Entomol. Croat. 2025, Vol. 24. Num 1: 56–61
Izvorni znanstveni rad / Original scientific paper
Zaprimljeno/Received: 17.4.2025. Prihvaćeno/Accepted 9.6.2025. doi: https://doi.org/10.17971/ec.24.1.6

New observations of alien species *Trichopoda pictipennis* Bigot, 1876 (Diptera: Tachinidae) for the Balkan Peninsula

Nova opažanja alohtone vrste *Trichopoda pictipennis* (Diptera: Tachinidae) za Balkanski poluotok

Dejan Kulijer*

*National Museum of Bosnia and Herzegovina, Zmaja od Bosne 3, 71000 Sarajevo, Bosnia and Herzegovina. e-mail: dejan.kulijer@gmail.com

Abstract

Alien species *Trichopoda (Galactomyia) pictipennis* Bigot, 1876 was found in southeastern Bosnia and Herzegovina and Croatia in June and August 2024. This is the first record of this species for Bosnia and Herzegovina and the southeastern part of Croatia. Additionally, this report includes the records from Montenegro and Bulgaria obtained from the online data platform iNaturalist representing the first observations of *T. pictipennis* for Montenegro and the Black Sea coast in Bulgaria.

Keywords: biological control, *Nezara viridula*, Hemiptera, parasitoid, Bosnia and Herzegovina, Croatia

Sažetak

Alohtona vrsta *Trichopoda (Galactomyia) pictipennis* Bigot, 1876 pronađena je u jugoistočnoj Bosni i Hercegovini i Hrvatskoj u lipnju i kolovozu 2024. godine. Ovo je prvo opažanje ove vrste za Bosnu i Hercegovinu i jugoistočni dio Hrvatske. Pored toga, rad uključuje i nalaze ove vrste iz Crne Gore i Bugarske pronađene na internet platformi za prikupljanje podataka iNaturalist koji predstavljaju prva opažanja vrste *T. pictipennis* za Crnu Goru i obalu Crnog mora u Bugarskoj.

Ključne riječi: biološka kontrola, *Nezara viridula*, Hemiptera, parazitoid, Bosna i Hercegovina, Hrvatska

Introduction - *Uvod*

The diptera genus *Trichopoda* Berthold 1827, commonly known as "feather-legged flies" are remarkable species known for bright colors and the feather-like setae on the hind tibia, as well as for their importance in biological control of heteropteran pests (Dios and Nihei 2020). *Trichopoda (Galactomyia) pictipennis* Bigot, 1876 is a larval endoparasitoid of several Hemiptera species, primarily stink bugs (Pentatomidae) (Arnaud 1978). The female glues its eggs on to the body of adults or late instar nymphs of pentatomid bugs (Salerno et al. 2002).

The cosmopolitan pentatomid *Nezara viridula* (Linnaeus, 1758) has become its typical host worldwide, and in some parts of the world *T. pictipennis* is used as a biological control agent of this species (Salerno et al. 2002, Groot et al. 2007, Kazilas et al. 2020). *Trichopoda pictipennis* is a medium-sized fly with characteristic darkly patterned wings. The body length is 5.5–9.5 mm, scutellum yellow to yellowish light tawny and wing brown-infuscate with a strong yellow marking. Male abdomen dorsally yellowish to orange-yellow, while female abdomen is dorsally brown to black (Dios and Nihei 2020).

