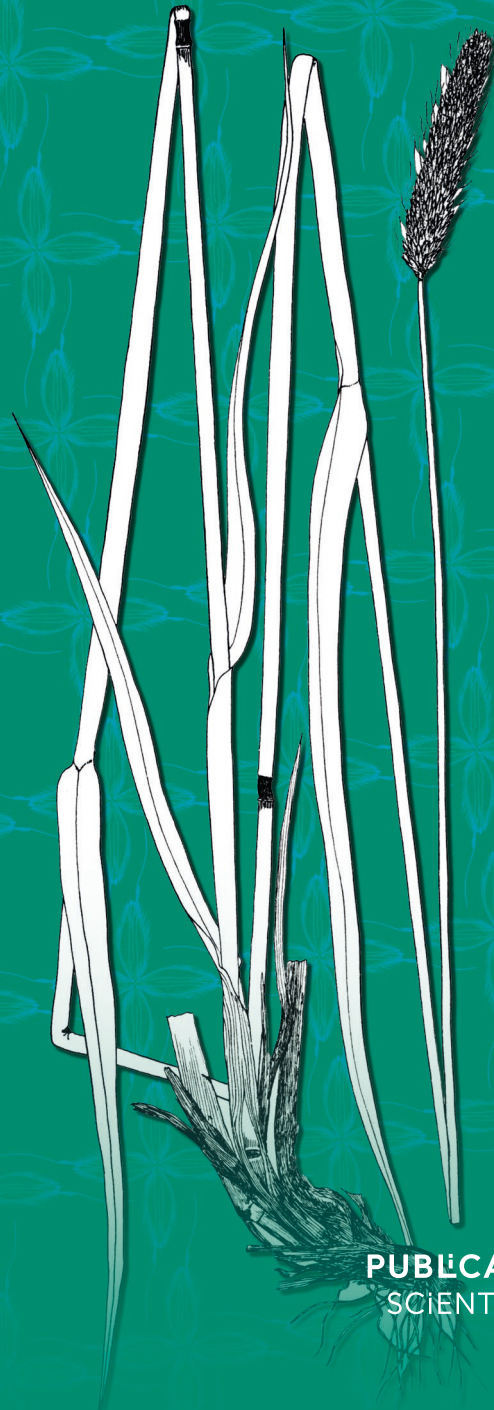


Typification of *Alopecurus laguriformis*
Schur ex Griseb. & Schenk (Poaceae)
with comments on its supposed occurrence
in Ukraine

Yuriy KOBIV



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ISSN (imprimé / print): 1280-8571/ ISSN (électronique / electronic): 1639-4798

Typification of *Alopecurus laguriformis* Schur ex Griseb. & Schenk (Poaceae) with comments on its supposed occurrence in Ukraine

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Submitted on 19 March 2024 | accepted on 7 June 2024 | published on 12 November 2024

Kobiv Y. 2024. — Typification of *Alopecurus laguriformis* Schur ex Griseb. & Schenk (Poaceae) with comments on its supposed occurrence in Ukraine. *Adansonia*, sér. 3, 46 (19): 187-195. <https://doi.org/10.5252/adansonia2024v46a19>. <http://adansonia.com/46/19>

ABSTRACT

The article unravels the issue of the supposed occurrence of a narrow-range species *Alopecurus laguriformis* Schur ex Griseb. & Schenk in Ukraine. The study shows that this information originated from Zapałowicz's (1889, 1906) publications based on wrongly determined specimens of *A. pratensis*. Revision of literature and herbarium data as well as field surveys indicate that in fact *A. laguriformis* does not occur in the Ukrainian part of the Carpathians and its range is limited to Romania. Confusion in the circumscription of the species is clarified and its historical background is described. The name *Alopecurus laguriformis* is lectotypified here from the specimen stored at GOET. Because the species' name was first mentioned by Shur (1850) as a *nomen nudum*, while its protologue was provided by Griseb. & Schenk (1852), the correct citation for the taxon is *Alopecurus laguriformis* Schur ex Griseb. & Schenk or *Alopecurus pratensis* L. subsp. *laguriformis* (Schur ex Griseb. & Schenk) Tzvelev depending on the taxonomic treatment. Recognition of the species' rank for that alpine taxon appears more reasonable because of its morphological distinctiveness.

KEY WORDS
Carpathian endemic,
herbarium specimens,
protologue,
lectotypification,
Ukraine.

RÉSUMÉ

Typification d'Alopecurus laguriformis Schur ex Griseb. & Schenk (Poaceae) avec des commentaires sur sa présence supposée en Ukraine.

L'article élucide la question de la présence supposée d'une espèce à aire de répartition restreinte, *Alopecurus laguriformis* Schur ex Griseb. & Schenk, en Ukraine. L'étude montre que cette information provient des publications de Zapałowicz (1889, 1906) basées sur des spécimens d'*A. pratensis* mal déterminés. La révision de la littérature et des données d'herbier ainsi que les enquêtes de terrain indiquent qu'en fait *A. laguriformis* n'est pas présente dans la partie ukrainienne des Carpathes et que son aire de répartition est limitée à la Roumanie. La confusion dans la circonscription de l'espèce est clarifiée et son contexte historique est décrit. Le nom *Alopecurus laguriformis* est lectotypifié ici à partir de spécimens conservés à GOET. Comme le nom de l'espèce a été mentionné pour la première fois par Shur (1850) en tant que *nomen nudum*, alors que sa description originale a été fournie par Griseb. & Schenk (1852), la citation correcte pour le taxon est *Alopecurus laguriformis* Schur ex Griseb. & Schenk ou *Alopecurus pratensis* L. subsp. *laguriformis* (Schur ex Griseb. & Schenk) Tzvelev, en fonction du traitement taxonomique. La reconnaissance du rang d'espèce pour ce taxon alpin semble plus raisonnable en raison de sa spécificité morphologique.

MOTS CLÉS
Endémique des
Carpathes,
spécimens d'herbier,
protologue,
lectotypification,
Ukraine.

INTRODUCTION

Narrow endemic species have always attracted special attention because their ranges reflect processes of past speciation within particular ecological niches underlied by some geographical limitations (Givnish 2010). Therefore, the hotspots of endemism are often related to the mountains where abrupt topography provides ecologically heterogeneous habitats and their spatial isolation (Steinbauer *et al.* 2016). One of the important on pan-European scale centers of biodiversity with a high level of vascular plant endemism are the Carpathian Mountains (Konowalik 2022). Studying various facets of the Carpathian endemism was the aim of the ‘Conserving the endemic flora of the Carpathian Region’ international research project run by the Carpathian Research Network team in 2019-2022 (Bremen *et al.* 2020). One of its goals was to specify the distribution of endemic taxa in the region. Inspired by the Project, the present study is meant to disentangle the issue of the supposed occurrence of one of such taxa, *Alopecurus laguriformis* in the Ukrainian part of the Carpathians. That also implied clarification of its circumscription and lectotypification of its name.

