Acta entomologica serbica, 2015, 20: 167-171 UDC 595.754(497.11)"2015"

Short communication DOI: 10.5281/zenodo.45391

HALYOMORPHA HALYS (STÅL, 1855) (HETEROPTERA: PENTATOMIDAE) A NEW INVASIVE SPECIES IN SERBIA

JELENA ŠEAT

HabiProt, Bulevar Oslobođenja 106/34, 11040 Belgrade, Serbia
E-mail: jelena@habiprot.org.rs

Halyomorpha halys (Stål, 1855) or the Brown Marmorated Stink Bug (BMSB) is an invasive species native to East Asia which was initially noted outside its native range about twenty years ago in the United States (Hoebeke & Carter, 2003). This species is present in Europe for more than a decade (Haye *et al*., 2014b), but the first published record on *H. halys* is from 2004 in Liechtenstein (Arnold, 2009). Since then, the species was recorded in 8 other European countries: Switzerland, Germany, France, Italy, Hungary, Greece, Austria and Romania (Haye *et al*., 2015; Lee, 2015; Macavei *et al*., 2015; Rabistch & Friebe, 2015) and first specimens were intercepted in England during border inspections (Malumphy, 2014). Worldwide, *H. halys* is recognized as pest of dozens of agricultural and ornamental plants, and a serious household nuisance. Damages caused by the species are mostly documented in the mid-Atlantic region of the USA (Leskey *et al*., 2012), but for the last few years it became a problem in a few European regions as well (Haye *et al*., 2014b, 2015). Aforementioned reasons rapidly accelerated researches and publishing of papers on species biology, distribution and management, which are briefly reviewed by Haye *et al.* (2014a, 2015) and Lee (2015).

With published records on *H. halys* presence in Hungary (Vétek *et. al*., 2014) and Greece (Milonas & Partsinevelos, 2014), Kereši *et al*. (2015) informed the professional public of agricultural domain on possible encounters with the species in the near future on the territory of Serbia. Few months after their announcement, *H. halys* was observed in Serbia for the first time. On October 10th, 2015 a photo of an adult from Vršac town (Fig. 1) was posted on a Facebook group Insects of Serbia (Serbian, *Insekti Srbije*) (www.facebook.com/groups/insectserbia). Two days later, another author posted on the Forum on Biological Diversity (Serbian, *Forum o biološkoj raznovrsnosti*) (Šeat, 2012) photos of a nymph and an adult observed in the Botanical Garden Jevremovac in Belgrade. Through mid-December, 2015 there were more observations of the species, individuals were photographed, and the photos, along with the time of the observation and coordinates were stored in the Alciphron database (Šeat, 2014) (Tab. I).

Figure 1. The first specimen of *Halyomorpha halys* recorded in Serbia (photo by Zoran Gavrilović).

Table I. Records on *Halyomorpha halys* in Alciphron database (Photos deposited in the database are not given).

Locality	UTM	Date	No. of specimens	Author	Determinatior
Vršac	EQ29	09.10.2015	1 adult	Z. Gavrilović	J. Šeat
Belgrade	DQ56	10.10.2015	1 adult	I. Hadžić	J. Šeat
Belgrade	DQ56	10.10.2015	1 nymph	I. Hadžić	J. Šeat
Vatin	ER20	18.10.2015	1 adult	Z. Gavrilović	J. Šeat
Vršac	EQ29	24.10.2015	1 adult	Z. Gavrilović	J. Šeat (A. Konjević)
Belgrade	DQ56	24.10.2015	1 adult	M. Trajković	J. Šeat
Vršac	EQ29	28.10.2015	1 nymph	Z. Gavrilović	J. Šeat (A. Konjević)
Belgrade	DQ56	28.10.2015	2 adults	I. Hadžić	Lj. Protić
Belgrade	DQ56	06.11.2015	2 nymphs	M. Gajić	J. Šeat
Vršac	EQ29	13.11.2015	3 adults	Z. Gavrilović	J. Šeat (A. Konjević)
Belgrade	DQ56	15.11.2015	1 adult	M. Vujić	J. Šeat
Vršac	EQ29	02.12.2015	1 adult	M. Vučanović	J. Šeat
Vršac	EQ29	03.12.2015	5 adults	Z. Gavrilović	J. Šeat
Vršac	EQ29	04.12.2015	7 adults	Z. Gavrilović	J. Šeat

