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RESEARCH ARTICLE

×*Kengdoroegneria*, nothogen. nov., and new nomenclatural combinations in *Triticeae* (*Poaceae*)

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Abstract. The system of the family *Poaceae* is dynamically changing due to the progress of phylogenetic research. Consequently, nomenclature of some taxa should be adjusted accordingly. In the *Plants of the World Online* (POWO) and some other authoritative online sources, some genera and nothogenera are accepted in rather wide circumscriptions; for example, ×*Agroelymus* E.G. Camus ex A. Camus (including ×*Agrotrigia* Tzvelev and ×*Elymopyrum* Cugnac), ×*Elyleymus* B.R. Baum (with synonyms ×*Leymotrigia* Tzvelev and ×*Leymotrix* Kharkev. & Prob.), and *Elymus* L. (including *Elytrigia* Desv. and ×*Elymotrigia* Hyl.). However, *Pseudoroegneria* (Nevski) Á. Löve and *Kengyilia* C. Yen & J.L. Yang are now commonly recognized as separate genera. If we accept these taxonomic concepts, several nomenclatural combinations are needed. Thus, some of them are proposed here. I propose a new nothogenus ×*Kengdoroegneria* Olshanskyi for intergeneric hybrids between species of *Kengyilia* C. Yen & J.L. Yang and *Pseudoroegneria* (Nevski) Á. Löve. Also, nine nomenclatural combinations in ×*Agroelymus*, ×*Elyleymus*, *Elymus*, and ×*Kengdoroegneria* are validated.

Keywords: ×*Agroelymus*, *Agropyron*, ×*Agrotrigia*, ×*Elyleymus*, *Elymus*, *Elytrigia*, hybrid, ×*Kengdoroegneria*, *Leymus*, *Poaceae*, taxonomy, *Triticeae*

Introduction

The family *Poaceae* Barnhart includes ca. 780 genera and ca. 12 000 species that are currently recognized taxonomically (Christenhusz, Byng, 2016). The system of this family is dynamically changing due to the progress of phylogenetic research (see Soreng et al., 2022, and references therein). Changes in the views of researchers on the circumscription of one or another taxon often lead to the need to change the names of taxa.

For example, the need to change the name of a hybrid arises when the rank of the parent taxon changes or when a parent species of the hybrid is transferred to another genus. Hybridization is rather common in *Poaceae* (see Sieber, Murray, 1982; Baiakhmetov et al., 2020; Urfusová et al., 2021; etc.), and thus, for reflecting the changed taxonomic positions of parent species, many nomenclatural novelties may be expected among interspecific and intergeneric hybrids registered and described in *Poaceae*.

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In the *Plants of the World Online*, ×*Agroelymus* E.G. Camus ex A. Camus has as synonyms the nothogeneric names ×*Agrotrigia* Tzvelev and ×*Elymopyrum* Cugnac (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30194316-2> [here and below, accessed 2022-10-20]), ×*Elylymus* B.R. Baum has as synonyms ×*Leymotrigia* Tzvelev and ×*Leymotrix* Kharkev. & Prob. (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:288402-2>), *Elymus* L. has, among others, the synonyms *Elytrigia* Desv. and ×*Elymotrigia* Hyl. (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:328322-2>), *Pseudoroegneria* (Nevski) Á. Löve and *Kengyilia* C. Yen & J.L. Yang are now usually recognized as separate genera (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:925304-1> and <https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:18833-1>). According to this view, several nomenclatural combinations must be done. Thus, I propose here some of these possible nomenclatural solutions.

Nomenclature

×*Agroelymus* E.G. Camus ex A. Camus, Bull. Mus. Hist. Nat. (Paris) 33: 538 (1927).

Hybrid formula: *Agropyron* Gaertn. × *Elymus* L.

×*Agroelymus androssovii* (Roshev.) Olshanskyi, **comb. nov.**

Basionym: *Agropyron* ×*androssovii* Roshev., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 11: 30 (1949).

