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The discovery and naming of *Lomelosia caucasica* (*Dipsacaceae*) with notes on its nomenclature and its early cultivation

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Abstract: *Lomelosia caucasica*, a common and widespread species native in the Caucasus area, was first collected on the SW margin of its distribution area and illustrated as early as 1702. Subsequently, Tournefort published a polynomial for it that was neither taken up by Linnaeus nor by later taxonomists. Even before a Linnaean name was published by Marschall von Bieberstein, this montane to subalpine plant was cultivated in the Loddiges nursery in Hackney in 1808 and in a few other botanical gardens. The details of the first findings of *L. caucasica* in the wild and its rapid spread in cultivation are elucidated and the pertinent herbarium specimens examined. In addition, the reasons for having proposed a conserved type are presented. A complete list of synonyms with references to protologues are given as well as notes on the distribution and ecology of *L. caucasica*.

Key words: Caucasus, cultivation, *Dipsacaceae*, distribution, ecology, *Lomelosia*, Marschall von Bieberstein, nomenclature, typification, *Scabiosa*

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Introduction

Lomelosia caucasica (M. Bieb.) Greuter & Burdet (*Dipsacaceae*, Brummitt 2007; *Caprifoliaceae*, Mabberley 2017) is a common and widespread species native in the Caucasus area in its wide sense. For more than two centuries this plant has also been cultivated in temperate regions as an ornamental, mainly used as a cut-flower with several cultivars exhibiting sky-blue to whitish corollas. However, the discovery and naming of this popular species as well as the distribution of the earliest herbarium specimens has never been analysed in any detail nor has its introduction into cultivation been studied.

For very many years *Lomelosia caucasica* was known as *Scabiosa caucasica* M. Bieb. Following a comprehensive study of the family *Dipsacaceae* (Verlaque 1983) the *Scabioseae* were split into several genera, with *S. caucasica* placed in *Lomelosia* Raf. (Greuter 1985). Further

carpological and palynological studies (Mayer & Ehrendorfer 1999) have confirmed this view, which has been further substantiated by more recent data from molecular phylogenetics (Caputo & al. 2004; Avino & al. 2009).

Tournefort and Gleditsch

Specimens of *Lomelosia caucasica* were collected for the first time by one of the members of the famous expedition to the Ottoman and Persian Empires headed by the physician/botanist Joseph Pitton de Tournefort (1656–1708) with the participation of physician/botanist Andreas von Gundelsheimer (1668–1715) and the illustrator Claude Aubriet (c. 1665–1742) (Lack 2014). In the years 1700–1702 this party was travelling in what is now Greece, Turkey, Georgia and Armenia. Judging from Tournefort's posthumously published travelogue

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(Tournefort 1717) and our current knowledge of the natural distribution of this species, it is clear that the specimens could only have been gathered during the summer of 1702, and more specifically along the route from Trabzon via Erzurum, Kars, Tbilisi, Etchmiadzin [Vagharsapat] to Mount Ararat [Ağrı Dağı] and back via Erzurum to Erzincan, i.e. in what is now NE Turkey, Georgia or Armenia (for further background information see, e.g., Guiral 1957; Burt 2001, 2003). The two specimens, both at the beginning of anthesis, are mounted on one sheet and kept in the Tournefort herbarium at the Muséum National d'Histoire Naturelle (MNHN) in Paris (P-TRF 4267; herbarium codes according to Thiers 2018+).

In the field, Aubriet produced a pen-and-ink drawing with black coal documenting this species. This drawing is annotated “*Scabiosa iberica scorzonere folio flore maximo leucophao*” and preserved in the Bibliothèque Centrale (BC) of the MNHN Paris (MS 78, carton 4, pl. 411) (Hamonou-Mahieu 2006). A copy of it was prepared by Aubriet almost certainly after his return to Paris and annotated “*Scabiosa orientalis scorzonera folio flore maximo leucophao cor inst*” (MS 79, f. 42); the copy is also preserved in the BC (Hamonou-Mahieu 2006). “*Scabiosa Iberica Scorzonerae folio, flore maximo leucophaeo*” is the text on the label of the herbarium specimen cited above; no locality is given anywhere. These three elements clearly refer to the polynomial “*Scabiosa orientalis Scorzonerae folio, flore maximo leucophaeo*” published by Tournefort in his *Corollarium* (Tournefort 1703). Neither of the two polynomials is illustrated in the *Corollarium* nor are they cited or illustrated in Tournefort’s posthumously published travelogue (Tournefort 1717). Based on his field sketches, Aubriet prepared a considerable number of paintings for the Collection des Vélins, today kept also in the BC (Heurtel & Lenoir 2016). Among these, we find at least two representations of *Scabiosa* species collected on the Tournefort expedition, but none of *Lomelosia caucasica*.