Most specimens were observed in urban areas, around buildings or other construction facilities, during their seeking for overwintering sites. The findings were located out of settlements, but around certain facilities on the Serbian-Romanian border crossing Vatin and Vršac Hill (The Vršac Mountains) (Fig. 2). After species identification from the photos, the photographers were asked to collect specimens which were forwarded to professional heteropterists for confirmation. Two adult specimens from Jevremovac were deposited in the Natural History Museum in Belgrade (Ibrahim Hadžić leg., Ljiljana Protić det.) and three specimens (two adults and one nymph) from Vršac were sent to the Faculty of Agriculture, University of Novi Sad (Zoran Gavrilović leg., Aleksanda Konjević det.).

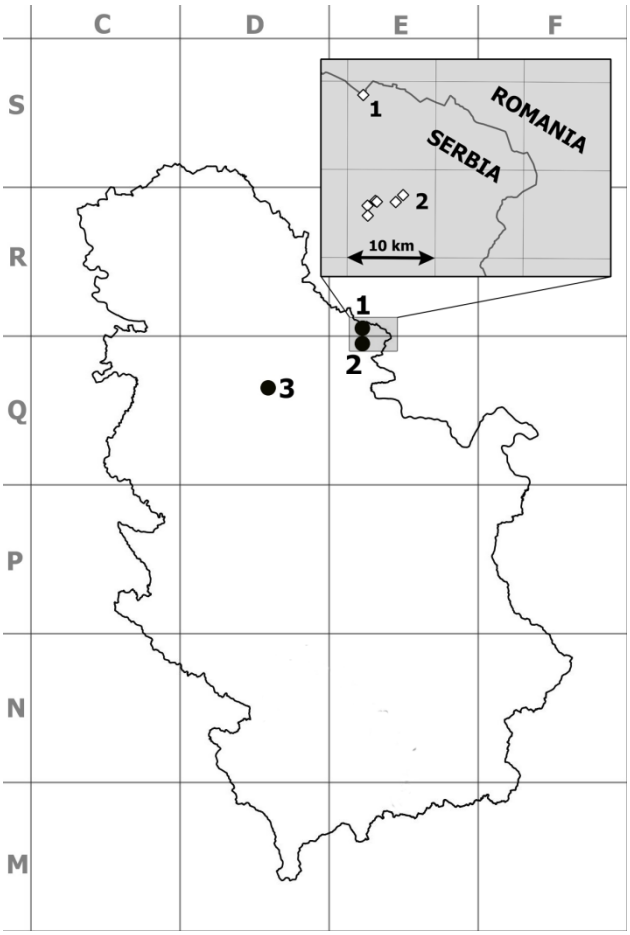

Figure 2. Current distribution of *Halyomorpha halys* in Serbia: 1 – Border crossing "Vatin" (UTM ER20), 2 – Vršac (UTM EQ29), 3 – Belgrade (UTM DQ56).

Zhu *et al.* (2012) suggested that the climate of Southeast Europe could be suitable for establishing populations of *H. halys*, while, together with the diverse and large agricultural lands in Serbia, this region is even more habitable for the species. Being coincidence or not, but most of the records of *H. halys* are from Vršac and its surroundings – the area which has always been known for tradition of viticulture. Furthermore, the Vršac Hill is a protected area, recognizable for its forest habitats, and these landscape features could also go in favor of the establishment of *H. halys* (Lee, 2015; Wallner *et al*., 2014).

Citizen engagement in the discovery of *H. halys* at new locations isn't a unique case for Serbia, as the same thing happened in other European countries (Wermelinger *et. al*, 2008; Maistrello *et al*., 2014; Milonas & Partsinevelos, 2014; Rabitsch & Friebe 2015). In fact, this species often comes into contact with people, especially during fall, and its presence in settlements could be effectively used in its monitoring. The species is a relatively large insect and with guidance, it could easily be distinguished from a few similar European species (Wyniger & Kment, 2010). Citizen science projects already proved to be successful in researches of *H. halys* distribution (Haye *et al*., 2014b; Maistrello *et al*., 2014), and in this early stage of invasion, similar projects could be useful in Serbia too.

Acknowledgments. Thanks go to Zoran Gavrilović for great collaboration and dedication on data collecting on *H. halys* for Alciphron database, dr Ljiljana Protić for useful suggestions during preparation of manuscript, Tanja Tunić for English revision, Ibrahim Hadžić, Marija Gajić, Milivoj Vučanović, Milica Trajković and Mihailo Vujić whose records enriched this manuscript.

