

NEW LOCALITIES OF *EUPHORBIA PROSTRATA* AITON (= *CHAMAESYCE PROSTRATA* (AITON) SMALL) IN CROATIA

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Milović, M. & Randić, M.: New localities of *Euphorbia prostrata* Aiton (= *Chamaesyce prostrata* (Aiton) Small) in Croatia. *Nat. Croat.*, Vol. 10, No. 2., 89–95, 2001, Zagreb.

The only finding of the American neophyte *E. prostrata* reported for Croatia so far comes from Mali Lošinj (ČARNI & JOGAN, 1998). This paper reports for the first time finding sites in localities from Škrljevo and Rijeka as well as numerous localities from Dalmatia (Šibenik and surroundings, Zadar, Trogir, Split and Makarska) which indicates that this neophyte has been spreading along the Croatian coast. The findings from Škrljevo and Rijeka in 1981 indicate that *E. prostrata* existed in Croatia much longer than can be gathered from the data published so far.

Key words: *Euphorbia prostrata*, American neophyte, new localities, Croatia

Milović, M. & Randić, M.: Nova nalazišta vrste *Euphorbia prostrata* Aiton (= *Chamaesyce prostrata* (Aiton) Small) u Hrvatskoj. *Nat. Croat.*, Vol. 10, No. 2., 89–95, 2001, Zagreb.

Jedini dosad objavljeni nalaz amerikanoneofita *E. prostrata* za Hrvatsku potječe iz Malog Lošinja (ČARNI & JOGAN, 1998). U radu se prvi put navode nalazišta iz Škrljeva i Rijeke te veći broj nalazišta iz Dalmacije (Šibenik i okolica, Zadar, Trogir, Split i Makarska) koji pokazuju da se ovaj neofit širi u obalnom području Hrvatske. Posebno su značajni nalazi iz 1981. godine iz Škrljeva i Rijeke koji pokazuju da je *E. prostrata* u Hrvatskoj prisutna znatno duže nego što se iz dosad objavljenih podataka moglo zaključiti.

Ključne riječi: *Euphorbia prostrata*, amerikanoneofit, nova nalazišta, Hrvatska

INTRODUCTION

Euphorbia prostrata is an annual spurge originating from tropical and subtropical parts of America (MARTINČIĆ, 1999: 321) whence it has spread into other warm and moderately warm areas, occurring as a part of the vegetation in trampled habitats (ČARNI & JOGAN, 1998: 49).

It is similar to the species *E. chamaesyce* and *E. maculata* and since all the three species appear in similar types of habitats they can easily be confused. *E. prostrata* can be recognized among the stated species by the capsule being hairy on the keels only (SMITH & TUTIN, 1968: 213; PIGNATTI, 1982: 31; MARTINČIĆ, 1999: 318).

It has naturalised as a weedy and ruderal plant in the Mediterranean area, from Portugal to Greece (SMITH & TUTIN, 1968: 216). The first findings of *E. prostrata* in Italy were published in 1895 (FIORI, 1926: 169; POLDINI, 1985: 195). According to the data published so far, it is widespread in Central and North East Italy (MELZER, 1985: 180; POLDINI, 1985: 195–196; 1991: 349). It has recently been registered in several localities in the Primorsko region of neighbouring Slovenia (TRPIN & VREŠ, 1995; TRPIN, 1995; 1997).

E. prostrata was not mentioned for Croatia either in the earlier (VISIANI, 1852: 222–229; SCHLOSSER & VUKOTINOVIĆ, 1869: 1009–1023; HAYEK, 1927: 120–138) or in recent floristic publications (DOMAC, 1994: 61–65; HRŠAK, 1997: 94–96). The first and the only reported locality so far has been in Mali Lošinj where it was found on 1 August, 1996 along the road to Veli Lošinj as a part of the vegetation in trampled habitats (ČARNI & JOGAN, 1998: 53, Tab. 1, col. 12).

