

Veronica dillenii Crantz in Croatia's flora

VLADIMIR HRŠAK*

University of Zagreb, Faculty of Science, Department of Botany,
Marulićev trg 20, HR-10000 Zagreb, Croatia

In 1999 *Veronica dillenii* Crantz was found in the Đurđevac Sands Botanical Reserve area. This species was not believed with any certainty to belong to Croatia's flora. This discovery confirms an earlier finding and definitely places *V. dillenii* in the flora of Croatia.

Key words: *Veronica dillenii*, *Scrophulariaceae*, flora, Croatia

Introduction

Until recently *Veronica dillenii* Crantz was considered a species of probable presence in Croatia (FISCHER et al. 1989). In the course of botanical research at the Đurđevac Sands Botanical Reserve in the spring of 1999 (northern Croatia) this species was found and identified with certainty. It seems to be worthwhile publishing this finding and thus resolving doubts regarding the existence of this species in Croatia.

General distribution and ecological demands

In appearance, *Veronica dillenii* Crantz is similar to *V. verna* L. (KORNECK 1995, PHILIPPI 1996). Therefore many authors do not differentiate or separate *V. dillenii* from *V. verna* (WALTERS and WEBB 1972, KORNECK 1995), and thus the distribution area of the former species is not sufficiently known (WALTERS and WEBB 1972). Table 1 shows morphological characters according to which these two species can be distinguished.

The distribution area of *V. dillenii* is said to cover much of eastern and central Europe extending locally to north-eastern Spain (WALTERS and WEBB 1972, PHILIPPI 1996).

This species most commonly grows in dry places, on slightly acid, humus and calcium poor soils. In Germany it is quoted as the typical species of the *Gageo-Veronicetum dillenii* community (KORNECK 1974).

* Corresponding address: fax.: 385 1 4828 306, e-mail: vhrsak@lipa.botanic.hr

Tab. 1. Distinguishing characters of *Veronica dillenii* Crantz and *Veronica verna* L.

	<i>Veronica verna</i>	<i>Veronica dillenii</i>
stem	5-15 cm tall, green, doesn't become reddish with drying	10-23 cm tall, often reddish, becomes blackish with drying due to decomposition of aucubine
corolla	2-3 mm in diameter, pale blue	4-5 mm in diameter, deep blue
stigma	white	violet
style	0.5 mm	1.5 mm
capsule	3 × 4-5 mm	4 × 4-5 mm

Veronica dillenii Crantz in Croatia

FISCHER et al. (1989) quoted *V. dillenii* as a »species not recorded but [possibly] present in Croatia«. However, *V. dillenii* had already been recorded in Croatia on the sand dunes in the Đurđevac area, Đurđevac Sands and at Kalinovac in the Podravina region (SOKLIĆ 1943). This species was also cited by TOPIĆ (1998) as a species in the weed flora of dense crops in the Podravina region. Since proper determination was not carried out and herbarium specimens were not collected (TOPIĆ, personal communication) this data should be considered dubious if we have in mind the great habitual similarity with *V. verna* L. In the course of botanical research in the Đurđevac Sands Botanical Reserve area in 1999, *V. dillenii* was found and determined with certainty (MTB 9968.4, Figs. 1, 2). On that locality it is situated in the sand dune vegetation phytosociologically defined by SOKLIĆ (1943) as *Corynephoro-Festucetum vaginatae croaticum*. Together with *V. dillenii*, the following species grow in the same habitat: *Festuca vaginata* Waldst. et Kit., *Carex caryophylla*

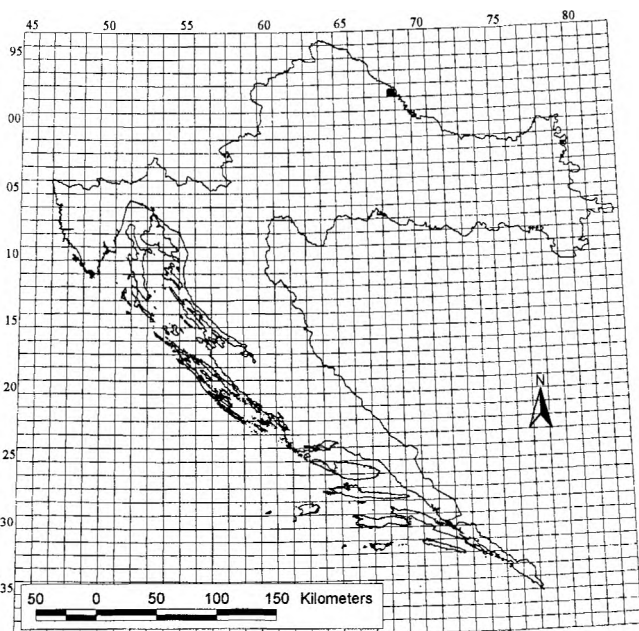
**Fig. 1.** The known locality of *Veronica dillenii* Crantz in Croatia.