MATERIAL AND METHODS

The study involved re-examining the literature and herbarium data on *Alopecurus laguriformis*. Herbarium vouchers of that species as well as misidentified specimens were checked out in LW, KRAM, GOET, W, and WU herbaria (acronyms follow Thiers 2024), as well as in others using online virtual herbaria databases viz. JACQ (<https://www.jacq.org>) and GBIF (<https://www.gbif.org>). The ICN articles cited in the text and typification follow the Shenzhen Code (Turland *et al.* 2018).

The sites in the Ukrainian part of the Carpathians, where the species has been previously reported were visited in 2003-2006, in search of its localities.

Botanical nomenclature follows the Euro+Med PlantBase (2024).

STUDY REGION

The Ukrainian part of the Carpathians belongs to the Eastern Carpathians. These are medium-high mountains, where the high-mountain zone that includes both subalpine and alpine altitudinal belts accounts for only about 1.7% of the area (Kruhlov 2008). The Ukrainian part of the Carpathians forms a 280 km long and 110 km wide stripe that stretches from the north-west to the south-east. These mountains are built mostly of sandstone flysch while more diverse geological structure occurs in the Maramuresh (aka Marmarosh) Mts at the border with Romania (Kondracki 1989).

STUDY SPECIES

Alopecurus laguriformis is a narrow-ranged alpine grass species, endemic to the Carpathians. According to POWO (2024), it occurs in Romania and Ukraine, while Euro+Med Plantbase (2024) attributes it to Romania and Poland. However, Șerbănescu & Nyárády (1972) consider it endemic to Roma-

nia. Since Tzvelev (1971, 1974, 1976) has downgraded the taxon to subspecies rank, i.e. *A. pratensis* subsp. *laguriformis*, many sources (e.g. Clarke 1980; Novikov 2023; Euro+Med Plantbase 2024; POWO 2024) follow this approach.

Alopecurus laguriformis is included in all the Soviet (Tzvelev 1974) and Ukrainian (Chopyk 1976) floras, monographs on grasses (Tzvelev 1976; Prokudin *et al.* 1977), checklists (Tasenkevich 1998; Mosyakin & Fedoronchuk 1999) and identification keys (Chopyk 1977; Dobrochayeva *et al.* 1987) as well as surveys on the endemics (Stoyko & Tasenkevich 1991, 1993; Tasenkevich 2003; Kliment *et al.* 2016; Novikoff & Hurdu 2015; Novikov 2023) concerning the territory of the Ukrainian Carpathians. All mentions of its supposed occurrence in Ukraine refer to the locality at the Black Cheremosh River (Tzvelev 1976; Chopyk 1977; Prokudin *et al.* 1977; Dobrochayeva *et al.* 1987). However, there are no corresponding vouchers in any Ukrainian herbarium that could confirm that information. Therefore, some authors (Chopyk 1977; Prokudin *et al.* 1977; Novikov 2023) admit that these data require verification.

According to literature (Schur 1859, 1866; Șerbănescu & Nyárády 1972; Beldie 1979; Ciocârlan 2009; Sârbu *et al.* 2013) and information from herbarium labels, *A. laguriformis* is a high-mountain species occurring at the elevation of c. 2 000 m a.s.l. in the grasslands near the lakes, streams and springs, as well as in the alpine pastures, rocky sites, and schists.

RESULTS AND DISCUSSION

LECTOTYPIFICATION

Alopecurus laguriformis was first mentioned by Schur (1850) in his list of Transylvanian plants. However, in that publication, the species name is not followed by any description or a diagnosis, nor a reference to a former one effectively published, and thus is considered a *nomen nudum* (Novikov 2023). The protologue with the first description of the species (Fig. 1) was provided by Grisebach & Schenk (1852: 362) who on their trip to Transylvania were accompanied and consulted by local botanists Schur and Fuss (Speta 1994). Among other information, the protologue points out the following diagnostic characters of the species: ovoid-oblong panicle, basally connate spikelet glumes, and inflated sheath of the upper culm leaf. Later, Schur (1859, 1866) also published his diagnoses of the species.

The protologue (Grisebach & Schenk 1852) mentions the name of Fuss, which indicates that the species was described using the specimens provided by that collector. Herbarium material used by Grisebach and Schenk in their publications is held in the Herbarium Grisebachianum collection at GOET Herbarium, which holds numerous type specimens of these authors (Ahrens 2020).

Noteworthy, there is only one voucher of *Alopecurus laguriformis* in this herbarium, and it was collected by Fuss in the Arpash Mts, which corresponds to the protologue, however the toponym there is misspelled as “Argash”. Therefore, this specimen fits as the original material for typification.

Family POACEAE Barnhart
Genus *Alopecurus* L.

Alopecurus laguriformis Schur ex Griseb. & Schenk

Archiv für Naturgeschichte 18(1): 362 (Grisebach & Schenk 1852). — *Alopecurus laguriformis* Schur, *Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt* 1: 182 (Schur 1850), *nomen nudum*. — *Alopecurus laguriformis* f. *abbreviatus* Schur, *Österreichische Botanische Zeitschrift* 9(1): 13 (Schur 1859). — *Alopecurus pratensis* subsp. *laguriformis* (Schur) Tzvelev, *Novosti Sistematiki Vysshykh Rasteniy* 8: 19 (Tzvelev 1971).

Alopecurus brachystachyus auct., *Linnaea* 30: 615 (Janka 1860), *non* M. Bieb.

Colobachne gerardi sensu Schur, *Enumeratio plantarum Transsilvaniae*: 728 (1866), *non* Link.

TYPE MATERIAL. — **Romania** • Arpaser Carpaten; *s.d.*; *Fuss s.n.*; lectotype (**designated here**): GOET Herbarium Grisebachianum [GOET064596] (Fig. 2).

OTHER HISTORICAL MATERIAL. — **Romania** • In alpinibus, Frecker Alpe Csortu; 10.VII. *sine anno*; *Fuss s.n.*; W[W1916-0035870] • In alpinibus Principatus Transilvaniae. Frecker ...? Csortu; 30.VI. *sine anno*; *Fuss s.n.*; WU • In alpinibus calcareis Transilvaniae. Fundu Buliu Forumei; 7.VIII. *sine anno*; *Fuss s.n.*; WU • In pascuis alpinis Transilvan. in monte Arpás; VII. *sine anno*; *Schur s.n.*; W[W0025395] • Arpaser Alpen; VII-VIII. *sine anno*; *Schur s.n.*; WU • In pascuis alpinis sum. Transilvan. in monte Podruschel; VII. *sine anno*; *Schur s.n.*; WU.