RESULTS AND DISCUSSION

During research into the flora of Šibenik and the surroundings (1997–2000), *Euphorbia prostrata* (Fig. 1) was found in several localities in the area of Šibenik (Gorica, Centar, Obala, Vanjski, Vidici and Mandalina) and its surroundings



Fig. 1. *Euphorbia prostrata* Aiton, a plant in the fissure of stone stairs (Šibenik, Gorica)

Tab. 1. The localities of the species *Euphorbia prostrata* Aiton in Croatia

UTM	Localities	Habitats	Date of publishing (*), collecting (herb.) or observing (obs.)
VL51	Rijeka, Pećine, the railway station	crack in the edge of the pavement	herb. ¹ , 7 August, 1981
	Rijeka, Sušak	flower garden	herb. ¹ , 15 August, 1983
	Rijeka, in the vicinity of Department store RI	fissures in the pavement	obs. ¹ , 20 December, 2000
VL61	Škrljevo, in the vicinity of Rijeka	in ruderal vegetation	herb. ¹ , 12 September, 1981.
VK53	Mali Lošinj, road to Veli Lošinj	trampled habitat by the road	Čarni & Jogan 1998*
WJ18	Zadar, marina in Voštarnica	crack by the edge of the road	herb. ² , 13 Novemeber, 1999
WJ53	Pirovac, Don Baldo Vijolić Street	trampled habitat by the road	herb. ² , 4 November, 2000
WJ54	Jezerca, the road entering the settlement	fissures in the pavement	herb. ² , 4 November, 2000
WJ74	Šibenik, the bridge on the mouth of the river Krka	trampled habitat by the way	herb. ² , 25 July, 1997
	Šibenik, Gorica –I. Mrnavić Street	crack between stone stairs	herb. ² , 2 August, 1997
	Šibenik, Obala	flower garden	herb. ² , 17 June, 1997
	Šibenik, petrol station Vanjski	flower garden	obs. ² , 14 November, 2000
	Šibenik, Vidici – Fran Supilo Street	fissures in the pavement	herb. ² , 18 December, 2000
	Šibenik, Vojarna knezova bibrirskih	fissures by the bottom of the wall	herb. ² , 22 September, 1999
WJ64	Zablaće, the centre of the settlement	trampled habitat by the road	herb. ² , 29 September, 2000
WJ73	Brodarica, port	trampled habitat by the road	herb. ² , 17 October, 1998
WJ83	Perković, railway station	trampled habitat by the road	herb. ² , 26 November, 2000
WJ94	Unešić, Put željezničke stanice 13	vegetable garden	herb. ² , 26 November, 2000
WJ72	Primošten, Zagrebačka ulica	trampled habitat by the road	herb. ² , 29 November, 2000
XJ01	Trogir, Obala bana Berislavića	flower garden	herb. ² , 14 November, 2000
XJ11	Split, in front of the District Court	fissures in the pavement	obs. ² , 14 November, 2000
	Split, railway station	along the railway	herb. ² , 14 November, 2000
XH69	Makarska, in front of the Biokovka hotel	trampled habitat by the road	herb. ² , 23 October, 2000
	Makarska, Obala	flower gardens, trampled habitats	obs. ² , 23 October, 2000

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(Pirovac, Jezera, Zablaće, Brodarica, Perković, Unešić and Primošten). The species was present in a large number of specimens in all the stated localities, but was especially numerous and widespread in the area of Šibenik, mostly in the trampled habitats, along the waysides and roads, next to the railways, in the pavements cracks and next to the house walls as well as qua weed in gardens and flower beds.

E. prostrata has been found in Pirovac, in a trampled habitat next to the edge of the Don Baldo Vijolić Street in community with the following species: *Malva sylvestris*, *Senecio vulgaris*, *Eragrostis cilianensis*, *Medicago polymorpha*, *Portulaca oleracea*, *Diploaxis erucoides*, *Picris hieracioides*, *Tribulus terrestris*, *Conyza canadensis*.