Nothing is known about how and when the botanical collections had been divided between Tournefort and Gundelsheimer, but it is a fact that a considerable number of specimens gathered during the expedition ended up in Berlin. These are kept in the Willdenow herbarium (B-W; Wagenitz 1962) and in the general herbarium of the Botanisches Museum Berlin (B). A duplicate of the specimen in the Tournefort herbarium probably existed in B, because a collection annotated “*Scabiosa iberica, Scorzonerae folio, flore maximo leucophaeo*” was reported as being “im Gundelsh[eimer]. Herbar” (Koch 1851), which was then possibly still kept as a separate collection. However, this specimen must have been lost in the Dahlem catastrophe of 1943, when major parts of the herbarium and the library of the Botanical Museum were destroyed.

In his numerous works, Linnaeus provided no binomial for Tournefort’s “*Scabiosa orientalis Scorzonerae folio, flore maximo leucophaeo*”. The same is true for Jean Louis Marie Poiret (1755–1834) in his contribution

to Lamarck’s *Encyclopédie méthodique* (Poiret 1805), and also for Pierre Louis Desfontaines (1750–1833). Desfontaines was deeply interested in Tournefort’s publications and Aubriet’s unpublished plant illustrations (Hamonou-Mahieu 2006, 2010). The two representations of *Scabiosa* species, i.e. of *S. argentea* L. and *S. micrantha* Desf. kept in the Collection des Vélins, were published by Desfontaines as copper engravings (Desfontaines 1807–1808), but not Aubriet’s “*Scabiosa iberica scorzonere folio flore maximo leucophao*”. In addition, nothing indicates that Tournefort’s expedition had collected living material of the plant to be cultivated in the Jardin de Plantes in Paris, as was the case, e.g., for a *Papaver* species. As a result Tournefort’s spectacular *Lomelosia* species remained totally neglected.

The expansion of the Russian Empire southwards under Empress Catherine II and her son Emperor Paul I led to several scientific expeditions into scarcely known territory, often undertaken on behalf of the Imperial Academy of Sciences in Saint Petersburg. One of them included Johann Anton Güldenstädt (1745–1781), a member of that academy (Kopelevič 1997), whose travelogue was later edited by Peter Simon Pallas (1741–1811) and was published posthumously (Güldenstädt 1787, 1791). Towards the end of the fifth Russo-Turkish war Güldenstädt had travelled in Cabarda, a region north of the Caucasus. On 14 June 1773 he observed several plants between Tschegem [Chegem] and Baksan (both towns now belonging to the Kabardino-Balkar Republic, Russian Federation), among them a “*Scabiosa caerulea pinnata*” without any typographical distinction between the first two words and the third (Güldenstädt 1791). According to Art. 23.6(c) of the *Shenzhen Code* (Turland & al. 2018), this is not a species name. Whereas in this case the locality of the finding is documented, no pertinent herbarium specimen is known to exist. However, it is not impossible that Güldenstädt had referred to the plant which had first been collected during the Tournefort expedition.

Marschall von Bieberstein and Willdenow

In 1797, immediately after the third Russo-Persian war had ended, Friedrich August [Fjodor Kondratovič] Freiherr Marschall von Bieberstein (1768–1826) undertook an expedition into the Russian provinces on the W coast of the Caspian Sea, which had been the theatre of the conflict (Marschall von Bieberstein 1798). In the following year, he travelled westwards and stayed for a considerable period of time “*stirpium investigandam causa*” [in order to study plants] in Narzana (Marschall von Bieberstein 1808), a place near Kislovodsk (now Stavropol Krai, Russian Federation) (Šchijan 1967; Menizkij & Mischev 2008). It was at this locality, c. 90 km E of Güldenstädt’s Baksan, that Bieberstein collected in the summer of 1798 what he called “*pulcherrima indigenarum*” [the most beautiful of the native plants] (Marschall von Bieberstein

1808). Ten years later he was to describe it in his *Flora taurico-caucasica* (Marschall von Bieberstein 1808; Stafleu 1973) as a species new to science and named it *Scabiosa caucasica*. However, he did this only after having travelled to Paris (Marschall von Bieberstein 1808) and studied the only other herbarium specimen of this species then known to exist, i.e. P-TRF 4267 (see above).

