NAT. CROAT. | VOL. 35 | No 1 | 225-228 | ZAGREB | July 31, 2026

This work is licensed under a Creative Commons Attribution 4.0 International License

short communication/kratko priopćenje
DOI 10.20302/NC.2026.35.10

NEW DISTRIBUTION DATA OF THE BROAD – BORDERED BEE HAWK MOTH *HEMARIS FUCIFORMIS* (LINNAEUS, 1758) IN CROATIA

Lovro Turkalj* & **Josip Nikolić**

Oikon Ltd. – Institute of Applied Ecology, 10020 Zagreb, Croatia

Turkalj, L. & Nikolić, J.: New distribution data of the broad–bordered bee hawk moth *Hemaris fuciformis* (Linnaeus, 1758) in Croatia. Nat. Croat., Vol. 35, No. 1, 225-228, 2026, Zagreb.

Based on the known available records of Croatia's hawk moths, including more recent observations, this short communication provides an updated contribution to the known distribution of the broad-bordered bee hawk-moth in Croatia. Individuals of the species were recorded in the areas of Strmendolac and Vinine, Split-Dalmatia County. These observations confirm additional southern localities for the species in Croatia, beyond Makarska. Given the limited number of observations, a wider distribution of the species can be expected in the southern parts of the Mediterranean biogeographical region of Croatia.

Keywords: hawk moth, *Hemaris*, Sphingidae, Croatia

Turkalj, L. & Nikolić, J.: Novi podaci o rasprostranjenosti širokorubog bumbarastog ljiljka *Hemaris fuciformis* (Linnaeus, 1758) u Hrvatskoj. Nat. Croat., Vol. 35, No. 1, 225-228, 2026, Zagreb.

Na temelju poznatih dostupnih podataka o ljiljcima Hrvatske, uključujući i novija opažanja, ovo kratko priopćenje donosi ažurirani doprinos poznavanju rasprostranjenosti širokorubog bumbarastog ljiljka (*Hemaris fuciformis*) u Hrvatskoj. Jedinke te vrste zabilježene su na područjima Strmendolac i Vinine, u Splitsko-dalmatinskoj županiji. Ova opažanja potvrđuju dodatne južne lokalitete vrste u Hrvatskoj, izvan područja Makarske. S obzirom na ograničen broj opažanja, može se očekivati šira rasprostranjenost vrste u južnim dijelovima mediteranske biogeografske regije Hrvatske.

Ključne riječi: ljiljak, *Hemaris*, Sphingidae, Hrvatska

Hawk moths (Sphingidae) are a large family of predominantly nocturnal species (Kelber *et al*., 2003) and can be found on every continent except Antarctica (Kawahara *et al*., 2009). In the Republic of Croatia, 22 species of Sphingidae have been recorded (Koren & Šašić, 2023). Members of the genus *Hemaris* are diurnal insects. They are bumblebee mimics in both flight and coloration (Dreisig, 1985). There *Hemaris* species occur in Croatia: the narrow – bordered bee hawk moth (*H. tityus*), the broad – bordered bee hawk moth (*H. fuciformis*) and the olive bee hawk moth (*H. croatica*) (Koren & Šašić, 2023). The majority of *H. croatica* records originate from Mediterranean biogeographical region, from Istria to Dubrovnik, with fewer records from the continental region. Records of *H. fuciformis* and *H. tityus* are fewer than those of *H. croatica* (Koren & Šašić, 2023).

* Corresponding author: lturkalj@oikon.hr

The aim of this short paper is to document new occurence records of *H. fuciformis* and to update the known distribution of the species in Croatia. In addition to our findings, we included literature and museum collections data, specifically those cited by Šašić & Koren (2023), as well a museum specimen from 1985 available via GBIF (Slieker *et al*., 2024). All confirmed records or observations verified by experts, supported with clear photographs from the GBIF (2025), iNaturalist (2025) and Bioloer (Popović *et al*., 2020) platforms, together with reports by Koren & Gomboc (2014) and Mikulić *et al*. (2013), were also included.

Localities, i.e. distribution points shown on the map (Fig. 2), based on literature data and museum collections cited by Šašić & Koren (2023), were georeferenced using QGIS, while all other records were obtained with precise coordinates, in order to provide the most up-to-date, and reliable distribution map for Croatia.

During the fieldwork on 30th April and 1st May 2025, four individuals were observed between Strmendolac and Vinine at two locations (Fig. 1). The locality situated closer to Strmendolac (43.599498° N, 16.774397° E) lies along an old, severely degraded macadam road constructed from large, sharp fragments of stone, now partially overgrown with vegetation. Along this stretch, dense patches of upright bugle *Ajuga genevensis* were observed, serving as a feeding resource for three observed individuals. The site is surrounded by forest, primarily composed of downy oak *Quercus pubescens* and oriental hornbeam *Carpinus orientalis*.



Fig. 1. Observed individuals of *H. fuciformis* around Strmendolac and Vinine (Split-Dalmatia County). Photo: L. Turkalj & J. Nikolić.

The locality closer to Vinine (43.580393° N, 16.774500° E) is a grassland exhibiting undergoing natural succession, with encroachment processes observable, particularly in microhabitats with increased soil moisture. The surrounding habitats include forest, primarily composed of *Q. pubescens* and *Carpinus orientalis*, At two micro-sites, dense populations of *A. genevensis* were observed, where a single individual of *H. fuciformis* was observed feeding. The time of the observation is in line with species' occurrence, which is from May until the end of August (two generations possible) (Meerman, 1981).

