



Symphotrichum novae-angliae (Compositae) new alien species in Serbia

Dmitar LAKUŠIĆ and Slobodan JOVANOVIĆ

Faculty of Biology, Institute of Botany and Botanical Garden "Jevremovac" Takovska 43, 11 000 Belgrade, Serbia

ABSTRACT: *Symphotrichum novae-angliae* (Linnaeus) G. L. Nesom is native to almost every area in North America east of the Rocky Mountains, but excluding the far north of Canada as well as some of the southern States. Due to the attractive flowers, numerous cultivars of have been developed. Furthermore, as a result of its increased usage in the garden, it has been introduced to many area beyond its natural range. In many places *Symphotrichum novae-angliae* is escaped from cultivation and naturalized as an alien species. According to Euro+Med PlantBase there is a presumption that the species is introduced in the countries of the Former Yugoslavia.

Based on our research in the field and the studies of herbarium material, we have found that *S. novae-angliae* is present in Serbia, both as cultivated ornamental plants, as well as a naturalized alien species.

We have registered this species on 25 localities that are situated in 18 UTM 10 km x 10 km squares. Twenty two of the localities refer to a small group of individuals which are cultivated, while the remaining 3 findings relate to plants that have escaped from cultivation and have naturalized as a alien species. Size estimation of naturalized populations and detailed chorological data (locations of occurrences recorded with GPS, and distribution map presented at UTM grid squares of c. 10 km x 10 km) are presented.

Key words: *Symphotrichum*, alien species, distribution, naturalization, Serbia

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Symphotrichum novae-angliae (Linnaeus) G. L. Nesom (formerly *Aster novae-angliae* L.), commonly known as the New England Aster, is an herbaceous perennial in the composite family (Compositae). It is native to almost every area in North America east of the Rocky Mountains, but excluding the far north of Canada as well as some of the southern States. Species inhabit moist soils along lakes, streambanks, roadsides, railroads. Also widely cultivated (BROUILLET et al. 2006, SEMPLE 2005, TENAGLIA 2007).

S. novae-angliae is very easy to identify because of the very tall (to 1.5m) erect, hirsute and short glandular pubescent, herbaceous stems, dense number of auriculate pubescent leaves, as well as its big flower heads with purple

ligules orange-yellow to reddish corolla tubes (for details see BROUILLET et al. 2006, TENAGLIA 2007).

Due to the attractive flowers, numerous cultivars have been developed. Furthermore, as a result of its increased usage in the garden, it has been introduced to many areas beyond its natural range, including Europe and several western US states.

In many places *Symphotrichum novae-angliae* has escaped from cultivation and naturalized as an alien species, both in North America, in Montana, Oregon, Utah, Washington, Wyoming, British Columbia, and in Europe, in Great Britain, France, Germany, Switzerland, Hungary, Italy, Poland and Slovakia (BROUILLET et al. 2006,

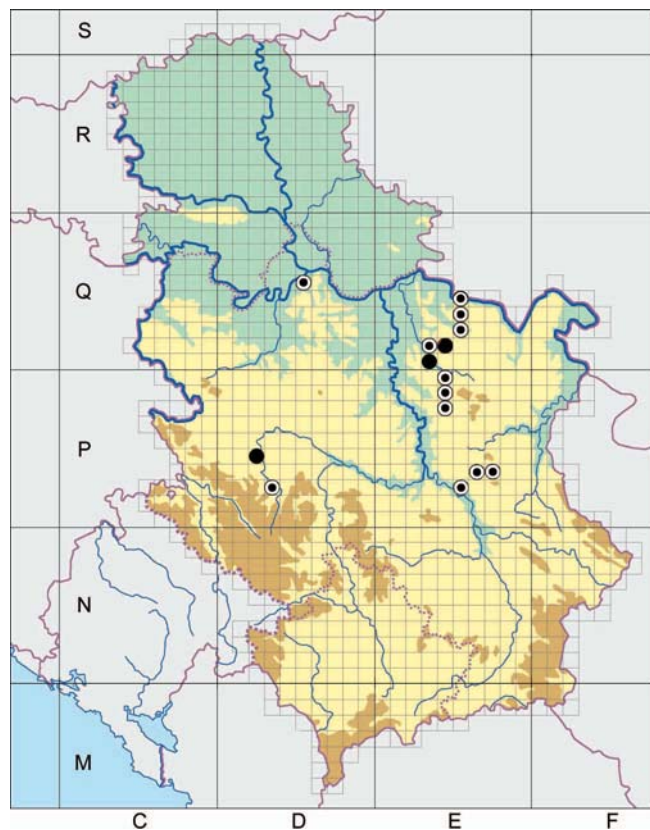


Fig. 1. Distribution of *Symphyotrichum novae-angliae* in Serbia (UTM Grid zone 34T; basic square 10 x 10 km, according to LAMPINEN 2001). Locality symbols: ● naturalized plants, ● cultivated plants

