

ON THE RECENT PRESENCE OF *HIPPOTION CELERIO* (LINNAEUS, 1758) (LEPIDOPTERA: SPHINGIDAE) IN CROATIA

SEBASTIAN ČATO

Biology Students Association – BIUS, Roosevelt Square 6, 10000 Zagreb, Croatia (e-mail: catol1224@gmail.com)

Čato, S.: On the recent presence of *Hippotion celerio* (Linnaeus, 1758) (Lepidoptera: Sphingidae) in Croatia. Nat. Croat., Vol. 34, No. 2, _____, 2025, Zagreb.

The silver-striped hawk-moth (*Hippotion celerio*) is a quite rare species of the Croatian fauna, having only five past records from the 19th and 20th century. Given the lack of recent records, the species' presence in the country was deemed questionable. Here presented and discussed are three new records of this species from coastal Croatia which give us new distribution data while simultaneously confirming its occasional presence in the country.

Keywords: moth; Adriatic coast; rare species; Balkans; new records

Čato, S.: O recentnoj prisutnosti vrste *Hippotion celerio* (Linnaeus, 1758) (Lepidoptera: Sphingidae) u Hrvatskoj. Nat. Croat., Vol. 34, No. 2, _____, 2025, Zagreb.

Srebrnoprugi ljljak (*Hippotion celerio*) je vrlo rijetka vrsta hrvatske faune za koju postoji samo pet prijašnjih nalaza iz 19. i 20. stoljeća. S obzirom na izostanak nedavnih nalaza, prisutnost vrste u zemlji je proglašena upitnom. Ovdje su predstavljena i raspravljena tri nova nalaza te vrste iz primorske Hrvatske, koja nam daju nove podatke o rasprostranjenju i ujedno potvrđuju povremenu prisutnost vrste u zemlji.

Ključne riječi: noćni leptir; Jadranska obala; rijetke vrste; Balkan; novi nalazi

The silver-striped hawk-moth (Croatian - srebrnoprugi ljljak) *Hippotion celerio* (Linnaeus, 1758) is a migratory species of western Palaearctic which migrates from Africa and Asia (PITTAWAY, 2024). In Europe it is a permanent resident in Madeira (MATIAS, 2021), probably Azores (VIEIRA, 1997), and along the Morocco's Atlantic coast and Cape Verde Islands (VIEIRA, 2008; BALITEAU & BALITEAU, 2011; TENNENT & RUSSELL, 2015). As many as three migration-induced generations can occur between June and October (PITTAWAY, 2024).

Hippotion celerio is one of the rarest Sphingidae species in Croatia, with only five previously published records that are predominantly originating from the Mediterranean region (GALVAGNI, 1909; STAUDER, 1923), with inland observations from Kalnik Mountain, being found on grapevines (ŠLOSER, 1870) and city of Zagreb with surroundings (VUKOTINOVIĆ, 1879). These old literature records were reported by KOREN & ŠAŠIĆ (2023), where they also mentioned a specimen

stored in the collections of CNHM in Zagreb. They also give the first checklist of hawk-moths (Sphingidae) of Croatia, listing 22 species for the country, with two of them needing confirmation as they have not been confirmed during recent surveys, one of those being *Hippotion celerio*. In the present paper new records of this species from Croatia are reported with the help of citizen science, confirming the species (recent) presence in Croatia (Tab. 1).

Tab. 1. All the known records of *H. celerio* from Croatia together with three new records.

YEAR	LOCATION	SOURCE
-	Rijeka, Sušak	KOREN & ŠAŠIĆ (2023)
1870	Kalnik Mountain	ŠLOSER (1870)
1879	Zagreb, city of Zagreb with surroundings	VUKOTINOVIĆ (1879)
1909	Lošinj Island, Veli Lošinj (<i>Lussingrande</i>)	GALVAGNI (1909)
1923	Dubrovnik, Zaton kod Gruža (<i>Malfi bei Gravosa</i>)	STAUDER (1923)
2002	Poreč, city of Poreč	This study
2023	Dubrovnik, city of Dubrovnik	This study
2024	Tribunj, municipality of Tribunj	This study

Adults of this species are colored in different shades of brown, white and gray, with wingspan of up to 80 mm (SUELO *et al.*, 2023; PITTAWAY, 2024). Forewing upperside comes with the lower edge of the discal cell highlighted in white and black, while the hindwing upperside is with a bright pink basal and tornal area (PITTAWAY, 2024). It has round, usually bluish-green eggs which are around a millimeter in diameter which are usually deposited on the underside of the leaves (WAGNER, 2024). After hatching, larvae go through four larval instars which can appear in one of the two color forms, green or brown (SUELO *et al.*, 2023). It takes 32–34 days to complete the species' rather fast life cycle (SUELO *et al.*, 2023).

