



On *Veronica paczoskiana* and the real identity and typification of *V. spicata* var. *pseudoorchidea* (*Plantaginaceae*)

SERGEI L. MOSYAKIN^{1,3*}, DIRK C. ALBACH^{2,4} & MYROSLAV V. SHEVERA^{1,5}

¹M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, 2 Tereshchenkivska Street, Kyiv, 01601, Ukraine

²AG Plant Biodiversity and Evolution, Carl von Ossietzky University, Ammerlaender Heerstrasse 114-118, 26129 Oldenburg, Germany

³✉ s_mosyakin@hotmail.com; <https://orcid.org/0000-0002-3570-3190>

⁴✉ dirk.albach@uol.de; <https://orcid.org/0000-0001-9056-7382>

⁵✉ shevera.myroslav@ukr.net; <https://orcid.org/0000-0002-1178-0458>

*Author for correspondence

Abstract

Our critical re-assessment of the relevant publications by Paczoski and other available literature demonstrated that the name *Veronica spicata* var. *pseudoorchidea* was validly published, with a rather detailed descriptive statement and discussion, not in 1910 (in that Paczoski's book, this variety was briefly discussed but not named) and not from southern Ukraine (as it was suggested by Klokov in 1976, and in several publications by other authors), but in 1909 in Paczoski's article on the flora and vegetation of the area near the Motovylyvka railway station, now in Fastiv District of Kyiv Region, located at the border of the northern Forest Zone (Polissya, Polesie) and the Forest-Steppe Zone of Ukraine. In that article Paczoski, in particular, mentioned that his plant specimens collected in that area are deposited in the herbarium of the Kherson Regional Museum (Kherson, Ukraine). The study of two original specimens of *V. spicata* var. *pseudoorchidea* (syntypes, of which one is here designated as the lectotype) in the herbarium of Paczoski held at the Museum clearly demonstrated that the morphological characters of these plants perfectly correspond to the characters indicated by Klokov for his supposedly distinct taxon, *V. paczoskiana* (described from the Mykhaylivka Forest near Kaniv, Cherkasy Region, Ukraine), and the syntypes of *V. spicata* var. *pseudoorchidea* do not differ from the holotype and other original specimens of *V. paczoskiana* at KW. Thus, if accepted as a variety, the glabrous or sparsely pubescent plants growing mainly in pine forests of Ukraine, Belarus, partly also in the European part of Russia and Siberia should be called *V. spicata* var. *pseudoorchidea*. If such plants were accepted at a species or subspecies rank, their correct names would be *V. paczoskiana* or *V. spicata* subsp. *paczoskiana*, respectively. Based on analyses of DNA polymorphisms and morphological data (analyzed separately), we prefer the rank of variety.

Key words: herbarium, nomenclature, Paczoski, *Plantaginaceae*, taxonomy, Ukraine, *Veronica*

Introduction

Among numerous species-rank and infraspecific names applied to plants belonging to the taxonomically complicated group of *Veronica spicata* Linnaeus (1753: 10) (*Plantaginaceae*, formerly placed in *Scrophulariaceae* s.l.; see taxonomic opinions on the group in Elenevskiy 1978, Tzvelev 1981, Trávníček 1998, Albach *et al.* 2004, Albach 2008, Kosachev *et al.* 2016, etc.), the names *V. spicata* var. *pseudoorchidea* (Paczoski 1909: 144) (see the corrected protologue data and discussion below) [*V. pseudoorchidea* (Pacz.) Klokov (1976: 109), pro hybr.] and *V. paczoskiana* Klokov (1976: 105) still remain nomenclaturally and taxonomically problematic. These names were coined for and applied to the morphotypes of *V. spicata* s.l. with sparsely pubescent to almost glabrous stems in their lower and middle parts and dark-green, often glossy and slightly leathery cauline leaves, glabrous or nearly so. These morphotypes occur mostly in pine forests and occasionally in mixed pine-deciduous forests of Eastern Europe (Ukraine, Belarus, partly also in the European part of Russia), extending to central Europe (Poland? Austria?). Similar plants were also detected in Siberia; for these plants, the name *V. spicata* subsp. *paczoskiana* (Klokov) Kosachev (2003: 22) was applied (see also Kosachev & Ebel 2010, Kosachev *et al.* 2015, Kosachev 2017). Taxonomic recognition and circumscription of these two taxa remain unresolved. Some authors treated these names just as synonyms of a polymorphic *V. spicata* s.l. (e.g., Elenevskiy 1978, 1981), while other authors recognized these either as “narrow” species (e.g., Kotov 1987, Mosyakin & Fedoronchuk 1999, Ostapko *et al.* 2010, etc.) or as infraspecific taxa of *V. spicata* (Tzvelev 1981, Aseeva 2002;

