 450. 1853; *Jarava brachychaeta* (Godr.) Peñail., Gayana, Bot. 59: 30. 2002, nom. inval..

*Jarava brachychaetoides* (Speg.) D.L.Fu, sp. transl. nov. *Stipa brachychaetoides* Speg., Revista Argent. Bot. 1: 29. 1925.

*Jarava brachyglumis* (F.A.Roig) D.L.Fu, sp. transl. nov. *Stipa brachyglumis* F.A.Roig, Fl. San Juan 4: 110. 2009.

*Jarava brachyphylla* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa brachyphylla* Hitchc., Contr. U.S. Natl. Herb. 24: 275. 1925.

*Jarava bracteata* (Swallen) D.L.Fu, sp. transl. nov. *Stipa bracteata* Swallen, J. Washington Acad. Sci. 30: 213. 1940.

*Jarava brasiliensis* (A.Zanin & Longhi-Wagner) D.L.Fu, sp. transl. nov. *Stipa brasiliensis* A.Zanin & Longhi-Wagner, Bradea 5: 342. 1990.

*Jarava brevipes* (É.Desv.) D.L.Fu, sp. transl. nov. *Stipa brevipes* É.Desv. in C.Gay Fl. Chil. 6: 282. 1854; *Jarava brevipes* (É.Desv.) Peñail., Gayana, Bot. 59: 30. 2002, nom. inval..

*Jarava burkartii* (Torres) D.L.Fu, sp. transl. nov. *Stipa burkartii* Torres, Comis. Invest. Ci. 12: 17. 1993.

*Jarava cabrerai* (Torres) D.L.Fu, sp. transl. nov. *Nassella cabrerai* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 14. 1997, as 'cabrerai'.

*Jarava caespitosa* (Griseb.) D.L.Fu, sp. transl. nov. *Nassella caespitosa* Griseb., Abh. Königl. Ges. Wiss. Göttingen 19: 258. 1874.

*Jarava carettei* (Hauman) D.L.Fu, sp. transl. nov. *Stipa carettei* Hauman, Anales Mus. Nac. Hist. Nat. Buenos Aires 29: 399. 1917, as 'caretii'.

*Jarava castellanosi* (F.A.Roig) D.L.Fu, sp. transl. nov.

*Stipa castellanosi* F.A.Roig, Revista Fac. Ci. Agrar. Univ. Nac. Cuyo 12: 82. 1967; *Jarava castellanosi* (F.A.Roig) Peñail., Contr. U.S. Natl. Herb. 48: 404. 2003, nom. inval..

*Jarava catamarcensis* (Torres) D.L.Fu, sp. transl. nov. *Nassella catamarcensis* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 17. 1997.

*Jarava caudata* (Trin.) D.L.Fu, sp. transl. nov. *Stipa caudata* Trin., Mém. Acad. Imp. Sci. St.-Petersbourg, Sér. 6, Sci. Math. 1: 75. 1830; *Jarava caudata* (Trin.) Peñail., Gayana, Bot. 59: 30. 2002, nom. inval..

*Jarava cernua* (Stebbins & Love) D.L.Fu, sp. transl. nov. *Stipa cernua* Stebbins & Love, Madroño 6: 137. 1941.

*Jarava chaparensis* (F.Rojas) D.L.Fu, sp. transl. nov. *Nassella chaparensis* F.Rojas, Gayana, Bot. 54(2): 167 (-170). 1997.

*Jarava charruana* (Arechav.) D.L.Fu, sp. transl. nov. *Stipa charruana* Arechav., Anales Mus. Nac. Buenos Aires 4: 181. 1895.

*Jarava chilensis* (Trin.) D.L.Fu, sp. transl. nov. *Urachne chilensis* Trin., Mém. Acad. Imp. Sci. Saint-Petersbourg, Sér. 6, Sci. Math., Seconde Pt. Sci. Nat. 3(2): 123. 1834. — *Nassella chilensis* (Trin.) É.Desv., Fl. Chil. [Gay] 6: 267. 1853.

*Jarava clandestina* (Hack.) D.L.Fu, sp. transl. nov. *Stipa clandestina* Hack., Repert. Spec. Nov. Regni Veg. 8: 516. 1910.

*Jarava constricta* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa constricta* Hitchc., Contr. U.S. Natl. Herb. 24: 244. 1925.

*Jarava contracta* (B.L.Johnson) D.L.Fu, sp. comb. nov. *Oryzopsis hymenoides* var. *contracta* B.L.Johnson, Bot. Gaz. 107: 24. 1945; *Oryzopsis contracta* (B.L.Johnson) Schltr., Brittonia 18: 342. 1967.

*Jarava coquimbensis* (Matthei) D.L.Fu, sp. transl. nov. *Stipa coquimbensis* Matthei, Gayana, Bot. 13: 35. 1965.

*Jarava cordobensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa cordobensis* Speg., Anales Mus. Nac. Montevideo 4(2): 141. 1901.

*Jarava coronata* (Thurb.) D.L.Fu, sp. transl. nov. *Stipa coronata* Thurb. in S.Watson et al. Bot. California 2: 287. 1880.

*Jarava crassiflora* (Roseng. & B.R.Arrill.) D.L.Fu, sp. transl. nov. *Stipa crassiflora* Roseng. & B.R.Arrill., Bol. Fac. Agron. Univ. Montevideo 72: 30. 1964.

*Jarava curamalalensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa curamalalensis* Speg., Anales Mus. Nac. Montevideo 4(2): 160. 1901.

*Jarava curvifolia* (Swallen) D.L.Fu, sp. transl. nov. *Stipa curvifolia* Swallen, J. Washington Acad. Sci. 23: 456. 1933.

*Jarava depauperata* (Pilg.) D.L.Fu, sp. transl. nov. *Stipa depauperata* Pilg., Beibl. Bot. Jahrb. Syst. 123: 23. 1920.

*Jarava duriuscula* (Phil.) D.L.Fu, sp. transl. nov. *Stipa duriuscula* Phil., Linnaea 33: 282. 1864.

*Jarava editorum* (E.Fourn.) D.L.Fu, sp. transl. nov. *Stipa editorum* E.Fourn., Mexic. Pl. 2: 75. 1886.

*Jarava elata* (Speg.) D.L.Fu, sp. comb. nov. *Stipa caespitosa* var. *elata* Speg., Anales Mus. Nac. Montevideo 4: 119.

1901; *Nassella elata* (Speg.) Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 20. 1997.

*Jarava eminens* (Cav.) D.L.Fu, sp. transl. nov. *Stipa eminens* Cav., Icon. 5: 42. 1799. — *Pseudoeriacoma eminens* (Cav.) Romasch., PhytoKeys 126: 113. 2019.

*Jarava entrerriensis* (Burkart) D.L.Fu, sp. transl. nov. *Stipa entrerriensis* Burkart, Bol. Soc. Argent. Bot. 12: 285. 1968.

*Jarava fabrisii* (Torres) D.L.Fu, sp. transl. nov. *Nassella fabrisii* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 20. 1997.

*Jarava famatinensis* (Torres) D.L.Fu, sp. transl. nov. *Nassella famatinensis* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 21. 1997.

*Jarava filiculmis* (Delile) D.L.Fu, sp. transl. nov. *Stipa filiculmis* Delile, Index Seminum (MPU, Monspelienensis) 1849: 7. 1849.

*Jarava filifolia* (Nees) D.L.Fu, sp. transl. nov. *Stipa filifolia* Nees in C.F.P.Martius Fl. Bras. Enum. Pl. 2: 379. 1829; *Jarava filifolia* (Nees) Ciald., Fl. Vasc. Argent. 3(2): 385. 2012, nom. inval..

*Jarava formicarum* (Delile) D.L.Fu, sp. transl. nov. *Stipa formicarum* Delile, Index Seminum (MPU, Monspelienensis) 1849: 7. 1849.

*Jarava gibba* (Phil.) D.L.Fu, sp. transl. nov. *Piptochaetium gibbum* Phil., Anales Univ. Chile 93: 731. 1896.

*Jarava gigantea* (Steud.) D.L.Fu, sp. transl. nov. *Urachne gigantea* Steud., Syn. Pl. Glumac. 1: 123. 1854.