Bieberstein therefore had good reason to add Tournefort's polynomial to the protologue of *Scabiosa caucasica* together with the note "ex autopsia herbarii Tournef." (Marschall von Bieberstein 1808). A specimen (Fig. 1) annotated by Bieberstein "Ex Caucaso Carbardinico, circa Narzana" without a date is kept in the Marschall von Bieberstein herbarium at the Komarov Botanical Institute in Saint Petersburg (LE 01010389) (Geltman 1995: fiche 188/B3; Menizkij & Micheev 2008), and there is a duplicate in the I. P. Borodin herbarium, also in Saint Petersburg (KFTA 0003453). Original material of *S. caucasica* collected by Bieberstein annotated "Ex Caucaso Cabardinia" is preserved in the Marschall von Bieberstein Herbarium (Geltman 1995: fiche 188/B2). Furthermore, specimens of *Lomelosia caucasica* said to have been collected by Bieberstein but with no precise locality indicated are preserved in Jena (JE 00016173) and London (BM 000795123).

Like several other Floras published at that time, the sequence of taxa treated in the first volume of *Flora taurico-caucasica* follows that of the fourth edition of *Species plantarum* published by Carl Ludwig Willdenow (1765–1812), a work then not yet completed. Christian von Steven (1781–1863), in his letters to Bieberstein, to whom he was travel companion in subsequent years, frequently referred to Willdenow's work (Wulff 1917). Considering Willdenow's extensive contacts with botanists in Russia, among them Pallas, it is no wonder that he possessed in his herbarium four specimens of *Lomelosia caucasica* (B-W 02564-010, B-W 02564-020, B-W 02564-030, B-W 02564-040). However, Willdenow did not cite them in his opus magnum for the simple reason that they were almost certainly not yet in his hands when the respective volume appeared (Willdenow 1799). All four specimens are kept in a blue herbarium folder bearing on its front page a label in Willdenow's hand reading "Scabiosa caucasica corollis radiantibus, caule unifloro foliis inferioribus integerrimis, superioribus lanceolatis, pinnatifidis. Habitat in Caucaso". A label "Mussin-Puschkin W" in the hand of Diederich Friedrich Carl von Schlechtendal (1767–1842), who is known to have arranged the herbarium after Willdenow's death (Hiepko 2006), is affixed to the verso of the front page of the blue folder. This second label indicates that at least one of the four specimens had been given to Willdenow by Apollon Apollosovič Graf Mus[s]in-Puschkin (1760–1805), who was Willdenow's source for further specimens collected in the Caucasus region, e.g. *Grossheimia macrocephala* (Muss. Puschk. ex Willd.) Sosn. & Takht. (Lack & Parolly 2014). Mussin-Puschkin, a mineralogist and chemist (Raskin 1981), had met Bieberstein

for the first time in Georgiyevsk in 1800 (Nordmann 1865) and later gave him plants gathered during his travels in the Caucasus area (Marschall von Bieberstein 1808).

The specimen B-W 02564-020 is annotated "Scabiosa caucasica m ex Bieberstein" in an unknown hand, B-W 02564-040 is annotated "Scabiosa caucasica" in the same hand, and the other two specimens are left unannotated and may have been cultivated in the Royal Botanic Garden in Schöneberg near Berlin (see below).