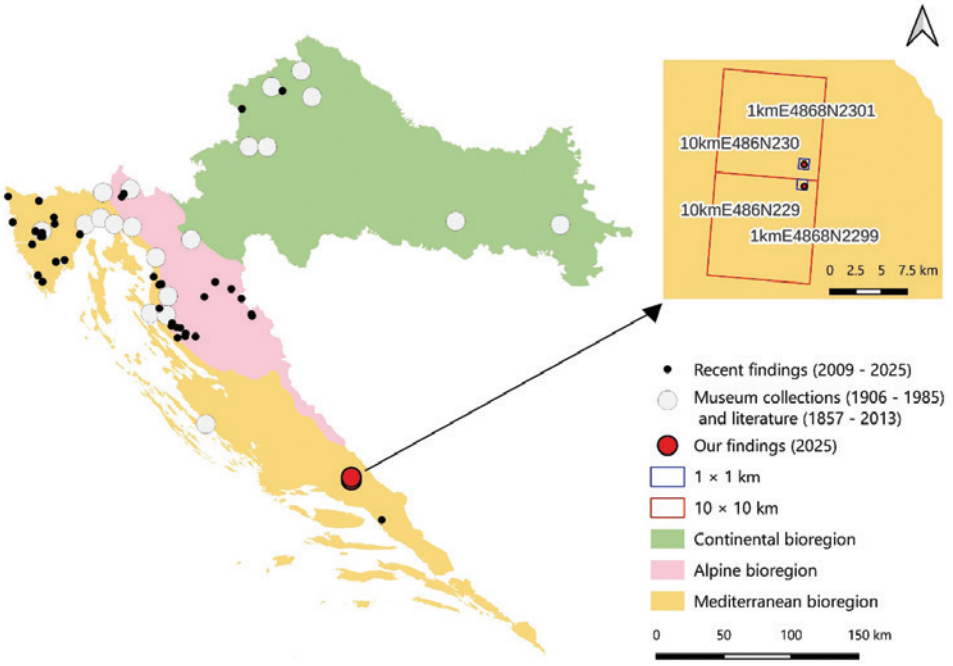


Fig. 2. Distribution of *H. fuciformis* with respect to the findings of this research.

Although *H. fuciformis* is neither a strictly protected nor a threatened species in Croatia or the EU, it remains rarely observed; therefore current knowledge of its ecology, phenology, and distribution in Croatia is relatively limited. It is a valuable pollinating species, visiting many flowering plants, especially in spring. This is supported by our observation of a specimen feeding on *A. genevensis* flowers.

Further observations are expected to broaden the currently known distribution of the species in Croatia and to contribute to a better understanding of the species' importance in pollination functions in ecologically sensitive areas of southern Croatia.

Received August 11, 2025

REFERENCES

Dreisig, H., 1985: Movement patterns of a clear-wing hawkmoth, *Hemaris fuciformis*, foraging at red catchfly, *Viscaria vulgaris*. Oecologia **67**(3), 360-366.

GBIF, 2025: GBIF Occurrence Download https://doi.org/10.15468/dl.cq4t9f (accesed on 29.7.2025.)

Inaturalist, 2025: Available from https://www.inaturalist.org. (accessed on 29.7.2025.)

Kawahara, A. Y., Mignault, A. A., Regier, J. C., Kitching, I. J. & Mitter, C., 2009: Phylogeny and Biogeography of Hawkmoths (Lepidoptera: Sphingidae): Evidence from Five Nuclear Genes. Public Library of Science One **4**(5), e5719.

Kelber, A., Balkenius, A. & Warrant, E. J., 2003: Colour Vision in Diurnal Nocturnal Hawkmoths. Integrative and Comparative Biology **43,** 571-579.

Koren, T. & Gomboc, S., 2014: Istraživanje faune noćnih leptira na području ekološke mreže Natura 2000 Strahinjščice i Ivanščice u Krapinsko-zagorskoj županiji, Technical report, Hrvatsko društvo za biološka istraživanja HDBI.

Koren, T. & Šašić, M., 2023: An annotated checklist of hawk-moths (Lepidoptera: Sphingidae) of Croatia with their distribution and common names. Natura Croatica **32**(1), 49-68.

Meerman, J., 1981: *Hemaris fuciformis,* (L., 1758) in the Netherlands (Lep., Sphingidae). Nieuwsbrief European Invertebrate Survey Kenniscentrum Insecten En Andere Ongewervelden **10**, 41-43.

Mikulić, K., Selanec, I., Lauš, B., Maslać, M., Vilenica, M., Dražina, T., Tremulović, M. & Hudina, T., 2013: Istraživanje i inventarizacija biološke raznolikosti na području značajnog krajobraza Zelenjak - Risvička i Cesargradska Gora, Technical report, Udruga BIOM.

Popović, M., Vasić, N., Koren, T., Burić, I., Živanović, N., Kulijer, D. & Golubović, A., 2020: Biologer: an open platform for collecting biodiversity data. Biodiversity Data Journal 8. https://biologer.hr/hr/groups/18/species/291 (accessed on 29.7.2025).

Slieker, F. J. A, Van Der Es, H, Andeweg, R., Langeveld, B. W. & Schnörr, S., 2024: Natural History Museum Rotterdam - Specimens. Version 1.45. Natural History Museum Rotterdam. Occurrence dataset https://doi.org/10.15468/kwqaay accessed via GBIF.org on 29.7.2025. https://www.gbif.org/occurrence/2570303675.