Fig. 2. *Veronica dillenii* Crantz - Đurđevac Sands Botanical Reserve, May 11 1999.

Latourr., *Euphorbia cyparissias* L., *Cerastium semidecandrum* L., *Rumex acetosella* L., *Bromus tectorum* L. *Viola kiaibeliana* Schult., *Cytisus scoparius* (L.) Link, *Hieracium echioides* Lumn., *Corynephorus canescens* (L.) P. Beauv., *Potentilla incana* P. Gaertn., B. Mey. et Scherb., *Linaria genistifolia* (L.) Miller, *Alyssum montanum* subsp. *gmelinii* (Jord. et Fourr.) Thell., *Peucedanum cervaria* (L.) Lapeyr.

At the Kloštar Sands sand dunes locality, which is only a few kilometers away, to the east of Đurđevac Sands, *Veronica dillenii* Crantz was not found. It was not even mentioned for Kloštar Sands by SOKLIĆ (1943), so that it seems it has not grown there – at least since that time.

The finding at Đurđevac Sands has solved the dilemma regarding the presence of *V. dillenii* in Croatia and confirmed the finding by SOKLIĆ (1943). This species has recently been discovered only at this locality in Croatia, although it might be found in some other localities. It is likely that it is rare in Croatia, although this remains speculative, since the floristic mapping of the Republic of Croatia has never been completed.

References

- FISCHER, M., BEDALOV, M., VALJAK, B., 1989: The genus *Veronica* (*Scrophulariaceae*) in Croatia. *Linzer Biol. Beitr.* 21(1), 143–172.
- KORNECK, D., 1974: Xerothermvegetation in Rheinland-Pfalz und Nachbargebieten. *Schriftenreihe Vegetationsk.* 7, 196.
- KORNECK, D., 1995: *Veronica verna* und *Veronica dillenii* im Rheinland. *Flora, Juppert* 29(2), 135–143.
- PHILIPPI, G., 1996: *Veronica* L. In: SEBALD, O., SEYBOLD, S., PHILIPPI, G., WÖRZ, A., (eds.), *Die Farn- und Blütenpflanzen Baden-Württembergs*, 291–325. Verlag Eugen Ulmer, Stuttgart (Hohenheim).
- SOKLIĆ, I., 1943: Biljni svijet Podravskega pisa. *Hrvatski Šumarski List* 67, 3–34.
- TOPIĆ, J., 1998: Quantitative analysis of weed flora of Podravina region (North Croatia). *Acta Bot. Croat.* 57, 55–64.
- WALTERS, S. M., WEBB, D. A., 1972: *Veronica* L. In: TUTIN, T. G., HEYWOOD, V. H., BURGERS, N. A., MOORE, D. M., VALENTINE, D. H., WALTERS, S. M., WEBB, D. A., *Flora Europaea* Vol. 3, 242–252. Cambridge University Press, Cambridge.

References

- FISCHER, M., BEDALOV, M., VALJAK, B., 1989: The genus *Veronica* (*Scrophulariaceae*) in Croatia. *Linzer Biol. Beitr.* 21(1), 143–172.
- KORNECK, D., 1974: Xerothermvegetation in Rheinland-Pfalz und Nachbargebieten. *Schriftenreihe Vegetationsk.* 7, 196.
- KORNECK, D., 1995: *Veronica verna* und *Veronica dillenii* im Rheingebiet. *Florist. Rundbr.* 29(2), 135–143.
- PHILIPPI, G., 1996: *Veronica* L. In: SEBALD, O., SEYBOLD, S., PHILIPPI, G., WÖRZ, A., (eds.), *Die Farn- und Blütenpflanzen Baden-Württembergs*, 291–325. Verlag Eugen Ulmer, Stuttgart (Hohenheim).
- SOKLIĆ, I., 1943: Biljni sviet Podravskih piesaka. *Hrvatski Šumarski List* 67, 3–34.
- TOPIĆ, J., 1998: Quantitative analysis of weed flora of Podravina region (North Croatia). *Acta Bot. Croat.* 57, 55–64.
- WALTERS, S. M., WEBB, D. A., 1972: *Veronica* L. In: TUTIN, T. G., HEYWOOD, V. H., BURGERS, N. A., MOORE, D. M., VALENTINE, D. H., WALTERS, S. M., WEBB, D. A., *Flora Europaea* Vol. 3, 242–252. Cambridge University Press, Cambridge.