While Willdenow was writing and publishing later volumes of the *Species plantarum* in Berlin, Josef August Schultes (1773–1831), then professor of chemistry and botany at Cracow University and later professor of natural history and chemistry at Innsbruck University (Riedl-Dorn 2007), produced a supplement to Willdenow's opus under the title of *Observationes botanicae in Linnei species plantarum ex editione C. L. Willdenow* (Schultes 1809), which lists *Scabiosa caucasica* with a precise indication of the page of the *Species plantarum* (Willdenow 1799) on which the entry should be added. Furthermore, Schultes gave a diagnosis and a brief description of this species that were not taken or adapted from Bieberstein's protologue (Marschall von Bieberstein 1808), then already available, nor from the unpublished label in Willdenow's herbarium (see above). He and Johann Jakob Roemer (1763–1819) are known to have often transcribed and published the text of such labels in subsequent years (Hiepko 2006). Schultes's note "missa a Cl. Prof. Hoffmann Moscoviae" (Schultes 1809) makes it evident that he had received material of *Lomelosia caucasica* from Georg Franz Hoffmann (1760–1826), then professor at Moscow University and director of its Botanic Garden (Lipšic 1940). Although this has not been explicitly indicated in the text, Schultes must have received living material. He could have had the plant grown in the Botanic Garden of Cracow University rather than in that of Innsbruck University, because his tenure at the latter institution was very short. Schultes was the first to note that the anthers of *L. caucasica* are light violet (Schultes 1809) (Fig. 2). This proves that Schultes had described a living specimen. But how could Hoffmann, who is not known to have ever visited the Caucasus area, have acquired living material of *L. caucasica*? The most likely channel of communication was Christian Friedrich Stephan (1757–1814), Schultes's colleague at Moscow University (Stafleu & Cowan 1985). Stephan was explicitly mentioned as the owner of an excellent library, concerning botanical publications not comparable with any in Russia (Marschall von Bieberstein 1808), and it was just this library that was regularly used by Bieberstein during the winter months in Moscow when arranging his collections and observations (Marschall von Bieberstein 1808). In short, living material of *L. caucasica* collected by Bieberstein in the Caucasus area must have been passed on to Stephan, then to Hoffmann, who may have had it cultivated in the botanic garden under his care, and further on



Fig. 1. Type (proposed as the conserved type) of *Scabiosa caucasica* M. Bieb. (\equiv *Lomelosia caucasica* (M. Bieb.) Greuter & Burdet) collected by F. A. Marschall von Bieberstein in 1798 in Russia, near present-day Kislovodsk (LE 01010389).

to others, among them Schultes in Cracow. Significantly, all this had happened before the publication of the name *S. caucasica* by Bieberstein.

The introduction of *Lomelosia caucasica* into cultivation

Even before Bieberstein had validated the name *Scabiosa caucasica*, this species was cultivated in the nursery of Joachim Conrad Loddiges (1778–1826), at that time among the most famous nurseries in England (J. Compton, pers. comm.), based in Hackney, now a borough of Inner London. The plant was recorded under the name *S. caucasea* Sims and its provenance given as “from seeds [recte fruits] received by him [Loddiges] from Mount Caucasus” (Sims 1805). A few years later, Jonas Dryander (1748–1810) reported this species, again under the name *S. caucasea*, in the *Hortus kewensis*, writing “Nat. Mount Caucasus. Introd. 1803 by Messr. Loddiges” (Dryander in Aiton 1810). It is interesting to note that Loddiges wrote several years later about material of *Gentiana septemfida* Pall. “in 1804 we received seeds [of this species] collected by Marschall Bieberstein ... through the hands of our late friend Mr Stephan, at Moscow” (Loddiges 1817–1818). This is a very correct statement: at that moment Stephan was already dead, in 1804 he had been a professor of botany and chemistry at Moscow University (see above), and Bieberstein had indeed collected in the native range of *Gentiana septemfida* before 1804 (Marschall von Bieberstein 1808). On the basis of living material raised in Loddiges’s nursery, this accession was described as new to science with the name *S. caucasea* validated in the *Botanical Magazine* (Sims 1805). The name was lectotypified by Lack (1991) with the accompanying coloured copper engraving by F. Samson based on a watercolour by S. Edwards. Loddiges’s novelty was soon reported on in the journal *Allgemeines Teutsches Garten-Magazin* (Anonymous 1806), published in Weimar, with the Latin description by Sims repeated verbatim. The accompanying coloured copper engraving was copied from that published in the *Botanical Magazine*, with the anonymous author stressing the “sehr ansehnlich[e] und schön[e]”, i.e. very attractive and beautiful inflorescence of the plant. Otherwise the name *S. caucasea* seems to have been taken up only very rarely (e.g. by Dryander in Aiton 1810), but not at all in the very extensive later botanical and floristic literature. In consequence, the name *S. caucasica* has been recently proposed for conservation against *S. caucasea* (Lack 2018; see also below).

