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Communication

Taraxacum stepanekii, a replacement name for *Taraxacum roseolum* Kirschner & Štěpánek non Charit., with nomenclatural notes on the taxonomic legacy of Boris S. Kharitontsev in the digital era

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Abstract

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The botanical publications of Boris S. Kharitontsev, who has worked on the flora and vegetation of Tobolsk District (Tyumen Region, south-western Siberia, Russia) for 30 years, make a typical case of grey literature in taxonomic botany. Kharitontsev has described about 400 local "new species" from a single district in this floristically poor territory. Although the taxonomic results of this work are not credible, this vast nomenclatural output requires attention and urges for comprehensive indexing due to requirements of the botanical nomenclature (principles of priority and homonymy). A new species name, *Taraxacum stepanekii* Sennikov, is proposed for *Taraxacum roseolum* Kirschner & Štěpánek from Kyrgyzstan, which is an illegitimate later homonym of *Taraxacum roseolum* Charit.

Keywords: apomictic plants, Asteraceae, Compositae, homonymy, Kyrgyzstan, plant nomenclature, Siberia.

INTRODUCTION

Grey literature is a challenging subject in science. It may be defined as any publications that are not available through standard distribution means, nowadays meaning digital availability through the Internet. However, the original definition of this term was more limited to ephemeral and non-commercial publications that cannot be easily found in public libraries (Tillett & Newbold, 2006).

The ease of internet harvesting, either manual or automated, is tempting new generations of researchers to limit their use of information sources to publications available online or digitally mobilised from original paper copies. However, it has been understood that including grey literature in the scope of scientific studies significantly improves their coverage and data quality (Mahood et al., 2013). To comply with the requirements of the digital era, data mobilisation is being performed from the botanical literature to ensure the inclusion of the wealth of the taxonomic and distributional information accumulated by generations of botanists into modern circulation (Kozhin et al., 2020; Seregin & Basov, 2021).

Biodiversity studies comprise a special case of scientific information because they require publications containing novel nomenclature of plants and animals. In botanical studies, new plant names cannot be used if they are not effectively published, i.e. they should appear in printed texts that are made publicly available either on paper or, with special restrictions, electronically (Art. 29–31: Turland et al., 2018). With very few exceptions (seed-exchange lists, trade catalogues, and non-scientific newspapers have been recently outlawed: Art. 30.7), it is not specified, which kinds of paper publications are permitted to introduce new plant names to the scientific public. It means that many important practical aspects of publishing, i.e. format (serial, book, leaflet), publisher (or its absence), country or place of publication, language (plant names and descriptions excepted: Art. 39), number of copies, and even general availability (commercial or free-of-charge) – are not taken into account for plant nomenclature, and the information published in any place and by any means is considered part of the common information space as if it were at hand-distance availability for anyone in the world.

The permanence of printed records is taken literally in botanical nomenclature. Effectively published texts (those which were produced permanently and made available to the public) are considered non-erasable even if their authors or publishers wished at some point to withdraw them from circulation. For example, an attempt to remove the first print of the checklist of the Zomin Nature Reserve (Popov & Androsov, 1936) from bookshops and replace it with the second print with corrected contents (Popov & Androsov, 1937) does not invalidate plant names introduced in the first print, which remains effectively published forever and is available in some public libraries (Sennikov, 2012).

There are some special requirements for plant names in taxonomic studies, including the principles of priority (Principle III: Turland et al., 2018) and homonymy (Art. 53). Once published, a name of plant species starts to compete for priority among the names correctly applied to the same taxon, and the adoption of the earliest name is usually required. If a plant species name has appeared in print (with certain conditions fulfilled), it becomes occupied and no longer available for any other species; if re-used for another species, such a name is considered illegitimate and must be changed (Art. 53). Because of these requirements, botanists have to consider any publications in which plant names have appeared, regardless of their date, actual circulation or practical availability. Once a competing plant name is found, some nomenclatural action is required: to be maintained in use, a later synonym or homonym must be either nomenclaturally replaced (Art. 6.11) or conserved (Art. 14).

Many taxonomic publications concerning species-rich genera or groups of genera may require special effort in indexing such publications and the plant names they contain. For example, detailed nomenclatural bibliographies have been recently compiled for *Abutilon* (Fryxell, 2002), *Hieracium* in East Fennoscandia (Sennikov, 2002), Espeletiinae (Diazgranados, 2012), *Homalium* (Applequist, 2013), etc. Sometimes bibliographic and nomenclatural indices are required for the works of especially prolific individuals, like C.S. Rafinesque (1783–1840), whose botanical outputs have been particularly extensive but deliberately ignored by contemporary scientists because of his unconventional way of researching and publishing (Merrill, 1949). Although most of the botanical works of Rafinesque have been self-published and very poorly distributed by private means, so very few copies of their original prints are available nowadays (Boewe, 1987), they contain thousands of new plant names that have to be examined for priority and homonymy, and nomenclatural actions should be taken (Merrill, 1948).