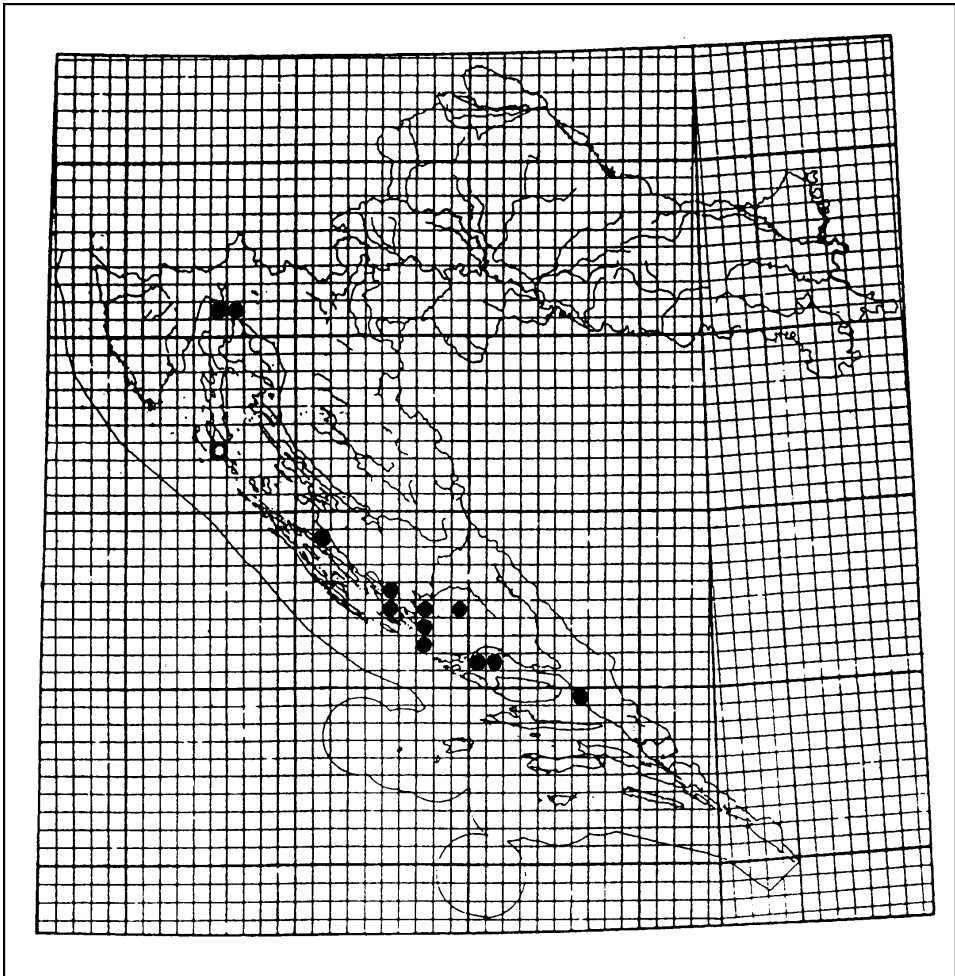


Fig. 2. Distribution of *Euphorbia prostrata* Aiton in Croatia (UTM grid, 10 × 10 km)
○ – Locality published previously, ● – New localities

E. prostrata was noted in Zadar, Trogir, Split and Makarska during 1999 and 2000 in similar types of habitats. The great number of reported localities noted in a relatively short period of time indicates that this neophyte has been spreading rather fast in the Dalmatian region.

The specimen determined as *E. chamaesyce* collected 1981 by Marko Randić in Škrlevo in the vicinity of Rijeka is stored in the herbarium of the Department of Botany, Faculty of Science in Zagreb. Careful examination and repeated determination have shown that it is a specimen of *E. prostrata*, which makes it the oldest finding of this species for Croatia. Randić owns two more herbarium specimens of *E. prostrata* from Rijeka, one collected in 1981 in the vicinity of the Pećine railway station and the other in 1983 in the Sušak area. These unpublished findings are remarkable as a proof of the about twenty year long existence of *Euphorbia prostrata* in the Croatian area. The findings for Rijeka have been confirmed recently (on 20 December, 2000) when several specimens were found in pavement cracks in the vicinity of the RI department store.

The specimens of *E. prostrata* collected during this research are stored in the herbarium of the Department of Botany, Faculty of Science, University of Zagreb (Hb Za).