References: Arnold, K. (2009). *Mitteilungen des Thüringer Entomologenverbandes* e.V., *16*, 19; Haye, T., Abdallah, S., Gariepy, T. & Wyniger, D. (2014a). *Journal of Pest Science*, *87*, 407–418; Haye, T., Wyniger, D. & Gariepy T. (2014b). *Proceedings of the 8th Intenational Conference on Urban Pests*, July 20-23, 2014, Zurich; Haye, T., Gariepy, T., Hoelmer, K., Rossi, J-P., Streito, J-C., Tassus, X. & Desneux, N. (2015). *Journal of Pest Science*, *88*, 665–673; Hoebeke, E. R. & Carter, M. E. (2003). *Proceedings of the Entomological Society of Washington*, *105*, 225–237; Kereši, T., Milovac, Ž. & Konjević, A. (2015). *Biljni lekar*, *43*(3), 294-306; Lee, D-H. (2015). *Applied Entomology and Zoology*, *50*, 277–290; Leskey, T.C., Hamilton, G.C., Nielsen, A.L., Polk, D.F., Rodriguez-Saona, C., Bergh, J.C., Herbert, D.A., Kuhar, T.P., Pfeiffer, D., Dively, G.P., Hooks, C.R.R., Raupp, M.J., Shrewsbury, P.M., Krawczyk, G., Shearer, P.W., Whalen, J., Koplinka-Loehr, C., Myers, E., Inkley, D., Hoelmer, K.A., Lee, D-H. & Wright, S.E. (2012). *Outlooks on Pest Management*, *23*, 218–226; Macavei, L.I., Bâeţan, R., Oltean, I., Florian, T., Varga, M., Costi, E. & Maistrello, L. (2015). *Lucrări Ştiinţifice*, *seria Agronomie*, *58*(1), 105-108; Maistrello, L., Dioli, P., Vaccari, G., Nannini, R., Bortolotti, P., Caruso, S., Costi, E., Montermini, A., Casoli, L. & Bariselli, M. (2014). *Giornate Fitopatologiche*, *1*, 283-288; Malumphy, C. (2014). *Het News*, 3rd series, *21*, 4-5; Milonas, P.G. & Partsinevelos, G.K. (2014). *EPPO Bulletin*, *44*, 183–186; Rabitsch, W. & Friebe, G.J. (2015). *Beiträge zur Entomofaunistik*, *16*, 115-139; Šeat, J. (Ed.) (2012). Stenice i cvrčci (Hemiptera), *In*: Forum o biološkoj raznovrsnosti. http://forum.biodiv.petnica.rs; Šeat, J. (Ed.) (2014). Alciphron - baza podataka o insektima Srbije (Heteroptera), HabiProt. Retrieved from http://alciphron.habiprot.org.rs; Vétek, G., Papp, V., Haltrich, A. & Rédei, D. (2014). *Zootaxa*, *3780*, 194–200; Wallner, A.M., Hamilton, G.C., Nielsen, A.L., Hahn, N., Green, E.J. & Rodriguez-Saon, C.R. (2014). *PLoS ONE*, *9*(5), e95691; Wermelinger, B., Wyniger, D. & Forster, B. (2008). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, *81*, 1–8; Wyniger, D. & Kment, P. (2010). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, *83*, 261-270; Zhu, G., Bu, W., Gao, Y. & Liu, G. (2012). *PLoS ONE*, *7*(2), e31246.

HALYOMORPHA HALYS (STÅL, 1855) (HETEROPTERA: PENTATOMIDAE) НОВА ИНВАЗИВНА ВРСТА У СРБИЈИ

ЈЕЛЕНА ШЕАТ

Извод

У октобру 2015. године на подручју Србије је први пут забележена источноазијска стеница *Halyomorpha halys* (Stål, 1855). Од октобра до децембра фотографисани су адулти и нимфе који су нађени на више локалитета у Вршцу, српско-румунском граничном прелазу „Ватин“ и Ботаничкој башти „Јевремовац“ у Београду. Фотографије врсте *H. halys* са подацима о аутору, времену и месту настанка фотографија су унети у Alciphron базу инсеката Србије што је изложено у овом раду.

Received December 11th, 2015
Accpeted December 14th, 2015