Trichopoda pictipennis is a South American species (Dios and Nihei 2020) that was introduced to Europe accidentally into Italy in late 1980s (Colazza et al. 1996), but at that time it was misidentified as *Trichopoda (Galactomyia) pennipes* Fabricius, 1781. This confusion was resolved only recently by Dios et al. (2021) who confirmed that this and all subsequent findings of *T. pennipes* in Europe refer to *T. pictipennis.*

After the first observations in Italy the species spread fast across the continent, mainly in countries along the Mediterranean coast (De Groot et al. 2007, Bystrowski 2012, Obrecht 2014, Kazilas et al. 2020, Ricarte et al. 2020, Mortelmans 2021, Hristozova and Harizanova 2022, Varga and Horváth, 2024). Based on the available data from the Balkan Peninsula the species is already known from most of Mediterranean countries, Slovenia, Croatia, Albania, Greece and Turkey (Groot et al. 2007, Bystrowski, 2012, Kazilas et al. 2020). It is also registered in other parts of the Mediterranean outside Europe, including Israel, Algeria and Egypt (Freidberg et al. 2011, Bystrowski, 2012, El-Hawagry et al. 2020, Meriem et al. 2021), but it is possible that some of these records are a consequence of additional introduction events, as suggested for the species occurrence in Israel (Bystrowski 2012).

In this paper new records of *T. pictipennis* from Bosnia and Herzegovina, Croatia, Montenegro and Bulgaria are reported. The records from Bosnia and Herzegovina and Montenegro are the first for these countries.

Materials and Methods - *Materijali i metode*

The data were collected during non-targeted field work in south-eastern part of Bosnia and Herzegovina and holiday field trip to south Croatia. At both locations the specimens were photographed, and from locality in Bosnia and Herzegovina 2♂ were collected by entomological net and stored in entomological collections of the National Museum of Bosnia and Herzegovina. The data were also collected from online biodiversity data platform iNaturalist (iNaturalist 2025). The identification is based on Dios and Nihei (2020).

Results and Discussion – *Rezultati i rasprava*

Material examined:

Trichopoda (Galactomyia) pictipennis Bigot, 1876

Bosnia and Herzegovina: 1) Trebinje, Radovo Lake, 42.710881 N, 18.385385 E, 13.06.2024, obs., leg. & det. D. Kulijer (1♂ coll. NMBiH), 25.08.2024, obs., leg. & det. D. Kulijer (1♂ coll. NMBiH), males and females frequent on flowers of *Foeniculum vulgare* Mill.

Croatia: 2) Klek, 42.946477° N, 17.563172° E, 16.-18.09.2024, obs. D. Kulijer, males and females frequent on flowers of *F. vulgare.*

Montenegro: 3) Boka Kotorska Bay, Donji Stoliv, 42.474742° N, 18.700917° E, 24.11.2020, obs. Pavel Nesmeyanov, iNaturalist id: 65528630; **4)** Boka Kotorska Bay, Bijela, 42.453576° N, 18.649785° E, 26.07.2022, obs. Filipe J. Ribeiro, iNaturalist id: 134855395.

Bulgaria: 5) Burgas, Sozopol, 42.42276° N, 27.69503° E, 7.10.2023, obs. Galin Ivanov, iNaturalist id: 186653913, several specimens on *Mirabilis jalapa* L. (G. Ivanov pers. comm.).

Figure 1. *Trichopoda (Galactomyia) pictipennis* Bigot, 1876, male from Trebinje, Bosnia and Herzegovina (a), and female from Klek, Croatia (b) (photo: D. Kulijer).

In June and August 2024 *T. pictipennis* was found at Radovo Lake, Trebinje (Fig 1-left) in southeastern part of Bosnia and Herzegovina representing the first record of this species for Bosnia and Herzegovina. Additionally, the species was also observed on several consecutive days in mid-September in Klek settlement in south Croatia (Fig 1-right). According to available data this is the first report of the species in this region of Croatia (Bystrowski 2012, iNaturalist 2025).

Both sites were located in an urban area and multiple individuals were recorded on *F. vulgare* flowers, including both males and females. At Radovo Lake in Trebinje city suburbs the species was observed at the lake margin on disturbed ground covered with ruderal vegetation and along the nearby road, while in Croatia the plants were grooving along the road in the center of the Klek settlement. As the species was observed on several occasions at both sites and always more than one individual, it is probably already common in the area.

