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Evolution of *Viola stagnina* and its sisterspecies by hybridisation and polyploidisation

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Proposal to reject the names *Viola montana* and *V. persicifolia* (Violaceae)⁴

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Viola montana L., Sp. Pl. 2: 935. 1 Mai 1753 [*Dicot.: Violac.*], *nom. Utique rej. prop.* Typus (vide Nikitin in Bot. Žurn. 73: 1541. 1988): “*Viola* 10 / *montana*” (Herb. Linn. No. 1052.13, LINN, vide <http://www.linnean-online.org/11110/>).

Viola persicifolia Schreb., Spic. Fl. Lips.: [163]. 1771 [*Dicot.: Violac.*], *nom. utique rej. prop.* Typus: non designatus.

The nomenclatural history of *Viola montana* L., a name referring to a violet species of *Viola* sect. *Viola* with a wide Euro-Siberian distribution range, was briefly reviewed by Danihelka et al. (Taxon: in review⁵). As shown by Wilmott (in J. Bot. 54: 257–262. 1916) and Nikitin (in Bot. Žurn. 73: 1536–1542. 1988), this name was misinterpreted soon after its publication, and since the 1820s, it was only exceptionally used in its original sense. After 1800, the name *V. persicifolia* Schreb. was often used for the species under consideration, while the name *V. montana* was applied for some morphotypes conspecific with *V. canina* L. However, starting from the 1830s, *V. persicifolia* was gradually replaced by *V. elatior* Fries (1828), i.e. by a name that has been widely accepted over large part of its distribution range. There have been a few attempts to restore *V. montana* in its original sense, including Borbás (in Koch, Syn. Deut. Schweiz. Fl., ed. 3, 1: 213. 1892) and Wilmott (l.c.), whereas Burnat and Briquet (in Annuaire Conserv. Jard. Bot. Genève. 6: 143–153. 1902) and Hylander (in Uppsala Univ. Årsskr. 7: 242. 1945) argued that *V. montana* should be typified with a specimen representing plants related to *V. canina*. Despite the latter opinions, Nikitin (in Bot. Žurn. 73: 1541. 1988) formally lectotypified *V. montana* with a specimen referable to the taxon currently known as *V. elatior*, and we consider his lectotypification correct and in full accordance with

⁴van den Hof et al., submitted to Taxon (in review)

⁵Chapter 3 of this thesis

the ICBN. Soon after this lectotypification, Kirschner and Skalický (in *Preslia* 61: 318. 1989) argued that the reintroduction of *V. montana* in its original sense would be contraproductive, and they announced a formal rejection proposal to be submitted. However, such a proposal was never written.