All currently known localities of *E. prostrata* in Croatia are clearly shown in Tab. 1 and Fig. 2, and Fig. 3 shows the distribution of this species in the Šibenik area.

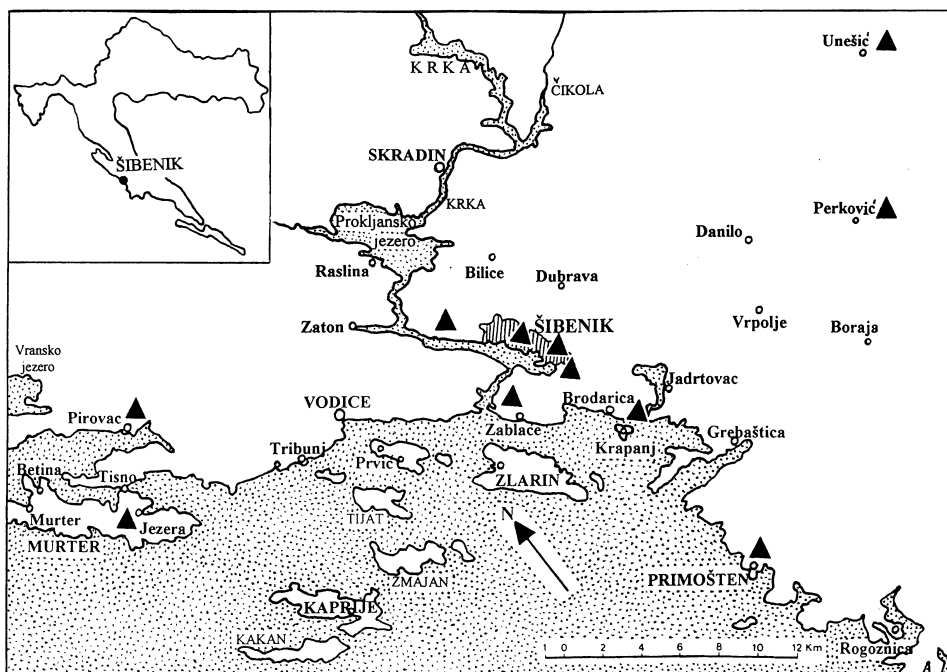


Fig. 3. Distribution of *Euphorbia prostrata* Aiton in the Šibenik area

CONCLUSION

Results of this research indicate that the neophyte *Euphorbia prostrata* has been spreading in Croatian coastal region in different types of anthropogenic habitats. Two areas of distribution of this species can be distinguished on the Croatian coast according to the known localities – in the Bay of Kvarner and in Dalmatia from Zadar to Makarska.

In spite of there having been only one finding reported so far, from Mali Lošinj (ČARNI & JOGAN, 1998), the findings by Randić from Škrljevo and Rijeka indicate that *Euphorbia prostrata* has been present in Croatia for about 20 years at least.

It can be assumed with great certainty that it came to Croatia and Slovenia from neighbouring Italy where it has been present for more than 100 years (FIORI, 1926: 169; POLDINI, 1985: 195).

It can easily be mistaken for similar species – *E. chamaesyce* and *E. maculata*, which is probably the reason for there having been only a single reported finding of *E. prostrata* for Croatia so far.

ACKNOWLEDGMENTS

We would like to express our special thanks to Ljerka Marković for her comments on the manuscript. Thanks also to colleague Mislava Dragutin for translating this report into English language.