Type (Roshevitz, 1949): TURKMENISTAN: "Turcomania. Kopet-Dagh orientalis, ad declivia montis Chuncha Secunda, supra pagum Robergovskii, 05 VII.1934, N. Androssov" (LE, here and below, herbarium acronyms are cited following Thiers, 2023–onward).

Hybrid formula (Tzvelev, 1972): *Agropyron cristatum* (L.) Gaertn. [in Tzvelev (1972): *Agropyron cristatum* subsp. *pectinatum* (M. Bieb.) Tzvelev] × *Elytrigia trichophora* (Link) Nevski.

Synonyms:

×*Agrotrigia androssovii* (Roshev.) Tzvelev, Novosti Sist. Vyssh. Rast. 9: 63 (1972).

×*Agroelymus czernjaevii* (Širj. & Lavrenko) Olshanskyi, **comb. nov.**

Basionym: *Triticum* ×*czernjaevii* Širj. & Lavrenko, Consp. Fl. Chark. 1: 39 (1926).

Type (Širjaev, Lavrenko, 1926): UKRAINE: "Kupjansk: in arena mobili ad p. Krasnjanka. [leg. Czernjaev]" (the type specimen has not been traced, probably in KW or CWU).

Hybrid formula (Prokudin, 1940: 355): *Agropyron tanaiticum* Nevski × *Elymus repens* (L.) Gould. [in Prokudin (1940): *Agropyron repens* (L.) P. Beauv.]

Synonyms:

×*Agrotrigia czernjaevii* (Širj. & Lavrenko) Sutorý, Čas. Morav. Muz., Vědy Přír. 78(1–2): 95 (1994).

×*Agroelymus kotovii* (Tzvelev) Olshanskyi, **comb. nov.**

Basionym: ×*Agrotrigia kotovii* Tzvelev, Novosti Sist. Vyssh. Rast. 9: 63 (1972).

Type (Tzvelev, 1972): UKRAINE: "Tauria, distr. Sudak, in declivitate lapidosa sicca montis Karadagh prope sinum "Serdolikovaja", 20 VIII.1961, N. Tzvelev" (LE).

Hybrid formula (Tzvelev, 1972): *Agropyron cristatum* (L.) Gaertn. [in Tzvelev (1972): *Agropyron cristatum* subsp. *pectinatum* (M. Bieb.) Tzvelev] × *Elymus repens* (L.) Gould.

Synonyms:

×*Elymopyron kotovii* (Tzvelev) M.H.J. van der Meer, Cact. Phantast. 3(2): 24 (2019), nom. inval. [According to Art.41.5. of the *International Code of Nomenclature for algae, fungi, and plants* (ICN, Turland et al., 2018): "On or after 1 January 1953, a new combination, name at new rank, or replacement name is not validly published unless its basionym or replaced synonym is clearly indicated and a full and direct reference given to its author and place of valid publication, with page or plate reference and date". M.H.J. van der Meer failed to provide a full and direct reference to the basionym].

×*Elylymus* B.R. Baum, Canad. J. Bot. 57: 947 (1979).

Hybrid formula: *Elymus* L. × *Leymus* Hochst.

×*Elylymus roshevitzii* (Tzvelev) Olshanskyi, **comb. nov.**

Basionym: ×*Leymotrigia roshevitzii* Tzvelev, Novosti Sist. Vyssh. Rast. 9: 60 (1972).

Type (Tzvelev, 1972): KYRGYZSTAN: "Tjan-Schan centralis, distr. Przhevalsk, ripa fl. Koczkar-ka, 16 VIII.1908, n° 1191a, Roshevitz" (LE).

Hybrid formula (Tzvelev, 1972): *Elymus repens* (L.) Gould [in Tzvelev (1972): *Elytrigia repens* (L.) Nevski] × *Leymus paboanus* (Claus) Pilg.

Synonyms:

×*Elyleymus roshevitzii* (Tzvelev) M.H.J. van der Meer, *Cact. Phantast.* 3(2): 24 (2019), nom. inval. [Contrary to Art.41.5. of ICN (Turland et al., 2018), no full and direct reference to the replaced synonym was given].