*Jarava glabripoda* (Torres) D.L.Fu, sp. transl. nov. *Nassella glabripoda* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 22. 1997.

*Jarava hendersonii* (Vasey) D.L.Fu, sp. transl. nov. *Oryzopsis hendersonii* Vasey, Contr. U.S. Natl. Herb. 1: 267. 1893.

*Jarava hirticulmis* (S.L.Hatch et al.) D.L.Fu, sp. transl. nov. *Stipa hirticulmis* S.L.Hatch, Valdéz-Reyna & Morden, Syst. Bot. 11: 186. 1986.

*Jarava hirtifolia* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa hirtifolia* Hitchc., Contr. U.S. Natl. Herb. 24: 285. 1925.

*Jarava holwayi* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa holwayi* Hitchc., Contr. U.S. Natl. Herb. 24: 287. 1925.

*Jarava huallancaensis* (Tovar) D.L.Fu, sp. transl. nov. *Stipa huallancaensis* Tovar, Publ. Mus. Hist. Nat. "Javier Prado", Ser. B, Bot. 33: 11. 1985.

*Jarava hunzikeri* (Caro) D.L.Fu, sp. transl. nov. *Stipa hunzikeri* Caro, Kurtziana 3: 75. 1966.

*Jarava hyalina* (Nees) D.L.Fu, sp. transl. nov. *Stipa hyalina* Nees in C.F.P.Martius Fl. Bras. Enum. Pl. 2: 378. 1829.

*Jarava hymenoides* (Roem. & Schult.) D.L.Fu, sp. transl. nov. *Stipa hymenoides* Roem. & Schult., Syst. Veg., ed. 15 [bis]. 2: 339. 1817. — *Eriocoma cuspidata* Nutt., Gen. N. Amer. Pl. 1: 40. 1818.

*Jarava hypsophila* (Speg.) D.L.Fu, sp. transl. nov. *Stipa hypsophila* Speg., Revista Argent. Bot. 1: 33. 1925; *Jarava hypsophila* (Speg.) Peñail., Gayana, Bot. 59(1): 31. 2002,

nom. inval..

*Jarava hystricina* (Speg.) D.L.Fu, sp. transl. nov. *Stipa hystricina* Speg., Anales Mus. Nac. Montevideo 4(2): 115. 1901; *Jarava hystricina* (Speg.) Peñail., Contr. U.S. Natl. Herb. 48: 405. 2003, nom. inval..

*Jarava ibarrensensis* (Kunth) D.L.Fu, sp. transl. nov. *Stipa ibarrensensis* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 125. 1816.

*Jarava inconspicua* (J.Presl) D.L.Fu, sp. transl. nov. *Stipa inconspicua* J.Presl, C.B.Presl, Reliq. Haenk. 1: 227. 1830.

*Jarava juergensii* (Hack.) D.L.Fu, sp. transl. nov. *Stipa juergensii* Hack., Repert. Spec. Nov. Regni Veg. 7: 314. 1909.

*Jarava karstenii* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa karstenii* Hitchc., Contr. U.S. Natl. Herb. 24: 274. 1925.

*Jarava lachnophylla* (Trin.) D.L.Fu, sp. transl. nov. *Stipa lachnophylla* Trin., Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 1: 67. 1836.

*Jarava laevisissima* (Phil.) D.L.Fu, sp. transl. nov. *Piptochaetium laevisissimum* Phil., Linnaea 33: 280. 1864.

*Jarava latiglumis* (Swallen) D.L.Fu, sp. transl. nov. *Stipa latiglumis* Swallen, J. Washington Acad. Sci. 23: 198. 1933.

*Jarava lemmonii* (Vasey) D.L.Fu, sp. comb. nov. *Stipa pringlei* var. *lemmonii* Vasey, Contr. U.S. Natl. Herb. 3: 55. 1892; *Stipa lemmonii* (Vasey) Scribn., Circ. Div. Agrostol. U.S.D.A. 30: 3. 1901.

*Jarava lepida* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa lepida* Hitchc., Amer. J. Bot. 2: 302. 1915.

*Jarava leptocoronata* (Roseng. & B.R.Arrill.) D.L.Fu, sp. transl. nov. *Stipa leptocoronata* Roseng. & B.R.Arrill., Bol. Fac. Agron. Univ. Montevideo 72: 16. 1964.

*Jarava leptostachya* (Griseb.) D.L.Fu, sp. transl. nov. *Stipa leptostachya* Griseb., Abh. Königl. Ges. Wiss. Göttingen 24: 299. 1879; *Jarava leptostachya* (Griseb.) F.Rojas, Gayana, Bot. 54(2): 173. 1997, nom. inval..

*Jarava leptothera* (Speg.) D.L.Fu, sp. transl. nov. *Stipa leptothera* Speg., Anales Mus. Nac. Montevideo 4(2): 133. 1901.

*Jarava lettermanii* (Vasey) D.L.Fu, sp. transl. nov. *Stipa lettermanii* Vasey, Bull. Torrey Bot. Club 13: 53. 1886.

*Jarava leucotricha* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Stipa leptothera* Speg., Anales Mus. Nac. Montevideo 4(2): 133. 1901.

*Jarava lobata* (Swallen) D.L.Fu, sp. transl. nov. *Stipa lobata* Swallen, J. Washington Acad. Sci. 23: 199. 1933.

*Jarava longicoronata* (Roseng. & B.R.Arrill.) D.L.Fu, sp. transl. nov. *Stipa longicoronata* Roseng. & B.R.Arrill., Bol. Fac. Agron. Univ. Montevideo 72: 20. 1964.

*Jarava longiglumis* (Phil.) D.L.Fu, sp. transl. nov. *Stipa longiglumis* Phil., Linnaea 33: 286. 1864.

*Jarava macrathera* (Phil.) D.L.Fu, sp. transl. nov. *Stipa macrathera* Phil., Anales Univ. Chile 93: 720. 1895.

*Jarava macrotricha* (F.A.Roig) D.L.Fu, sp. transl. nov. *Stipa macrotricha* F.A.Roig, Fl. San Juan 4: 109(-110). 2009.

*Jarava manicata* (É.Desv.) D.L.Fu, sp. transl. nov. *Stipa manicata* É.Desv. in C.Gay Fl. Chil. 6: 288. 1854.



*Jarava melanosperma* (J.Presl) D.L.Fu, sp. transl. nov. *Stipa melanosperma* J.Presl, C.B.Presl, Reliq. Haenk. 1: 226. 1830.

*Jarava mexicana* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa mexicana* Hitchc., Contr. U.S. Natl. Herb. 24: 24. 1925.

*Jarava meyeniana* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Urachne meyeniana* Trin. & Rupr., Sp. Gram. Stipac.: 20. 1842.

*Jarava meyeri* (Torres) D.L.Fu, sp. transl. nov. *Nassella meyeri* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 26. 1997.

*Jarava mucronata* (Kunth) D.L.Fu, sp. transl. nov. *Stipa mucronata* Kunth in F.W.H.Humboldt et al. Nov. Gen. Sp. 1: 125. 1816.

*Jarava multinodis* (Scribn. ex Beal) D.L.Fu, sp. transl. nov. *Stipa multinodis* Scribn. ex Beal, Grass. N. Amer. 2: 222. 1896.

*Jarava nardoides* (Phil.) D.L.Fu, sp. transl. nov. *Danthonia nardoides* Phil., Verz. Antofagasta Pfl.: 84. 1891.

*Jarava neesiana* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Stipa neesiana* Trin. & Rupr., Sp. Gram. Stipac.: 27. 1842.

*Jarava nelsonii* (Scribn.) D.L.Fu, sp. transl. nov. *Stipa nelsonii* Scribn., Bull. Div. Agrostol. U.S.D.A. 11: 46. 1898.

*Jarava nevadensis* (B.L.Johnson) D.L.Fu, sp. transl. nov. *Stipa nevadensis* B.L.Johnson, Amer. J. Bot. 49: 257. 1962.

