

Perilla frutescens (L.) Britton (Lamiaceae), a new alien species in the flora of Bosnia and Herzegovina

SEMIR MASLO¹, ŠEMSO ŠARIĆ², NERMINA SARAJLIĆ³

¹ Primary School, Lundåkerskola, Södra Storgatan 45, SE-33233 Gislaved, Sweden

² Jelaške, BA-71340 Olovo, Bosnia and Herzegovina

³ Ornithological Society „Naše ptice“, Semira Frašte 6, BA-71000 Sarajevo, Bosnia and Herzegovina

*Autor za dopisivanje / corresponding author: semmas@edu.gislaved.se

Tip članka / article type: kratko znanstveno priopćenje / short scientific communication

Povijest članka / article history: primljeno / received: 18. 12. 2018., prihvaćeno / accepted: 18. 11. 2019.

Maslo, S., Šarić, Š., Sarajlić, N. (2019): *Perilla frutescens* (L.) Britton (Lamiaceae), a new alien species in the flora of Bosnia and Herzegovina. Glas. Hrvat. bot. druš. 7(2): 62-65.

Abstract

Perilla frutescens (Lamiaceae), a new alien species for the flora of Bosnia and Herzegovina was found, near Olovo in Central Bosnia in August 2018. The species was growing along the banks of the Krivaja River and in ruderal plant community in the vicinity of the village Jelaške. Brief information on the species distribution and a short morphological description is given.

Keywords: alien plants, Bosnia and Herzegovina, distribution, *Perilla*

Maslo, S., Šarić, Š., Sarajlić, N. (2019): *Perilla frutescens* (L.) Britton (Lamiaceae), nova strana vrsta u flori Bosne i Hercegovine. Glas. Hrvat. bot. druš. 7(2): 62-65.

Sažetak

Perilla frutescens (Lamiaceae), nova strana vrsta za floru Bosne i Hercegovine zabilježena je u blizini Olova u srednjoj Bosni u kolovozu 2018. Vrsta je nađena na obalama rijeke Krivaje, kao i u ruderalnim zajednicama u blizini sela Jelaške. U radu se donosi kratak opis morfoloških karakteristika vrste kao i karta distribucije u Bosni i Hercegovini.

Ključne riječi: Bosna i Hercegovina, *Perilla*, rasprostranjenost, strane vrste biljaka

Introduction

Perilla frutescens (L.) Britton (synonym: *Ocimum frutescens* L.), also known as Perilla mint (Fig. 1) is a robust annual herb that grows 0.3 to 2 m tall. The villose stems are purple or green with four parallel grooves. Leaves are broadly ovate or orbicular, opposite, 7-13 cm long and 4-10 cm wide, with mucronate tips, a

rounded or broad cuneate bases, and dentate margins. Inflorescence raceme-like, lax or congested, densely hairy, flower stalks to 1.5 mm, hairy, bracts acuminate. Calyx about 3 mm long and erect, in flower 4-11 mm and pendent in fruit, teeth of lower lip narrower and longer than the others. Corolla

tubular, 3-4 mm long, slightly hairy, white to purplish red. Nutlets 1-1.5 mm, grayish to brown (Britton & Brown 1913, Shu 1994, Whiteley 2000). Chromosome counts are $2n=20, 40$ (Harley et al. 2004).

P. frutescens is native to Eastern Asia. It is cultivated as an ornamental and for its aromatic oil in SE Europe, Asia, N America, and it can escape locally in these regions (Richardson 1972, Shu 1994). In the Flora of China (Shu 1994) *P. frutescens* is divided into three varieties: *P. frutescens* var. *frutescens*, var. *purpurescens* (Hayata) H.W. Li, and var. *crispa* (Benth) W. Deane ex C. Biley. The recorded plant belongs to var. *crispa*. The article deals with the first occurrence data in the wild of the species in Bosnia and Herzegovina.

Material and methods

The field study was conducted in the summer of 2018. Digital photographs and geographic coordinates of the recorded populations were taken in the field. The identification of the specimens was done according to Shu (1994), Whiteley (2000) and the nomenclature follows Shu (1994). The taxon description follows Shu (1994), Whiteley (2000) and Harley et al. (2004) with some additional comments based on specimens collected by the authors. The distribution of the taxon in Bosnia and Herzegovina is shown on the map using standard UTM grid 10×10 km. The specimens were collected and stored in the Herbarium of the National Museum of Bosnia and Herzegovina (SARA, 51860, 51861).



Figure 1. *Perilla frutescens* near Olovo in Central Bosnia: a) and b) habitat, c) and d) inflorescence (Photos: Š. Šarić, 2018).

