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First record of *Acrosternum heegeri* (Hemiptera: Heteroptera: Pentatomidae) in Slovakia

Prvý nález bzdochy *Acrosternum heegeri* (Hemiptera: Heteroptera: Pentatomidae) na Slovensku

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Heteroptera, Pentatomidae, *Acrosternum heegeri*, Slovakia, first record, introduced species

Abstract. The first record of *Acrosternum heegeri* Fieber, 1861 (Hemiptera: Heteroptera: Pentatomidae: Pentatominae: Nezarini) from Slovakia is presented. The presence of adults of both sexes as well as larvae indicates a probable viable population in Ivanka pri Dunaji (southern Slovakia). The species was most probably introduced to Slovakia from Hungary, where a viable population of *A. heegeri* was discovered in 2015–2016.

Acrosternum heegeri Fieber, 1861 (Hemiptera: Heteroptera: Pentatomidae: Pentatominae: Nezarini) (Figs 1–6) is a Holomediterranean-Turanian species widespread in the whole Mediterranean region extending to the Near East; historical records from the Afrotropical Region are questionable (see Károlyi & Rédei (2017) for overview). In Europe, the species was so far recorded from Albania, Bosnia and Herzegovina, Bulgaria, Croatia, France (southern parts including Corsica), Greece, Hungary, Italy (including Sicily and Sardinia), North Macedonia, Monaco, Montenegro, Portugal, Romania, Serbia, Slovenia, Spain (including Canary Islands), Caucasus region (Georgia and South European Russia), European Turkey and Ukraine (see Kis 1984, Rider 2006, Aukema et al. 2013, Ponel et al. 2013, Károlyi & Rédei 2017). The Palaearctic distribution was reviewed by Rider (2006) and updated in Aukema et al. (2013) (but overlooking Romania). The complete detailed distribution of the species was reviewed in Károlyi & Rédei (2017). Later, some additional European distributional records were provided from Greece (Ramsay 2019, Tsagkarakis et al. 2022), Romania (Ciceoi & Radulovici 2019), Portugal (Grosso-Silva et al. 2020), Serbia (Kereši & Konjević 2020, Šeat et al. 2020), Georgia (Haye et al. 2020, Japoshvili et al. 2022) and Italy (Moraglio et al. 2021, Zapponi et al. 2021). **New record for Slovakia.**

Material examined. SLOVAKIA: Ivanka pri Dunaji, Štefánikova ulica street, on the fence of a family house (7869b; 48°11′7.36″N 17°15′7.49″E), 132 m a.s.l., 14.ix.2022, 1 ♂ (dead specimen preyed on by a walnut orb-weaver spider *Nuctenea umbratica* (Clerck, 1757); see Figs 5–6), V. Hemala lgt., det. et coll., P. Kment revid.; ditto, 2.x.2022, 1 ♂, V. Hemala lgt. et coll., P. Kment det. (Figs 1–2); Ivanka pri Dunaji, Štefánikova ulica street, near the corner of Partizánska ulica street, on the fence of a family house (7869b; 48°11′2.81″N 17°14′54.69″E), 133 m a.s.l., 22.ix.2022, 1 L, V. Hemala observ., det. et photo (Fig. 3); ditto, 2.x.2022, 1 L,

V. Hemala observ., det. et photo (Fig. 4); ditto, 28.x.2022, 1 ♀, L. Kosibová & M. Račko junior lgt., V. Hemala det. et coll.; ditto, 3.xi.2022, 1 ♀, V. Hemala lgt., det. et coll.

The records of *Acrosternum heegeri* in the village of Ivanka pri Dunaji in 2022 represent the first known occurences of the species as well as the genus *Acrosternum* Fieber, 1860 from Slovakia. According to its known distribution range, the presence of the species in Slovakia is most probably a result of passive human-assisted transport. This pathway of introduction was also assumed by Károlyi & Rédei (2017) in neighboring Hungary, where multiple specimens of *A. heegeri* were recorded several times at different places in Budapest during 2015–2016. Károlyi & Rédei (2017) also assumed that the species is able to overwinter in Hungary and already has an established population there. It cannot be excluded that *A. heegeri* was introduced to Slovakia directly from Hungary, or less probably it shifted northwards from there during the last six years (Budapest is ca. 160 km southeast in a straight line from Ivanka pri Dunaji village). The observations of adults of both sexes as well as larvae in Ivanka pri Dunaji indicates the high probability of the presence of a viable population of *A. heegeri* in the village.

