

# NEW LOCALITY OF *VIOLA JORDANII* HANRY IN THE NORTH-EASTERN ITALY AND SOME REMARKS OF ITS DISTRIBUTION IN EUROPE

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## Abstract

A finding and description of a new locality of rare species of violet *Viola jordanii* (Violaceae) in the Karst area of north-eastern Italy is reported. Distribution of the species throughout the Europe is briefly discussed.

**Key words:** Violaceae, *Viola* subsect. *Rostratae*, Karst region, new distributional records.

## Izvleček

V članku poročamo o novem nahajališču redke vrste vijolic *Viola jordanii* (Violaceae) na Krasu v severovzhodni Italiji. Obravnavamo tudi razširjenost vrste v celi Evropi.

**Ključne besede:** Violaceae, *Viola* subsect. *Rostratae*, Kras, novi podatki razširjenosti.

## 1. INTRODUCTION

Floodplain arosulate violets, such as *Viola elatior* Fries, *V. pumila* Chaix and *V. stagnina* Schultes, are one of the most endangered violet species in south and central Europe. All species are endangered predominantly due to habitat loss, regulation of the rivers and changes of the land use (Daníhelka et al. 2009). Another flood plain arosulate species with similar morphology, ecology and habitat requirements is Jordan's violet (*V. jordanii* Hanry), which differs from the above mentioned species by its distribution.

In Italy only three of four above listed species are present: quite abundant *V. elatior* and two rare species *V. pumila* and *V. jordanii*. The latter species is reported only from one locality in the Valle del Rio Giaurusso (Liguria region) in the north-western part of the country (cf. Merxmüller 1982, Scoppola et al. 2005).

During our field trip in April 2013 to Slovenia and north-eastern Italy, we found a new geographically isolated population of this species. Circumstances of this finding are presented here.

## 2. RESULTS

Italy, Friuli-Venezia Giulia, Lago di Doberdò, *Alnus glutinosa* forest on the westernmost bank of the lake, 2 m a. s. l., GPS 45°49'58.41"N, 13°33'8.72"E, 20. April 2013, leg. M. Hroneš & L. Kobrlová, Herb. OL (Figure 1, Figure 2).

Approximately 10 individuals were found in the understory of probably periodically flooded *Alnus glutinosa* forest on the westernmost bank of the lake. Lake itself is in fact a karst sinkhole with very variable water level. It means that water conditions are fluctuating during the year (Samez et al. 2004). During our visit in April 2013 the water level was quite high (judging from the flooded trees), but during drought periods in summer water almost disappears (Samez et al. 2004).

Other recorded species growing in the close vicinity of *Viola jordanii*, was morphologically closely related *Viola elatior*, which was reported previously from the Doberdò (e.g. Merxmüller 1982).

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**Figure 1:** Herbarium specimen of the young plant from the lake Doberdò.

**Slika 1:** Herbarijski primerek mlade rastline z Doberdobskega jezera.

### 3. DISCUSSION

Jordan's violet (*Viola jordanii*) is a perennial arculate herb with erect flowering stems and rather heterophyllous habit (i.e. lower leaves are wide with cordate base and upper leaves are triangular-lanceolate with subcordate base). By its caulescent habit and lack of stolons is traditionally treated as a member of the section *Viola* subsection *Rostratae* Kupffer (by some authors treated also as a section *Trigonocarpea* Godr., e.g. Marcussen 2003). From its morphologically closest relative *Viola elatior*, which is also present in the vicinity of the lake Doberdò, differs by longer spur, cordate to subcordate leaf bases and glabrous or nearly glabrous stems (Yuzepchuk 1949, Merxmüller 1982).

The species occupies wet meadows, marshes, fens and occasionally also damp shady places, such as riparian forests, mainly on basic soils (Valentine et al. 1968, Merxmüller 1982).

The species have quite disjunctive, ponto-sub-mediterranean distribution in Europe (Figure 3). Centre of the distribution is located in the north-



**Figure 2:** Habit of the young plant from the lake Doberdò.

**Slika 2:** Mlade rastline z območja Doberdobskega jezera.

western part of the Balkan Peninsula (Serbia, Macedonia, Albania and Bulgaria) and western coast of the Black Sea (Romania and probably also Moldova, Valentine et al. 1968). More or less geographically isolated group of localities are reported from French-Italian border (Merxmüller 1982), Hungary (Borbás 1890), Ukraine (Crimea, Yuzepchuk 1949), northern Greece (Tiniakou 1996) and central Turkey (Dinç et al. 2001). The newly found locality in the lake Doberdò forms geographical bridge between isolated localities in the French-Italian border and main range of the species on Balkan Peninsula (Figure 3).