*Jarava nidulans* (Mez) D.L.Fu, sp. transl. nov. *Stipa nidulans* Mez, Repert. Spec. Nov. Regni Veg. 17: 205. 1921.

*Jarava niduloides* (Caro) D.L.Fu, sp. transl. nov. *Stipa niduloides* Caro, Kurtziana 3: 86. 1966.

*Jarava novari* (Torres) D.L.Fu, sp. transl. nov. *Nassella novari* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 29. 1997.

*Jarava nubicola* (Speg.) D.L.Fu, sp. transl. nov. *Stipa nubicola* Speg., Anales Mus. Nac. Montevideo 4(2): 129. 1901.

*Jarava nutans* (Hack.) D.L.Fu, sp. transl. nov. *Stipa nutans* Hack., Repert. Spec. Nov. Regni Veg. 7: 315. 1909.

*Jarava occidentalis* (S.Watson) D.L.Fu, sp. transl. nov. *Stipa occidentalis* Thurb. ex S.Watson, Botany [Fortieth Parallel]: 380. 1871.

*Jarava pampagrandensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa pampagrandensis* Speg., Anales Mus. Nac. Montevideo 4(2): 158. 1901.

*Jarava pampeana* (Speg.) D.L.Fu, sp. transl. nov. *Stipa pampeana* Speg., Contr. Fl. Sierra Vent.: 64. 1896.

*Jarava paramilloensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa paramilloensis* Speg., Anales Mus. Nac. Montevideo 4(2): 139. 1901.

*Jarava parishii* (Vasey) D.L.Fu, sp. transl. nov. *Stipa parishii* Vasey, Bot. Gaz. 7: 33. 1882.

*Jarava parodii* (Matthei) D.L.Fu, sp. transl. nov. *Stipa parodii* Matthei, Gayana, Bot. 13: 89. 1965.

*Jarava parva* (Torres) D.L.Fu, sp. transl. nov. *Nassella parva* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 32. 1997.

*Jarava pauciciliata* (Roseng. & Izag.) D.L.Fu, sp. comb.

nov. *Stipa megapotamica* var. *pauciciliata* Roseng. & Izag., Bol. Soc. Argent. Bot. 9: 288. 1961; *Stipa pauciciliata* (Roseng. & Izag.) Roseng., B.R.Arrill. & Izag., Gram. Urug.: 80. 1970.

*Jarava perplexa* (Hoge & Barkworth) D.L.Fu, sp. transl. nov. *Achnatherum perplexum* Hoge & Barkworth, Phytologia 74: 11. 1993.

*Jarava pfisteri* (Matthei) D.L.Fu, sp. transl. nov. *Stipa pfisteri* Matthei, Gayana, Bot. 13: 100. 1965.

*Jarava philippii* (Steud.) D.L.Fu, sp. transl. nov. *Stipa philippii* Steud., Syn. Pl. Glumac. 1: 125. 1854.

*Jarava pinetorum* (M.E.Jones) D.L.Fu, sp. transl. nov. *Stipa pinetorum* M.E.Jones, Proc. Calif. Acad. Sci., ser. 2, 5: 724. 1895.

*Jarava pittieri* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa pittieri* Hitchc., Contr. U.S. Natl. Herb. 24: 289. 1925.

*Jarava planaltina* (A.Zanin & Longhi-Wagner) D.L.Fu, sp. transl. nov. *Stipa planaltina* A.Zanin & Longhi-Wagner, Bradea 5: 344. 1990.

*Jarava plumosa* (Spreng.) D.L.Fu, sp. transl. nov. *Calamagrostis plumosa* Spreng., Syst. Veg., ed. 16. 1: 253. 1824; *Jarava plumosa* (Spreng.) S.W.L.Jacobs & J.Everett, Telopea 7(3): 301. 1997, nom. inval..

*Jarava poeppigiana* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Stipa poeppigiana* Trin. & Rupr., Sp. Gram. Stipac.: 29. 1842.

*Jarava pseudoichu* (Caro) D.L.Fu, sp. transl. nov. *Stipa pseudoichu* Caro, Kurtziana 3: 103. 1966; *Jarava pseudoichu* (Caro) F.Rojas, Gayana, Bot. 54(2): 173. 1997, nom. inval..

*Jarava pseudopampagrandensis* (Caro) D.L.Fu, sp. transl. nov. *Stipa pseudopampagrandensis* Caro, Kurtziana 3: 71. 1966.

*Jarava psittacorum* (Speg.) D.L.Fu, sp. transl. nov. *Stipa psittacorum* Speg., Anales Mus. Nac. Montevideo 4(2): 165. 1901.

*Jarava pubiflora* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Urachne pubiflora* Trin. & Rupr., Sp. Gram. Stipac.: 21. 1842.

*Jarava pulchra* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa pulchra* Hitchc., Amer. J. Bot. 2: 301. 1915.

*Jarava punensis* (Torres) D.L.Fu, sp. transl. nov. *Nassella punensis* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 34. 1997.

*Jarava pungens* (É.Desv.) D.L.Fu, sp. transl. nov. *Nassella pungens* É.Desv., Fl. Chil. [Gay] 6: 268. 1853.

*Jarava quinqueciliata* (Roseng. & Izag.) D.L.Fu, sp. comb. nov. *Stipa nutans* var. *quinqueciliata* Roseng. & Izag., Bol. Soc. Argent. Bot. 9: 285. 1961; *Stipa quinqueciliata* (Roseng. & Izag.) A.Zanin & P.Izag., Bradea 6: 206. 1993.

*Jarava ragonesei* (Torres) D.L.Fu, sp. transl. nov. *Nassella ragonesei* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 35. 1997.

*Jarava rhizomata* (A.Zanin & Longhi-Wagner) D.L.Fu, sp. transl. nov. *Stipa rhizomata* A.Zanin & Longhi-Wagner, Bradea 5: 345. 1990.

*Jarava richardsonii* (Link) D.L.Fu, sp. transl. nov. *Stipa*



*richardsonii* Link, Hort. Berol. 2: 245. 1833.

*Jarava robusta* (Vasey) D.L.Fu, sp. comb. nov. *Stipa viridula* var. *robusta* Vasey, Contr. U.S. Natl. Herb. 1: 56. 1890; *Stipa robusta* (Vasey) Scribn., Bull. Div. Agrostol. U.S.D.A. 5: 23. 1897.

*Jarava rosengurtii* (Chase) D.L.Fu, sp. transl. nov. *Stipa rosengurtii* Chase, J. Washington Acad. Sci. 33: 316. 1943.

*Jarava rupestris* (Phil.) D.L.Fu, sp. transl. nov. *Stipa rupestris* Phil., Anales Mus. Nac. Santiago de Chile 8: 81. 1891.

*Jarava sanluisensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa sanluisensis* Speg., Anales Mus. Nac. Montevideo 4(2): 156. 1901.

*Jarava scabrifolia* (Torres) D.L.Fu, sp. transl. nov. *Stipa scabrifolia* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 61. 1997; *Jarava scabrifolia* (Torres) Peñail., Contr. U.S. Natl. Herb. 48: 407. 2003, nom. inval..

*Jarava scribneri* (Vasey) D.L.Fu, sp. transl. nov. *Stipa scribneri* Vasey, Bull. Torrey Bot. Club 11: 125. 1884.

*Jarava sellowiana* (Trin. & Rupr.) D.L.Fu, sp. transl. nov. *Stipa sellowiana* Trin. & Rupr., Sp. Gram. Stipac.: 28. 1842.

*Jarava smithii* (Hitchc.) D.L.Fu, sp. transl. nov. *Stipa smithii* Hitchc., J. Washington Acad. Sci. 20: 382. 1930.

*Jarava soukupii* (Tovar) D.L.Fu, sp. transl. nov. *Stipa soukupii* Tovar, Opusc. Bot. Pharm. Complut. 4: 90. 1988.

*Jarava spegazzinii* (Arechav.) D.L.Fu, sp. transl. nov. *Stipa spegazzinii* Arechav., Anales Mus. Nac. Montevideo 4(1): 68. 1902.

*Jarava stuckertii* (Hack.) D.L.Fu, sp. transl. nov. *Stipa stuckertii* Hack., Anales Mus. Nac. Hist. Nat. Buenos Aires 21: 81. 1911.