Collected specimens were identified using Ribes & Pagola-Carte (2013), helpful illustrations of the male genital capsule are also provided by Josifov & Heiss (1989). *Acrosternum heegeri* can possibly be confused with *A. millierei* (Mulsant et Rey, 1866), which was also found in Hungary (Balatongyörök) in 2004 (Kondorosy 2005), but has not been recorded again, so the existence of a viable population is not plausible. The main differences between these two species are in the structure of the male genital capsule and in the labium length: a) the postero-lateral angle of the male genital capsule has a very small curved notch at its inner side in caudal view in *A. heegeri*, but lacks such a notch in *A. millierei*; b) the labium apex significantly surpasses the metacoxae and reaches the posterior part of ventrite III in *A. heegeri*, but does not surpass (or only slightly surpasses) the metacoxae in *A. millierei* (see Josifov & Heiss 1989, Ribes & Pagola-Carte 2013).

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REFERENCES

AUKEMA B., RIEGER Ch. & RABITSCH W. 2013: Catalogue of the Heteroptera of the Palaearctic Region. Volume 6. Supplement. The Netherlands Entomological Society, Amsterdam, xxiii + 629 pp.

CICEOI R. & RADULOVICI A. 2019: First DNA barcodes of arthropod pests from Romania. *Scientific Papers, Series B, Horticulture* **63 (1)**: 603–612.

GROSSO-SILVA J. M., FÉLIX R., BARROS F., SOARES A., ANTUNES S., MONTEIRO E. & GARCIA-PEREIRA P. 2020: The genus Acrosternum Fieber, 1861 (Hemiptera, Pentatomidae) in Portugal. *Arquivos Entomolóxicos* **22**: 257–262.

HAYE T., MORAGLIO S. T., STAHL J., VISENTIN S., GREGORIO T. & TAVELLA L. 2020: Fundamental host range of Trissolcus japonicus in Europe. *Journal of Pest Science* **93**: 171–182.

JAPOSHVILI G., ARABULI T., SALAKAIA M., TSKARUASHVILI Z., KIRKITADZE G. & TALAMAS E. 2022: Surveys for Halyomorpha halys (Stål) (Hemiptera: Pentatomidae) and its biocontrol potential by parasitic wasps in the Republic of Georgia (Sakartvelo). *Phytoparasitica* **50**: 127–137.

JOSIFOV M. & HEISS E. 1989: Eine neue Acrosternum-Art von der Insel Kreta (Heteropteren aus Kreta VII). (A new Acrosternum-species from the island of Crete (Heteroptera from the island of Crete VII)). *Berichte des Naturwissenschaftlichen-Medizinischen Verein in Innsbruck* **76**: 141–145.



Figs 1–6. *Acrosternum heegeri* Fieber, 1861, Ivanka pri Dunaji (Slovakia). 1–2: adult male collected 2.x.2022. 1 – habitus. 2 – male genital capsule. 3–4: larvae. 3 – larva observed 22.ix.2022. 4 – larva observed 2.x.2022. 5–6: dead adult male preyed on by a walnut orb-weaver spider *Nuctenea umbratica* (Clerck, 1757), observed and collected 14.ix.2022. 5 – spider with male prey. 6 –male prey. Photographs by P. Kment (1–2), V. Hemala (3–6).
Obr. 1–6. *Acrosternum heegeri* Fieber, 1861, Ivanka pri Dunaji (Slovensko). 1–2: dospelý samec odchytený 2.X.2022. 1 – habitus. 2 – samčia genitálna kapsula. 3–4: larvy. 3 – larva pozorovaná 22.IX.2022. 4 – larva pozorovaná 2.X.2022. 5–6: mŕtvy dospelý samec ulovený križiakom podkôrnym (*Nuctenea umbratica* (Clerck, 1757)), pozorovaný a odchytený 14.IX.2022. 5 – pavúk s uloveným samcom. 6 – ulovený samec. Fotografie P. Kment (1–2), V. Hemala (3–6).