While working on taxonomic overviews of the Central Asian flora (Tojibaev et al., 2021), I noticed that the name of a recently published species of dandelions, *Taraxacum roseolum* Kirschner & Štěpánek described from Kyrgyzstan and published in an international periodical with broad electronic dissemination (Kirschner & Štěpánek, 2017), is an illegitimate later homonym of *Taraxacum roseolum* Charit., which has been described from Western Siberia in an obscure paper book (Kharitontsev, 2015) published by a local pedagogical university and is available in very few Russian libraries but not from any online shop.

This nomenclatural collision attracted my attention to the case of modern grey publishing in botany, which is considered in the present contribution.

MATERIALS AND METHODS

A few printed books by B. Kharitontsev were examined *de visu* in the library of the Komarov Botanical Institute (LE). Digital copies of full texts or selected pages of other books were obtained through V. Chepinoga (Hannover) and O. Kapitonova (Tobolsk). Some journal articles published by Kharitontsev were harvested from the Internet.

The information on type specimens deposited by Kharitontsev was obtained from his protologues (ALTB, HTSU, MW, TK, TOB, Tobolsk Museum of Local Studies), herbarium collections (LE), personal communications (I. Shekhovtsova, NSK; O. Kapitonova, TOB), online (Seregin, 2024; MW) and printed (Scherbakov et al., 2023; MOSP) catalogues.

The biographic information about B. Kharitontsev was excerpted from various internet pages (announcements, news, interviews) and personal communications (O. Kapitonova).

Nomenclatural evaluations and decisions are based on the current International Code of Nomenclature for algae, fungi, and plants (Turland et al., 2018).

RESULTS AND DISCUSSION

The botanical legacy of Boris Kharitontsev

Boris S. Kharitontsev was born on 9 July 1952 in Foevichi Village, Klimovo District, Bryansk Region, Russia. He graduated from the Novozybkovo Pedagogical College in 1974 and obtained a PhD from Moscow State University in 1987 (Flora of the left side of the Desna River in Bryansk Region). His PhD study concerned the territory of the Bryansk Forest Nature Reserve, which was organised in 1987, but its results were not used in subsequent inventories of vascular plants of the Nature Reserve (Fedotov & Yevstigneev, 1999; Yevstigneev & Fedotov, 2007). In 1979–1989, Kharitontsev was employed as a teacher at the Bryansk Agricultural College.

The life and career of B. Kharitontsev experienced a dramatic turn when he moved to the Tobolsk State Pedagogical College (now Tobolsk Pedagogical University, part of the Tyumen State University) in 1990. In 2009, he defended his second academic dissertation (Genesis of the flora and plant communities in the south of West Siberia) to obtain a professorship in Tobolsk, which he held until his effective retirement in 2022. Besides, Kharitontsev has recently had a scientist position at the Tobolsk Research Station, Russian Academy of Sciences.

Having moved to Tobolsk, Kharitontsev started to work actively with the local flora. Based on four years of his field work and the local herbarium collections, he prepared a manual on vascular plants in the southern part of the Tyumen Region (Kharitontsev, 1994). To the great surprise of researchers of the Siberian flora, this book included dozen new plant species from various families.

During the Siberian period of his work, Kharitontsev regularly published new botanical books and pamphlets on the flora of the Tobolsk District. As an example of this research, two of his books (Kharitontsev, 2015, 2016) received a highly negative review (Geltman & Matveeva, 2018), which stressed the weakness of his floristic and vegetation studies, the lack of necessity in his terminological innovations, and the overall technical inaccuracy of his work.

A typical feature of many books published by Kharitontsev was long lists of new taxa, mainly at the rank of species. These species belong to numerous families from all orders, including lycopods and horsetails, globally species-poor genera (*Limosella* L.), large forest-forming trees (*Tilia* L.), and even alien plants (*Matricaria appressa* Charit. = *Tripleurospermum inodorum* (L.) Sch.Bip.). Special attention was paid to speciose genera, mostly with apomixis (*Alchemilla* L., *Artemisia* L., *Carex* L., *Festuca* L., *Hieracium* L., *Juncus* L., *Pilosella* Hill, *Potentilla* L., *Ranunculus* L., *Rosa* L., *Salix* L.), in which up to 10–20 new species were added per genus. Altogether, approximately 400 new species may have been published by Kharitontsev to date.

Most of his new species were described without taxonomic assessments (comparisons with related taxa) but with sectional assignments. In some cases, identification keys to all species of particular genera occurring in the same territory were provided (Kharitontsev, 2009, 2014a, 2020a). Distribution areas of the new species were not circumscribed; it seems that the new taxa were considered exclusively local.