Kosachev 2003, 2017, Kosachev *et al.* 2015). Some authors suggested that the names *V. spicata* var. *pseudoorchidea* and *V. paczoskiana* refer to the same infraspecific taxon (e.g., Tzvelev 1981, Aseeva 2002, Kosachev 2003, 2017, Kosachev *et al.* 2015), while Klovov (1976) argued that these two taxa are different, both geographically and morphologically. Bibliographical data about the protologue of *V. spicata* var. *pseudoorchidea* also differed in different sources. To clean up some misunderstanding regarding these taxa and to solve some remaining nomenclatural and taxonomic problems, it was necessary to find original specimens of *V. spicata* var. *pseudoorchidea* (which probably have not been studied by taxonomists since the time of description of that taxon), designate a lectotype of this name, and compare it with types of *V. paczoskiana* and, if necessary, with other related taxa of the *V. spicata* species aggregate. Results of these herbarium and nomenclatural studies are reported here.

A brief outline of taxonomic and nomenclatural history of the names *Veronica spicata* var. *pseudoorchidea* and *V. paczoskiana*

After its original description (see below), the name *Veronica spicata* “var. *pseudoorchidea* Pacz.” was re-introduced to the taxonomic usage by Karnaukh (1960: 491), who mentioned that variety in her treatment of *Veronica* in the *Flora of the Ukrainian SSR* [Флора УРСР] under *V. spicata* as follows:

“Var. *pseudoorchidea* Pacz. Нижня частина стебла та листки голі. | Pacz. (Пачоський) в Зап. Новорос. общ. естеств. XXXIV (1910) 143. | У борах та суборах Полісся (П.П., Л.П.) і в П.Л.-С. по р. Дніпру до Кременчука, звичайно”.

Explanatory translation: “Var. *pseudoorchidea* Pacz. Lower part of stem and leaves glabrous. | Pacz. (Paczoski) in Zap. Novoros. Obshch. Estestv. [see comments below], vol. 34 (1910), page 143. | In pine forests and pine-mixed forests of Polissya (**Right-Bank Polissya**, **Left-Bank Polissya**) and in the **Right-Bank Forest-Steppe** along the Dniro [Dnieper] River down to [the town of] Kremenchuk [Poltava Region], common”.

The citation of the supposed protologue provided by Karnaukh (1960: 491) corresponds to the well-known monograph by Paczoski (1910) entitled “The main trends of development of the flora of South-Western Russia”, which was published as a supplement to volume 34 of the journal “*Записки Новоросійського общества естествоиспытателей*”, also known under its French title “*Mémoires de la Société des Naturalistes de la Nouvelle Russie*” and inaccurately Romanized in IPNI (see <https://ipni.org/p/8635-2>) as “*Zapiski Novorossiyskogo Obschestva Estestvoispytatelej*” (we would suggest the following Romanization: “*Zapiski Novorossiyskogo Obshchestva Estestvoispytateley*”). The same citation appeared in several other publications. Sometimes that monograph by Paczoski was cited in literature as published in 1909, probably because the volume 34 of the mentioned journal, to which Paczoski’s book was a Supplement, was dated as published in 1909.

That variety described by Paczoski was usually ignored by other researchers until the mid-1970s. For example, it is not mentioned in the standard treatment of *Veronica* Linnaeus (1753: 9) in the *Flora of the USSR* [Флора СССР] (Borisova 1960) and the monograph by Elenevskiy (1978) on *Veronica* in the former USSR and some adjacent areas.