KÁROLYI B. & RÉDEI D. 2017: Acrosternum heegeri Fieber, 1861 (Hemiptera: Heteroptera: Pentatomidae), another Mediterranean bug expanding to the north. *Zootaxa* **4347 (2)**: 392–400.
KEREŠI T. & KONJEVIĆ A. 2020: Pojava dve manje poznate mediteranske vrste insekata u Srbiji. (Occurrence of two lesser known Mediterranean insect species in Serbia). *Biljni Lekar* (= *Plant Doctor*) **48 (2)**: 7–20 (in Serbian, with English abstract).
KIS B. 1984: *Fauna Republicii Socialiste România. Insecta. Volumul VIII. Fascicula 8. Heteroptera. Partea generală şi suprafamilia Pentatomoidea.* [*Fauna of the Socialist Republic of Romania. Insecta. Volume VIII. Fascicle 8. Heteroptera. General part and superfamily Pentatomoidea*]. Editura Academiei Republicii Socialiste România, Bucureşti, 216 pp. (in Romanian).
KONDOROSY E. 2005: New true bug species in the Hungarian fauna (Heteroptera). *Folia Entomologica Hungarica* **66**: 17–22.
MORAGLIO S. T., TORTORICI F., VISENTIN S., PANSA M. G. & TAVELLA L. 2021: Trissolcus kozlovi in North Italy: Host specificity and augmentative releases against Halyomorpha halys in hazelnut orchards. *Insects* **12 (464)**: 1–14.
PONEL P., MATOCQ A. & LEMAIRE J. M. 2013: Hétéroptères de la Principauté de Monaco: premier invetaire comprenant six taxons de Miridae nouveaux pour la faune franco-monégasque (Heteroptera). *Bulletin de la Société Entomologique de France* **118 (2)**: 223–234.
RAMSAY A. J. 2019: Pentatomoidea (Hemiptera: Heteroptera) of Greece – An annotated checklist. *Monographs of the Upper Silesian Museum* **10**: 9–27.
RIBES J. & PAGOLA-CARTE S. 2013: *Faune de France. France et régions limitrophes. 96. Hémiptères Pentatomoidea Euro-Méditerranéens. Volume 2. Systématique: deuxième partie sous-famille Pentatominae (suite et fin).* Fédération Française des Sociétés de Sciences Naturelles, Paris, 423 pp + 20 pls.
RIDER D. A. 2006: Pentatomidae. Pp. 233–402. In: AUKEMA B. & RIEGER Ch. (eds): *Catalogue of the Heteroptera of the Palaearctic Region. Volume 5. Pentatomomorpha II.* The Netherlands Entomological Society, Amsterdam, xiii + 550 pp.
ŠEAT J., NADAŽDIN B. & ŠĆIBAN M. 2020: Acrosternum heegeri (Heteroptera: Pentatomidae) in Serbia. *Acta Entomologica Serbica* **25 (1)**: 77–81.
TSAGKARAKIS A., THANOU Z., CHALDEOU A., MOSCHOU I., KALAITZAKI A. & DROSOPOULOS S. 2022: New records and updated checklist of the Pentatomoidea (Hemiptera: Heteroptera) of Greece. *Insects* **13 (749)**: 1–29.
ZAPPONI L., CHIESA S., BARGNA S., BORRI G., CHINI L., DELMARCO T., FELLIN L., GALLIMBENI L., MARCHESINI A., SOFIA M., BUZZETTI F. M. & STANCHER G. 2021: Prima segnalazione di Acrosternum heegeri Fieber, 1861 (Heteroptera: Pentatomidae) in Trentino. *Annali del Museo Civico di Rovereto (Sezione: Archeologia, Storia, Scienze Naturali)* **37**: 235–239.