Disjunctive nature of the distribution range and some morphological differences among individual populations (e.g. pubescence of plants and leaf morphology) led some authors to the hypothesis that *V. jordanii* could be in fact a group of different vicarious small taxa with unique evolutionary origin (Becker 1910, Becker 1917, Yuzepchuk 1949). In addition, a closely related species, *Viola falconeri* Hook. f. & Thomson from the westernmost Himalayan foothills in Kashmir, is by some authors



**Figure 3:** Approximate distribution of *Viola jordanii* in Europe (line, circles, uncertain margins of the area are indicated by dashed line) and the position of a new locality near the lake Doberdò in north eastern Italy (triangle).

**Slika 3:** Približna razširjenost vrste *Viola jordanii* v Evropi (črta, krožci, nejasne meje območja so označene s prekinjeno črto) in položaj novega nahajališča v bližini Doberdòskega jezera v severovzhodni Italiji (trikotnik).

also treated as intraspecific taxon of *Viola jordanii* (Becker 1917). However, wide biosystematic study of the whole group is necessary to satisfactorily solve the intraspecific taxonomy of *V. jordanii*.

It is quite surprising that the species on the locality remained neglected. This may be due to confusion with *V. elatior*, which is morphologically quite similar. Careful revision of the localities of *V. elatior* in the Karst area in the north-eastern Italy and western Slovenia could potentially lead to the future discovery of other new stands of *V. jordanii*.

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#### 5. REFERENCES

- Becker, W. 1910: *Violae Europaeae*. Systematische Bearbeitung der Violen Europas und seiner benachbarten Gebiete. Verlag von C. Heinrich, Dresden, 153 pp.
- Becker, W. 1917: *Violae Asiaticae et Australenses* II. Beihefte zum Botanischen Centralblatt 34: 373–433.
- Borbás, V. 1890: *Violarum species Hungaricae novae*. Magyar Növényt. Lapok 13: 78–81.
- Danihelka, J., Niklfeld, H. & Šípošová, H. 2009: *Viola elatior*, *V. pumila* and *V. stagnina* in Austria, Czechia and Slovakia: a story of decline. *Preslia* 81: 151–171.
- Diñç, M., Yildirimli, Ş., Dural., H. & Savran., A. 2001: A new violet record for the flora of Turkey, *Viola jordanii* Hanry. *OT Sist. Bot. Dergisi* 8: 9–13.
- Marcussen, T. 2003: A new violet species (*Viola*-*ceae*) from the south-west Alps. *Botanical Journal of the Linnean Society* 142: 119–123.
- Merxmüller, H. 1982: *Viola* L. In: Pignatti, S.: *Flora d'Italia*, 2. Bologna, pp. 102–118.
- Samez, D., Casagrande, G., Cucchi, F. & Zini, L. 2004: Idrocinamica dei laghi di Doberdò e di Pietrarossa (Carso Classico, Italia): relazioni con le piene dei fiumi Isonzo, Vipacco e Timavo. *Atti e Memorie della Commissione Grotte "E. Boegan"* 40: 133–152.
- Scoppola, A., Spampinato, G., Giovi, E., Magrini, S. & Cameriere P. 2005: Le entità a rischio di estinzione in Italia: un nuovo Atlante multimediale. In: Scoppola, A. & Blasi C. (eds.): *Stato delle conoscenze sulla flora vascolare d'Italia*. Palombi Editori, Roma, pp. 47–78 + CD-rom.
- Tiniakou, A. 1996: The presence of *Viola jordanii* (*Violaceae*) in Greece. *Botanika Chronika* 12: 67–70.
- Valentine, D. H., Merxmüller, H. & Schmidt, A. 1968: *Viola* L. In: Tutin, T. G., Heywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds.), *Flora Europaea*, 2. Cambridge, pp. 270–282.
- Yuzepchuk, S. V. 1949: *Viola* L. In: Shishkin, B. K. (ed.), *Flora of the USSR*, 15. Israel Program for Scientific Translations, Jerusalem, pp. 263–360.

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