The real taxonomic resurrection of the epithet “*pseudoorchidea*”, but now at a new rank, happened in 1976 in a new treatment of “spicate veronicas” [meaning *Veronica spicata* and related taxa of *Veronica* subg. *Pseudolysimachium* (Koch 1837: 527) Buchenau (1894: 447)] by Klovov (1976), who in his article advocated a very narrow species concept in the group and recognized in Ukraine seven species (plus mentioned several other Eurasian species not occurring in Ukraine) and at least one presumably stabilized hybrid (hybridogenous species). Of these taxa, four species were described in that article as new ones: *Veronica viscosula* Klovov (1976: 96), *V. gryniana* Klovov (1976: 99), *V. maeotica* Klovov (1976: 102), and *V. paczoskiana* Klovov (1976: 105).

Of these Klovov’s species, the taxon known as *V. paczoskiana* seems to be one of the most interesting and ecologically and morphologically distinctive entities of the *V. spicata* aggregate occurring in Ukraine and adjacent parts of Eastern Europe. Plants corresponding to this taxon (as understood and initially outlined by Klovov) usually have glabrous or almost glabrous stems, at least in the lower third or half; the lower and partly middle cauline leaves are also glabrous (or nearly so), often leathery, and glossy dark green in appearance. This morphotype occurs in Ukraine almost exclusively in pine forests and at margins of pine and mixed forests, mainly in the northern physiographic Forest Zone known as Polissia (also Polissya, Polesie, etc.) and in the Forest-Steppe Zone. Its taxonomic status, as well as its phylogenetic and biogeographical significance, remain unresolved. However, Klovov considered this taxon as an important link in his hypothetical scheme of evolution of the *Veronica spicata* group (see below). Also, *V. paczoskiana* is included in regional lists of protected species in the Donetsk and Kyiv administrative regions (oblasts) of Ukraine (Andrienko & Peregryn 2012).

Because of that, the proper nomenclatural identity and taxonomic application of the name *V. paczoskiana* and some associated names should be clarified, which we attempted in the present article.

The real protologue of *Veronica spicata* var. *pseudoorchidea*: bibliographic and nomenclatural comments

Klokov (1976: 109), following Karnaukh (1960) and some other publications, assumed that the name *V. spicata* var. *pseudoorchidea* was published in 1910. Moreover, in his article on spicate veronics, Klokov (1976: 105–111) commented that *V. spicata* s. str. and his newly described *V. paczoskiana* often occur together (especially near Kyiv and Kharkiv, according to his personal observations). Also, he observed that another “form” (in fact, a morphotype; Klokov here used the term “form” informally, not as a taxonomic rank) quite often occurs together with *V. paczoskiana*; this “form” is habitually similar to the latter (and thus morphologically distinct from *V. spicata*) but differs from *V. paczoskiana* in having its leaves and the whole stem minutely but rather densely pubescent. According to Klokov, this “form” was first noticed by Paczoski, “who named it *V. spicata* var. *pseudoorchidea* Pacz. (1910) and who mentioned it several times in his works. According to our [Klokov’s] observations, *V. pseudoorchidea*, despite its evident habitual non-similarity [to *V. spicata*], is connected with typical *V. spicata* L. by gradual transitions; however, despite its superficial similarity [to *V. paczoskiana*], it can be always distinguished from *V. paczoskiana* Klok. Occurring together with our species, it [this “form”] extends further southward, to the seashore, where neither *V. spicata* L. nor *V. paczoskiana* occurs. It is possible that it is a hybridogenous, though somewhat stabilized, form, and we consider it useful to provide its detailed description” (our translation).

After that comment, Klokov (1976: 109–110) validated the new combination *Veronica pseudoorchidea* (Pacz.) Klokov (as “sp. hybr. nov.”) and provided a meticulously detailed description of that taxon. He also stated that “The variety [meaning *V. spicata* var. *pseudoorchidea*] was described by Paczoski from the Lower Dnipro [Dnieper] sands”.

As we will see, Klokov’s assumptions regarding the morphological characters of *V. spicata* var. *pseudoorchidea* and its actual distribution were inaccurate, and his misinterpretation of that taxon triggered further rather confusing taxonomic decisions and opinions.