*Jarava subnitida* (Roseng. & B.R.Arrill.) D.L.Fu, sp. transl. nov. *Stipa subnitida* Roseng. & B.R.Arrill., Bol. Fac. Agron. Univ. Montevideo 72: 25. 1964; *Jarava subnitida* (Roseng. & B.R.Arrill.) Peñail., Gayana, Bot. 59: 33. 2002, nom. inval..

*Jarava swallenii* (C.L.Hitchc. & Spellénb.) D.L.Fu, sp. transl. nov. *Oryzopsis swallenii* C.L.Hitchc. & Spellénb., Brittonia 20: 164. 1968.

*Jarava tenuiculmis* (Hack.) D.L.Fu, sp. transl. nov. *Stipa tenuiculmis* Hack., Verh. K. K. Zool.-Bot. Ges. Wien 65: 75. 1915.

*Jarava tenuis* (Phil.) D.L.Fu, sp. transl. nov. *Stipa tenuis* Phil., Anales Univ. Chile 26: 204. 1870.

*Jarava tenuissima* (Trin.) D.L.Fu, sp. transl. nov. *Stipa tenuissima* Trin., Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 1: 67. 1836..

*Jarava thurberiana* Piper ex D.L.Fu, sp. nom. nov. *Stipa occidentalis* Thurb. in C.Wilkes, U.S. Expl. Exped., Phan. 17(2): 483. 1874, non. *Jarava occidentalis* (S.Watson) D.L.Fu; *Stipa thurberiana* Piper, Circ. Div. Agrostol. U.S.D.A. 27: 10. 1900, nom. nov.

*Jarava torquata* (Speg.) D.L.Fu, sp. transl. nov. *Stipa torquata* Speg., Anales Mus. Nac. Montevideo 4(2): 88. 1901.

*Jarava trachyphylla* (Henrard) D.L.Fu, sp. transl. nov. *Nassella trachyphylla* Henrard, Meded. Rijks-Herb. 40: 57.

1921.

*Jarava trichotoma* (Nees) D.L.Fu, sp. transl. nov. *Stipa trichotoma* Nees in C.F.P.Martius Fl. Bras. Enum. Pl. 2: 375. 1829.

*Jarava tucumana* (Parodi) D.L.Fu, sp. transl. nov. *Stipa tucumana* Parodi, Revista Argent. Agron. 15: 57. 1948.

*Jarava uspallatensis* (Speg.) D.L.Fu, sp. transl. nov. *Stipa uspallatensis* Speg., Anales Mus. Nac. Montevideo 4(2): 120. 1901.

*Jarava valdesii* (Romasch) D.L.Fu, sp. transl. nov. *Eriocoma valdesii* Hoge ex Romasch., P.M.Peterson & Soreng, PhytoKeys 139: 22. 2020.

*Jarava vallsii* (A.Zanin & Longhi-Wagner) D.L.Fu, sp. transl. nov. *Stipa vallsii* A.Zanin & Longhi-Wagner, Bradea 5: 346. 1990.

*Jarava Vargasii* (Tovar) D.L.Fu, sp. transl. nov. *Stipa Vargasii* Tovar, Phytologia 47: 445. 1981.

*Jarava ventanica* (Cabrera & Torres) D.L.Fu, sp. transl. nov. *Stipa ventanica* Cabrera & Torres, Bol. Soc. Argent. Bot. 12: 140. 1968.

*Jarava viridula* (Trin.) D.L.Fu, sp. transl. nov. *Stipa viridula* Trin., Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 1: 67. 1836.

*Jarava wallowaensis* (J.R.Maze & K.A.Robson) D.L.Fu, sp. transl. nov. *Achnatherum wallowaense* J.R.Maze & K.A.Robson, Madroño 43: 401. 1996.

*Jarava webberi* (Thurb.) D.L.Fu, sp. transl. nov. *Eriocoma webberi* Thurb. in S.Watson, Bot. California [W.H.Brewer] 2: 283. 1880.

*Jarava wurdackii* (Tovar) D.L.Fu, sp. transl. nov. *Stipa wurdackii* Tovar, Phytologia 47: 445. 1981.

*Jarava yaviensis* (Torres) D.L.Fu, sp. transl. nov. *Nassella yaviensis* Torres, Monogr. Comis. Invest. Ci. Prov. Buenos Aires 13: 39. 1997.

*Sclerachloa acroantha* (C.A.Sm. & C.E.Hubb.) D.L.Fu, sp. transl. nov. *Puccinellia acroantha* C.A.Sm. & C.E.Hubb., Bull. Misc. Inform. Kew 1929(3): 86. 1929.

*Sclerachloa altaica* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia altaica* Tzvelev, Rast. Tsentral. Azii Fasc. 4, 152. 1968.

*Sclerachloa andersonii* (Swallen) D.L.Fu, sp. transl. nov. *Puccinellia andersonii* Swallen, J. Wash. Acad. Sci. 34: 21. 1944.

*Sclerachloa angustata* (R.Br.) D.L.Fu, sp. transl. nov. *Poa angustata* R.Br., Chlor. Melvill.: 29. 1823.

*Sclerachloa arctica* (Hook.) D.L.Fu, sp. transl. nov. *Glyceria arctica* Hook., Fl. Bor.-Amer. 2: 248. 1840.

*Sclerachloa argentinensis* (Hack.) D.L.Fu, sp. transl. nov. *Atropis argentinensis* Hack., Ark. Bot. 8(8): 45. 1909.

*Sclerachloa arjinshanensis* (D.F.Cui) D.L.Fu, sp. transl. nov. *Puccinellia arjinshanensis* D.F.Cui, Fl. Xinjiangensis 6: 601. 1996.

*Sclerachloa banksiensis* (Consaul) D.L.Fu, sp. transl. nov. *Puccinellia banksiensis* Consaul, Novon 18(1): 17 (16-20). 2008.