×*Elymotriticum cziczniinii* M.H.J. van der Meer, *Cact. Phantast.* 3(2): 25 (2019), nom. inval. [Contrary to Art.41.5. of ICN (Turland et al., 2018), no full and direct reference to the replaced synonym was given].

×*Elyleymus wiliucis* (Drobow) Olshanskyi, **comb. nov.**

Basionym: *Agropyron* ×*wiliucum* Drobow, *Trudy Bot. Muz. Imp. Akad. Nauk* 16: 95 (1916).

Type (Drobow, 1916): RUSSIAN FEDERATION, REPUBLIC OF SAKHA: "Prov. Jakutsk, distr. Wiluj. In declivio arenoso ad fl. Wiluj (Drobow, 1914, № 627)" (LE).

Hybrid formula (Tzvelev, 1972): *Elymus repens* (L.) Gould [in Tzvelev (1972): *Elytrigia repens* (L.) Nevski] × *Leymus secalinus* (Georgi) Tzvelev.

Synonyms:

×*Leymotrigia wiliuca* (Drobow) Tzvelev, *Novosti Sist. Vyssh. Rast.* 9: 60 (1972).

Elymus L., *Sp. Pl.* 1: 83 (1753).

Elymus ×*bobrovicus* (Kotukhov) Olshanskyi, **comb. nov.**

Basionym: ×*Elymotrigia bobrovica* Kotukhov, *Turczaninowia* 1(1): 17 (1998).

Type (Kotukhov, 1998): KAZAKHSTAN: "Altaj Australis, jugum Altaj Australis, depressio Bobrovskiensis, in regione pag. Sorvenok, prata graminosa steppificata, 29 VIII.1984, Ju. Kotuchov" (LE).

Hybrid formula (Kotukhov, 1998): *Elymus dentatus* (Hook. f.) Tzvelev [in Kotukhov (1998): *Elymus nevskii* Tzvelev] × *Elymus repens* (L.) Gould.

Elymus ×*fedoronchukii* Olshanskyi, **nom nov.**

Basionym: ×*Elymotrigia gigantea* Kotukhov, *Turczaninowia* 1(1): 18 (1998).

Type (Kotukhov, 1998): KAZAKHSTAN: "Altaj Australis, jugum Asutau, declivitas boreali-occidentalis, in viciniis pag. Uspenka, prata variierbos-fruticosa, 24 VIII.1990, Ju. Kotuchov" (LE).

Hybrid formula (Kotukhov, 1998): *Elymus mutabilis* (Drobow) Tzvelev × *Elymus repens* (L.) Gould. [in Kotukhov (1998): *Elytrigia repens* (L.) Nevski s. l.].

Etymology: The new name is dedicated to Mykola M. Fedoronchuk, a prominent Ukrainian botanist. The replacement name is proposed here because of the existing earlier name *Elymus giganteus* Vahl (in *Symb. Bot.* 3: 10. 1794), see Art. 6.11 of the ICN (Turland et al., 2018).

Elymus ×*karakabinicus* (Kotukhov) Olshanskyi, **comb. nov.**

Basionym: ×*Elymotrigia karakabinica* Kotukhov, *Bot. Zhurn.* (Moscow & Leningrad) 75(12): 1755 (1990).

Type (Kotukhov, 1990): KAZAKHSTAN: "Altaj Australis, jugum Tarbagataj, depressio Karakabinesis, 1700 m s. m., tumili herbosi morenici, prata graminosa sicca, 03 VIII.1985, J. Kotuchov" (LE).

Hybrid formula (Kotukhov, 1990): *Elymus fedtschenkoii* Tzvelev × *Elymus repens* (L.) Gould. [in Kotukhov (1990): *Elytrigia repens* (L.) Nevski s. l.].

Synonyms:

×*Elymotrigia altaica* Kotukhov, *Turczaninowia* 1(1): 16 (1998).

×*Kengdoroegneria* Olshanskyi, **nothogen. nov.**

Hybrid formula: *Kengyilia* C. Yen & J.L. Yang × *Pseudoroegneria* (Nevski) Á. Löve.