REMARKS

Among these vouchers, only two Schur's specimens were collected in the *locus classicus*, i.e. in the Arpash Mts, but according to Art. 9.4 of the ICN (Turland *et al.* 2018), they cannot be considered original material because there is no evidence of their relation to the preparation of Grisebach & Schenk's (1852) protologue. The same applies to Fuss's specimens (other than the one from GOET) because they do not come from the *locus classicus*. Nevertheless, two vouchers in W were labeled as "*typus probabiliter*" by Pignotti in the 2010s, *viz* W1916-0035870 collected by Fuss and W0025395 collected by Schur, but for the reasons above they are not eligible for typification.

REVISION OF THE INFORMATION ABOUT

ALOPECURUS LAGURIFORMIS IN THE UKRAINIAN CARPATHIANS

A thorough examination of the information on the distribution of *A. laguriformis* in the Ukrainian Carpathians showed that it is based on the old record made by Zapałowicz (1889: 342). He claimed that the species sporadically occurs in the Upper Black Cheremosh River Valley on the lush riparian meadows below the inflow of the Balasyniv Stream from 1180 to 1255 m a.s.l. He also mentioned that some plants are over 1 m tall. These data seem doubtful *per se* because the species is known as a rather short-statured alpine grass (Șerbănescu & Nyárády 1972; Beldie 1979; Ciocârlan 2009; Sârbu *et al.* 2013), while the above-mentioned altitude refers to the montane forest zone. Thorough surveys performed later in that area (Pawłowski & Walas 1949) did not reveal

314. *Alopecurus laguriformis* Schur! (Verh. d. siebenb. Vereins f. 1850. p. 182.) *Eualopecurus*, rhizomate repente, foliis planis, superioribus vagina ventricosa brevioribus, stolonum angustioribus, ligula abbreviata, panicula ovoideo-oblonga, glumis basi connatis elliptico-lanceolatis apice recto acutis carina longe sericeo-ciliatis florem obtusiusculum paullo superantibus, arista paleae tertia parte supra basin inserta geniculata glumas fere duplo superante, stylis inferne connatis. — Medius inter *A. pratensem* L. et *A. glaucum* Less., ab illo forma paniculae, ciliis glumarum longioribus glumisque ad sextam partem connatis florem excedentibus distinctus, ab hoc praeterea stylis basi connatis et arista profundius inserta.

Siebenbürgen: in den südlichen Karpaten von Argasch (Fuss).

FIG. 1. — Protologue of *Alopecurus laguriformis* from Grisebach & Schenk (1852).

the species' occurrence. I also failed to find *A. laguriformis* during field surveys carried out in that region in 2003–2006 in search of rare, endangered, and endemic species (Kobiv *et al.* 2007). This area is situated in the Eastern Carpathians, namely in the Chyvchyny Mts that belong to the Maramuresh orographic unit (Breman *et al.* 2020), which Ukraine shares with Romania. In the 1920–1930s, the region belonged to Poland, while still earlier – to the Austro-Hungarian Empire.

In his later publication, Zapałowicz (1906) referred to that finding as "*A. brachystachyus* M. Bieb." synonymizing it with *A. laguriformis*. Such a nomenclatural approach was also used by Szafer (1919) in the 'Flora of Poland' and Szafer *et al.* (1924) in the first edition of 'Polish plants...' concerning the plants from the same locality in the Chyvchyny Mts.

Synonymization of *A. laguriformis* with *A. brachystachyus* is based on Janka's (1860) publication, where he also considers it conspecific with *A. castellanus* Boiss. & Reut. described from the Pyrenean Peninsula, which is now regarded as a synonym for *A. arundinaceus* Poir. (Aedo 2020). In the late 19th century, that treatment was accepted by a number of European authors (e.g. Nyman 1882; Ascherson & Graebner 1898). However, Hackel (1902) proved the difference between these species, and it is currently accepted that the range of *A. brachystachyus* does not extend beyond Asia, while *A. laguriformis* is restricted to the Carpathians (Tzvelev 1971; Clarke 1980).

Much confusion about the correct circumscription of *Alopecurus laguriformis* emerged from Schur's (1859, 1866) publications. It should be admitted that Schur was keen on describing new species and intraspecific taxa or just naming them (i.e. assigning *nomina nuda*) often without strong reasons, which also concerns the genus *Alopecurus*. For instance, *A. altissimus* Schur (1859, 1866) was later synonymized with *A. pratensis* (Pawłowski 1939; Șerbănescu & Nyárády 1972). An example of a name misapplied by Schur is "*Colobachne gerardii* Link." Currently, the accepted name for it is *Alopecurus gerardi* Vill., but that species is distributed in the mountains of Central and Southern Europe and does not occur in the Carpathians (Clarke 1980). That Schur's record proved to be *Alopecurus laguriformis* (Șerbănescu & Nyárády 1972). Interestingly, both these species are mentioned by Schur (1866:

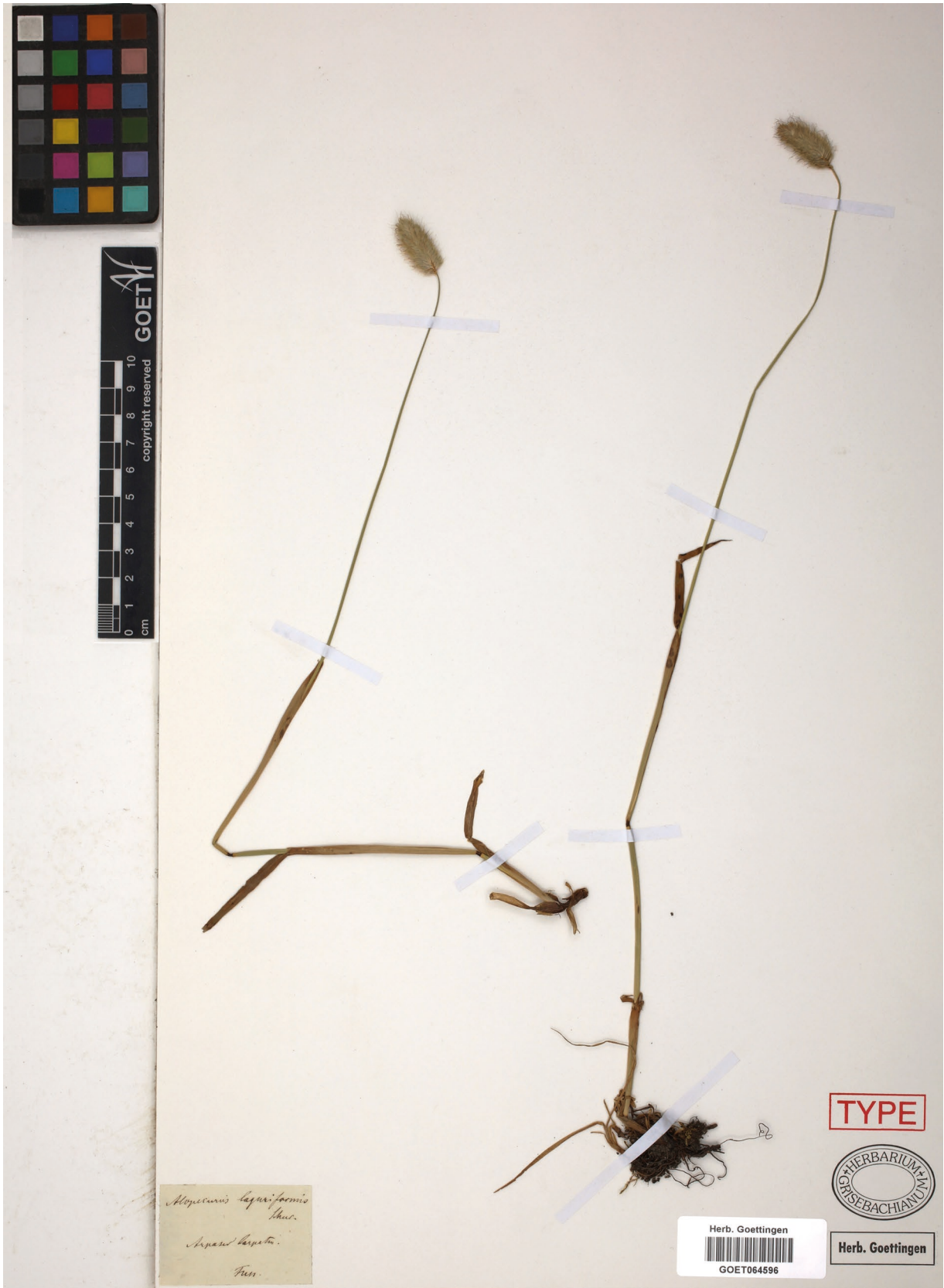


Fig. 2. — Lectotype of *Alopecurus laguriformis* Schur ex Griseb. & Schenk (GOET064596).

727-728) next to each other as separate taxa, but gathered in the same location. That shows that some of Schur's taxonomic referrals need critical revision.

Schur's circumscription of *A. laguriformis* is rather ambiguous and assumes its significant intraspecific diversity, which is not implied in Grisebach & Schenk's (1852) protologue. On the one hand, Schur (1859, 1866) described a typical *A. laguriformis*, which in the first publication (Schur 1859) he also considered an intraspecific form, viz. f. *abbreviatus*. It is characterized by 6-12 line (1.2-2.5 cm) long, ovoid-oblong, compressed at base panicle; culms 8-15 inch (20-40 cm) long, which fits the protologue and most of modern descriptions of *A. laguriformis* (Șerbănescu & Nyárády 1972; Prokudin *et al.* 1977; Clarke 1980).

In addition, Schur (1859, 1866) described f. *elongatus* with much longer, 1.5-3 inch (c. 4-7.5 cm) long, cylindrically elongated, attenuate at base panicle and culms 2-3 ft (c. 60-90 cm) long.

These taxa significantly differ even in their habit, while the description of the latter one contradicts the protologue, namely concerning the shape of the panicle, which is supposed to be ovoid-oblong (Grisebach & Schenk 1852). The main reason why such different entities were treated as the same species is based on the assumption that in both of them the glumes are connate only at base while in *A. pratensis* they are connate for 1/3 to 1/2 of their length (Szafer 1919; Șerbănescu & Nyárády 1972; Ciocărlan 2009).

Locus classicus of the typical *A. laguriformis* is Mt. Arpash in the Fagaras Massif, Southern Carpathians, while f. *elongatus* was first described by Schur (1859) from Mt. Piscu in the same massif but later that author referred it to Mt. Corongisu in the Rodna Mts, Eastern Carpathians (Schur 1866).

Kulczyński (1932) and Pawłowski (1939), who examined the original Schur's herbarium specimen of *A. laguriformis* f. *elongatus* in LW herbarium (unfortunately, missing now), found out that it should be identified as *A. pratensis sensu stricto*. According to Kulczyński (1932: 5), it has all the characters of the typical *A. pratensis* concerning dissection, indumentum, and apex of glumes as well as the lack of inflation of leaf sheaths.

Confusion about the circumscription of *A. laguriformis* is revealed in the herbarium exsiccata distributed among the main European herbaria at the beginning of the 20th century. It concerns "Gramina Hungarica", where issue #306, collected by Zsák in 1910 in the Fagaras Mts fits the species description, whereas issue #108 labeled as *A. laguriformis* f. *elongatus* and collected by Degen in 1902 in the Rodna Mts proved to be *A. pratensis*. These plants are over 60 cm high, with oblong-cylindrical c. 5 cm long panicles and strongly connate glumes that does not match the protologue of *A. laguriformis* (Grisebach & Schenk 1852). They were collected on Mt. Craciunel, Mt. Cisia, and Mt. Corongisu in the Rodna Massif, while the latter locality is the site where Schur (1866) reported *A. laguriformis* f. *elongatus*, which could be the reason for that misidentification.

A similar situation occurred with Porcius's (1913: 129) contribution to "Flora Exsiccata Austro-Hungarica". His issue of the herbarium specimens #3997, which allegedly presented *A. brachystachyus* and were synonymized with *A. laguriformis*, have

been later re-identified as *A. pratensis sensu stricto*. They were collected on Mt. Craciunel in the Rodna Massif.

Nevertheless, issue #1155 of *A. laguriformis* from "Flora Romaniae Exsiccata" collected in the Retezat Massif, Southern Carpathians, and distributed by Borza and Nyárády in the 1930s (a duplicate occurs at P [P0222096]) matches the description of that species.

The above review shows that there was much ambiguity in the understanding of *A. laguriformis* by botanists in the late 19th-early 20th century, which might have influenced Zapałowicz's (1889, 1906) reports on the species' occurrence in the Chyvhyny Mts. The issue of the real identity of these findings could be best resolved by examining his original herbarium material.

Fortunately, I discovered two vouchers gathered by Zapałowicz in the KRAM herbarium and labeled by him as "*Alopecurus laguriformis* Schur" and "*Alopecurus brachyctachyus* M. Bieb." as synonyms, which clearly correspond to the location mentioned by that author (Zapałowicz 1889, 1906). The first specimen (KRAM0003667-V) comes from "the Upper Black Cheremosh" and dates to August 1881 (Fig. 3). Another one (KRAM0003666-V) was also collected at the Black Cheremosh River "below the inflow of the Popadia Stream" in August 1906. Evidently, based on these very findings Zapałowicz (1889, 1906) claimed that *Alopecurus laguriformis* occurs in the Chyvhyny Mts. Moreover, there is a mark on the label of the first voucher, which states that it was cited in Zapałowicz's (1906) "Conspectus..." In fact, both specimens proved to be *A. pratensis*. Moreover, in the 'Atlas of the Polish Flora' Kulczyński (1932) used Zapałowicz's herbarium specimen KRAM0003667-V as one of the exemplary illustrations of *A. pratensis*. The icons, prepared by Baecker (Fig. 4) depict the habit and morphological characters, including oblong-cylindrical panicles and strongly connate short-ciliate glumes peculiar to *A. pratensis sensu stricto*.