FITTER & PEAT 1994, GREUTER & RAAB-STRAUBE 2006-2009, DAISIE 2009). According to the Euro+Med PlantBase (2006), the species is cultivated in Bulgaria, Estonia and the Netherlands, and is introduced in Austria, Liechtenstein, Luxembourg, Belgium, Georgia, the Netherlands, Moldova, North Caucasus, Northwest European Russia, Romania, Slovenia, the Crimea, Ukraine, Czech Republic, Denmark, Norway and Sweden. In addition, there is a presumption that the species is introduced in the countries of the Former Yugoslavia, in Croatia, Bosnia and Herzegovina, Montenegro, Serbia and Macedonia and in Transcaucasia in Azerbaijan, Armenia and Georgia (GREUTER & RAAB-STRAUBE 2006-2009).

Based on our research in the field and studies of herbarium material, we have found that *S. novae-angliae* is present in Serbia, both as a cultivated ornamental plant, as well as a naturalized alien species. We have registered this species on 25 localities that are situated in 18 UTM 10 km x 10 km squares (Fig. 1). The largest number of findings (21 of 25) refers to a small group of individuals which are cultivated in rural gardens in the surroundings of Arilje in western Serbia, Despotovac, Petrovac, Kučevo, Soko Banja and Aleksinac in eastern Serbia and Golubac in northeastern Serbia. One



Fig. 2. *Symphyotrichum novae-angliae* – Petrovac na Mlavi, Ždrelo (Lakušić, D., Lakušić, B., Slavkowska, V. 31453, 11.10.2010, BEOU, photo: D. Lakušić). A – whole plant, B – flowers with upper leaves.

finding refers to plants cultivated in the University botanical garden Jevremovac in Belgrade, while the remaining three findings relate to plants that have escaped from cultivation and have naturalized as an alien species.

Two naturalized populations are recorded in Eastern Serbia in the villages Melnice and Ždrelo near Petrovac, and one was found in western Serbia in the village Milićevo selo near Arilje. Populations in the villages Milićevo selo and Melnice are developed on wet ruderalised edges of arable land and have a very small number. We have not registered more than 10 naturalized individuals in these two populations. In contrast, the population from the village Ždrelo inhabits the moist reedbeds between arable land. This population is slightly more numerous - more than 20 naturalized individuals (Fig. 2 & Fig. 3).

Chorological data

- DP24 - Arilje, Milićevo Selo, 43°47.852 N, 20°5.855 E, 300 m, wet ruderalised edge of arable land (Lakušić, D. 31513, 15.09.2010, BEOU)
- DP32 - Ivanjica, Sadevac, 43.59872 N, 20.21495 E, 440 m, cultivated (Lakušić, D., Vukojičić, S. field obs., 22. 09. 2011)
- DQ55 - Beograd, Botanička bašta Jevremovac, 44° 48.935 N, 20° 28.386 E, 100 m, cultivated (Lakušić, D. field obs., 11.10.2010)
- EP19 - Svilajnac, 44.23266 N, 21.21517 E, 100 m, cultivated (Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs., 25.10.2011)
- EP47 - Despotovac, Jezero - Aster, 44°2.847 N, 21°30.153 E, 300 m, cultivated (Lakušić, D., Lakušić, B., Slavkowska, V. field obs., 11.10.2010)



Fig. 3. Naturalized habitat of *Symphotrichum novae-angliae* in Serbia. Reedbed - *Phragmites communis*, Petrovac na Mlavi, Ždrelo, 44°23.329 N, 21°31.129 E (11.10.2010, photo: D. Lakušić). Symbols: yellow arrow – position of individual plants.

