The circumboreal and Pacific North American genus *Pleuropogon* (*Poaceae*) is reduced to a section of the near-cosmopolitan genus *Glyceria*

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Abstract: Tkach, N., Gönnert, I. & Röser, M. 2026. The circumboreal and Pacific-North American genus *Pleuropogon* (*Poaceae*) is reduced to a section of the near-cosmopolitan genus *Glyceria*. Schlechtendalia **43**: 1–7.

A molecular phylogenetic and taxonomic study of the grass tribe *Meliceae* suggests merging *Glyceria* and *Pleuropogon* to prevent the genus *Glyceria* from becoming paraphyletic. *Glyceria* is the older name, but it must be used anyway, since it is a conserved genus name. *Pleuropogon* is reduced to a well-defined section, *G.* sect. *Pleuropogon*, which is monophyletic and sister to *G.* sect. *Glyceria*. Both sections share morphological similarities. Given their shared ecological and biogeographic characteristics – they occur in wetlands of the temperate to boreal Holarctic region, which differentiates them from other *Meliceae* – including *Pleuropogon* in *Glyceria* is plausible. The following new combinations and a new name are introduced: *Glyceria davyi*, *G. douglasii*, *G. hooveriana*, *G. oregona*, *G. refracta*, *G. sabinei*, and *Glyceria* sect. *Pleuropogon*. A taxonomic distinction between the first five Pacific-North American species, which were sometimes recognized as a separate genus, *Lophochlaena*, and the circumboreal *G. sabinei* is not supported.

Zusammenfassung: Tkach, N., Gönnert, I. & Röser, M. 2026: Die zirkumboreale und pazifisch-nordamerikanische Gattung *Pleuropogon* (*Poaceae*) wird zu einer Sektion der fast kosmopolitischen *Glyceria* herabgestuft. Schlechtendalia **43**: 1–7.

Die taxonomische und molekularphylogenetische Untersuchung der Gräsertribus *Meliceae* legt nahe, dass *Glyceria* und *Pleuropogon* zusammengefasst werden sollten, um eine paraphyletische Gattung *Glyceria* zu vermeiden. Der Gattungsname *Glyceria* ist älter, muss aber ohnehin verwendet werden, da er ein konservierter Name ist. *Pleuropogon* wird zu einer gut definierten Sektion (*G.* sect. *Pleuropogon*) herabgestuft, die sowohl monophyletisch als auch Schwestergruppe von *G.* sect. *Glyceria* ist. Beide Sektionen weisen morphologische Ähnlichkeiten auf. Angesichts ihrer gemeinsamen ökologischen und biogeographischen Charakteristika – sie kommen in Feuchtgebieten der gemäßigten bis borealen Holarktis vor und unterscheiden sich damit von den übrigen *Meliceae* – ist die Einbeziehung von *Pleuropogon* in *Glyceria* ebenfalls plausibel. Die folgenden neuen Kombinationen und ein neuer Name werden eingeführt: *Glyceria davyi*, *G. douglasii*, *G. hooveriana*, *G. oregona*, *G. refracta*, *G. sabinei* und *Glyceria* sect. *Pleuropogon*. Eine taxonomische Abgrenzung der erstgenannten fünf pazifisch-nordamerikanischen Arten, welche mitunter als eigenständige Gattung *Lophochlaena* anerkannt wurden, gegenüber der zirkumborealen *G. sabinei* wird nicht unterstützt.

Key words: Classification, grasses, *Meliceae*, nomenclature, *Poaceae*, *Pooideae*, taxonomy.

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The tribe *Meliceae* is one of the phylogenetically ‘early-diverging’ lineages within the predominantly Northern Hemisphere grass subfamily *Pooideae* (Soreng et al. 1990, 2007; Davis & Soreng 1993, 2007, 2010; GPWG 2001; Soreng & Davis 1998, 2000; Catalán et al. 1997; Mathews et al. 2000; Döring et al. 2007; Duvall et al. 2007; Bouchenak-Khelladi et al. 2008, 2010; Döring 2009; Schneider et al. 2009, 2011; Rodionov et al. 2011, 2013; GPWG II 2012; Blaner et al. 2014; Hochbach et al. 2015; Saarela et al. 2015, 2018; Pimentel et al. 2017; Hodkinson 2018; Orton et al. 2021; Huang et al. 2022; Zhang et al. 2022; Brightly et al. 2024; Gönnert 2025; GPWG III 2025). Its global distribution is primarily temperate Holarctic, with outliers in South America and Australia. Two genera are confined to subtropical and tropical regions in the New and Old World tropics, respectively. In total, the *Meliceae* comprise seven genera with 158 species (Soreng et al. 2022). The largest genus is *Melica* L. with 92 species, followed by *Glyceria* R.Br. with 48 species, and *Pleuropogon* R.Br. with six species (Clayton & Renvoize 1986; Tzvelev 1989; Watson et al. 1992 onwards; Kellogg 2015; Soreng et al. 2015, 2017, 2022; POWO 2026).