First of all, it was necessary to clarify the differing information on publications by Paczoski and his opinions on his new taxon *V. spicata* var. *pseudoorchidea*. Józef Paczoski, often referred in Ukrainian- and Russian-language literature as Yosyp Konradovych Pachoskyi (Ukr: *Йосип Конрадович Пачоський*) or Iosif Konradovich Pachoskiy (Rus: *Иосиф Конрадович Пачоский*), was an outstanding Polish botanist, much of whose life and scientific activity, until 1923 (when he relocated, or repatriated, to Poland), unfolded in the former Russian Empire and the former Soviet Union, mainly in the present-day Ukraine (see Puzanov & Gold 1965, Maycock 1967, Boiko & Gorlova 1986, Latowski 2009, Truskavetska 2012, Boiko 2014, Deriuzhyna 2014, and references therein). He was a keen observer of plants and good plant taxonomist, who also collected numerous herbarium specimens, now preserved in several herbaria of Ukraine, Poland, and some other countries, including the National Herbarium of Ukraine (KW—Herbarium of the M.G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine) and the herbarium of the Kherson Regional Museum (see further details below).

In fact, the name *V. spicata* var. *paczoskiana* was validated not in 1910 but in 1909, in a little-known floristic article by Paczoski (1909). Moreover, the article was published incompletely; only the first part was released, while the second part of the manuscript was lost before its planned publication. That article was devoted to the flora and vegetation of the area around the railway station of Motovylyvka (*Мотовилівка*; Paczoski used the Russian spelling version Motovilovka—*Мотовиловка*), now in Fastiv District (*Фастівський район*) of Kyiv Region (*Київська область*), Ukraine. The railway station is located at the settlement of Borova, while Motovylyvka village (which gave the name to the station) is more distant from the station. Paczoski (1909: 129, or page 1 of the separate issue) specially emphasized that geographic location of his field surveys and specified that all his observations and collections have been made near the railway station of Motovylyvka (evidently, mostly in the forest area north of the railway line), while he never visited the village of the same name.

Moreover, Paczoski (1909: 134; or page 6 of the separate issue) in the real protologue of *V. spicata* var. *pseudoorchidea* explicitly mentioned that the plant specimens that he collected near Motovylyvka are deposited at the Kherson Museum: “499 plant species mentioned below [were] collected near Motovilovka (this herbarium is deposited at the Kherson Zemstvo Natural History Museum)...” (our translation). Zemstvo was an organ of local self-government in the former Russian Empire during the late stages of its existence; in Kherson the museum was managed by the local Kherson Zemstvo. Thus, the original specimens (syntypes) of the variety name validated by Paczoski in that article (*V. spicata* var. *pseudoorchidea*) should be looked for in that herbarium, which is now held at the Kherson Regional Museum (*Херсонський краєзнавчий музей*, also alternatively translated as Kherson Local Lore Museum or Kherson Local History Museum, see https://en.wikipedia.org/wiki/Kherson_Local_History_Museum); for more information about the Paczoski Herbarium in Kherson, see Boiko & Gorlova (1986), Davydov (2019), Deriuzhyna (2014), and Truskavetska (2012).

The correct nomenclatural citations of the protologue of *V. spicata* var. *paczoskiana* (including the year 1909 and page 144, not 143) were provided in publications by Tzvelev (1981: 85, 1999: 117) and Kosachev *et al.* (2015: 90). Other authors cited the correct year of publication 1909 but the incorrect page “143” (Aseeva 2002: 163, Kosachev 2003: 143, 2010: 53, 2017: 45, etc.); that page number actually refers to another publication by Paczoski (1910: 143).

Here we provide our English translation of the protologue of *Veronica spicata* var. *pseudorchidea*, originally published in Russian (pre-reform orthography, see Fig. 1).

Такъ какъ продолженіе рукописи этой работы было затеряно типографіей во время печатанія въ Одессѣ и такъ какъ возстановить полностью утерянное невозможно, то я ограничусь здѣсь только сообщеніемъ еще о двухъ растеніяхъ мотовиловской флоры :

155. *Veronica spicata* L. var. *pseudorchidea* var. n.