In addition to the Royal Garden at Kew and the Botanic Gardens of Moscow University and Cracow University (see above), living material of *Lomelosia caucasica* must also have been received by the Royal Botanic Garden in Madrid, because several years later we read about this very species “communicata ex Russia [sic]

ann. 1804” (Lagasca 1816). In addition, it was recorded in 1808 in the Royal Botanic Garden in Copenhagen, where it was reported as “ex Russia [sic] sub *S. caucasica*” (Hornemann 1813). Another garden that was among the first to receive living material was the Royal Botanic Garden in Schöneberg near Berlin. Carl Ludwig Willdenow, then the director of this institution, listed *Scabiosa caucasica* in his *Enumeratio* (Willdenow 1809), this record possibly substantiated by material in his herbarium (see above). It is possible that Willdenow’s gardeners had raised this plant from the herbarium material received from Mussin-Puschkin (see above). The name *S. caucasica* appears also in the subsequent inventory of the Royal Botanic Garden in Schöneberg published by Willdenow’s successor (Link 1822). Although it may be hard to believe, Nikolaus Joseph Freiherr von Jacquin (1727–1817), the emeritus professor of chemistry and botany at Vienna University and former director of its botanic garden, described *L. caucasica* in his *Fragmenta botanica* just one year after the validation of the name *S. caucasica* and had the plant illustrated in a very informative copper engraving (Jacquin 1809: f. 125 left-hand specimen). However, it remains unclear in which garden his specimen was cultivated and from where he had got his fruits, though both Bieberstein or Stephan are possibilities. Jacquin’s accession is not supported by a herbarium specimen, which one would expect to have ended up in the Naturhistorisches Museum Wien (W). By 1815, *L. caucasica* was also reported to be in cultivation in the Royal Botanic Garden in Naples (Tenore 1815).

At an early stage of its spread in cultivation, fruits of *Lomelosia caucasica* must have been accessioned by the Jardin des Plantes in Paris, because by 1810 living material from this garden had reached the Botanic Garden of Tübingen University (Straub 1814). The later cultivation of *L. caucasica* in Paris is documented by a herbarium specimen labelled “Paris cult 1813” (P 03317462). Four years later, this was confirmed by the note “on cultivate au Jardin des Plantes à Paris” (Poiret 1817), and in 1819 by another specimen annotated “hort paris 1819” in the Prodrum Herbarium kept in the Conservatoire et Jardin botaniques in Geneva (G). From Paris, material may have been forwarded to Vienna, where a specimen labelled “ex horto paris 1820” is conserved at W. The further distribution of living material can be followed in the database for printed seed catalogues published by botanic gardens (<http://seedlists.naturalis.nl/content/seedlists>). The name *Scabiosa caucasica* appears, for example, in the seed catalogues of the botanic gardens of Breslau (now Wrocław, Poland) in 1819, Dorpat (now Tartu, Estonia) in 1820, Prague in 1821, Hamburg and Schwetzingen in 1823, Pest (now Budapest, Hungary) and Palermo in 1825. Hence Thomas Coulter (1793–1846), the first monographer of the family *Dipsacaceae* then associated with Augustin Pyramus de Candolle (1778–1841) in Geneva, had good reason to state for *S. caucasica* “v. v. c. et s. s.” [vidi vivam cultam et specimen siccam], although he did not

indicate to which specimens he referred (Coulter 1823).

Considering on the one hand the limited circulation of the first volume of the *Flora taurico-caucasica* (Marschall von Bieberstein 1808) printed in “Charkouia” [today Charkiv, Ukraine] and on the other hand the striking characters of *Lomelosia caucasica*, it is no surprise that the material cultivated in several botanic gardens, i.e. in Copenhagen, Halle and Tübingen, was erroneously regarded as new to science and became the basis for the validation of new names (see Taxonomy, below). In the supplement to his *Flora taurico-caucasica* (Marschall von Bieberstein 1819), Bieberstein very correctly regarded *Scabiosa connata* and *S. elegans* as synonyms of his *S. caucasica*.

No attempt is made here to deal with material (i.e. fruits) of *Lomelosia caucasica* offered for sale or exchange in nursery catalogues, but there is no doubt that this contributed to the spread of the species in cultivation.