According to available knowledge the species is not jet reported from Montenegro (Bystrowski 2012, Varga & Horváth 2024), but based on the photographs uploaded to the online database iNaturalist, the species is also present in this country, at least from 2020 (iNaturalist 2025). The locations in Montenegro are situated app. 35 km southeast, as crow flies, to the new site in Bosnia and Herzegovina. In Bulgaria the species was previously known from Plovdiv region in the south-central part Bulgaria (Hristozova and Harizanova 2022) and this new record from Sozopol near Burgas uploaded to the online database iNaturalist (iNaturalist 2025) is the first observation of the species in eastern Bulgaria on the Black Sea coast.

Due to the lack of research and experts the knowledge of alien insect species in the Balkan Peninsula is scarce (Panjković et al. 2021) and many discoveries are based on accidental findings, particularly in Bosnia and Herzegovina (e.g. Kulijer 2010, Kulijer and Miljević 2016, Kulijer et al. 2022). The citizen science platforms such as iNaturalist are important tools that can help monitor the spread of alien species (Bužleta and Koren 2024, Inaturalist 2025).

With these records from Bosnia and Herzegovina and Montenegro the species is now known from all the Mediterranean countries in the Balkan Peninsula (Groot et al. 2007, Bystrowski 2012, Kazilas et al. 2020, iNaturalist 2025, this paper).

Given that this species is spreading rapidly in Europe and is already known from several countries in the Balkans and Europe (Groot et al. 2007, Bystrowski 2012, Kazilas et al. 2020, iNaturalist 2025), these findings were expected. However, as *T. pictipennis* is an alien species that has potential as biological agent for pest species, and also represents a potential threat to local fauna. All new data on the spread of this species and its interactions with local fauna are important and further studies should focus on its distribution and host preferences.

Acknowledgments

I'm grateful to Pavel Nesmeyanov, Filipe J. Ribeiro and Galin Ivanov for allowing me to use their records.

References - ***Literatura***

Arnaud, P.H. 1978. A host-parasite catalog of North American Tachinidae (Diptera). United States Department of Agriculture, Science and Education Administration, Washington D.C., 860 pp.

Bužleta, F., Koren, T. 2024. Stalking a non-native species on social media: Updating the distribution of Paysandisia archon (Burmeister, 1879) in Croatia through citizen science. Natura Croatica. 33 (1): 53-63.

Bystrowski, C. 2012. Thoughts on how Trichopoda pennipes (F.) reached Israel. The Tachinids Times. 25: 13-15.

Colazza, S., Giangiuliani, G., Bin, F. 1996. Fortuitous introduction and successful establishment of *Trichopoda pennipes* F.: adult parasitoid of *Nezara viridula* (L.). Biological Control. 6: 409-411.

Dios, R.V.P., Nihei, S.S. 2020. Taxonomic revision of the genus *Trichopoda* Berthold, 1827 (Diptera: Tachinidae: Phasiinae), with emphasis on the Neotropical fauna. Zootaxa. 4870 (1): 1-104.

Dios, R., Ziegler, J., Zeegers, T. 2021. The American genus *Trichopoda* (Diptera: Tachinidae) in Europe - Decades of a misidentified invasive species. Beiträge zur Entomologie 71 (2): 221-225. 10.21248/contrib.entomol.71.2.221-225.

El-Hawagry, M.S.A., Ebrahim, A.M.E., Nada, M.S.E. 2020. First detection of the Nearctic parasitoid species *Trichopoda pennipes* (Fabricius) (Diptera: Tachinidae) in Egypt. Egyptian Journal of Biological Pest Control. 30: 12. https://doi.org/10.1186/s41938-020-0211-z

Freidberg, A., Morgulis, E., Cerretti, P. 2011. The invasive species *Trichopoda pennipes* (F.) (Diptera: Tachinidae), found in Israel. Tachinid Times. 24: 14-15.

Groot, M.de, Virant-Doberlet, M., Žunič, A. 2007. *Trichopoda pennipe*s F. (Diptera, Tachinidae): a new natural enemy of *Nezara viridula* (L.) in Slovenia. Agricultura (Slovenia). 5: 25-26.