Походитъ по общему виду на *V. orchidea* Crantz., за каковую она и была мною принята по ошибкѣ въ моей „Флорѣ Полѣсья“ (II, стр. 65). Какъ у *V. orchid.*, такъ и у описываемой здѣсь разновидности, нижняя часть стебля и листья совершенно голые; верхняя часть стебля коротко-пушустая. Отъ *V. orchid.* наша форма отличается тѣмъ, что доли вѣнчика значительно короче и не узко-линейно-ланцатныя (и не скрученныя, или слабо скрученныя на концѣ), а только ланцетныя. Отличается отъ *V. orchid.* и своимъ географическимъ распространеніемъ и мѣстобитаніемъ, такъ какъ произрастаетъ въ борахъ и сосново-дубовыхъ лѣсахъ на песчаной почвѣ, около Мотовиловки и въ мѣстопостяхъ, указанныхъ въ моей „Флорѣ Полѣсья“. *V. orchidea* Crantz. есть растеніе травянистыхъ склоновъ, не переходящее у насъ за предѣлы флоры нодольскаго типа. Найд. съ цвѣт. и незр. плодами 17-го іюля.

FIGURE 1. Reproduction of the protologue of *Veronica spicata* var. *pseudorchidea* (from Paczoski 1909: 144).

“Since the continuation of the manuscript of the present contribution has been lost by the publisher during its publication in Odessa, and since to restore completely the lost [material] is impossible, I will publish here only the communication about two [more] plants of the Motovilovka [Motovylyivka] flora.

155. *Veronica spicata* L. var. *pseudorchidea* [sic!] var. n.

Similar in its general appearance [habit] to *V. orchidea* Crantz., as which it was misidentified in my “Flora of Polesie” (II, page 65). The variety described here, as well as *V. orchid.*, has the lower part of the stem and leaves completely glabrous; the upper part of the stem is short-pubescent [a typo in the protologue: “коротко-пушустая” instead of “коротко-пушистая”]. From *V. orchid.* our form [morphotype] differs in having much shorter corolla lobes; they are not narrowly linear-lanceolate [a typo in the protologue: “узко-линейно-ланцатныя” instead of “узко-линейно-ланцетныя”] (and not contorted, or barely contorted at ends) but only lanceolate. It differs from *V. orchid.* also by its geographic distribution and habitat, because it grows in pine forests and pine-oak forests on sandy soil, near Motovylyivka and in regions reported in my “Flora of Polesie”. *V. orchidea* Crantz. is a plant of grassy slopes, which does not extend in our area beyond the flora of the Podolian [Podillya] type. Found with fl. [flowers] and immat. [immature] fruits on 17th of July [1908].”

As we see, initially Paczoski erroneously reported this plant as *V. orchidea* Crantz (1769: 333), in the second part of his *Flora of Polesie and adjacent areas* that was published during 1897–1900 in three volumes of the journal “*Trudy S.-Peterburgskago Obshchestva Estestvoispytatelei: Otdelenie Botaniki*” [“*Труды Санкт-Петербургского общества естествоиспытателей. Отделение ботаники*”, with the parallel French title “*Travaux de la Société des Naturalistes de Saint-Petersbourg: Section de Botanique*”]. In that treatment, Paczoski (1899: 65) commented under “*V. orchidea* Crantz.”: “Grows in pine forests, as a rare plant. Represents, undoubtedly, a separate race, contrary to many [authors] who treat it only as a variety of the previous species [*V. spicata*]. Fl. [Flowers in] June and July”. The species was reported from three areas of localities: (1) Grodno Governorate/Province, Belostok District (*Белостокский уезд*—Belostokskiy Uyezd of the former Russian Empire), now the Białystok area within Podlaskie Voivodeship [Województwo podlaskie], Poland; (2) Minsk Governorate/Province, Khoyniki, now in Gomel Region, Belarus; and (3) Chernigov Governorate/Province, settlements Ripky and Kamyanka, now in Ripky Amalgamated Territorial Community, Chernihiv District, Chernihiv Region, Ukraine.

