

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

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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. Presented and discussed here 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

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Srebrnoprugi ljiljak (*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 ljiljak) *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 Moroccan Atlantic coast and the 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, mostly originating from the Mediterranean region (GALVAGNI, 1909; STAUDER, 1923), with inland observations from Kalnik Mountain, where they were found on grapevines (ŠLOSER, 1870) and the city of Zagreb with surroundings (VUKOTINOVIĆ, 1879). These old literature records were reported by KOREN & ŠAŠIĆ (2023), who 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 found 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 different shades of brown, white and gray, with a wingspan of up to 80 mm (SUELO *et al.*, 2023; PITTAWAY, 2024). On the forewing upper-side lower edge of the discal cell is highlighted in white and black and the hindwing upperside with a bright pink basal and tornal area (PITTAWAY, 2024). It has round, usually bluish-green eggs around a millimeter in diameter that are usually deposited on the underside of the leaves (WAGNER, 2024). After hatching, the 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. The main hostplants are from the 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 an important pest on various crops in tropical countries such as India (JAYAPRAKAS & HARISH, 2022).

The oldest of 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 where it was being bothered by a cat beneath a potted grapevine (Fig. 1b) on which it was possibly feeding (after documentation, the caterpillar was placed back onto the plant).

The 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 Mićunović on her doorstep onto which it had probably fallen from nearby grapevines (Fig. 1c). This observation was uploaded to a Facebook group „Koji je ovo pauk/kukac“ for the sake of identification.



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.

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 all year long, automatically reducing the possibility of sightings of any kind outside summer and fall when migration occurs. In a span of 155 years, there have been only eight documented observations of this species in Croatia, with sightings occurring almost exclusively on the Adriatic coast (Fig. 2).

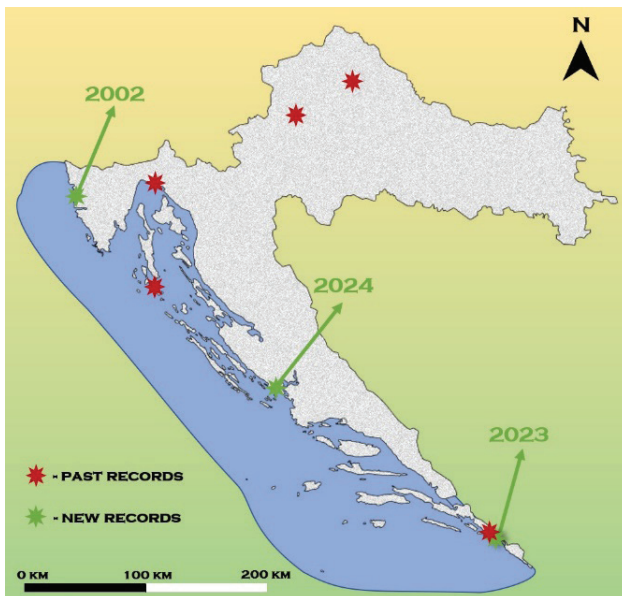


Fig. 2. Updated distribution map of *H. celerio* in Croatia, red stars indicating the past records and green stars indicating the new observations reported in this paper, together with their year of observation.

While it can still be considered 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 far north as Britain (ANDREWS, 2018). Because of this, a higher rate of sightings is expected in the coming years.

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