- Sclerochloa biflora* (Steud.) D.L.Fu, sp. transl. nov. *Festuca biflora* Steud., Syn. Pl. Glumac. 1: 428. 1854.
- Sclerochloa blomii* (Jansen) D.L.Fu, sp. transl. nov. *Puccinellia blomii* Jansen, Blumea 5: 530. 1945. — *Puccinellia mendozina* (Hack.) Parodi, Revista Argent. Agron. 28: 105. 1962.
- Sclerochloa bruggemannii* (T.J.Sørensen) D.L.Fu, sp. transl. nov. *Puccinellia bruggemannii* T.J.Sørensen, Natl. Mus. Canada Bull. 135: 80. 1955.
- Sclerochloa bulbosa* (Grossh.) D.L.Fu, sp. transl. nov. *Atropis bulbosa* Grossh., Věstn. Tiflissk. Bot. Sada 13-14: 36. 1919.
- Sclerochloa byrrangensis* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia byrrangensis* Tzvelev, Novosti Sist. Vyssh. Rast. 8: 80. 1971.
- Sclerochloa candida* (Enustsch. & Gnutikov) D.L.Fu, sp. transl. nov. *Puccinellia candida* Enustsch. & Gnutikov, Bot. Zhurn. (Moscow & Leningrad) 94(10): 1557 (-1559). 2009.
- Sclerochloa chinampoensis* (Ohwi) D.L.Fu, sp. transl. nov. *Puccinellia chinampoensis* Ohwi, Acta Phytotax. Geobot. 4(1): 31. 1935.
- Sclerochloa choresmica* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis choresmica* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 761. 1934.
- Sclerochloa ciliata* (Bor) D.L.Fu, sp. transl. nov. *Puccinellia ciliata* Bor, Notes Roy. Bot. Gard. Edinburgh 28: 299. 1968.
- Sclerochloa convoluta* (Hornem.) D.L.Fu, sp. transl. nov. *Poa convoluta* Hornem., Hort. Bot. Hafn. 2: 953. 1815.
- Sclerochloa coreensis* (Honda) D.L.Fu, sp. transl. nov. *Puccinellia coreensis* Honda, J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. iii. 57. 1930.
- Sclerochloa decumbens* (A.R.Williams) D.L.Fu, sp. transl. nov. *Puccinellia decumbens* A.R.Williams, Fl. Australia 44A: 386. 2009.
- Sclerochloa degeensis* (L.Liu) D.L.Fu, sp. transl. nov. *Puccinellia degeensis* L.Liu, Fl. Reipubl. Popularis Sin. 9(2): 405. 2002.
- Sclerochloa diffusa* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis diffusa* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 766. 1934.
- Sclerochloa dolicholepis* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis dolicholepis* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 764. 1934.
- Sclerochloa fasciculata* (Torr.) D.L.Fu, sp. transl. nov. *Poa fasciculata* Torr., Fl. N. Middle United States 1: 107. 1823.
- Sclerochloa filifolia* (Trin.) D.L.Fu, sp. transl. nov. *Colpodium filifolium* Trin., Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 1: 69. 1836.
- Sclerochloa florida* (D.F.Cui) D.L.Fu, sp. transl. nov. *Puccinellia florida* D.F.Cui, Fl. Xinjiangensis 6: 600. 1996; Bull. Bot. Res. North-East. Forest. Univ. 17(2): 121. 1997.
- Sclerochloa fontana* (Portal) D.L.Fu, sp. comb. nov. *Puccinellia distans* subsp. *fontana* Portal in Glyceria, Puccinellia, Pseudosclerochloa: 77. 2014; *Puccinellia fontana* (Portal) Amarell & T.Gregor, Kochia 14: 63. 2021.
- Sclerochloa foucaudii* (Hack.) D.L.Fu, sp. transl. nov. *Atropis foucaudii* Hack., Bull. Soc. Bot. Rochelaise 15: 47. 1893.
- Sclerochloa frigida* (Phil.) D.L.Fu, sp. transl. nov. *Catabrosa frigida* Phil., Fl. Atacam.: 55. 1860.
- Sclerochloa gabrieljanae* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia gabrieljanae* Tzvelev, Botanika (Minsk) 40: 154. 2011.
- Sclerochloa gigantea* (Grossh.) D.L.Fu, sp. transl. nov. *Atropis gigantea* Grossh., Věstn. Tiflissk. Bot. Sada 13-14: 35. 1919.
- Sclerochloa glaucescens* (Phil.) D.L.Fu, sp. transl. nov. *Catabrosa glaucescens* Phil., Anales Univ. Chile 43: 569. 1873.
- Sclerochloa gorodkovii* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia gorodkovii* Tzvelev, Fl. Arct. URSS 2: 199. 1964.
- Sclerochloa groenlandica* (T.J.Sørensen) D.L.Fu, sp. transl. nov. *Puccinellia groenlandica* T.J.Sørensen, Meddel. Gronland 136(3): 37, fig. 34, 35, 69, 70. 1953.
- Sclerochloa grossheimiana* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Puccinellia grossheimiana* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 477. 1934.
- Sclerochloa hackeliana* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis hackeliana* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 762. 1934.
- Sclerochloa harcusiana* (A.R.Williams) D.L.Fu, sp. transl. nov. *Puccinellia harcusiana* A.R.Williams, Fl. Australia 44A: 386. 2009.
- Sclerochloa hauptiana* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis hauptiana* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 763. 1934.
- Sclerochloa himalaica* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia himalaica* Tzvelev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 66. 1955.
- Sclerochloa hispanica* (Julià & J.M.Monts.) D.L.Fu, sp. transl. nov. *Puccinellia hispanica* Julià & J.M.Monts., Fontqueria 53: 3. 1999.
- Sclerochloa howellii* (J.I.Davis) D.L.Fu, sp. transl. nov. *Puccinellia howellii* J.I.Davis, Madroño 37: 55, fig. 1. 1990.
- Sclerochloa iberica* (Wolley-Dod) D.L.Fu, sp. transl. nov. *Atropis iberica* Wolley-Dod, J. Bot. 52: 14. 1914.
- Sclerochloa intermedia* (Schur) D.L.Fu, sp. transl. nov. *Atropis intermedia* Schur, Enum. Pl. Transsilv.: 779. 1866.
- Sclerochloa jeholensis* (Kitag.) D.L.Fu, sp. transl. nov. *Puccinellia jeholensis* Kitag., Rep. Exped. Manchoukuo Sect. IV, Pt. 4, Index Fl. Jeholensis 102. 1936.
- Sclerochloa jennisseiensis* (Roshev.) D.L.Fu, sp. transl. nov. *Atropis jennisseiensis* Roshev., Izv. Bot. Sada Akad. Nauk S.S.S.R. 30: 300. 1932.
- Sclerochloa kamtschatica* (Holmb.) D.L.Fu, sp. transl. nov. *Puccinellia kamtschatica* Holmb., Bot. Not. 1927: 208. 1927.
- Sclerochloa kashmiriana* (Bor) D.L.Fu, sp. transl. nov. *Puccinellia kashmiriana* Bor, Kew Bull. 8(2): 270. 1953.
- Sclerochloa koeieana* (Melderis) D.L.Fu, sp. transl. nov.

*Puccinellia koeieana* Melderis, Biol. Skr. 14(4): 7. 1965.

*Sclerochloa kuenlunica* (Tzvelev) D.L.Fu, sp. transl. nov.  
*Puccinellia kuenlunica* Tzvelev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 62. 1955.

*Sclerochloa ladakhensis* (H.Hartmann) D.L.Fu, sp. transl. nov.  
*Poa ladakhensis* H.Hartmann, Candollea 39: 510. 1984.

*Sclerochloa ladyginii* (Tzvelev) D.L.Fu, sp. transl. nov.  
*Puccinellia ladyginii* Ivanova ex Tzvelev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 65. 1955.

*Sclerochloa leiolepis* (L.Liu) D.L.Fu, sp. transl. nov. *Puccinellia leiolepis* L.Liu, Fl. Xizang. 5: 126. 1987.

*Sclerochloa lemmonii* (Vasey) D.L.Fu, sp. transl. nov. *Poa lemmonii* Vasey, Bot. Gaz. 3: 13. 1878.

*Sclerochloa lenensis* (Holmb.) D.L.Fu, sp. comb. nov. *Poa sibirica* var. *lenensis* Holmb., Bot. Not. 1927: 207. 1927;  
*Puccinellia lenensis* (Holmb.) Tzvelev, Novosti Sist. Vyssh. Rast. 8: 80. 1971.

*Sclerochloa longior* (A.R.Williams) D.L.Fu, sp. transl. nov.  
*Puccinellia longior* A.R.Williams, Nuytsia 16(2): 458 (-460). 2007.

*Sclerochloa macquariensis* (Cheeseman) D.L.Fu, sp. transl. nov.  
*Triodia macquariensis* Cheeseman, Vasc. Fl. Macquarie Isl.: 34. 1919.

*Sclerochloa macranthera* (V.I.Krecz.) D.L.Fu, sp. transl. nov.  
*Atropis macranthera* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 759. 1934.

*Sclerochloa macropus* (V.I.Krecz.) D.L.Fu, sp. transl. nov.  
*Puccinellia macropus* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 489. 1934.

*Sclerochloa magellanica* (Hook.f.) D.L.Fu, sp. transl. nov.  
*Catabrosa magellanica* Hook.f., Fl. Antarct.: 387. 1847.

*Sclerochloa manchuriensis* (Ohwi) D.L.Fu, sp. transl. nov.  
*Puccinellia manchuriensis* Ohwi, Acta Phytotax. Geobot. 4(1): 31. 1935.

*Sclerochloa micrandra* (Keng) D.L.Fu, sp. comb. nov.  
*Puccinellia distans* var. *micrandra* Keng, Sunyatsenia 6: 58. 1941; *Puccinellia micrandra* (Keng) Keng & S.L.Chen, Bull. Bot. Res., Harbin 14(2): 140. 1994.

*Sclerochloa micranthera* (D.F.Cui) D.L.Fu, sp. transl. nov.  
*Puccinellia micranthera* D.F.Cui, Fl. Xinjiangensis 6: 600. 1996; Bull. Bot. Res. North-East. Forest. Univ. 17(2): 125. 1997, as 'microanthera'.