We have reviewed the more important floras and taxonomic papers published in the last 20 years, since the lectotypification of *V. montana*, and covering the whole range of the species. Our survey shows that this name has been used instead of *V. elatior* only by a few authors, including Nikitin himself (in *Bot. Žurn.* 83/3: 130. 1998; in Tzvelev, *Fl. Russia* 9: 291. 2006), Cerepanov (*Sosudistyje Rast. Ross. Sopredel'nyh Gosudarstv.*: 956. 1995), Mosyakin and Fedoronchuk (*Vasc. Pl. Ukraine*: 325. 1999), and Chen Zousheng et al. (in Wu Zhengyi and Raven, *Fl. China* 13: 79. 2007; co-authored by Vl. V. Nikitin). In contrast, other floras, many of which published after 1988, accept *V. elatior* as the correct name, but sometimes with a note that *V. montana* should be proposed for rejection. These floras include Valentine et al. (in Tutin et al., *Fl. Eur.* 2: 275. 1968), Guinochet and Vilmorin (*Fl. France* 4: 1216. 1982), Lambinon et al. (*Nouv. Fl. Belgique du Grand-Duché de Luxembourg, du Nord de la France et des Régions voisines*, ed. 4: 207. 2004), Haeupler and Wisskirchen (*Standardliste Farn- und Blütenpfl. Deutschl.*: 545. 1998), Jäger and Werner (*Exkursionsfl. Deutschl.*, ed. 9, 4: 244. 2002), Heß et al. (*Fl. Schweiz* 2: 749. 1970), Pignatti (*Fl. d'Italia* 2: 117. 1982), Mossberg and Stenberg (*Den nya nordiska floran*: 402. 2003), Marcussen et al. (in Jonsell and Karlsson, *Fl. Nordica* 6 [in review, scheduled for publication in 2009]), Fischer (*Exkursionsfl. Österreich, Liechtenstein Südtirol*, ed. 3: 433. 2008), Suda (in Kubát et al., *Klíč Kvet. České Republ.*: 212. 2002), Mirek et al. (*Flow. Pl. Pterid. Poland*: 186. 2002), Martincic (*Mala Fl. Slovenije*, ed. 3: 363. 1999), Domac (*Fl. Hrvatske*: 136. 1994), Mereda et al. (in Goliašová and Šipošová, *Fl. Slov.* 6/1: 141. 2008), Simon (*Magyar. Edény. Fl. Határoz.*, ed. 4: 474. 2001), Diklic (in Josifovic, *Fl. SR Srbije* 3: 150. 1972), Beldie (*Fl. Român.* 1: 356. 1977), Kuusk et al. (*Fl. Balt. Resp.* 2: 194. 1996), Delipavlov and Češmedžiev (*Opredelitel Rast. Balgarija*, ed. 3: 110. 2003), and Zuev (in Peškova, *Fl. Sibiri* 10: 89. 1996). At the same time, some of these authors use the names *V. montana* or *V. canina* subsp. *montana* (L.) C. Hartm. for plants of the *Viola canina* group; e.g., Valentine et al. (in Tutin et al., *Fl. Eur.* 2: 275. 1968), Stace (*New Fl. Brit. Isles*, ed. 2: 221. 2001), Guinochet and Vilmorin (*Fl. France* 4: 1216. 1982), Haeupler and Wisskirchen (*Standardliste Farn- und Blütenpfl. Deutschl.*: 545. 1998), Jäger and Werner (*Exkursionsfl. Deutschl.*, ed. 9, 4: 244. 2002), Heß et al. (*Fl. Schweiz* 2: 748. 1970), Pignatti (*Fl. d'Italia* 2: 117. 1982), Mossberg and Stenberg (*Den nya nordiska floran*: 401. 2003), Koistinen (*Retkeilykasvio*: 129. 1984), Mirek et al. (*Flow. Pl. Pterid. Poland*: 186. 2002), Domac (*Fl. Hrvatske*: 136. 1994), Simon (*Magyar. Edény. Fl. Határoz.*, ed. 4: 474. 2001), Diklic (in Josifovic, *Fl. SR Srbije* 3: 149. 1972), Beldie (*Fl. Român.* 1: 356. 1977), Kuusk et al. (*Fl. Balt. Resp.* 2: 194. 1996), and Delipavlov and Češmedžiev (*Opredelitel Rast. Balgarija*, ed. 3: 109. 2003). Apart from Nikitin (in Tzvelev, *Fl. Russia* 9: 293. 2006), among the floras checked only Muñoz Garmendia et al. (in Castroviejo et al., *Fl. Iber.* 3: 292. 1993), Marcussen et al. (in Jonsell and Karlsson, *Fl. Nordica* 6 [in review, scheduled for publication in 2009]), Suda (in Kubát et al., *Klíč Kvet. České Republ.*: 212. 2002), Mereda et al. (in Goliašová and Šipošová, *Fl. Slov.* 6/1: 141. 2008), and Cerepanov (*Sosudistyje Rast. Ross. Sopredel'nyh Gosudarstv.*: 955. 1995) indicate that the name *V. montana* was actually misapplied when used for plants of the *V. canina* group. Finally, only Elven (in Lid and Lid, *Norsk Fl.*: 549. 2005) took the consequence of this misapplication and proposed another name to replace it, *V. canina* subsp. *nemoralis* (Kütz.) ined.; however this combination has

not been validly published.