Note. According to Art. H.6.1. of the ICN (Turland et al., 2018), "a nothogeneric name (i.e. the name at generic rank for a hybrid between representatives of two or more genera) is a condensed formula or is equivalent to a condensed formula". Also, according to Art. H.6.2 of the ICN (Turland et al., 2018), "the nothogeneric name of a bigeneric hybrid is a condensed formula in which the names adopted for the parental genera are combined into a single word, using the first part or the whole of one, the last part or the whole of the other (but not the whole of both) and, optionally, a connecting vowel". For naming the nothogenus resulting from confirmed or supposed intergeneric hybridization events between taxa of the genera *Kengyilia* and *Pseudoroegneria*, I combine the first part of the first generic name (Keng- of *Kengyilia*) and the last part of the second generic name (-doroegneria of *Pseudoroegneria*).

×*Kengdoroegneria berelica* (Kotukhov) Olshanskyi, **comb. nov.**

Basionym: ×*Agrotrigia berelica* Kotukhov, *Turczaninowia* 1(1): 15 (1998).

Type (Kotukhov, 1998): KAZAKHSTAN: "Altaj Occidentalis, jugum Listvjaga Occidentalis, inter pag. Jazevka et Dzhambul, 1100 m s.m., declivitas australi-orientalis, prata graminosa steppifilata, 10 VIII.1972, Ju. Kotuchov" (LE).

Hybrid formula (Kotukhov, 1998): *Kengyilia kryloviana* (Schischk.) C. Yen, J.L. Yang & B.R. Baum × *Pseudoroegneria geniculata* (Trin.) Á. Löve [in Kotukhov (1998): *Agropyron krylovianum* Schischk. × *Elytrigia geniculata* (Trin.) Nevski].

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Ethics declaration

The author declares no conflict of interest.

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Urfusová R., Mahelka V., Krahulec F., Urfus T. 2021. Evidence of widespread hybridization among couch grasses (*Elymus*, *Poaceae*). *Journal of Systematics and Evolution*, 59(1): 113–124. <https://doi.org/10.1111/jse.12563>

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Новий ноторід *×Kengdoroegneria* та нові номенклатурні комбінації у трибі *Triticeae* (*Poaceae*)

Реферат. Родина *Poaceae* об'єднує близько 780 родів і 12 000 видів, що визнані на даний час. Система цієї родини динамічно змінюється завдяки прогресу філогенетичних досліджень. Зміни у поглядах дослідників на обсяг того чи іншого таксона часто призводять до необхідності зміни назв таксонів. Наприклад, необхідність змінити назву гібрида виникає при зміні рангу батьківського таксона або при переведенні батьківського виду в інший рід. У широко прийнятій у наш час базі даних *Plants Of the World Online* (POWO) і деяких інших джерелах роди і нотороди визнані у широкому обсязі, наприклад: *×Agroelymus* E.G. Camus ex A. Camus (включає *×Agrotrigia* Tzvelev і *×Elymopyrum* Cugnac), *×Elyleymus* B.R. Baum (з синонімами *×Leymotrigia* Tzvelev і *×Leymotrix* Kharkev. & Prob.), *Elymus* L. (з поміж інших включає *Elytrigia* Desv. та *×Elymotrigia* Hyl.). Разом із тим, роди *Pseudoroegneria* (Nevski) Á. Löve та *Kengyilia* C. Yen & J.L. Yang визнаються як самостійні. Якщо ми приймаємо такі таксономічні концепції, то потрібні декілька номенклатурних комбінацій. У статті запропоновані деякі з цих можливих номенклатурних рішень. Для міжродових гібридів між видами роду *Kengyilia* C. Yen & J.L. Yang і видами роду *Pseudoroegneria* (Nevski) Á. Löve пропонується використовувати назву *×Kengdoroegneria* Olshanskyi. Також зроблено дев'ять номенклатурних комбінацій у *×Agroelymus*, *×Elyleymus*, *Elymus* і *×Kengdoroegneria*.

Ключові слова: *×Agroelymus*, *Agropyron*, *×Agrotrigia*, *×Elyleymus*, *Elymus*, *Elytrigia*, *×Kengdoroegneria*, *Leymus*, *Poaceae*, *Triticeae*, гібрид, систематика