Taxonomy: Lectotype designation for the name *Veronica spicata* var. *pseudoorchidea*

Krytzka *et al.* (2000: 538–539) reported the type of *V. spicata* var. *pseudoorchidea* correctly as “...near Motovylyvka...” and suggested (with a question mark) that the type specimen (or specimens?) is/are probably deposited at the Kherson Regional Museum (KHEM?). The acronym mentioned (or suggested) by Krytzka *et al.* (2000) is not yet registered in *Index Herbariorum*; however, this acronym (with an asterisk, KHEM*, indicating that it was proposed provisionally for further registration in *Index Herbariorum*; see Shiyan 2011: 10), is used in the register of Ukrainian herbaria (Deriuzhyna, in Shiyan 2011: 340–343, 410). For brevity and efficient communication, below we informally use that proposed provisional acronym. The authors (Krytzka *et al.* 2000) evidently have not seen any original specimens prior to publication of their article in 2000. The information provided by Krytzka *et al.* (2000) lacked details that were needed for precise type (lectotype) designation, and are considered just as a suggestion of a possible location of the type or original specimens, following the indication in the protologue. Thus, here we provide the specific lectotypification, following Art. 9.17 of the *ICN* (Turland *et al.* 2018).

The digital images of Paczoski’s specimens of *Veronica spicata* var. *pseudoorchidea* were sent in December 2019 to Myroslav V. Shevera by Alla V. Deriuzhyna, who at that time was an employee of the Kherson Regional Museum. According to that information, there are four specimens at the KHEM herbarium annotated by Paczoski as *Veronica spicata* var. *pseudoorchidea*. One specimen has the following label: “*Veronica spicata* L. var. *pseudorchidea* Paczoski. in pinetis [one short word illegible] arenoso. Motowilowka [,] gub. Kiev [,] distr. Wassilkow 11/24, VII 1912. I. Paczoski” (KHEM museum inventory No: 41063, Б 3210/4), meaning that the plants were collected in Motovylyvka of Kiev Governorate, Vasilkov District (note that the toponyms were cited in the Polish spelling), i.e. in *locus classicus*. However, since that specimen was collected in 1912, after the year of publication of the name *V. spicata* var. *pseudorchidea*, it is not part of original material of that name. Another specimen (KHEM museum inventory No: 41063, Б 3210/1) was collected in 1913 “near Kremenchug of Poltava Governorate” (“бл. Кременчуга Полт. губ.”, now Kremenchuk, Kremenchuk District, Poltava Region, Ukraine) and is thus also not part of original material.

Two specimens at KHEM matching the protologue information were collected in 1908 (KHEM museum inventory Nos: 41063, Б 3210/1 and 41063, Б 3210/2, see below). No specimen can be considered the holotype; there also might be other original specimens (syntypes) matching the protologue (see Art. 9 of the *ICN*: Turland *et al.* 2018) because Paczoski (1909: 143) indicated in the protologue multiple locations: “near Motovylyvka”, but also in other regions reported in his *Flora of Polesie* (Paczoski 1899), now in present-day Poland, Belarus, and Ukraine (see comments above). We designate one of these two available original specimen as the lectotype of the name *Veronica spicata* L. var. *pseudoorchidea* Pacz.

Veronica spicata L. var. *pseudoorchidea* Paczoski (1909: 144), as “*pseudorchidea*” ≡ *Veronica pseudoorchidea* (Pacz.) Klokov (1976: 109) ≡ *Pseudolysimachion spicatum* (L.) Opiz (1852: 80) var. *pseudoorchideum* (Pacz.) Tzvelev (1999: 117).

Type (lectotype, here designated): Location: UKRAINE. Kyiv Region, Fastiv District, pine and pine-oak forests north of villages Borova and Motovylyvka. **Original label in Russian** (pre-reform orthography): “*Veronica spicata* L. var. *pseudorchidea* Paczoski. Въ сосн. и дуб. соснов. лѣсахъ не рѣдко. Мотовиловка Кіевск. губ. Вас. у. [modern Russian spelling, without abbreviations: В сосновых и дубово-сосновых лесах не редко. Мотовиловка Киевской губернии, Васильковского уезда] 17. VII 1908. I. Пачоскій”. Paczoski Herbarium at the Kherson Regional Museum (KHEM, museum inventory No: 41063, Б 3210/3).