The later exploration of the Caucasus area

Since 1800 Bieberstein was also connected with Christian von Steven, who is known for his botanical expeditions into the Caucasus area (Nordmann 1865) undertaken during the fourth Russo-Persian war, although he travelled largely in regions to the north and west of the theatre of conflict (Šchijan 1967). Without giving a date, Steven collected *Lomelosia caucasica* at the locus classicus “ad acidulam Narzuna [sic]”, with a specimen kept in W, while neither a date nor a locality is given for a specimen gathered by Steven conserved in the Prodromus herbarium in G.

Carl Koch (1809–1879) travelled in the Caucasus area only after the fifth Russo-Persian war and reported having found *L. caucasica* there in his *Catalogus* (Koch 1843), which summarizes his findings made during his first expedition. In the more comprehensive treatment dealing with both of his expeditions (Koch 1851), he mentioned two localities: “im ossischen Kaukasus” and “in den Gauen Artahan und Kjöla”, with the latter confirmed by a specimen “Artaihan b. Kola” kept in B. Koch visited the first and second localities during his first and second expeditions, respectively (Edmondson & Lack 1977; Lack 1978). The adjective “ossisch” refers to Ossia or Ossetia, an ill-defined area in the C Caucasus whose N part belongs today to the Russian Federation and the S part to Georgia. By contrast “Artahan” [Ardahan] and “Kjöla” [Göle] are localities in what is now NE Turkey.

Botanical exploration of the territories newly acquired by the Russian Empire after the fourth and fifth Russo-Persian wars was slow. It is significant that in *Flora rossica* (Ledebour 1844) not a single collection of the common and widespread *Lomelosia caucasica* is recorded from what is now Armenia and Azerbaijan, and the same applies for *Flora orientalis* (Boissier 1875). It was only during the first decades of the twentieth century that the first specimens of *L. caucasica* from this area

are listed, e.g. in the *Flora Kavkasa* (Grossgejm 1934), while those from contemporary Iran were not published until much later (Lack 1991), thus mirroring the gradual increase of our knowledge of the flora in this region.

Taxonomy

Lomelosia caucasica (M. Bieb.) Greuter & Burdet in Willdenowia 15: 73. 1985 = *Scabiosa caucasica* M. Bieb., Fl. Taur.-Caucas. 1: 98. 1808, nom. cons. prop. = *Asterocephalus elegans* Lag., Gen. Sp. Pl.: 8. 1816, nom. illeg. (Art 52.1) = *Sclerostemma caucasica* (M. Bieb.) Schott ex Roem. & Schult., Syst. Veg. 3: 84. 1819 = *Asterocephalus caucasicus* (M. Bieb.) Spreng., Syst. Veg. 1: 381. 1824 = *Trochocephalus caucasicus* (M. Bieb.) A. Löve & D. Löve in Preslia 46: 133. 1974. – Type (proposed for conservation by Lack 2018): Russia, “Ex Caucaso Cabardinico, circa Nazaran”, F. A. Marschall von Bieberstein, without date (LE 01010389 ! [Herb. Marschall von Bieberstein]; Fig. 1; Geltman 1995: fiche 188/B3).

= *Scabiosa caucasea* Sims in Bot. Mag. 23: 886. 1805, nom. rej. prop. – Lectotype (designated by Lack 1991: 38): [icon] Bot. Mag. 23: t. 886. 1805.

= *Scabiosa connata* Hornem., Hort. Bot. Hafn. 1: 128. 1813. – **Lectotype (designated here):** C 10010787 ! (left-hand specimen). – Note: This is the only herbarium collection kept in C annotated “*Scabiosa connata* h. h.”, the abbreviation standing for hortus hafniensis, i.e. Copenhagen Botanical Garden.

= *Scabiosa caerulea* Straub, Dec. Pl. Horti Tubing.: 16. 1814. – Original material: “plantae hujus semina a. 1810 ex horto parisienni [sic]”. Specimen cultivated in the Botanic Garden of Tübingen University, not preserved.

= *Scabiosa elegans* Spreng., Pl. Min. Cogn. Pug. 2: 24. 1815. – Original material: “in horto e semina educata”. Specimen cultivated in the Botanic Garden of Halle University, not preserved.

The protologue of *Scabiosa elegans* contains a brief comparison with *S. caucasica*, but all differences mentioned lie within the variation of *Lomelosia caucasica* as now understood. Similarly, in the protologue of *S. caerulea*, no characters are given that disagree with the current circumscription of *L. caucasica*.