*Sclerochloa minuta* (Bor) D.L.Fu, sp. transl. nov. *Puccinellia minuta* Bor, Nytt Mag. Bot. i. 19. 1952.

*Sclerochloa multiflora* (L.Liu) D.L.Fu, sp. transl. nov.  
*Puccinellia multiflora* L.Liu, Fl. Xizang. 5: 123. 1987.

*Sclerochloa nana* D.L.Fu, sp. nom. nov. *Glyceria pumila* Macoun ex Vasey, Bull. Torrey Bot. Club 15: 48. 1888, non *Sclerochloa pumila* Steud..

*Sclerochloa nipponica* (Ohwi) D.L.Fu, sp. transl. nov.  
*Puccinellia nipponica* Ohwi, Bot. Mag. (Tokyo) 45: 379. 1931.

*Sclerochloa nudiflora* (Hack.) D.L.Fu, sp. transl. nov. *Poa nudiflora* Hack., Oesterr. Bot. Z. 52: 453. 1902.

*Sclerochloa nutkaensis* (J.Presl) D.L.Fu, sp. transl. nov.

*Poa nutkaensis* J.Presl in C.B.Presl, Reliq. Haenk. 1: 272. 1830.

*Sclerochloa nuttalliana* (Schult.) D.L.Fu, sp. transl. nov.  
*Poa nuttalliana* Schult., Mant. 2: 303. 1824.

*Sclerochloa pamirica* (Roshev.) D.L.Fu, sp. comb. nov.  
*Atropis distans* f. *pamirica* Roshev., Trudy Glavn. Bot. Sada 38: 121. 1924; *Atropis pamirica* (Roshev.) V.I.Krecz., V.L.Komarov (ed.), Fl. URSS 2: 760. 1934.

*Sclerochloa parishii* (Hitchc.) D.L.Fu, sp. transl. nov.  
*Puccinellia parishii* Hitchc., Proc. Biol. Soc. Washington 41: 157. 1928.

*Sclerochloa parviflora* (Hack.) D.L.Fu, sp. transl. nov.  
*Atropis parviflora* Hack. in P.K.H.Dus  n, Ergebn. Schwed. Exp. Magell. 3(5): 226. 1900. — *Puccinellia pusilla* (Hack.) Parodi, Notas Mus. La Plata, Bot. 2, Bot. no. 11: 15. 1937.

*Sclerochloa parvula* (Hitchc.) D.L.Fu, sp. transl. nov.  
*Puccinellia parvula* Hitchc., Contr. U.S. Natl. Herb. 24: 325. 1927.

*Sclerochloa pauciramea* (Hack.) D.L.Fu, sp. comb. nov.  
*Atropis distans* f. *pauciramea* Hack., Trudy Imp. S.-Peterburgsk. Bot. Sada 21: 422. 1903; *Atropis pauciramea* (Hack.) V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 760. 1934.

*Sclerochloa perlaxa* (N.G.Walsh) D.L.Fu, sp. comb. nov.  
*Puccinellia stricta* var. *perlaxa* N.G.Walsh, Muelleria 7: 382. 1991; *Puccinellia perlaxa* (N.G.Walsh) N.G.Walsh & A.R.Williams, Nuytsia 16(2): 464. 2007.

*Sclerochloa phryganodes* (Trin.) D.L.Fu, sp. transl. nov.  
*Poa phryganodes* Trin., M n. Acad. Imp. Sci. St.-P tersbourg, S r. 6, Sci. Math. 1: 389. 1830.

*Sclerochloa poecilantha* (K.Koch) D.L.Fu, sp. transl. nov.  
*Festuca poecilantha* K.Koch, Linnaea 21: 411. 1848.

*Sclerochloa pooides* (Hook.f.) D.L.Fu, sp. transl. nov.  
*Glyceria pooides* Stapf ex Hook.f., Fl. Brit. India 7: 348. 1896.

*Sclerochloa porsildii* (T.J.S rensen) D.L.Fu, sp. transl. nov.  
*Puccinellia porsildii* T.J.S rensen, Meddel. Gr nland 136(3): 35. 1953.

*Sclerochloa preslii* (Hack.) D.L.Fu, sp. transl. nov. *Atropis preslii* Hack., in P.K.H.Dus  n, Ergebn. Schwed. Exp. Magell. 3(5): 227. 1900.

*Sclerochloa przewalskii* (Tzvelev) D.L.Fu, sp. transl. nov.  
*Puccinellia przewalskii* Tzvelev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 63. 1955.

*Sclerochloa qinghaica* (Tzvelev) D.L.Fu, sp. transl. nov.  
*Puccinellia qinghaica* Tzvelev, Bot. Zhurn. (Moscow & Leningrad) 89(5): 842. 2004.

*Sclerochloa raroflorens* (Edgar) D.L.Fu, sp. transl. nov.  
*Puccinellia raroflorens* Edgar, New Zealand J. Bot. 34(1): 22. 1996.

*Sclerochloa roborovskyi* (Tzvelev) D.L.Fu, sp. transl. nov.  
*Puccinellia roborovskyi* Tzvelev, Trudy Bot. Inst. Akad. Nauk S.S.S.R., Rast. Tsentral. Azii 4: 15. 1968; Rast. Tsentral. Azii Fasc. 4, 157. 1968.

*Sclerochloa roshevitsiana* (Schischk.) D.L.Fu, sp. transl.



nov. *Atropis roshevitsiana* Schischk., Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva (3): 1. 1929.

*Sclerochloa schischkinii* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia schischkinii* Tzvelev, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 57. 1955.

*Sclerochloa sereginii* (Tzvelev) D.L.Fu, sp. transl. nov. *Puccinellia sereginii* Tzvelev, Botanika (Minsk) 40: 156. 2011.

*Sclerochloa shuanghuensis* (L.Liu) D.L.Fu, sp. transl. nov. *Puccinellia shuanghuensis* L.Liu, Fl. Xizang. 5: 125. 1987.

*Sclerochloa sibirica* (Holmb.) D.L.Fu, sp. transl. nov. *Puccinellia sibirica* Holmb., Bot. Not. 206. 1927.

*Sclerochloa simplex* (Scribn.) D.L.Fu, sp. transl. nov. *Puccinellia simplex* Scribn., Circ. Div. Agrostol. U.S.D.A. 16: 1. 1899.

*Sclerochloa skottsbergii* (Pilg.) D.L.Fu, sp. transl. nov. *Atropis skottsbergii* Pilg., Repert. Spec. Nov. Regni Veg. 12: 305. 1913.

*Sclerochloa stricta* (Hook.f.) D.L.Fu, sp. transl. nov. *Glyceria stricta* Hook.f., Fl. Nov.-Zel. 1: 304. 1853.

*Sclerochloa strictura* (L.Liu) D.L.Fu, sp. transl. nov. *Puccinellia strictura* L.Liu, Fl. Reipubl. Popularis Sin. 9(2): 405. 2002.

*Sclerochloa sublaevis* (Holmb.) D.L.Fu, sp. comb. nov. *Puccinellia kamtschatica* var. *sublaevis* Holmb., Bot. Not. 1927: 209. 1927; *Puccinellia sublaevis* (Holmb.) Tzvelev, Novosti Sist. Vyssh. Rast. 8: 80. 1971.

*Sclerochloa subspicata* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis subspicata* V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 760. 1934.

*Sclerochloa tenella* (Lange) D.L.Fu, sp. transl. nov. *Glyceria tenella* Lange in A.E.Nordenskiöld Vega-Exped. Vetensk. Iakttag. 1: 313. 1882.

*Sclerochloa tenuiflora* (Griseb.) D.L.Fu, sp. transl. nov. *Atropis tenuiflora* Griseb. in C.F.Ledebour Fl. Ross. 4: 389. 1852.

*Sclerochloa tenuifolia* (Boiss. & Reut.) D.L.Fu, sp. transl. nov. *Glyceria tenuifolia* Boiss. & Reut., Pugill. Pl. Afr. Bor. Hispan.: 127. 1852.