Therefore, Kulczyński (1932: 3) denied the occurrence of *A. laguriformis* in the Chyvhyny Mts and pointed out that the species had not been found in the territory of Poland, which included that area in the 1920-1930s. The Atlas also contains the illustration of *L. laguriformis* with several icons, which depict its distinguishing characters accompanied by textual explanations (Kulczyński 1932: 4).

Pawłowski, who performed comprehensive studies of the flora and vegetation of the Chyvhyny in the 1930s and paid special attention to the distribution of endemics in that region (Pawłowski 1947; Pawłowski & Walas 1949), did not mention *A. laguriformis*. However, in his publication on floristic records from Romania, Pawłowski (1939) gives a rather detailed description of *A. laguriformis* in comparison to *A. pratensis* and *A. arundinaceus* accompanied by illustrations of their spikelets and lemmas. Defining the distribution of the former species he refers only to the Romanian Carpathians. Examining of the available herbarium vouchers of *A. laguriformis* carried out within the present study confirms that opinion stated also by Șerbănescu & Nyárády (1972).

As follows from the above, the information about occurrence of *A. laguriformis* in the Ukrainian Carpathians proved to be incorrect.

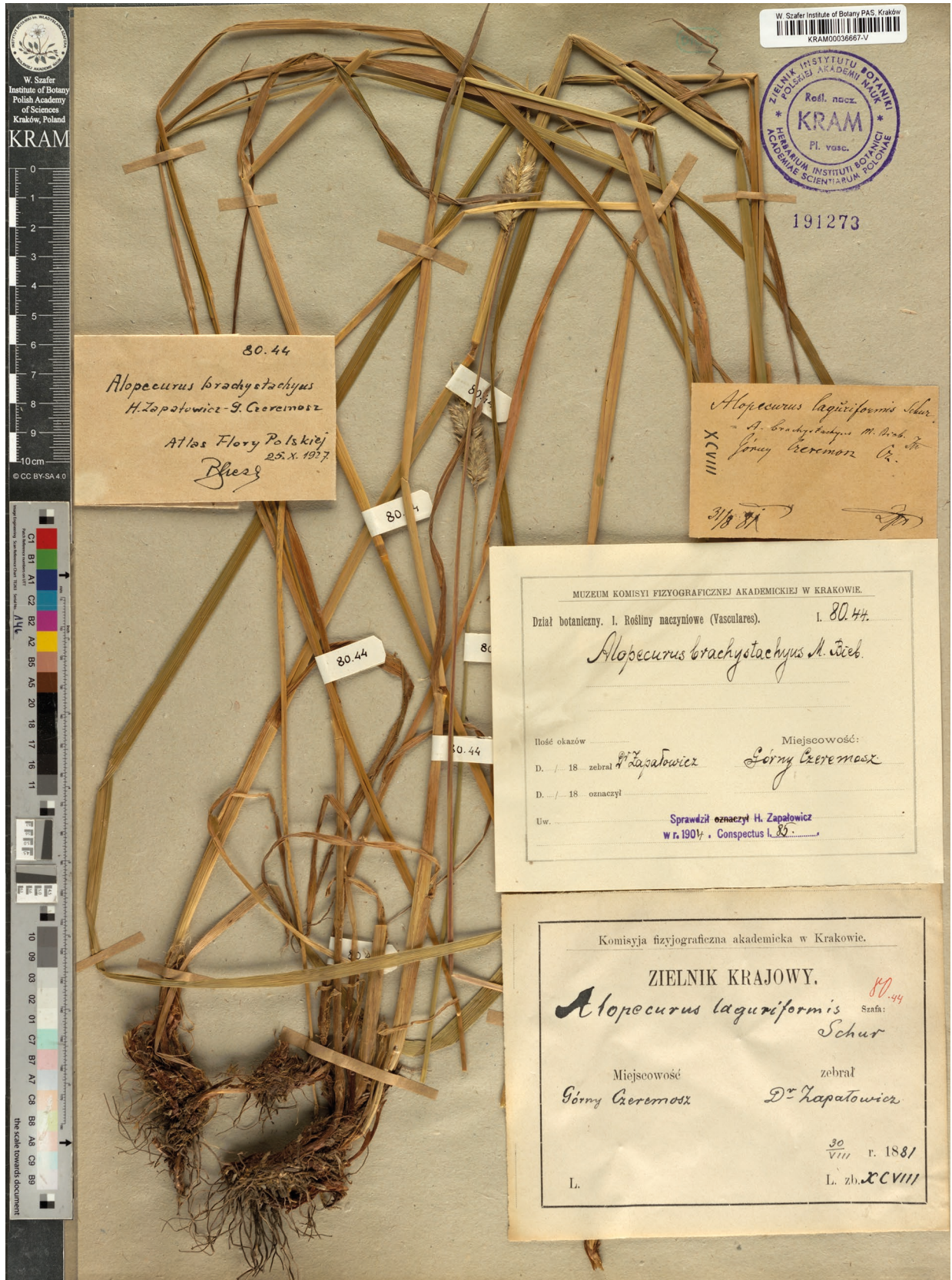


FIG. 3. — Herbarium voucher (KRAM0003667-V) collected by Zapalowicz at the Upper Cheremosh River, Ukrainian Carpathians and originally ascribed to "*Alopecurus laguriformis* Schur" or "*A. brachystachyus* M. Bieb." but in fact is *A. pratensis* (see Fig. 4).