- EP48 - Despotovac, Stenjevac, 44°5.171 N, 21°32.085 E, 280 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EP49 - Despotovac, Poljade - Aster, 44°8.75 N, 21°33.708 E, 500 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EP52 - Aleksinac, 43.54379 N, 21.699 E, 228 m, cultivated (*Lakušić, D., Lakušić, B. field obs.*, 16. 09. 2011)
- EP63 - Soko Banja, 43.64521 N, 21.87464 E, 308 m, cultivated (*Lakušić, D., Lakušić, B. field obs.*, 16. 09. 2011)
- EP73 - Soko Banja, 43.64124 N, 21.88227 E, 329 m, cultivated (*Lakušić, D., Lakušić, B. field obs.*, 16. 09. 2011)
- EQ20 - Svilajnac, Dubnica, 44.27758 N, 21.32258 E, 220 m, cultivated (*Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs.*, 25.10.2011)
- EQ30 - Petrovac na Mlavi, Ždrelo, 44°18.096 N, 21°29.264 E, 150 m, reedbed *Phragmites communis* (*Lakušić, D., Lakušić, B., Slavkowska, V. 31453*, 11.10.2010, BEOU)
- EQ31 - Petrovac na Mlavi, 44°22.609 N, 21°27.314 E, 250 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ31 - Petrovac na Mlavi, Leskovac, 44.35958 N, 21.43709 E, 120 m, cultivated (*Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs.*, 25.10.2011)
- EQ31 - Petrovac na Mlavi, Stamnica, 44.34686 N, 21.44975 E, 130 m, cultivated (*Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs.*, 25.10.2011)
- EQ31 - Petrovac na Mlavi, Stamnica, 44.34643 N, 21.44962 E, 130 m, cultivated (*Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs.*, 25.10.2011)
- EQ41 - Petrovac na Malavi, Melnice, 44°23.329 N, 21°31.129 E, 220 m, cultivated and escaped from cultivation (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ52 - Kučevo, 44°27.839 N, 21°39.767 E, 180 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ52 - Kučevo, Kučajna, 44°27.099 N, 21°39.358 E, 200 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ53 - Kučevo, Kaona, 44°31.054 N, 21°38.447 E, 180 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ53 - Kučevo, Rakova bara, 44°32.259 N, 21°39.694 E, 200 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ53 - Kučevo, Turij, 44°33.418 N, 21°40.113 E, 230 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EQ54 - Golubac, 44°39.197 N, 21°37.388 E, 80 m, cultivated (*Lakušić, D., Lakušić, B., Slavkowska, V. field obs.*, 11.10.2010)
- EN89 - Niška Banja, 43.29249 N, 22.01119 E, 200 m, cultivated (*Lakušić, D., Kuzmanović, N., Vukojičić, S. field obs.*, 25.10.2011)

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REZIME

Symphytotrichum novae-angliae (Compositae) nova strana vrsta u Srbiji

Dmitar LAKUŠIĆ, Slobodan JOVANOVIĆ

Symphytotrichum novae-angliae (= *Aster novae-angliae* L.), je višegodišnja zeljasta biljka, sa primarnim arealom u Severnoj Americi, gde nastanjuje vlažna zemljišta duž obala reka i jezera, kao i vlažna ruderalizovana staništa duž puteva i pruga. Zbog svog atraktivnog izgleda vrsta je gajena u mnogim delovima sveta, tako da se danas izvan svog prirodnog areala kao kultivisana ili naturalizovana, pa čak i invazivna vrsta javlja na području Evrope i zapadnih delova severne Amerike.

Na osnovu podataka iz Euro+Med PlantBase vrsta je kultivisana u Bugarskoj, Estoniji i Holandiji, dok je introdukovana u Austriji, Lihtenštajnu, Luksemburgu, Belgiji, Gruziji, Holandiji, Moldaviji, severnom Kavkazu, Rusiji, Rumuniji, Sloveniji, Krimu, Ukrajini, Češkoj Republici, Danskoj, Norveškoj i Švedskoj. Takođe postoje pretpostavke da je vrsta introdukovana i u zemljama bivše Jugoslavije, u Hrvatskoj, Bosni i Hercegovini, Crnoj Gori i Makedoniji, kao i u Transkavkazju u Azerbejdžanu i Armeniji.

Na osnovu našeg istraživanja na terenu i studije herbarijumskog materijala, ustanovili smo da je vrsta *S. novae-angliae* prisutna u Srbiji, i to kako kao kultivisana ukrasna biljka, tako i kao naturalizovana potencijalno invazivna vrsta. Do sada je u Srbiji registrovano 25 nalaza, medju kojima se 22 odnosi na male grupe gajenih biljaka, dok se tri nalaza odnose na naturalizovane populacije zabeležene u istočnoj Srbiji u selima Melnice i Ždrelo kod Petrovca, i u zapadnoj Srbiji u Milićevom Selu kod Arilja.