The technical quality of these protologues is negligible. Descriptions and type statements are bilin-

gual (Latin and Russian) but abundant in typos, inconsistent and poorly formatted. The Latin versions (which are required for valid publication) are written in broken language, with impossible combinations of grammatical cases and genders and the casual use of fancy words created *ad hoc* by the author. New epithets may be misspelt or incorrectly formed. Strikingly, about a quarter of the total number of new plant names appeared to be later homonyms, often those of the species names published by classical authors because of the simplicity of the chosen epithets and the lack of verification against the records in Index Kewensis and, nowadays, IPNI (2024).

Most of the new species names proposed by Kharitontsev were validly published. The only regular exception was his first book published in Tobolsk (Kharitontsev, 1994), which was typeset with a typewriter lacking Latin fonts. The Latin nomenclature and entire protologues of new species names in this book were handwritten in the text and then typographically reproduced; such reproduction is a case of indelible autograph, which has been outlawed for effective publication in botanical nomenclature since 1953 (Art. 30.5, 30.6: Turland et al., 2018). All plant species names introduced in Kharitontsev (1994) are considered invalidly published, and references to their ineffectively published descriptions may not be used in future works.

The taxonomic evaluation of plant species names published by Kharitontsev is pending. The discovery of 400 new species in a single district of south-western Siberia, which is narrowly restricted to single localities, is considered impossible on theoretical grounds (Geltman & Matveeva, 2018). Tobolsk Floristic District shares a remarkable floristic similarity with other parts of south-western Siberia, and none of these territories is characterised by any significant endemism or other floristic originality (Malyschev et al., 2000).

So far, a few cases of taxonomic evaluation of these alleged new species are known. Naumenko (2008) has reduced *Phleum procumbens* Charit. to a synonym of *Crypsis alopecuroides* (Piller & Mitterp.) Schrad. (now *Sporobolus alopecuroides* (Piller & Mitterp.) P.M. Peterson), and *Agropyron globularis* Charit. – to a synonym of *Eremopyrum triticeum* (Gaertn.) Nevski. Chkalov (2022) has examined four apomictic microspecies of *Alchemilla* described by Kharitontsev and reduced three of them to synonyms. In contrast, one of these microspecies was found acceptable but required a name change due to homonymy. These examples confirm that neither species status nor taxonomic classifications of the new taxa proposed by Kharitontsev can be considered credible.

The botanical venues chosen by Kharitontsev were locally published books and articles in scientific periodicals published by second-level universities and colleges. These periodicals mostly have local circulation and are represented in the largest central libraries only, with poor representation on the Internet. The books were published on paper only by his employer institutions and were not distributed by any national commercial seller despite rather significant numbers of copies printed (up to 500 in each case). As was noted earlier (Glazunov et al., 2017) and proven by our requests, their availability in public libraries is exceptionally poor, and much effort is required to trace a book copy and obtain a photocopy of its selected pages. In effect, such publications fall into the category of "grey literature" as discussed above, with the demand for their actual availability due to the numerous nomenclatural novelties.

The herbarium collections of Kharitontsev, including his type specimens, are scattered. In the first book (Kharitontsev, 1994), he stated that his holotypes are deposited at the Tobolsk Museum of Local Studies (part of the Tobolsk State Museum of History and Architecture). This museum hosts historical herbarium collections (Sidorova & Zhuchkova, 2013) but does not function as a scientific institution for natural history. Some early types were sent to TK (Krylov Herbarium, Tomsk State University) (Kharitontsev, 1994). Later collections (Kharitontsev, 2009, 2010, 2011) were deposited at HTSU (Department of Biology, Tyumen State University). Most recent type collections were distributed to major herbarium centres: LE (Kharitontsev, 2014b, 2015, 2016), or capriciously shared among LE, MOSP and MW, partly ALTB and NSK, with some types placed in TOB (Tobolsk Research Station, Russian Academy of Sciences) (Kharitontsev, 2020a, b, 2022a, b). This wide dispersal of type collections and their placement in local depositories makes evaluating Kharitontsev's work especially challenging. So far, none of Kharitontsev's collections from Siberia can be fully ac-

cessed via the Internet, but the information may be available from herbarium curators by request.

Kharitontsev (2022a) believed that the diversity of local ecological conditions drives speciation to the extent that local neoendemics may appear in particular localities. The local character of numerous new taxa based on single collections and subtle and vague morphological characters, which is a feature of Kharitontsev's research, brings a reminiscence of the monumental work of Gandoger (1883–1891), in which nearly 150000 new species were introduced in a similar manner. Due to the unbearable burden of the taxonomic evaluation of this huge nomenclatural output and the erratic style of nomenclature used in M. Gandoger's work, it was outlawed regarding new plant names (Stafleu, 1970). Even a closer analogy is the similarly suppressed monograph on Lecanoraceae by Motyka (1995–1996), which was considered not to meet the modern standards of species description and classification and was therefore removed from scientific consideration to reduce the unnecessary burden of its evaluation by modern taxonomists who may have better things to do in their research (Lumbsch et al., 1999).