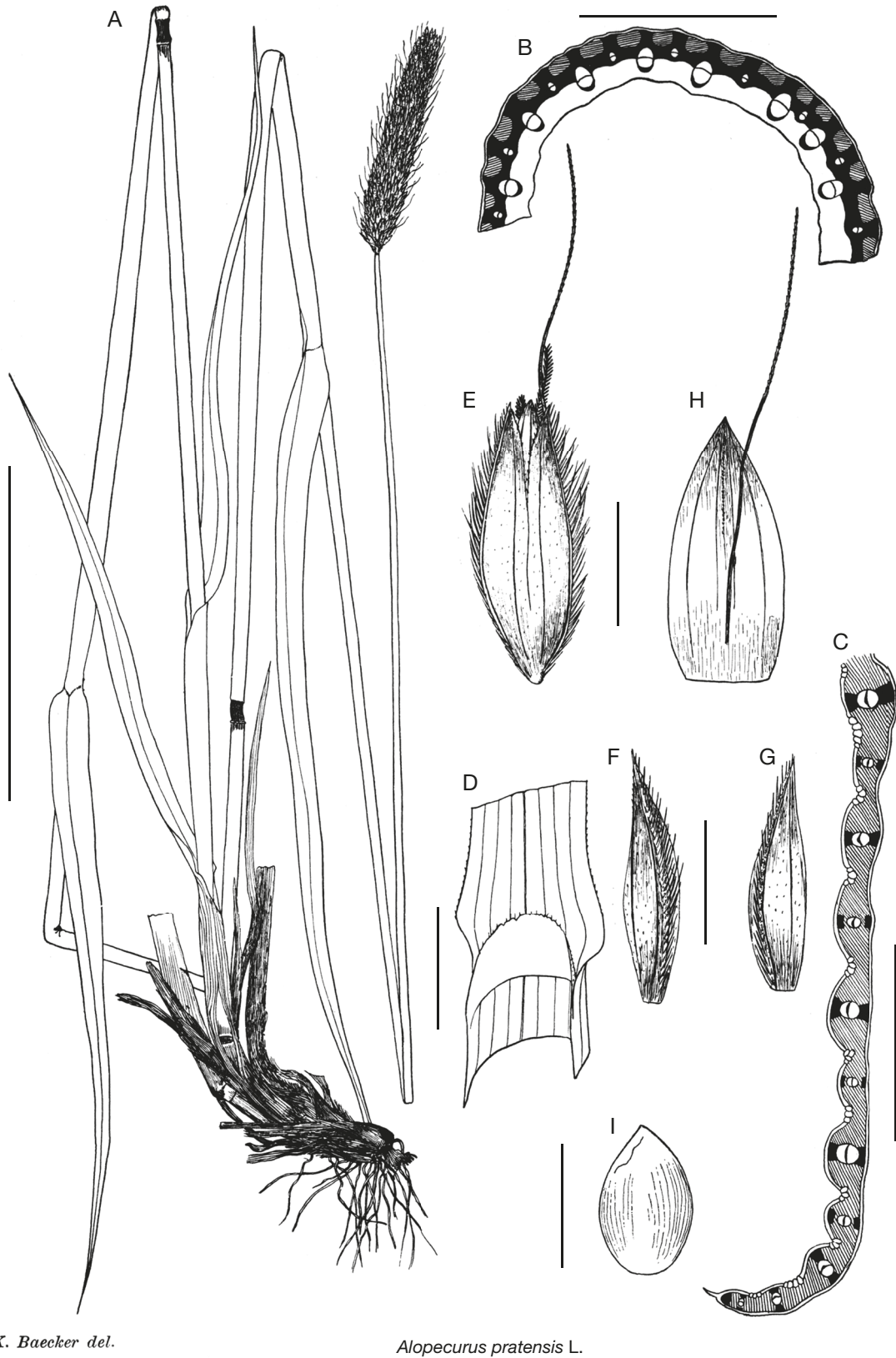


FIG. 4. — Exemplary illustration of *Alopecurus pratensis* from the 'Atlas of the Polish Flora – Florae polonicae iconographia' (Kulczyński 1932) drawn from Zapałowicz's herbarium specimen (KRAM0003667-V) originally ascribed to *A. laguriformis*: **A**, habit; **B**, stem transverse section; **C**, leaf blade transverse section; **D**, flag-leaf ligule; **E**, spikelet; **F**, **G**, glumes; **H**, lemma (spread out); **I**, caryopsis. Scale bars: A, 5 cm; B, C, 1 mm; D, 5 mm; E-I, 2 mm.

Alopecurus laguriformis is a distinctive species clearly restricted to the alpine zone and well-distinguishable from *A. pratensis* by the shape of panicle (ovoid-oblong, < 3 cm long in *A. laguriformis* vs cylindrical, > 4 cm long), height (< 0.5 m vs > 0.5 m), glume pubescence (hairs 2–3 mm vs < 2 mm) and connation of glumes (connate only at the base vs connate to c. 1/3–1/2 of their length) and culm leaf sheath (inflated vs non-inflated).

The degree of connation of glumes is a taxonomically important character in the genus *Alopecurus*, which is used in the infrageneric identification keys, e.g. by Tzvelev (1971, 1974, 1976) and Clarke (1980), however these authors did not apply it to distinguish between *A. pratensis* and *A. laguriformis* and have downgraded the latter taxon to subspecies rank, i.e. *A. pratensis* subsp. *laguriformis*, which does not seem reasonable. On the other hand, in Romania, where the species occurs, floras and identification keys (Șerbănescu & Nyárady 1972; Ciocărlan 2009; Sârbu *et al.* 2013) emphasize that character as distinguishing for *A. laguriformis*. Most importantly, it is highlighted in the species' protologue (Grisebach & Schenk 1852) as well as in other publications (Szafer *et al.* 1924; Kulczyński 1932; Pawłowski 1939; Chopyk 1977).

CONCLUSION

Re-examining literature and herbarium data showed that *Alopecurus laguriformis* does not occur in Ukraine and its distribution is limited to the Romanian Carpathians. Common assumption in the literature (Tzvelev 1974, 1976; Chopyk 1977; Prokudin *et al.* 1977; Dobrochayeva *et al.* 1987; Stoyko & Taseknevich 1993; Novikoff & Hurdu 2015; Kliment *et al.* 2016) about the species occurrence in the Ukrainian Carpathians stems from Zapałowicz's (1889, 1906) publications based on his originally misidentified herbarium specimens of *A. pratensis*.

Because the species' name was first mentioned by Schur (1850) as a *nomen nudum* while its protologue with the first description was provided by Grisebach & Schenk (1852), in accordance with the ICN, Art. 46.5 (Turland *et al.* 2018), the correct citation for the taxon is *Alopecurus laguriformis* Schur ex Griseb. & Schenk or *Alopecurus pratensis* L. subsp. *laguriformis* (Schur ex Griseb. & Schenk) Tzvelev, depending on taxonomic treatment. Recognition of the species' rank for that taxon appears more reasonable because of its morphological distinctiveness.

Acknowledgements

The author is grateful to the staff of GOET, KRAM, and LW herbaria and other scientists for providing images of herbarium vouchers or rare publications, namely to Marc Appelhans (Georg Gustav University of Göttingen); Wojciech Paul, Beata Paszko, Łukasz Wilk, Agnieszka Nickel (W. Szafer Institute of Botany, PAN, Kraków); Clemens Pachschröll (University of Vienna); Tetiana Khmil, Maria Seniv, and Krystyna Skrypec (Ivan Franko National University of Lviv). Special thanks are to the reviewers for the remarks on the improvement of the manuscript.