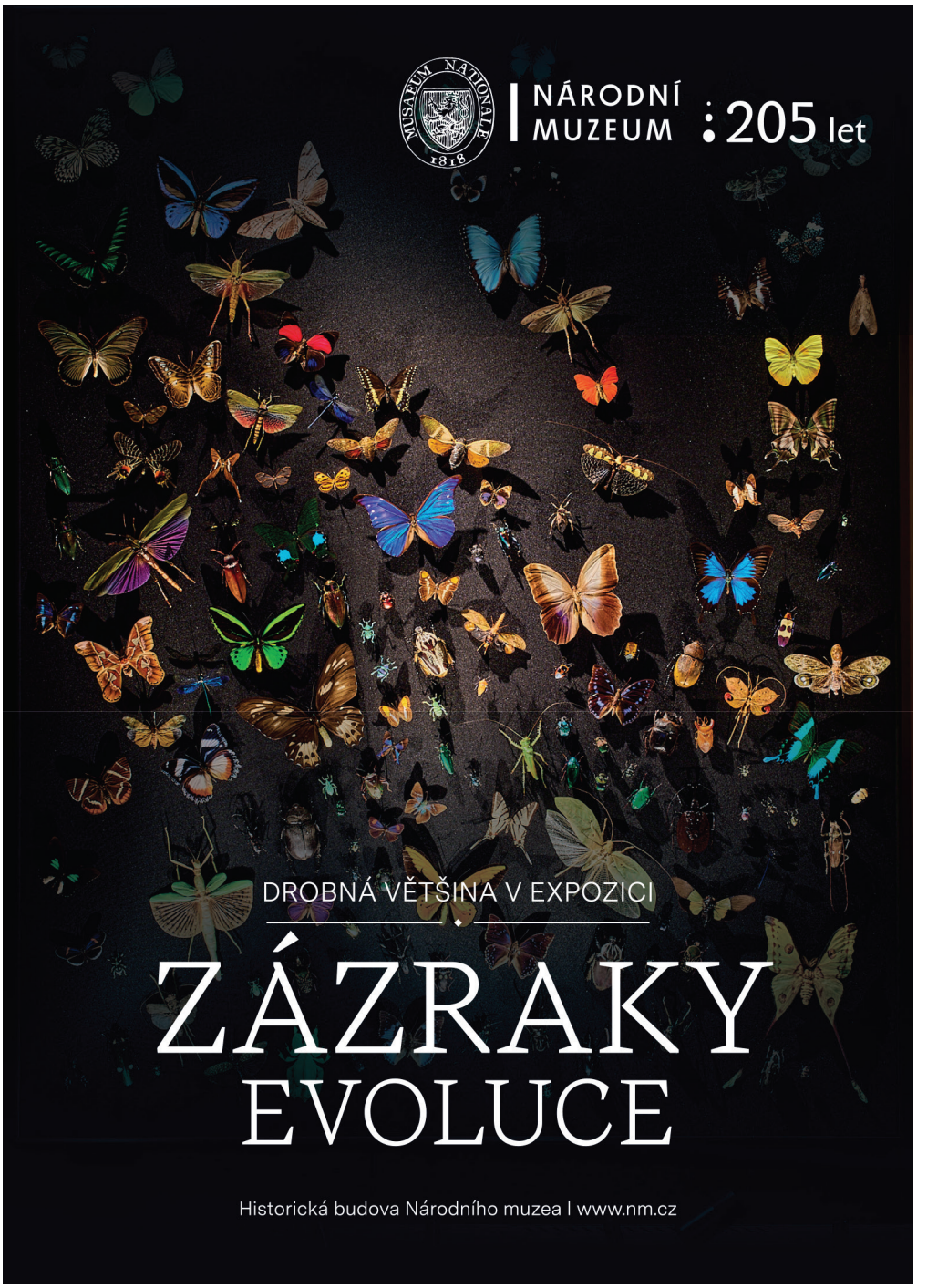
SÚHRN

Acrosternum heegeri Fieber, 1861 (obr. 1–6) je holomediteránno-turanský druh široko rozšírený v celom Stredomorskom regióne a známy tiež z množstva lokalít v Anatólii a na Blízkom Východe, s otáznym rozšírením v Afrotropickom regióne (viď Károlyi & Rédei 2017). V Európe bol druh dosiaľ zaznamenaný v Albánsku, Bosne a Hercegovine, Bulharsku, Čiernej Hore, Chorvátsku, Francúzsku (južné časti vrátane Korziky), Grécku, Maďarsku, Taliansku (vrátane Sicílie a Sardínie), Severnom Macedónsku, Monaku, Portugalsku, Rumunsku, Srbsku, Slovinsku, Španielsku (vrátane Kanárskych ostrovov), Kaukazskom regióne (Gruzínsko a južná časť európskeho Ruska), európskom Turecku a na Ukrajine (viď Kis 1984; Rider 2006; Aukema et al. 2013; Ponel et al. 2013; Károlyi & Rédei 2017). Palearktické rozšírenie druhu revidoval Rider (2006) a aktualizovali Aukema et al. (2013) (avšak Rumunsko prehliadli). Kompletné a detailné rozšírenie druhu revidovali Károlyi & Rédei (2017). Neskoršie doplňujúce nálezy z Európy boli publikované z Grécka (Ramsay 2019, Tsagkarakis et al. 2022), Rumunska (Ciceoi & Radulovici 2019), Portugalska (Grosso-Silva et al. 2020), Srbska

(Kereši & Konjević 2020, Šeat et al. 2020), Gruzínska (Haye et al. 2020, Japoshvili et al. 2022) a Talianska (Moraglio et al. 2021, Zapponi et al. 2021). Nový druh pre faunu Slovenska.

Nálezy *Acrosternum heegeri* z intravilánu obce Ivanka pri Dunaji v roku 2022 (obr. 1–6) predstavujú prvý známy nález druhu ako aj rodu *Acrosternum* Fieber, 1860 zo Slovenska. Vzhľadom na známe rozšírenie druhu je jeho prítomnosť na Slovensku s najvyššou pravdepodobnosťou výsledkom človekom asistovaného pasívneho transportu. Takáto cesta introdukcie bola