Hristozova, M., Harizanova, A. 2022. Parasitoids of the invasive *Nezara viridula* (Linnaeus) in Bulgaria. Journal of Central European Agriculture. 23 (2): 358-364.

iNaturalist 2025. https://www.inaturalist.org/taxa/129353-Trichopoda (accessed in January, 26th 2025)

Kazilas, C., Demetriou, J., Kalaentzis, K. 2020. Filling the gaps in the distribution of an alien species: The case of the feather-legged fly *Trichopoda pennipes* (Diptera: Tachinidae in the Western Palearctic. Entomologia Hellenica. 29: 8-16.

Kulijer, D. 2010. First record of invasive species *Harmonia axyridis* (Pallas, 1773) (Coleoptera: Coccinellidae) in Bosnia and Herzegovina. Acta entomologica Serbica. 15 (1): 141-143.

Kulijer, D, Miljević, I. 2016. First report of *Belonochilus numenius* (Say, 1832) in Bosnia and Herzegovina (Heteroptera, Lyga eidae). Folia historico-naturalia Musei Matraensis. 40: 61-63.

Kulijer, D., Kahrić, A., Vinko, D. 2022. *Hierodula tenuidentata* Saussure, 1869 (Mantodea: Mantidae) has settled down in Bosnia and Herzegovina. Entomologia Croatica. 21 (1): 10-16. https://doi.org/10.17971/ec.20.1.

Meriem, A., Aitaider, L., Doumandji-Mitiche, B., Chebli, A. 2021. First record of the feather-legged fly *Trichopoda pennipes* (Fabricius, 1781) (Diptera Tachinidae) a parasitoid of the southern green stink bug *Nezara viridula* (Linnaeus, 1758) (Hemiptera Pentatomidae) in Algeria. Biodiversity Journal. 12 (3): 561-566. https://doi.org/10.31396/Biodiv.Jour.2021.12.3.561.566

Mortelmans, J. 2021. *Trichopoda pennipes* (Fabricius, 1781) (Diptera: Tachinidae) new to Belgium. Bulletin de la Société royale belge d'Entomologie / Bulletin van de Koninklijke Belgische Vereniging voor Entomologie. 157: 136.

Obrecht, E. 2014. Erstfunde von *Trichopoda pennipes* (Fabricius, 1781) (Diptera, Tachinidae) in der Schweiz, und eine Würdigung einer Amateurentomologin. Contributions to Natural History. 25: 71-79. https://doi.org/10.5169/seals-787045

Panjković, B., Rat, M., Mihajlović, S., Galambos, L., Kiš, A., Puzović, S., Nadaždin, B., Šeat, J., Vukajlović, F., Tot, I., Đapić, M. 2021. Invasive Alien Species in the Balkan Peninsula. p. 42-87. In: Pullaiah, T., Ielmini, M.R. (eds) Invasive Alien Species: Observations and Issues from Around the World. Volume 3: Issues and Invasions in Europe. John Wiley & Sons, New Jersey. https://doi.org/10.1002/9781119607045.ch27

Ricarte, A., Álvarez Fidalgo, P., Álvarez Fidalgo, M. 2020. Distribución actualizada y fenología de *Trichopoda pennipes* (Fabricius, 1781) (Diptera: Tachinidae) en la Península Ibérica. Graellsia. 76 (2): e116. https://doi.org/10.3989/graellsia.2020.v76.271

Salerno, G., Colazza, S., Bin, F. 2002. *Nezara viridula* parasitism by the tachinid fly Trichopoda pennipes ten years after its accidental introduction into Italy from the New World. BioControl. 47: 617-624.

Varga, N., Horváth, D. 2024. Trichopoda pictipennis Bigot, 1876 in Hungary (Diptera: Tachinidae). Folia entomologica hungarica. 85: 153-158.