Ukrainian translation (without abbreviations): “*Veronica spicata* L. var. *pseudorchidea* Paczoski. У соснових та дубово-соснових лісах нерідко. Мотовилівка Київської губернії Васильківського повіту. 17. VII 1908. Й. Пачоський”. **English translation** (without abbreviations): “*Veronica spicata* L. var. *pseudorchidea* Paczoski. In pine and oak-pine forests, not rare. Motovylyvka, Kyiv Governorate (Ukrainian: *губернія*; Russian: *губерния*), Vasylykiv District (Ukrainian: *повіт*; Russian: *uezd*). 17. VII 1908. J. Paczoski” (Fig. 2).

Synonyms (heterotypic):

Veronica paczoskiana Klokov (1976: 105) ≡ *Veronica spicata* subsp. *paczoskiana* (Klokov) Kosachev (2003: 22) ≡ *Pseudolysimachion paczoskianum* (Klokov) Ostapko (2014: 673).

Type (holotype): **Location:** UKRAINE. Cherkasy Region, Cherkasy District (formerly Kaniv District), Kaniv urban community, village Mykhailivka, Mykhailivka Forest. **Protologue:** Latin: “RSS Ucr., dit. Czerkassica, distr. Kanevensis, p. Michajlovka, pinetum pteridiosum Michajlovskij bor dictum, 27.VII 1972, M. Klokov (KW)” (Klokov 1976: 106); Russian: “УССР, Черкасская обл., Каневский р-н., с. Михайловка, Михайловский бор (pinetum pteridiosum), 27.VII 1972, М. Клоков (Киев)” (Klokov 1976: 107).

Original label in Ukrainian: “*Veronica paczoskiana* Klok. sp. n. Typus! УРСР, Черкаська обл., с. Михайлівка. Михайлівський бір. Pinetum pteridioso-herbosum. 27 VII 1972. М. Клоков”, KW000058098 (holotypus), Fig. 3, image also available online from: <https://plants.jstor.org/stable/10.5555/al.ap.specimen.kw000058098>.

Plants mounted on the holotype sheet of *V. paczoskiana* lack wider lower leaves (present in the lectotype of *V. spicata* var. *pseudoorchidea*) due to incomplete sampling of just the stems above the basal rosette; however, the narrow and glabrous middle and upper cauline leaves are very similar in the two type specimens; they also match the corresponding characters of plants observed in the *locus classicus* of *V. paczoskiana* (Fig. 4a, 4b). Thus, morphological characters of the type specimens cited above leave no doubt that Paczoski, when describing the variety *V. spicata* var. *pseudoorchidea*, had in mind exactly the same taxon or morphotype as did Klokov when he later published his *V. paczoskiana*. Also, contrary to the opinion of Klokov (1976), that variety was described not from southern Ukraine but from the borderland between the Forest and Forest-Steppe physiographic zones of Ukraine, quite close to the *locus classicus* of *V. paczoskiana* in the Ukrainian Right-Bank Forest-Steppe. Most notably, both protologues mention the origin of specimens from pine forests.

The morphotype that by its indumentum characters is intermediate between *V. spicata* s. str. and *V. spicata* var. *pseudoorchidea* (= *V. paczoskiana*), i.e. “*V. pseudoorchidea*” sensu Klokov, thus seems to remain nameless at present; however, we think that any formal taxonomic recognition of such occasional intermediate forms is unnecessary, since they can be easily housed within var. *pseudoorchidea* without extending its limits of variation too much.

It should be noted that Klokov (1976: 111) treated his “*V. pseudoorchidea*” (sensu Klokov, see above) as a rather stabilized hybridogenous “race” that emerged due to hybridization between *V. paczoskiana* and some morphotypes of *V. spicata*. He also hypothesized that *V. paczoskiana* is “not a direct phylogenetic derivate of the modern and co-occurring *V. spicata* L. sensu proprio, but it [*V. paczoskiana*] is rather probably connected with a more ancient [species] *V. maeotica* Klok.; however, the observed motley pattern of pine-forest forms [morphotypes] is better described as a process of hybrid swamping of a relict pine-forest race by an aggressive modern race, with the parallel emergence of quite stable hybridogenous forms (*pseudoorchidea*, *pineticola*)” (our translation). This concept is not supported by our actual data.