predpokladaná Károlyim & Rédeiom (2017) aj v susednom Maďarsku, kde objavili viacero jedincov *A. heegeri* v rôznych častiach Budapešti viackrát v priebehu rokov 2015–2016. Károlyi & Rédei (2017) taktiež predpokladali, že tento druh je schopný v Maďarsku prezimovať a môže tam mať vytvorenú stabilnú populáciu. Preto nemožno vylúčiť, že *A. heegeri* bol introdukovaný na Slovensko priamo z Maďarska alebo (menej pravdepodobne) sem z Maďarska jednoducho expandoval v priebehu posledných 6 rokov (Budapešť je vzdušnou čiarou vzdialená od Ivanky pri Dunaji približne 160 km). Pozorovanie obidvoch pohlaví ako aj lariev v Ivanke pri Dunaji indikuje vysokú pravdepodobnosť prítomnosti stabilnej a rozmnožujúcej sa populácie *A. heegeri* v obci.

Odchytené jedince boli determinované pomocou práce Ribes & Pagola-Carte (2013), veľmi nápomocné ilustrácie samčej genitálnej kapsuly sú aj v práci Josifov & Heiss (1989). *Acrosternum heegeri* je možné potenciálne zameniť s podobným druhom *A. millierei* (Mulsant et Rey, 1866), ktorý bol taktiež zaznamenaný v susednom Maďarsku (Balatongyörök) v roku 2004 (Kondorosy 2005), odkedy však už znovu v krajine objavený nebol. Tieto dva druhy sa od seba navzájom líšia najmä morfológiou samčej genitálnej kapsuly a dĺžkou labia: a) postero-laterálny uhol samčej genitálnej kapsuly má veľmi malý zaoblený zárez na svojej vnútornej strane z kaudálneho pohľadu u *A. heegeri*, ale takýto zárez nie je prítomný u *A. millierei*; b) apex labia značne presahuje metakoxy a dosahuje posteriórnu časť ventritu III u *A. heegeri*, ale nepresahuje (alebo len veľmi slabo presahuje) metakoxy u *A. millierei* (viď Josifov & Heiss 1989; Ribes & Pagola-Carte 2013).


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