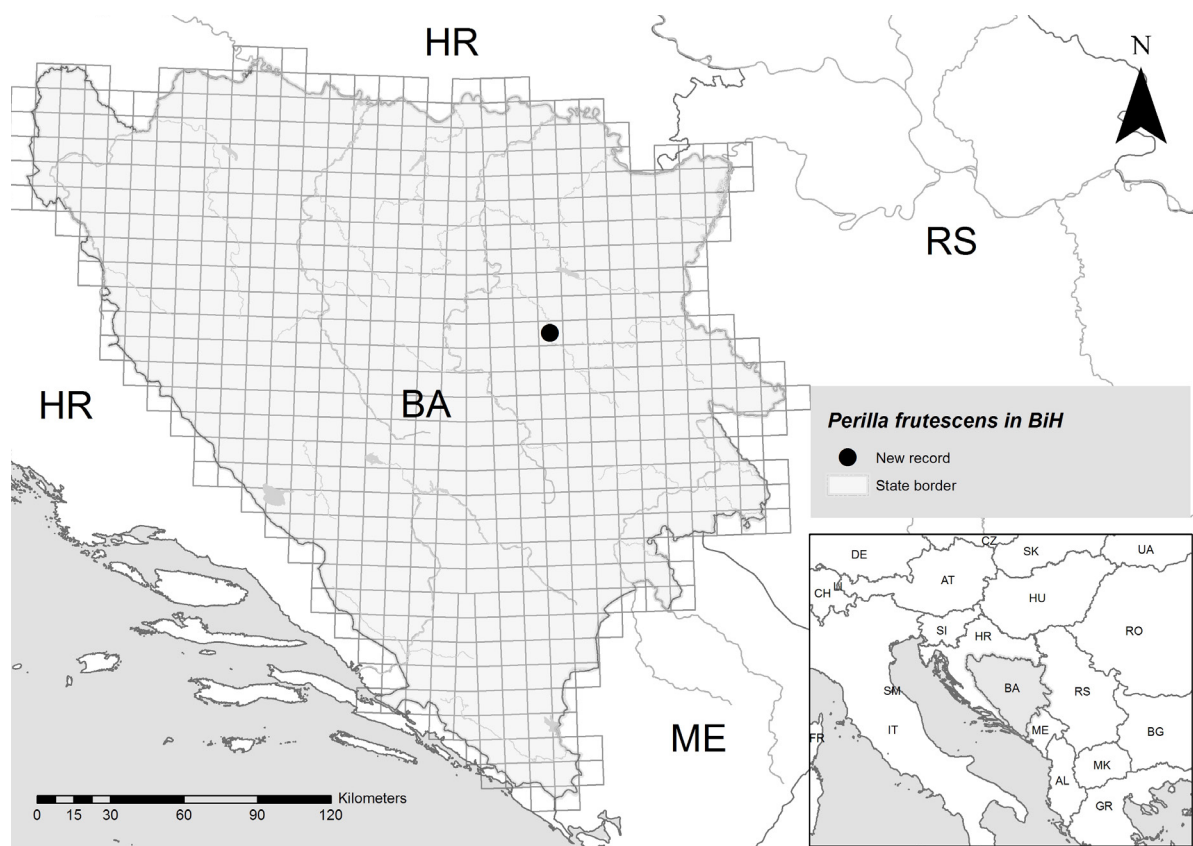


Figure 2. The distribution of *Perilla frutescens* in Bosnia and Herzegovina.

Results and discussion

The first finding of *Perilla frutescens* for Bosnia and Herzegovina was recorded in Central Bosnia, near Jelaške village (44° 17' 03.86" N; 18° 24' 37.57" E.) at the beginning of August 2018 (Fig. 2). Only a few plants were observed at a rubbish dump soil (Fig.1a). The species has recently been registered along the banks of the Krivaja River in the vicinity of the village Jelaške near the Olovo town (44° 17' 30.87" N; 18° 25' 30.15" E.) (Fig.1b). It is yet unknown how this species was introduced into Bosnia and Herzegovina, most likely as a garden escapee.

According to Richardson et al. (2000), the observation period is too short to understand and declare a state of naturalized species. Therefore, this species can be considered an alien casual for now, waiting for further field investigations to achieve the proper status attribution.

P. frutescens has been reported in Europe as alien in Germany (Scheuermann 1956), Great Britain (Clement & Foster 1994), Belgium (Verloove & Vandenberghe 1998), Turkey (Donmez 2002), Romania (Oprea & Sîrbu 2006), Italy (Celesti-Grapow et al. 2009, Verloove & Ardenghi 2015), Spain (Gasso et al. 2010), European Russia (Morozova 2014), Hungary (Balogh et al. 2004), Montenegro (Stešević et al. 2014) and Czech Republic (Pergl et al. 2016). Recently it was found in Dalmatia (Croatia), on the island Murter (Pandža 2018).