Our review demonstrates that even twenty years after Nikitin's typification of *V. montana*, the nomenclatural consequences have been accepted only by a few authors. These floras, however, treat an important part of the species' range. Authors of other floras, however, including those who paid a lot of attention to nomenclatural issues and who were aware of the typification, deliberately continued using the name *V. elatior* instead of *V. montana*. They clearly preferred nomenclatural stability and clarity to correctness. Based on our analysis of the topic and related nomenclatural and taxonomic questions, we decided to follow these authors and propose the notoriously misapplied name *V. montana* for rejection. If this proposal is accepted, a clear and never misapplied name (*V. elatior*) will remain in use. Apart from a nomenclatural change in three countries (in fact restoration of the previous situation), we cannot see any disadvantage of this rejection. However, if this proposal is rejected, a name (*V. montana*) will necessarily come into general use that will have to be accompanied for decades with a note that it actually refers to a plant previously known as *V. elatior*, not to *V. canina* s.l. As *V. elatior* is red-listed and/or protected by law in most central European countries, the replacement of this name by *V. montana*, which is usually associated with a common species within the same region, would also have undesirable effects for nature conservation and legislation. As shown in our analysis (Daníhelka et al., Taxon: in review), *Viola persicifolia* Schreb. represents most probably the second-earliest name for the plant recently known as *V. elatior*. This use prevailed in the first half of the 19th century. However, following the opinion of Fries (Fries, Novit. Fl. Suec. Alt.: 275–276. 1828), the name was reinterpreted as referring to a species in some other national floras still known under *V. stagnina* Kit. ex Schult. (1814). This interpretation was supported by the authority of W. Becker, who accepted *V. persicifolia* instead of *V. stagnina* in his last major monograph (Becker in Beih. Bot. Centralbl. 34/2: 393–395. 1917); unfortunately, his most important argument is erroneous (Gerstlauer in Ber. Bayer. Bot. Ges. 26: 45–46. 1943; Daníhelka et al., Taxon: in review), and the name most probably refers to *V. elatior* (apart from Gerstlauer also Rauschert in Feddes Repert. 83: 647–648. 1972; W. Gutermann, in litt.). The name *V. persicifolia* has been accepted as correct (usually with *V. stagnina* as a synonym) by Valentine et al. (in Tutin et al., Fl. Eur. 2: 275. 1968), Stace (New Fl. Brit. Isles, ed. 2: 221. 2001), Guinocet and Vilmorin (Fl. France 4: 1217. 1982), Lambinon et al. (Nouvelle Flore de la Belgique du Grand-Duché de Luxembourg, du Nord de la France et des Régions voisines, ed. 4: 207. 2004), van der Meijden (Heukels' Fl. Nederland: 342. 2005), Haeupler and Wisskirchen (Standardliste Farn- und Blütenpfl. Deutschl.: 546. 1998), Elven (in Lid and Lid, Norsk Fl.: 551. 2005), Mossberg and Stenberg (Den nya nordiska floran: 401. 2003), Koistinen (Retkeilykasvio: 129. 1984), Diklic (in Josifovic, Fl. SR Srbije 3: 149. 1972), Beldie (Fl. Român. 1: 357. 1977), Mosyakin and Fedoronchuk (Vasc. Pl. Ukraine: 325. 1999), Nikitin (in Bot. Žurn. 83/3: 130. 1998; in Tzvelev, Fl. Russia 9: 296. 2006), and Cerepanov (Sosudistye Rast. Ross. Sopredel'nyh Gosudarstv.: 956. 1995). In contrast, the same species is referred to as *V. stagnina* by Heß et al. (Fl. Schweiz 2: 750. 1970), Jäger and Werner (Exkursionsfl. Deutschl., ed. 9, 4: 245. 2002), Marcussen et al. (in Jonsell and Karlsson, Fl. Nordica 6. 2009), Fischer (Exkursionsfl. Österreich, Liechtenstein Südtirol, ed. 3: 433. 2008), Suda (in Kubát et al., Klíč Kvet. České Republ.: 212. 2002), Mirek et al. (Flow. Pl. Pterid. Poland: 186. 2002), Mereda et al. (in Goliašová and Šípošová, Fl. Slov. 6/1: 133. 2008), Simon (Magyar. Edény. Fl. Határoz., ed. 4: 474. 2001), Delipavlov and Češmedžiev (Opredelitel Rast. Balgarija, ed. 3: 110. 2003), Kuusk et al. (Fl. Balt. Resp. 2: 193. 1996), and Zuev (in

Peškova, Fl. Sibiri 10: 89. 1996). This survey shows that the number of national floras using *V. persicifolia* and those using *V. stagnina* for the same species is approximately equal. However, there seems to be a certain trend in favour of the latter in recent floras of Germany, Austria and most recently in the Nordic countries. The options for a typification, necessary to fix the use of the name, are discussed in a simultaneously published article (Daníhelka et al., Taxon: in review). However, we think that neotypification or even conservation with a conserved type referable to *V. stagnina* is a worse solution than a rejection proposed here. In the first case, a notoriously confused name (*V. persicifolia*) would replace another name that has never been misinterpreted (*V. stagnina*), and the extent of the accompanying nomenclatural change will be similar to that caused by the rejection. In contrast, the rejection of *V. persicifolia*, informally proposed already by Koch (Syn. Fl. Germ. Helv.: 85. 1836), will bring to an end a long-lasting and rather unproductive nomenclatural dispute. It will also stabilise nomenclature, and attention will be paid to taxonomy and conservation. We also believe that if the names *V. montana* and *V. persicifolia* are rejected, floristic records under these names would be interpreted with more care.

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