REFERENCES

- AEDO C. 2020. — *Alopecurus* L., in CASTROVIEJO S. (ed.), *Flora ibérica: plantas vasculares de la Península Ibérica e Islas Baleares*. Vol. 19 (1). CSIC, Madrid: 164–175.
- AHRENS F. J. 2020. — *Das Herbarium Göttingen, 1832–1852: Akteure, Praktiken, Wissensformate*. Universitätsverlag Göttingen, Göttingen, 141 p.
- ASCHERSON P. & GRAEBNER P. 1898. — *Synopsis der Mitteleuropäischen Flora*. Vol. 2 (1). Wilhelm Engelmann, Leipzig, 795 p. <https://www.biodiversitylibrary.org/page/25261053>
- BELDIE A. 1979. — *Flora României: determinant ilustrat al plantelor vasculare*. Vol. 2. Editura Academiei R.S.R., București, 406 p.
- BREMAN E., HURDU B.-I., KLIMENT J., KOBIV Y., KUČERA J., MRÁZ P., PUȘCAȘ M., RENAUD J., RONIQUIER M., ŠIBÍK J., SCHMOTZER A., ŠTUBŇOVÁ E., SZATMARI P.-M., TASEKNEVICH L., TURIS P. & SLOVÁK M. 2020. — Conserving the endemic flora of the Carpathian Region: an international project to increase and share knowledge of the distribution, evolution and taxonomy of Carpathian endemics and to conserve endangered species. *Plant Systematics & Evolution* 306 (3): 1–15. <https://doi.org/10.1007/s00606-020-01685-5>
- CHOPYK V. I. 1976. — *Vysokohirna flora Ukrayins'kykh Karpat*. Naukova Dumka, Kyiv, 270 p.
- CHOPYK V. I. (ed.) 1977. — *Vyznachnyk roslyn Ukrayins'kykh Karpat*. Naukova Dumka, Kyiv, 435 p.
- CHORNEY I. I. 2011. — Krytychna reviziya taksoniv, shcho navodylys' yak endemichni dlya flory Ukrayins'kykh Karpat. *Proceedings of Bukovynian Society of Naturalists* 1 (1–2): 23–59.
- CIOCĂRLAN V. 2009. — *Flora ilustrată a României: Pteridophyta et Spermatophyta*. 3rd ed. Ceres, București, 1141 p.
- CLARKE G. C. S. 1980. — *Alopecurus* L., in TUTIN T. G., HEYWOOD V. H., BURGESS N. A., MOORE D. M., VALENTINE D. H., WALTERS S. M. & WEBB D. A. (eds), *Flora Europaea*. Vol. 5. Cambridge University Press, Cambridge: 241–242.
- DOBROCHAYEVA D. N., KOTOV M. I. & PROKUDIN Y. N. 1987. — *Opredelitel' vysshikh rasteniy Ukrainy*. Naukova Dumka, Kyiv, 548 p.
- EURO+MED PLANTBASE. 2024. — *The Information Resource for Euro-Mediterranean Plant Diversity*. <http://www.europlusmed.org>
- FUSS M. 1854. — Zur Flora Siebenbürgens. *Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt* 5 (1): 3–16.
- GIVNISH T. J. 2010. — Ecology of plant speciation. *Taxon* 59: 1326–1366. <https://doi.org/10.1002/tax.595003>
- GRISEBACH A. & SCHENK A. 1852. — *Iter hungaricum a. 1852 susceptum*. Beiträge zur Systematik der ungarischen Flora. *Archiv für Naturgeschichte* 18: 291–362. <https://www.biodiversitylibrary.org/page/7061295>
- HACKEL E. 1902. — Über *Alopecurus laguriformis* Schur. *Magyar Botanikai Lapok* 4: 97–100.
- JANKA V. DE. 1860. — Adnotationes in plantas dacicas nonnullasque alias europeas. *Linnaea* 30: 549–622. <https://www.biodiversitylibrary.org/page/117033>
- KLIMENT J., TURIS P. & JANIŠOVÁ M. 2016. — Endemic taxa of vascular plants of the Carpathian Mts. *Preslia* 88 (1): 19–76. <https://www.preslia.cz/appendix/file?id=95>
- KOBIV Y., PROKOPIV A., HELESH M., BORSUKEVICH L. & NADRAGA M. 2007. — Poshyrennia i stan populatsiy ridkisykh, zahrozhenykh ta endemichnykh vydiv roslyn u pivnichniy chastyni prykordonnoyi dilianky Chyvchyns'kykh hir (Ukrayins'ki Karpaty). *Visnyk of Lviv University, Biological Series* 45: 71–84.
- KONDRACKI J. 1989. — *Karpaty*. Wydawnictwo Szkolne i Pedagogiczne, Warszawa, 260 p.
- KONOWALIK K. 2022. — Phylogeography and colonization pattern of subendemic round-leaved oxeeye daisy from the Dinarides to the Carpathians. *Scientific Reports* 12 (16443). <https://doi.org/10.1038/s41598-022-19619-1>