A recent systematic survey that included molecular phylogenetic and cytogenetic approaches outlined a revised worldwide classification of the infrageneric taxonomy of *Melica* (Winterfeld et al. 2025). Ongoing studies on *Meliceae* revealed that the infrageneric taxonomy of *Glyceria* also requires revision. Depending on the taxonomic treatment, *Glyceria* comprises between three to seven sections and is sometimes divided into three subgenera (Table 1). Additionally, the circumscription of *Glyceria* and *Pleuropogon* needs revision. Molecular phylogenetic data suggest abandoning *Pleuropogon* as a distinct genus and merging it with *Glyceria*, forming a new grouping within the latter genus. Including *Pleuropogon* in *Glyceria* prevents *Glyceria* from becoming paraphyletic, which would occur if *Pleuropogon* were maintained as a distinct genus (Fig. 1).

Table 1. Comparison of classifications for *Glyceria* and *Pleuropogon* and the species included therein in monographic treatises and major floras.

Church (1949) on *Glyceria*; Löve (1978) on *Pleuropogon* and *Lophochlaena*	**Tzvelev (1976) in Zlaki SSSR**	**Tzvelev (2006)**	**Tzvelev & Probatova (2019) in Zlaki Rossii**	**Barkworth & Anderton (2007) and But (2007) in Flora of North America; Whipple et al. (2007)**
Glyceria	***Glyceria***	***Glyceria***	***Glyceria***	***Glyceria***
sect. *Euglyceria* *G. acutiflora*, G. *arkansana*, *G. borealis*, *G. declinata*, *G. ftuitans*, *G. leptostachya*, *G. occidentalis*, *G. plicata*, *G. septentrionalis*	**sect. *Glyceria*** *G. declinata*, *G. depauperata*, *G. fluitans*, *G. nemoralis*, *G. ×pedicellata*, *G. plicata* **sect. *Leptorhiza*** *G. caspia*, *G. ischyroneura*, *G. leptorhiza*	**subg. *Glyceria*** **sect. *Glyceria*** *G. arkansana*, *G. australis*, *G. davyi*, *G. declinata*, *G. depauperata*, *G. fluitans*, *G. holubii*, *G. infirma*, *G. insularis*, *G. leptostachya*, *G. multiflora*, *G. nemoralis*, *G. notata*, *G. occidentalis*, *G. ×pedicellata*, *G. septentrionalis*, *G. saltensis*, *G. spicata*, *G. texana* **sect. *Leptorhiza*** *G. borealis*, *G. chinensis*, *G. formosensis*, *G. leptorhiza* **sect. *Hemibromus*** *G. acutiflora*, *G. japonica*, *G. potaninii*	**subg. *Glyceria*** **sect. *Glyceria*** *G. depauperata*, *G. fluitans*, *G. nemoralis*, *G. notata*, *G. ×pedicellata* **sect. *Leptorhiza*** *G. leptorhiza*	**sect. *Glyceria*** *G. acutiflora*, *G. arkansana*, G. *australis*, *G. borealis*, *G. declinata*, *G. fluitans*, *G. leptostachya*, *G. notata*, *G. ×occidentalis*, *G. septentrionalis*
sect. *Hydropoa* *G. grandis*, *G. maxima*	**sect. *Hydropoa*** *G. alnasteretum*, *G. arundinacea* subsp. *arundinacea*, *G. arundinacea* subsp. *triflora*, *G. leptolepis*, *G. lithuanica*, *G. maxima*, *G. spiculosa*, *G. striata*	**subg. *Hydropoa*** **sect. *Hydropoa*** *G. amurensis*, *G. arundinacea*, *G. effusa*, *G. grandis*, *G. maxima*, *G. pulchella*, *G. triflora* (= *G. kamtschatica*)	**subg. *Hydropoa*** **sect. *Hydropoa*** *G. amurensis*, *G. arundinacea*, *G. effusa*, *G. grandis*, *G. maxima*, *G. triflora* (= *G. kamtschatica*)	**sect. *Hydropoa*** *G. alnasteretum*, *G. grandis*, *G. maxima*
sect. *Striatae* *G. alnasteretum*, *G. canadensis*, *G. elata*, *G. lithuanica*, *G. melicaria*, *G. nubigena*, *G. obtusa*, *G. pulchella*, *G. striata*		**sect. *Striatae*** *G. canadensis*, *G. colombiana*, *G. elata*, *G. ×gatianensis*, *G. laxa*, *G. melicaria*, *G. mexicana*, *G. neogaea*, *G. nubigena*, *G. obtusa*, *G. ×ottawensis*, *G. striata*	**sect. *Striatae*** *G. striata*	**sect. *Striatae*** *G. canadensis*, *G. elata*, *G. melicaria*, *G. nubigena*, *G. obtusa*, *G. pulchella*, *G. striata*
		sect. *Caspiae* *G. caspia*, *G. ischyroneura*, *G. ovatiflora*, *G. lazistanica*, *G. probatovae*, *G. tonglensis*, *G. voroschilovii*	**sect. *Caspiae*** *G. caspia* (not in the area), *G. probatovae*, *G. voroschilovii*	
		sect. *Scolochloiformes* *G. alnasteretum*, *G. longiglumis*, *G. spiculosa*	**sect. *Scolochloiformes*** *G. spiculosa*	
		sect. *Lithuanicae* *G. leptolepis*, *G. lithuanica*	**sect. *Lithuanicae*** *G. alnasteretum*, *G. leptolepis*, *G. lithuanica*, *G. orientalis*	
		subg. *Porrotheranthe* *G. drummondii*		
Pleuropogon *P. sabinei* ***Lophochlaena*** *L. californica* var. *californica*, *L. californica* var. *davyi*, *L. refracta* var. *refracta*, *L. refracta* var. *hooveriana*	***Pleuropogon*** *P. sabinei* ***Lophochlaena*** (acknowledged as distinct genus)		***Pleuropogon*** *P. sabinei* ***Lophochlaena*** (acknowledged as distinct genus)	***Pleuropogon*** *P. californicus* var. *californicus*, *P. californicus* var. *davyi*, *P. hooverianus*, *P. oregonus*, *P. refractus*, *P. sabinei*