However, listing the taxonomic heritage of Kharitontsev as *opera utique appressa* (suppressed works in which new plant names at certain ranks are considered not validly published: Art. 34) may be impractical. Although Kharitontsev published in truly grey literature and his taxonomy and nomenclature are apparently substandard, his publications are so numerous that they will double the current list of suppressed taxonomic works. Besides, very few plant species names have been published as later homonyms of the species names validated by Kharitontsev, meaning that the problem is rather taxonomic than nomenclatural.

Because of the apparent mismatch between the long-proven lack of endemic plants in south-western Siberia and the extraordinary floristic anomaly suddenly discovered by Kharitontsev in Tobolsk District, nobody of contemporary botanists seems to have believed in the flood of his discoveries. Even the authors of the manual of vascular plants of Tyumen Region (Glazunov et al., 2017), which includes Tobolsk District and therefore should have dealt with Kharitontsev's publications, made only a cursory mention of his earliest book and completely ignored anything else, and did not take a trouble to relegate any of his novelties to synonymy. So far, apart from the recent examination of *Alchemilla* (Chkalov, 2022), the nomenclature published by Kharitontsev has not attracted the attention of the botanical community. The forthcoming checklist of vascular plants of Asian Russia (Chepinoga et al., 2024) does not include Kharitontsev's species either, except for the treatments of *Alchemilla*, *Hieracium* and *Pilosella*. This means that after 30 years of active publishing, the taxonomic works of Kharitontsev remain largely unknown to or ignored by botanists, much resembling the fate of the botanical works of Rafinesque.

Despite its negligible taxonomic significance, the botanical output of Kharitontsev poses an apparent nomenclatural problem due to the risk of homonymy for newly published plant species names. To remove this risk, a nomenclator of species names published by Kharitontsev should be compiled. After this essential step, the botanical legacy of this 'Russian Rafinesque' may be dealt with at any time, when desired or at leisure, entirely or in portions. However, his apomictic taxa (in *Ranunculus* and *Taraxacum*) still have a chance of taxonomic acceptance in the future because these genera are still insufficiently studied in Siberia.

The homonymy of *Taraxacum roseolum*

Among the numerous species names validly published by Kharitontsev, many are later homonyms of previously published ones. However, a few names are earlier homonyms of recently described taxa, thus rendering the latter names illegitimate.

Kirschner & Štěpánek (2017) described a pink-flowered species of dandelions, *Taraxacum roseolum* Kirschner & Štěpánek (*Taraxacum* sect. *Atrata* Kirschner & Štěpánek), from high mountains of Kyrgyzstan (Teskey Ala-Too, Sary-Jaz River). This apomictic microspecies is a narrow endemic of the Sary-Jaz River Basin in the Eastern Tian-Shan.

Kirschner & Štěpánek (2017) were not aware that the same species name had already been used by Kharitontsev (2015), who selected the same species epithet due to the pinkish stems of his plants. The name *Taraxacum roseolum* Charit. was validly published because it was accompanied by a Latin description of the species and a type designation. For this

reason, *Taraxacum roseolum* Kirschner & Štěpánek is an illegitimate later homonym (Art. 53.1).

Aquaro et al. (2006) have described a new species of *Taraxacum* from Italy, *Taraxacum kirschneri* Aquaro et al. (*Taraxacum* sect. *Erythrocarpa*), whose type has, however, been considered taxonomically inadequate by Štěpánek & Kirschner (2012). This species name honours Jan Kirschner (b. 1955), whose fruitful collaboration with Jan Štěpánek (b. 1955) has prominently advanced our knowledge of *Taraxacum* in Eurasia. In connection with the homonymy mentioned above, I find it appropriate to dedicate *Taraxacum roseolum* Kirschner & Štěpánek, which misfortunately appeared to be illegitimate, to Jan Štěpánek, to commemorate his exceptional taxonomic activity.

Taraxacum stepanekii Sennikov, **nom. nov.** – *Taraxacum roseolum* Kirschner & Štěpánek in Phytotaxa 305(4): 250 (2017), nom. illeg., non *Taraxacum roseolum* Charit. (2015).

Type: Kyrgyzstan. Ysyk Köl Region, Ak-Suu Disrict, Teskey Ala-Too, the valley of Sary-Jaz River, southern slopes at 3600 m, in the vicinity of 42°25‘44“ N, 79°35‘10“ E, 2014, I. Ulbrichová s.n. Cultivated from achenes under no. JK6962B (PRA, no. det. 28150, holotype).

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Author contribution. The author conducted all the research, analysed the data and wrote the text.

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