- KRICSFALUSY V. & BUDNIKOV G. 2002. — Endemic vascular plants in the Ukrainian Carpathians, in HAMOR F. D. (ed.), *Mountains and people: In context of sustainable development. Proceedings of the International Scientific Conference*. Vol. 2. Rakhiv: 356-360.
- KRUHLOV I. 2008. — Delimitatsiya, metryzatsiya ta klasyfikatsiya morfohenykh ekorehioniv Ukrayins'kykh Karpat. *Ukrainian Geographical Journal* 3: 59-68.
- KULCZYŃSKI S. (ed.) 1932. — *Atlas flory polskiej – Florae polonicae iconographia*. Vol. 4 (2). Polska Akademia Umiejętności, Kraków, 16 p.
- MALYNOVSKIY K., TSARYK Y., KYIAK V. & NESTERUK Y. 2002. — *Ridkisini, endemichni, reliktovi ta pobranychnoarealni vydy roslin Ukrayins'kykh Karpat*. Liga-Pres, Lviv, 76 p.
- MOSYAKIN S. L. & FEDORONCHUK M. M. 1999. — *Vascular Plants of Ukraine: a Nomenclatural Checklist*. M.G. Kholodny Institute of Botany of the NAS of Ukraine, Kyiv, 345 p.
- NOVIKOV A. 2023. — An annotated nomenclatural checklist of endemic vascular plants distributed in the Ukrainian Carpathians. *Biodiversity Data Journal* 11: 1-176. <https://doi.org/10.3897/BDJ.11.e103921>
- NOVIKOFF A. V. & HURDU B.-I. 2015. — A critical list of endemic vascular plants in the Ukrainian Carpathians. *Contributii Botanice* 50: 43-91 [retrieved from https://contributii_botanice.reviste.ubbcluj.ro/materiale/2015/Contrib_Bot_vol_50_pp_043-091.pdf].
- NYMAN C. F. 1882. — *Conspectus Florae Europaeae*. Vol. 4. Officinae Bohlinianae, Örebro: 677-858. <https://bibdigital.rjb.csic.es/records/item/9912-redirect>
- PAWŁOWSKI B. 1939. — Notulae floristicae ad Carpatos Austro-orientales pertinentes. *Bulletin du Jardin et du Musée botaniques de l'Université de Cluj* 19: 1-20.
- PAWŁOWSKI B. 1947. — Caractéristique géobotanique générale des Monts de Czywczyn. *Bulletin international de l'Académie polonaise des Sciences et des Lettres, Classe des Sciences mathématiques et naturelles, Série B, Sciences naturelles*: 71-108.
- PAWŁOWSKI B. & WALAS J. 1949. — Les associations des plantes vasculaires des Monts de Czywczyn, *Bulletin international de l'Académie polonaise des Sciences et des Lettres, Classe des Sciences mathématiques et naturelles, Série B, Sciences naturelles*: 117-181.
- PORCIUS F. 1913. — 3997. *Alopecurus brachystachyus*, in WETTSTEIN R. DE (ed.), *Schedae ad Floram exsiccata Austro-Hungaricam* 10. Institutum Botanicum C. R. Universitatis, Vindobonae: 129.
- POWO 2024. — *Plants of the World Online, Facilitated by the Royal Botanic Gardens, Kew*. <http://www.plantsoftheworldonline.org/>
- PROKUDIN Y. N., VOVK A. G., PETROVA O. A., YERMOLENKO E. D. & VERNICHENKO Y. V. 1977. — *Zlaki Ukrainy*. Naukova dumka, Kyiv, 518 p.
- SÂRBU I., ȘTEFAN N. & OPREA A. 2013. — *Plante vasculare din România: Determinator ilustrat de teren*. Editura Victor, B. Victor, București, 1320 p.
- SCHUR F. 1850. — Alphabetisches Verzeichniss. *Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt* 1: 182-188.
- SCHUR F. 1859. — Beobachtungen in der Flora von Siebenbürgen, nebst Beschreibung neuer Pflanzenarten und Varietäten. *Österreichische Botanische Zeitschrift* 9 (1): 9-16.
- SCHUR F. 1866. — *Enumeratio plantarum Transilvaniae*. G. Braumüller, Vindobonae, 984 p.
- ȘERBĂNESCU I. & NYÁRÁDY E. I. 1972. — *Alopecurus L.*, in NYÁRÁDY E. I. (ed.), *Flora Republicii Socialiste Romania*. Vol. 12. Editura Academiei Republicii Socialiste Romania, București: 113-120.
- SPETA F. 1994. — *Leben und Werk von Ferdinand Schur*. *Stapfia* 32: 1-334.
- STEINBAUER M. J., FIELD R., GRYTNE J.-A., TRIGAS P., AH-PENG C., ATTORRE F., BIRKS H. J. B., BORGES P. A. V., CARDOSO P., CHOU C. H., DE SANCTIS M., DE SEQUEIRA M. M., DUARTE M. C., ELIAS R. B., FERNÁNDEZ-PALACIOS J. M., GABRIEL R., GEREAU R. E., GILLESPIE R. G., GREIMLER J., HARTER D. E. V., HUANG T. J., IRL S. D. H., JEANMONOD D., JENTSCH A., JUMP A. S., KUEFFER C., NOGUÉ S., OTTO R., PRICE J., ROMEIRAS M. M., STRASBERG D., STUESSY T., SVENNING J. C., VETAAS O. R. & BEIERKUHNLEIN C. 2016. — Topography-driven isolation, speciation and a global increase of endemism with elevation. *Global Ecology and Biogeography* 25: 1097-1107. <https://doi.org/10.1111/geb.12469>
- STOYKO S. M. & TASENKEVICH L. O. 1991. — Spysok endemichnykh roslin Karpat: Ukrayins'ki Karpaty, in *Zapovidni ekosystemy Karpat*. Svit, Lviv, 1991: 228-231.
- STOYKO S. M. & TASENKEVICH L. 1993. — Some aspects of endemism in the Ukrainian Carpathians. *Fragmenta Floristica et Geobotanica, Supplement* 2 (1): 343-353.
- SZAFER W. 1919. — Rodzina Gramineae, Trawy, in RACIBORSKI M. & SZAFER W. (eds), *Flora polska. Rośliny naczyniowe Polski i ziem ościennych*. Vol. 1. Akademia Umiejętności, Kraków: 230-365.
- SZAFER W., KULCZYŃSKI S. & PAWŁOWSKI B. 1924. — *Rośliny polskie. Opisy i klucze do oznaczania wszystkich gatunków roślin naczyniowych rosnących w Polsce bądź dziko, bądź też zdziczających lub częścię hodowanych*. Książnica Atlas, Lwów & Warszawa, 736 p.
- TASENKEVICH L. 1998. — *Flora of the Carpathians: Checklist of the native vascular plant species*. State Museum of Natural History of the NAS of Ukraine, Lviv, 610 p.
- TASENKEVICH L. 2003. — Rozmayittya flory sudynnykh roslin v Ukrayins'kykh Karpatakh. *Proceedings of the Shevchenko Scientific Society* 12: 145-157 [retrieved from <http://dspace.nbuv.gov.ua/bitstream/handle/123456789/73584/12-Tasenkevich.pdf>].
- THIERS B. 2024. — *Index Herbariorum: A global Directory of Public Herbaria and Associated Staff*. New York Botanical Garden's Virtual Herbarium, New York. <http://sweetgum.nybg.org/science/ih/>
- TURLAND N. J., WIERSEMA J. H., BARRIE F. R., GREUTER W., HAWKSWORTH D. L., HERENDEN P. S., KNAPP S., KUSBER W.-H., LI D.-Z., MARHOLD K., MAY T. W., MCNEILL J., MONRO A. M., PRADO J., PRICE M. J. & SMITH G. F. (eds). 2018. — *International Code of Nomenclature for Algae, Fungi, and Plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017*. Koeltz Botanical Books, Glashütten: 1-254. (*Regnum Vegetabile* 159). <https://doi.org/10.12705/Code.2018>
- TZVELEV N. N. 1971. — Rod *Alopecurus L.* v SSSR. *Novosti Sistematiki Vysshykh Rasteniy* 8: 12-22.
- TZVELEV N. N. 1974. — Fam. 180. Poaceae Barnh. (Gramineae Juss. nom. altern.) – Zlaki, in FEDOROV A. A. (ed.), *Flora yevropeyskoy chasti SSSR*. Vol. 1. Nauka, Leningrad: 117-368.
- TZVELEV N. N. 1976. — *Zlaki SSSR*. Nauka, Leningrad, 788 p.
- ZAPAŁOWICZ H. 1889. — Roślinna szata Gór Pokucko-Marmaroskich. *Sprawozdanie Komisji Fizyograficznej* 24: 1-390.
- ZAPAŁOWICZ H. 1906. — *Conspectus florae Galiciae criticus*. Vol. 1. Akademia Umiejętności, Kraków, 296 p.

Submitted on 19 March 2024;
accepted on 7 June 2024;
published on 12 November 2024.