*Sclerochloa tenuissima* (V.I.Krecz.) D.L.Fu, sp. transl. nov. *Atropis tenuissima* Litv. ex V.I.Krecz. in V.L.Komarov (ed.), Fl. URSS 2: 765. 1934.

*Sclerochloa thomsonii* (Hook.f.) D.L.Fu, sp. transl. nov. *Glyceria thomsonii* Stapf ex Hook.f., Fl. Brit. India 7: 347. 1896.

*Sclerochloa tianschanica* (Tzvelev) D.L.Fu, sp. comb. nov. *Puccinellia tenuiflora* subsp. *tianschanica* Tzvelev, Novosti Sist. Vyssh. Rast. 8: 79. 1971; *Puccinellia tianschanica* (Tzvelev) Ikonn., Opred. Vyssh. Rast. Badakhshana 80. 1979.

*Sclerochloa tzvelevii* (Ovchinnikova & Prob.) D.L.Fu, sp. transl. nov. *Puccinellia tzvelevii* Ovchinnikova & Prob., Rast. Mir Aziatsk. Rossii 1(17): 34. 2015.

*Sclerochloa vaginata* (Lange) D.L.Fu, sp. transl. nov. *Glyceria vaginata* Lange in G.C.Oeder et al. (eds.), Fl. Dan.: t. 2583. 1858.

*Sclerochloa vahliana* (Liebm.) D.L.Fu, sp. transl. nov. *Poa vahliana* Liebm. in G.C.Oeder et al. (eds.), Fl. Dan.: t. 2401. 1845.

*Sclerochloa vassica* (A.R.Williams) D.L.Fu, sp. transl. nov. *Puccinellia vassica* A.R.Williams, Nuytsia 16(2): 460 (-461). 2007.

*Sclerochloa vitalii* (Yu.E.Alexeev et al.) D.L.Fu, sp. transl. nov. *Puccinellia vitalii* Yu.E.Alexeev, Laktionov & Tzvelev, Bot. Zhurn. (Moscow & Leningrad) 93(11): 1792 (-1793). 2008.

*Sclerochloa walkerii* (Kirk) D.L.Fu, sp. transl. nov. *Poa walkerii* Kirk, Trans. & Proc. New Zealand Inst. 17: 224. 1885.

*Sclerochloa wrightii* (Scribn. & Merr.) D.L.Fu, sp. transl. nov. *Colpodium wrightii* Scribn. & Merr., Contr. U.S. Natl. Herb. 13: 74. 1910.

## 5. Conclusion

When establishing a new genus, the use of inaccurate and unscientific genera as compared taxa can result in a new synonym. By applying the minimum criterion for genus classification by CPCG of Fructophyta D.L.Fu & H.Fu, which is a crucial and empirically validated scientific tool, it is possible to effectively address the subjectivity and partiality in traditional taxonomy and modern phylogeny. This approach allows for the scientific identification of genus synonyms and resolution of taxonomic nomenclature confusions. Through the application of this minimum criterion, a total of 19 current synonyms have been identified for the five genera: *Jarava* Ruiz et Pav, *Grapphephorum* Desv., *Cinna* L., *Coleanthus* Seidl and *Sclerochloa* P.Beauv.. Additionally, 10 new specific names along with 406 new specific combinations have been scientifically and validly published in the paper. These publications will establish a solid foundation for evolutionary system research within the order Poales Small.

## 6. Recommendation

Genus is not only a crucial element in biological taxonomy names, but also a significant rank in evolutionary systems. Therefore, the definition of genus presents a scientific challenge that cannot be overlooked by biological nomenclature, taxonomists, and systematicists. However, there has been no definitive scientific answer or evaluation method. The minimum criterion for defining genera of Fructophyta D.L.Fu & H.Fu serves as an effective scientific tool for identifying genus synonyms and should be widely promoted and applied. Utilizing the minimum criterion to find and identify genus synonyms, analyzing the causes of synonyms, and making scientifically sound corrections are essential for accurately naming and establishing evolutionary systems of fruit plants. The evolutionary system of the phylum Fructophyta D.L.Fu & H.Fu is notably complex, particularly re-



garding the unique taxonomic traits of the class Scutellopsida D.L.Fu, which poses significant challenges to traditional taxonomy and modern plant phylogeny; moreover, plants within the class are closely linked to human production and daily life. Therefore, it is recommended to continue identifying synonyms of certain plant genera while scientifically combining and publishing their species to lay a solid foundation for accurate application of plant taxonomic names — especially in agriculture and forestry.

## 7. Correction

*Bambusa wenii* D.L.Fu, Amer. J. Agr. For. 12(3): 182. 2024, (as 'weni').

*Bambusa zengiae* D.L.Fu, Amer. J. Agr. For. 12(3): 182. 2024, (as 'zengi').

*Dinochloa holtumii* D.L.Fu, Amer. J. Agr. For. 12(3): 182. 2024, (as 'holtumi').

*Phyllostachys holtii* D.L.Fu & H.Fu, Amer. J. Agr. For. 12(2): 95. 2024, (as 'holtii').

*Phyllostachys stapletonii* D.L.Fu & H.Fu, Amer. J. Agr. For. 12(2): 102. 2024, (as 'stapletoni').

*Phyllostachys wenii* D.L.Fu & H.Fu, Amer. J. Agr. For. 12(2): 104. 2024, (as 'weni').

## Abbreviations

CPCG	Chloroplast Complete Genomes
PHL	Phylogenetic Loci
PHS	Phylogenetic Similarity

## Author Contributions

Da-Li Fu is the sole author. The author read and approved the final manuscript.

## Conflicts of Interest

The author declares no conflicts of interest.

## References

- [1] Jacobs, S. W. L., Everett, J. *Jarava plumosa* (Gramineae), a new combination for the species formerly known as *Stipa papposa*. *Telopea* 1997, 7(3): 301-302.
- [2] Rojas, F. Nuevas especies y nuevas combinaciones para la tribu Stipeae (Poaceae) en Bolivia. *Gayana Bot.* 1997, 54(2): 163-182.
- [3] Matthei, O., Marticorena, C., Rodríguez, R., Kalin Arroyo, M., Muñoz, M., Squeo, F. A., Arancio, G. New records and new combinations of Poaceae for the flora of Chile. *Gayana Bot.* 1997, 54(2): 189-192.
- [4] Peñalillo, P. The Genus *Jarava* Ruiz et Pav. (Stipeae-Poaceae): Delimitation and New Combinations. *Gayana Bot.* 2002, 59(1): 27-34.
- [5] Peñalillo, P. *Jarva* Ruiz et Pav. In: Soreng R. et al. Catalogue of New World grasses (Poaceae): IV. subfamily Pooideae. *Contr. U.S. Natl. Herb.* 2003, 48: 403-407.
- [6] Cialdella, A. M. Tribu Stipeae. In: Zuloaga, F. O. et al. (eds). Flora vascular de la Republica Argentina. Córdoba: Gráficamente Ediciones, 2012, 3(2), pp. 372-495.
- [7] Jacobs, S. W. L., Everett, J. *Austrostipa*, a new genus, and new names for Australasian species formerly included in *Stipa* (Gramineae). *Telopea* 1996, 6(4): 579-595.
- [8] Romaschenko K., Peterson, P. M., Soreng R. J., Garcia-Jacas, N., Futorna, O., Susanna A. Molecular Phylogenetic Analysis of the American Stipeae (Poaceae) Resolves *Jarava* Ssensu Lato Polyphyletic: Evidence for a New Genus, *Pappostipa*. *J. Bot. Res. Inst. Texas* 2008, 2(1): 165 -192.
- [9] Sclovich, S. E., Giussani, L. M., Cialdella, A. M., Sede, S. M. Phylogenetic analysis of *Jarava* (Poaceae, Pooideae, Stipeae) and related genera: testing the value of the awn indumentum in the circumscription of *Jarava*. *Plant Syst. Evol.* 2015, 301(6), 1625-1641.  
<https://doi.org/10.1007/s00606-014-1175-9>
- [10] Cialdella, A. M., Sede, S. M., Romaschenko, K., Peterson, P. M., Soreng, R. J., Zuloaga, F. O. and Morrone, O. Phylogeny of *Nassella* (Stipeae, Pooideae, Poaceae) Based on Analyses of Chloroplast and Nuclear Ribosomal DNA and Morphology. *Syst. Bot.* 2014, 39(3): 814-828.  
<https://doi.org/10.1600/036364414X681419>
- [11] Cialdella, A. M., Salariato, D. L., Aagesen, L., Giussani, L. M., Zuloaga, F. O., Morrone O. Phylogeny of New World Stipeae (Poaceae): an evaluation of the monophyly of *Aciachne* and *Amelichloa*. *Cladistics* 2010, 1-17.  
<https://doi.org/10.1111/j.1096-0031.2010.00310.x>
- [12] Verloove, F. A synopsis of *Jarava* Ruiz & Pav. and *Nassella* E. Desv. (*Stipa* L. s.l.) (Poaceae: Stipeae) in southwestern Europe. *Candollea* 2005. 60(1): 97-117.
- [13] Arriaga, M. O., Barkworth M. *Amelichloa*: A new genus in the Stipeae (Poaceae). *Sida* 2006, 22(1): 145-149.
- [14] Peterson, P. M., Romaschenko, K., Soreng, R. J., Reyna, J. V. A key to the North American genera of Stipeae (Poaceae, Pooideae) with descriptions and taxonomic names for species of *Eriocoma*, *Neotrinia*, *Oloptum*, and five new genera: *Barkworthia*, *×Eriosella*, *Pseudoeriacoma*, *Ptilagrostiella*, and *Thorneochloa*. *PhytoKeys* 2019, 126, 89-125.  
<https://doi.org/10.3897/phytokeys.126.34096>
- [15] Soreng, R. J., Gillespie, L. J. *Nicoraepoa* (Poaceae, Poaeae), A New South American Genus Based On *Poa* Subg. *Andinae*, And Emendation of *Poa* Sect. *Parodiochloa* of the Sub-Antarctic Islands. *Ann. Missouri Bot. Gard.* 2007, 94(4), 821-849.  
[https://doi.org/10.3417/0026-6493\(2007\)94\[821:NPPANS\]2.0.CO;2](https://doi.org/10.3417/0026-6493(2007)94[821:NPPANS]2.0.CO;2)