Because the scarcely used name *Scabiosa caucasea* (Sims 1805), lectotypified by the present author (Lack 1991) with the illustration in the protologue (t. 886), threatens the very well-established name *S. caucasica* M. Bieb. (Marschall von Bieberstein 1808), a proposal to conserve the name *S. caucasica* with a conserved type against *S. caucasea* has been submitted for consideration and decision (Lack 2018). In this proposal, abundant evidence for the widespread use of *S. caucasica* or *Lomelosia caucasica* and the almost complete absence of use of *S. caucasea* is presented.



Fig. 2. *Lomelosia caucasica*, flowering head. – Georgia, Trialeti mountain range, Tskhratskaro pass above Bakuriani, 11 October 2013, photographed by G. Parolly.



Fig. 3. Habitat of *Lomelosia caucasica*, subalpine meadow. – Georgia, Trialeti mountain range, Tskhratskaro pass above Bakuriani, 7 August 2012, photographed by G. Parolly.

A note on the conserved type proposed for *Scabiosa caucasica* may also be helpful. It can be argued that when Marschall von Bieberstein (1808) wrote in the protologue of *S. caucasica* “*Sc. orientalis Scorzonerae folio, flore maximo leucophaeo. Tournf. Cor. p. 35 (ex autopsia herbaria Tournef.)*” he cited a Tournefort specimen, which is therefore a syntype (Turland & al. 2018: Art. 9.6), giving it precedence in lectotype selection (Art. 9.12) over his own specimen, which is also original material (Art. 9.4(a)) but not a syntype if it is accepted that it was not cited in the protologue, where only the locality information was provided (Art. 40 Note 2), i.e. “Habitat in Caucasi anterioris aridis. Circa acidulam Narzana frequens. Floret Julio, Augusto”. Even though this argument may be open to question, Lack (2018) proposed the Bieberstein specimen as the conserved type of *S. caucasica* in order to avoid dispute or future difficulty and because the Tournefort specimen (P-TRF 4267) is rather immature. If this proposal is accepted, the established tradition of regarding the Bieberstein specimen as the type of the name *S. caucasica* (e.g. Bobrov 1957; Menizkij & Micheev 2008) can be followed, even though no formal lectotypification with the Bieberstein specimen has ever been made.

It seems unnecessary to neotypify the names *Scabiosa caerulea* and *S. elegans*, which were all based on living material no longer in existence.

Distribution and ecology

It seems superfluous to provide here a description of *Lomelosia caucasica* when several detailed descriptions have previously been published, all of which fully take into account the variation of the species: in English (Matthews 1972: 610; Anonymous 1992: 221, including a list of cultivars; Matthews 2011: 360), Russian (Šchijan 1956: 47–49; Bobrov 1957: 63; Šchijan 1980: 151), Latin (Lack 1991: 38–39), Farsi (Jamzad 1993: 73–76) and Georgian (Šchijan 2001: 107–108). In addition, the very large flower heads with bluish corollas are so very striking (Fig. 2) that they are not to be missed or confused with those of any other *Lomelosia* species.

The occurrence of *Lomelosia caucasica* has been confirmed for all countries of the Caucasus area: Armenia (Šchijan 1980), Azerbaijan (Prilipko 1961), Georgia (Šchijan 2001), Iran (Jamzad 1993), the Russian Federation (Bobrov 1957) and Turkey (Matthews 1972). This is supported by a distribution map (Verlaque 1983: carte 33) and information provided by the Euro+Med Plant-Base (Euro+Med 2006+).

Lomelosia caucasica is characterized by a considerable ecological and altitudinal range, having been found in meadows (Šchijan 1956; Fig. 3), on turf, in scrubland, on shallow soils and in tall forb communities (Parolly, pers. comm.). It has been reported to occur from montane to subalpine levels, at 1600–2400 m (Holubec & Křivka

2006). However, in the Kasbeghi area, it reaches significantly higher altitudes, i.e. 3000 m (Parolly, pers. comm.) and in the Lagodekhi district, near the border between Georgia and Russia, 2930 m is substantiated by the specimen *D. E. Atha 5167* (W).

At first glance, it may therefore seem that the locus classicus of *Lomelosia caucasica* near the modern town of Kislovodsk and Guldendstädt’s localities are at a suspiciously low altitude, i.e. c. 900 m. However, it is known that on the N fringe of its distribution range the species is found at distinctly lower levels (Šchijan 1956).

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