However, according to DNA polymorphism data analyzed separately (Albach *et al.*, in preparation), Siberian plants identified as *V. spicata* subsp. *paczoskiana* appear not to be closely related to the typical Ukrainian plants assigned to *V. paczoskiana* or *V. spicata* var. *pseudoorchidea*. Thus, the morphotype should not be recognized at the species or subspecies level but it appears to be a pine forest and forest-steppe ecotype that evolved in parallel several times in various regions of Eurasia within the total range of *V. spicata* s.l. Under these conditions, the appropriate rank for the taxon is that of the variety (Albach *et al.*, in preparation), which should be then called *V. spicata* var. *pseudoorchidea*.



FIGURE 2. Lectotype of *Veronica spicata* var. *pseudoorchidea* Pacz. (KHEM, museum inventory No: 41063, Б 3210/3).



FIGURE 3. Holotype of *Veronica pazcoskiana* Klokov (KW000058098).



FIGURE 4. Plants growing in the *locus classicus* of *Veronica paczoskiana* Klokov (Mykhailivka Forest near Kaniv, Cherkasy Region, Ukraine) and corresponding to its characters reported in the protologue. 4a: Inflorescence; 4b: a glabrous and glossy cauline leaf. Photographs by Sergei Mosyakin (28 June 2017).

Concluding remarks

The tragic events in and around the city of Kherson during the full-scale Russian aggression against Ukraine in 2022–2023 considerably delayed the preparation of the present nomenclatural note. First, during the temporary occupation of Kherson at the first phase of the full-scale war, we were not certain about the fate of the Paczoski Herbarium because there was virtually no information about the Kherson Museum, its staff and collections. Then the information came about the large-scale looting of Kherson museums by the retreating Russian occupiers and their collaborators, and the Kherson Regional Museum also suffered from that barbarism (see Gettleman & Mykolyshyn 2023, Human Rights Watch 2022, Nemtsova 2023, etc.). Fortunately, the natural history collections of the Kherson Museum at that time were in another building and, according to recent information from our colleagues from Kherson, these collections have not been destroyed or looted. Also, the recent flooding of Kherson after the destruction of the Kakhovka Dam by the aggressors (see Bigg 2023, Glanz *et al.* 2023, Hubareva 2023, Mosyakin 2023, Visual Journalism & BBC Verify teams 2023, and links and references therein) has not affected the building where natural history collections of the Kherson Regional Museum were preserved. However, according to information from our colleagues in Kherson (see below), the Paczoski herbarium at KHEM is still in danger because of the continued shelling and missile / drone strikes by the aggressors, which affect various areas in Kherson.

Acknowledgments

We are grateful to Alisa V. Shumilova and Svitlana I. Antonenko (M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Kyiv, Ukraine) for their kind assistance during our herbarium research at KW.

We gratefully acknowledge the work done by Dr. Denis A. Davydov (M.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine, Kyiv, Ukraine), who provided at his botanical blog (see Davydov 2019) the valuable online resources and publications by Paczoski and about him. We express our gratitude to Prof. Oleksandr E. Khodosovtsev and Prof. Ivan I. Moysienko (Kherson University, Kherson, Ukraine) who kept us informed about news related to natural history collections of Kherson scientific and educational institutions. Unfortunately, during the Russian occupation of Kherson and after the retreat of Russians and the liberation of Kherson by Ukrainian troops we were unable to restore contacts with Alla V. Deriuzhyna, who in 2019 sent to Myroslav Shevera the digital photographs of Paczoski's specimens of *Veronica spicata* var. *pseudoorchidea* from the Kherson Regional Museum (see above); in the present publication we acknowledge her assistance in obtaining these images. The generous support of the Volkswagen Foundation (project 97 771) and useful comments and suggestions of an anonymous reviewer are greatly appreciated.

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