Received January 29, 2001

REFERENCES

- ČARNI, A. & N. JOGAN, 1998: Vegetation of thermophilic trampled habitats in the Bay of Kvarner. – *Nat. Croat.* 7(1), 45–58.
- DOMAC, R., 1994: Flora Hrvatske, priručnik za određivanje bilja, 61–65. Školska knjiga. Zagreb.
- FIORI, A., 1926: Nuova flora d'Italia 2, p. 169. Firenze.
- HAYEK, A., 1927: Prodromus Florae peninsulae Balcanicae 1, 120–138. Berlin – Dahlem.
- HRŠAK, V., 1997: *Euphorbiaceae*. – In: NIKOLIĆ, T. (ed.) Flora Croatica. Index florae Croaticae 2. – *Nat. Croat.* 6 (suppl. 1), 94–96.
- MARTINČIČ, A., 1999: *Euphorbiaceae*. – In: MARTINČIČ, A. *et al.* (eds.), Mala flora Slovenije, ključ za določanje praprotnic in semenk, 317–323. Tehniška založba Slovenije, Ljubljana.
- MELZER, H., 1985: Beiträge zur Flora von Friaul-Julisch Venetien und angrenzender Gebiete (Italien, Jugoslawien). – *Gortania, Atti Museo Friul. Storia Nat.* 6(84), 175–190. Udine
- PIGNATTI, S., 1982: Flora d'Italia 2, 31–50. Edagricole. Bologna.
- POLDINI, L., 1985: Segnalazioni floristiche dalla regione Friuli-Venezia Giulia: 5. In: POLDINI, L. & M. VIDALI, Segnalazioni floristiche dalla regione Friuli-Venezia Giulia. *Gortania – Atti Museo Friul. Storia Nat.* 6(84), 191–202. Udine.
- POLDINI, L., 1991: Atlante corologico delle Piante vascolari nel Friuli-Venezia Giulia. *Inventario floristico regionale*, p. 349. Università degli studi di Trieste Dipartimento di biologia, Udine.
- SCHLOSSER, J., & Lj. VUKOTINOVIĆ, 1869: Flora Croatica, 1009–1023. Zagrabiae.

- SMITH, A. R., & T. G. TUTIN, 1968: *Euphorbia* L. – In: TUTIN, T. G. *et al.* (eds.), *Flora Europaea* 2, 213–226. Cambridge University Press. Cambridge.
- TRPIN, D., 1995: *Euphorbia prostrata* Aiton v Sloveniji. – In: JOGAN, N. ed., *Flora in vegetacija Slovenije*, p. 28. Društvo biologov Slovenije 1995. Ljubljana.
- TRPIN, D., 1997: Vrsta *Euphorbia prostrata* Aiton v Sloveniji. – *Acta Biologica Slovenica* 41(2–3), 103–108.
- TRPIN, D., & B. VREŠ, 1995: Register flore Slovenije. Praprotnice in cvetnice. – Znanstveno-raziskovalni center SAZU, zbirka ZRC 7, Ljubljana.
- VISIANI, R., 1852: *Flora Dalmatica* 3, 222–229. Lipsiae.

SAŽETAK

Nova nalazišta vrste *E. prostrata* Aiton u Hrvatskoj

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Euphorbia prostrata je jednogodišnja mlječika porijeklom iz tropskih i subtropskih područja Amerike odakle se proširila po toplim i umjereno toplim dijelovima Zemlje. Već duže vrijeme je prisutna na području Sredozemlja. U Hrvatskoj je do sada bila zabilježena jedino za Mali Lošinj (ČARNI & JOGAN, 1998).

U razdoblju od 1997.–2000. *E. prostrata* je zabilježena na više lokaliteta u Dalmaciji: Zadar, Šibenik, Trogir, Split i Makarska. Naročito je raširena i brojna na području grada Šibenika i šire okolice (Pirovac, Jezera, Zablaće, Brodarica, Primošten, Perković i Unešić).

Godine 1981. i 1983. vrstu je pronašao i sabrao Marko Randić na području Rijeke (Škrljevo, Pećine i Sušak), ali nalazi dosad nisu objavljeni jer je došlo do zamjene sa vrstom *E. chamaesyce*. Ovi nalazi pokazuju da je *Euphorbia prostrata* već 20-tak godina prisutna na području Hrvatske.

Rezultati istraživanja pokazuju da se *E. prostrata* širi na različitim tipovima antropogenih staništa u obalnom pojasu Hrvatske. Prema dosad poznatim nalazištima mogu se razlikovati dva područja rasprostranjenosti, u Kvarnerskom zaljevu i u Dalmaciji na području od Zadra do Makarske.