Glyceria and the traditional genus *Pleuropogon* are usually distinguished based on their mostly paniculate versus racemose inflorescences and the shape of their palea. The palea of *Pleuropogon* has wings with two awn-like appendages of variable length in the lower third of the keels and often has another pair above. In contrast, the keels of the *Glyceria* paleae are winged or not winged but never have such appendages (Hitchcock & Chase 1951; Tzvelev 1976; Clayton & Renvoize 1986; Barkworth 2007a; But 2007; Tzvelev & Probatova 2019).

One section of *Glyceria*, *G.* sect. *Glyceria*, is morphologically reminiscent of *Pleuropogon*. It has palea keels that are distally winged, comparing to the outgrowths of the palea keels in *Pleuropogon*. According to the molecular phylogeny (Fig. 1), *G.* sect. *Glyceria* and the new sect. *Pleuropogon* are sister groups, suggesting homology of their palea keel characteristics.

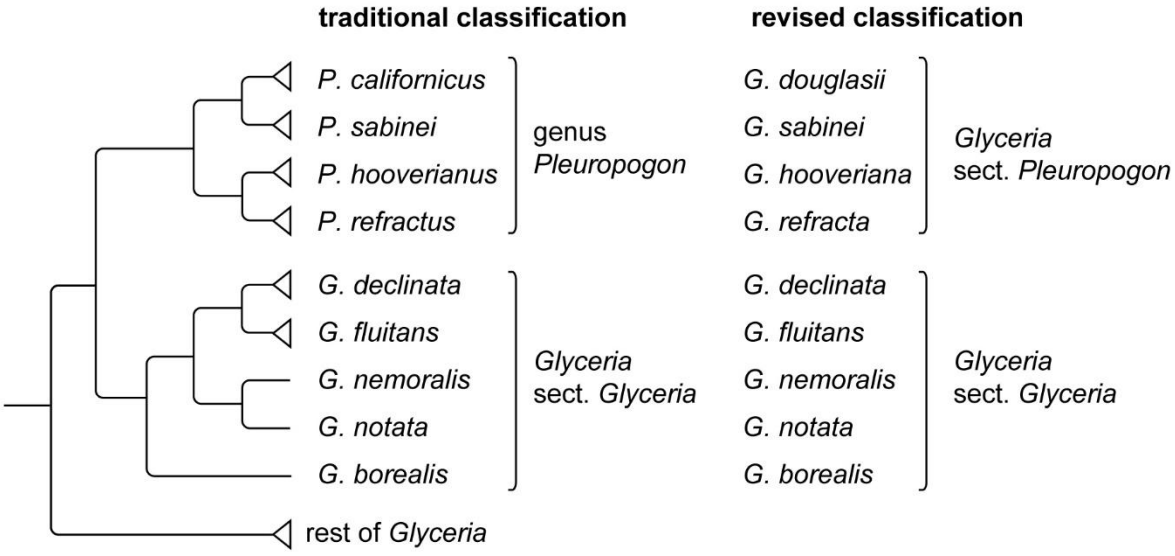

Fig. 1. Simplified cladogram showing the placement of the new sect. *Pleuropogon* within the genus *Glyceria* and its position as a sister group to *G.* sect. *Glyceria* (modified after Gönnert 2025). Taxon names according to the traditional classification on the left and the revised classification on the right.