- [16] Soreng, R. J., Gillespie, L. J., Jacobs, S. W. L. *Saxipoa* and *Sylvipoa* – two new genera and a new classification for Australian *Poa* (Poaceae: Poinae). *Austral. Syst. Bot.* 2009, 22: 401–412. <https://doi.org/10.1071/SB09003>
- [17] Alexeev, E. B. Tzvelevia, Festucella and Hookerochloa. Bulletin of Moscow Society of Naturalists: biological department 1985, 90 (5), 103–106.
- [18] Gillespie, L. J., Soreng, R. J. & Jacobs, S. W. L. Phylogenetic relationships of Australian *Poa* (Poaceae: Poinae), including molecular evidence for two new genera, *Saxipoa* and *Sylvipoa*. *Austral. Syst. Bot.* 2009, 22: 413–436. <https://doi.org/10.1071/SB09016>
- [19] Gillespie, L. J., Soreng, R. J., Bull, R. D., Jacobs, S. W. L., Refulio-Rodriguez, N. F. Phylogenetic relationships in subtribe Poinae (Poaceae, Poeae) based on nuclear ITS and plastid *trnT-trnL-trnf* sequences. *Botany* 2008, 86, 938–967. <https://doi.org/10.1139/B08-076>
- [20] Gnutikov, A. A., Nosov, N. N., Punina, E. O., Probatova, N. S., Rodionov, A. V. On the placement of *Coleanthus subtilis* and the subtribe Coleanthinae within Poaceae by new molecular phylogenetic data. *Phytotaxa* 2020, 468 (3): 243–274. <https://doi.org/10.11646/phytotaxa.468.3.2>
- [21] Wädk, A., Röser, M. The new genus *Trisetopsis* and new combinations in oat-like grasses (Poaceae). *Schlechtendalia* 2013, 25, 57–61.
- [22] Wädk, A., Röser, M. Polyploid evolution, intercontinental biogeographical relationships and morphology of the recently described African oat genus *Trisetopsis* (Poaceae). *Taxon* 2014, 63, 773–788. <https://doi.org/10.12705/634.1>
- [23] Wädk, A., Röser, M. Hybridization and long-distance colonization in oat-like grasses of South and East Asia, including an amended circumscription of *Helictotrichon* and the description of the new genus *Tzveleviochloa* (Poaceae). *Taxon* 2017, 66, 20–43. <https://doi.org/10.12705/661.2>
- [24] Tkach, N., Schneider, J., Döring, E., Wädk, A., Hochbach, A., Nissen, J., Winterfeld, G., Meyer, S., Gabriel, J., Hoffmann, M. H., Röser M. Phylogenetic lineages and the role of hybridization as driving force of evolution in grass supertribe Poodae. *Taxon* 2020, 69, 234–277. <https://doi.org/10.1002/tax.12204>
- [25] Finot, V. L., Peterson, P. M., Soreng, R. J., Zuloaga, F. O. A revision of *Trisetum* and *Graphephorum* (Poaceae: Pooideae: Aveninae) in North America North of Mexico. *Sida* 2005, 21, 1419–1453.
- [26] Barberá P., Soreng, R. J., Peterson, P. M., Romaschenko, K., Quintanar, A. & Aedo, C. Molecular phylogenetic analysis resolves *Trisetum* Pers. (Poaceae: Pooideae: Koeleriinae) polyphyletic: Evidence for a new genus, *Sibirotrisetum*, and resurrection of *Acrospelon*. *J. Syst. Evol.* 2020, 58, 517–526. <https://doi.org/10.1111/jse.12523>
- [27] Saarela, J. M., Bull, R. D., Paradis, M. J., Ebata, S. N., Peterson, P. M., Soreng, R. J. & Paszko, B. Molecular phylogenetics of cool-season grasses in the subtribes Agrostidinae, Anthoxanthinae, Aveninae, Brizinae, Calothecinae, Koeleriinae and Phalaridinae (Poaceae: Pooideae: Poeae: Poeae chloroplast group 1). *PhytoKeys* 2017, 87, 1–139. <https://doi.org/10.3897/phytokeys.87.12774>
- [28] Fu, D. L., Fu, H. An evolutionary continuity principle for evolutionary system of organism divisions. *Amer. J. Agric. Forest.* 2018, 6(3), 25–29. <https://doi.org/10.11648/j.ajaf.20180603.14>
- [29] Fu, D. L. An evolutionary particularity principle for evolutionary system of classes of Fructophyta. *Amer. J. Agric. Forest.* 2019, 7(5): 191–199. <https://doi.org/10.11648/j.ajaf.20190705.15>
- [30] Fu, D. L. The theory and practice of evolutionomy. Beijing: China Forestry Publishing House; 2020, 1–158.
- [31] Fu, D. L., Fu, H., Qin, Y., Zhou, D. S., Duan, R. M. Analyses of chloroplast genomic and morphological evolutionomy of *Yulanian* subsect. *Cylindricae* (Magnoliaceae). *Amer. J. Agric. Forest.* 2019, 7(5), 200–211. <https://doi.org/10.11648/j.ajaf.20190705.16>
- [32] Fu, D. L., Fu, H., Duan, R. M., Qin, Y. Evolutionary System of Magnoliaceae Based on Chloroplast Genomic and Morphological Evolutionomy. *Amer. J. Agric. Forest.* 2024, 12(1), 22–50. <https://doi.org/10.11648/j.ajaf.20241201.14>
- [33] Fu, D. L., Fu, H. New Names and New Combinations of *Phyllostachys* Sieb. & Zucc. (Bambusaceae). *Amer. J. Agric. Forest.* 2024, 12(2), 87–106. <https://doi.org/10.11648/j.ajaf.20241202.14>
- [34] Fu, D. L. New Names and New Combinations of the Genera of *Bambusa*, *Dinorchloa* and *Guadua* (Bambusaceae). *Amer. J. Agric. Forest.* 2024, 12 (3), 174–184. <https://doi.org/10.11648/j.ajaf.20241203.14>