It is reported to be an invasive plant in natural areas across the mid-Atlantic region of United States (Swearingen 2010).

Acknowledgements

We would like to thank to Đorđije Milanović for the mapping of distribution of species as well as Jessica Andersson for improving the English of this paper.

References

- Balogh, L., Dancza, I., Király, G. (2004): Actual list of neophytes in Hungary, and their classification according to their success. In: Mihály, B., Botta-Dukát, Z. (eds.): Biological invasions: Invasive plants (in Hungary). Természettudományi Akadémia, Budapest, 61-92.
- Britton, N. L., Brown, A. (1913): An illustrated Flora of the northern United States, Canada and the British Possessions 3, Charles Scribner's Sons, New York, 154.
- Clement, E. J., Foster M. C. (1994): Alien plants of the British Isles. B.S.B.I., London.
- Donmez, A. A. (2002): *Perilla*: a new genus for Turkey. Turkish Journal of Botany 26(4): 281-283.
- Celesti-Grapow, L., Alessandrini, A., Arrigoni, P. V., Banfi, E., Bernardo, L., Bovio, M., Brundu, G., Cagiotti, M. R., Camarda, I., Carli, E., Conti, F., Fascetti, S., Galasso, G., Gubellini, L., La Valva, V., Lucchese, F., Marchiori, S., Mazzola, P., Peccenini, S., Poldini, L., Pretto, F., Prosser, F., Siniscalco, C., Villani, M. C., Viegi, L., Wilhalm, T., Blasi, C. (2009): Inventory of the non-native flora of Italy. Plant Biosystems 143(2): 386-430.
- Gasso, N., Basnou, C., Vila, M. (2010): Predicting plant invaders in the Mediterranean through a weed risk assessment system. Biological Invasions 12: 463-476.
- Harley, R. M., Atkins, S., Budantsev, A. L., Cantino, P. D., Conn, B. J., Grayer, R., Harley, M. M., de Kok, R., Krestovskaja, T., Morales, R., Paton, A. J., Ryding, O., Upson, T. (2004): Labiatae. In: Kadereit, J. W. (eds): The families and genera of vascular plants. VII. Flowering plants - Dicotyledons - Lamiales (except Acanthaceae including Avicenniaceae). Springer, Berlin, 167-275.
- Morozova, O. (2014): East Asian alien plant species invasive in European Russia. Botanica Pacifica. A journal of plant science and conservation 3(1): 21-31.
- Oprea, A., Sîrbu, C. (2006): Researches regarding alien plants from the left bank of the Tisa-River, between Valea Viseului and Piatra (Romania). Kanitzia 14: 45-56.
- Pandža, M. (2018): Alien flora of the settlement of Jezera on the island Murter (Dalmatia, Croatia). Agronomski glasnik: Glasilo Hrvatskog agronomskog društva 79(3):121-148.
- Pergl, J., Sádlo, J., Petřík, P., Danihelka, J., Chrtek, Jr., Hejda, M., Moravcová, L., Perglová, I., Štajerová, K., Pyšek, P., (2016): Dark side of the fence: ornamental plants as a source of wild-growing flora in the Czech Republic. Preslia 88(2): 163-184. (Electronic appendix).
- Richardson, I. B. K. (1972): *Perilla* 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 3, Cambridge University Press, Cambridge, 186-187.
- Richardson, D. M., Pyšek, P., Rejmánek, M., Barbour, M. G., Panetta, F. D., West C. J. (2000): Naturalization and invasion of alien plants: concepts and definitions. Diversity & Distributions 6: 93-107.
- Scheuermann, R. (1956): Beitrag zur Adventivflora in Pommern. Decheniana 108(2): 169-196.
- Shu, Y.M.C. (1994): *Perilla*. In: Wu Z.Y., Raven P.H. (eds.): Flora of China 17. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis, 243-244.
- Stešević, D., Caković, D., Jovanović, S. (2014): The urban flora of Podgorica (Montenegro, SE Europe): annotated checklist, distribution atlas, habitats and life-forms, taxonomic, phytogeographical and ecological analysis. Ecologica Montenegrina, Supplementum 1: 1-171.
- Swearingen, J., Slattery, B., Reshetiloff, K., Zwicker, S. (2010): Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service, Washington, DC.
- Verloove, F., Vandenberghe, C. (1998): Nieuwe en interessante voederadventieven voor de Belgische flora, hoofdzakelijk in 1997. Dumortiera 72: 18-36.
- Verloove, F., Ardenghi, N. (2015): New distributional records of non-native vascular plants in northern Italy. Natural History Sciences 2(1): 5-14.
- Whiteley, A. C. (2000): *Perilla*. In: Cullen J. et al. (eds.): The European Garden Flora 6. Cambridge University Press, Cambridge, 227.