Hippotion celerio is polyphagous, feeding on various plants from numerous families. Main hostplants are from family Vitaceae - genera such as *Vitis* L. (grapevines) and *Parthenocissus* Planch. (creepers). Preferring grapevines, it can sometimes even be a grapevine pest (BODENHEIMER, 1926). Other families such as Araceae, Begoniaceae, Convolvulaceae, Onagraceae, Polygonaceae, and Rubiaceae can also be utilised (PITTAWAY, 2024). The wide

variety of host plants make it a successful pest on various crops in tropical countries such as India (JAYAPRAKAS & HARISH, 2022).

Oldest of the recent observations is from Istria, where a green last instar caterpillar was photographed by B. Dvorak in Poreč (45.22854 N, 13.59380 E) on *Parthenocissus quinqueifolia* (L.) Planch. vine on 28th September, 2002 (Fig. 1a). This record was uploaded to iNaturalist (inaturalist.org/observations/196309419).

Over two decades later, on November 2nd 2023, a brown last instar caterpillar was observed and photographed, this time in the city of Dubrovnik (42.64176 N, 18.10955 E) by L. G. Restrepo. The documented individual was also later uploaded to iNaturalist (inaturalist.org/observations/195871647). The specimen was observed in the city center being bothered by a cat beneath a potted grapevine (Fig. 1b) on which it was possibly feeding (after documenting the caterpillar was placed back onto the plant).



Fig. 1. The encountered caterpillars of *Hippotion celerio*. a) green form - Poreč (2002), b) brown form - Dubrovnik (2023), c) brown form - Tribunj (2024). Photographs by Boštjan Dvorak (a), Luis G. Restrepo (b), and V. Mičunović (c). Reproduced with authors' permissions.

Most recent observation of this species in Croatia is from Northern Dalmatia, more specifically Tribunj municipality (43.755310 N, 15.743338 E). On November 10th 2024, a brown last instar caterpillar was discovered by Vesna Mičunović on her doorstep where it probably fell from the

nearby grapevines (Fig. 1c). This observation was uploaded to a Facebook group „*Koji je ovo pauk/kukac*“ in hopes of identification.

The lack of records from Croatia can be explained by a single simple reason, the species' biology. *Hippotion celerio* is a migratory species, being an occasional resident, not only of Croatia, but of most of Europe mainland. It migrates to Europe during the warmer months and therefore it is not present in the country during the whole year, automatically reducing the possibility of sightings of any kind outside summer and fall when the migration occurs. In a time period of 155 years, only eight documented observations of this species exist for Croatia, with sightings almost exclusively occurring on the Adriatic coast (Fig. 2).

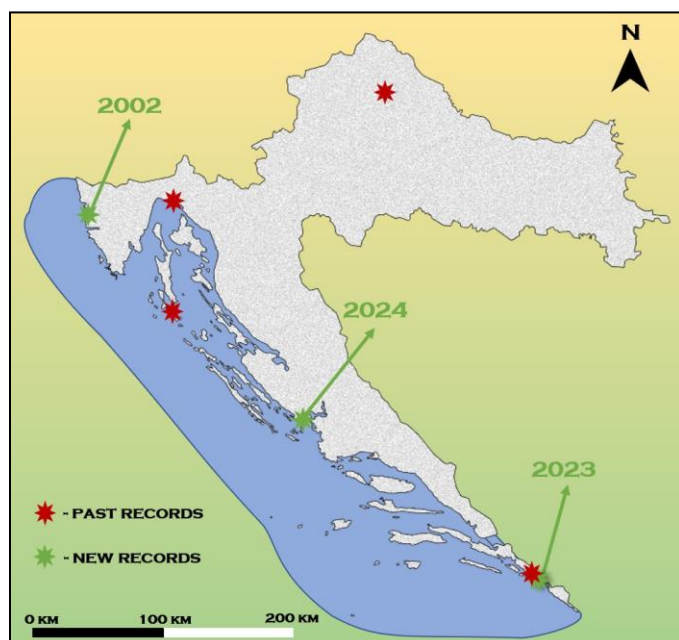


Fig. 2. Updated distribution map of *H. celerio* in Croatia, red stars indicating the past records and green stars indicating the new observations reported in this paper, together with their year of observation.

While it can still be considered as rare, the newer records verify the species' presence in Croatia.

With the changing climate, *H. celerio* will probably become a more common resident of the Croatian coast, as it has been spreading further north in the past years with individuals recorded from as north as Britain (ANDREWS, 2018). Because of this, higher rate of sightings is expected in the coming years.

ACKNOWLEDGEMENTS

I am grateful to Boštjan Dvorak, Luis G. Restrepo and Vesna Mičunović for granting me

permission to use their photos and providing me information about their remarkable finds, directly improving the quality of this report. Great thanks to the anonymous and non-anonymous reviewer (Toni Koren) for helpful comments and suggestions regarding the manuscript.

Received March 21, 2025

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