The species of traditional *Glyceria* are seemingly consistently hydrophilic and adapted to wet habitats, such as swamps, bogs, ponds, lake and river shores, ditches, and wet forests. This characteristic is also found in the *Pleuropogon* species (Hitchcock & Chase 1951; Tzvelev 1976; Barkworth & Anderton 2007; But 2007; Weiller & Walsh 2009). In contrast, the species of the other extratropical *Meliceae* genera are meso- to thermophilic and prefer woodlands to dry grasslands. Examples include *Lycochloa* Sam., *Melica*, and *Schizachne* Hack. (Mouterde 1966; Tzvelev 1976; Conert 1979–1998; Wu & Phillips 2006; Barkworth 2007b; Cayouette & Darbyshire 2007; Kellogg 2015; Tzvelev & Probatova 2019).

Biogeographically, traditional *Glyceria* is widespread in the Northern Hemisphere, with only five autochthonous species occurring outside this region in South America and Australia (Conert 1979–1998; Barkworth & Anderton 2007; Weiller & Walsh 2009; Rúgolo 2012). Including *Pleuropogon* adds six species to *Glyceria*: the widespread circumboreal, subarctic-to-arctic *G. sabinei*, comb. nov., and five other species distributed in western North America, specifically British Columbia, Washington, Oregon and California (But 2007). This region is therefore a diversity 'hotspot' of the new *G.* sect. *Pleuropogon*.

Previously, these Pacific North American species were sometimes regarded as representing a genus different from traditional *Pleuropogon* s. str. (only *P. sabinei*), and they were classified under *Lophochlaena* Nees (Table 1) (Nees von Esenbeck 1838; Tzvelev 1976; Löve 1978; Tzvelev & Probatova 2019). However, the molecular phylogeny shows that this division is not justified since the type species of *Pleuropogon*, *P. sabinei* R.Br., is the sister species of the type of *Lophochlaena*, *L. californica* Nees (Fig. 1), now named *G. douglasii*, nom. nov. (see below).

The following new combinations and a new name are introduced to implement the necessary nomenclatural changes:

New combinations and a new name in *Glyceria*

Glyceria sect. ***Pleuropogon*** (R.Br.) Röser & Tkach, **comb. et stat. nov.**
Basionym: *Pleuropogon* R.Br., Chlor. Melvill.: 31, 1823.

Glyceria davyi (L.D.Benson) Röser & Tkach, **comb. nov.**
Basionym: *Pleuropogon davyi* L.D.Benson, Amer. J. Bot. **28**(5): 360, 1941.

Glyceria douglasii Röser & Tkach, **nom. nov.**
≡ *Lophochlaena californica* Nees, Ann. Nat. Hist. **1**(4): 283, 1838, non *Glyceria californica* Beetle, Madroño **8**(5): 161, 1946.
Etymology: the species is named in honor of David Douglas (1799–1834), who collected the plant specimen used by Nees von Esenbeck (1838) to describe the new *Lophochlaena californica* Nees. Incidentally, the epithet '*douglasii*' had already been used for this species in the invalid name "*Pleuropogon douglasii* Trin. ex Steud., Nomencl. Bot. [Steudel], ed. 2, **2**: 355, 1841."

Glyceria hooveriana (L.D.Benson) Röser & Tkach, **comb. et stat. nov.**
Basionym: *Pleuropogon refractus* var. *hooverianus* L.D.Benson, Amer. J. Bot. **28**(5): 360, 1941.

Glyceria oregona (Chase) Röser & Tkach, **comb. nov.**
Basionym: *Pleuropogon oregonus* Chase, J. Washington Acad. Sci. **28**(2): 52, 1938.

Glyceria refracta (A.Gray) Röser & Tkach, **comb. nov.**
Basionym: *Lophochlaena refracta* A.Gray, Proc. Amer. Acad. Arts **8**: 409, 1872.

Glyceria sabinei (R.Br.) Röser & Tkach, **comb. nov.**
Basionym: *Pleuropogon sabinei* R.Br., Chlor. Melvill.: 31, 1823.

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