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# NEW RECORDS OF THE RARE HAWK-MOTH *SPHINGONAEPIOPSIS GORGONIADES* (HÜBNER, [1819]) FROM CROATIA (LEPIDOPTERA: SPHINGIDAE)

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**Katona, G., Balázs, T. & Bálint, Z.: New records of the rare hawk-moth *Sphingonaepiopsis gorgoniades* (Hübner, [1819]) from Croatia (Lepidoptera: Sphingidae). Nat. Croat., Vol. 36, No. 1, _____, 2027, Zagreb.**

New records of the rare hawk-moth *Sphingonaepiopsis gorgoniades* (Hübner, [1819]) from Croatia are presented based on a revision of historical literature, museum collections, and recent observations. The species was previously known in Croatia only from early twentieth-century records from the Senj (Zengg) area. Our study identified eight Croatian specimens in the Natural History Museum, London, two in the Naturhistorisches Museum Wien, one recent specimen in the Hungarian Natural History Museum, and one recent field observation. Together, with previously published data, these records show that the species has been recorded in Croatia over a much longer period than previously recognized and suggest that it is likely still extant in the country, where it may represent a peripheral and poorly known population. Historical records are critically reassessed, particularly with respect to collector identity and specimen dating. The results underline the importance of museum collections in clarifying the distribution and status of rare and poorly known Lepidoptera species.

**Key words:** museum collections, historical records, distribution, peripheral population, Senj, Dobiasch, Padewieth

**Katona, G., Balázs, T. & Bálint, Z.: Novi nalazi rijetkog ljiljka *Sphingonaepiopsis gorgoniades* (Hübner, [1819]) iz Hrvatske (Lepidoptera: Sphingidae). Nat. Croat., Vol. 36, No. 1, _____, 2027, Zagreb.**

Na temelju revizije povijesne literature, muzejskih zbirki i nedavnih opažanja, predstavljaju se novi zapisi o rijetkom ljiljku *Sphingonaepiopsis gorgoniades* (Hübner, [1819]) iz Hrvatske. Vrsta je prethodno bila poznata u Hrvatskoj samo za područja Senja ('Zengg') iz zapisa s početka 20. stoljeća. Našim istraživanjem utvrđeno je osam primjeraka iz Hrvatske u Prirodoslovnom muzeju u Londonu, dva u Prirodoslovnom muzeju u Beču, jedan noviji primjerak u Mađarskom prirodoslovnom muzeju te jedno nedavno terensko opažanje. Zajedno s prethodno objavljenim podacima, ovi zapisi pokazuju da je vrsta zabilježena u Hrvatskoj tijekom mnogo duljeg razdoblja nego što je prethodno prepoznato i sugeriraju da je vjerojatno još uvijek prisutna u zemlji, gdje bi mogla predstavljati perifernu i slabo poznatu populaciju. Kritički su preispitani povijesni zapisi, posebno u pogledu identiteta sakupljača i datiranja primjeraka. Rezultati naglašavaju važnost muzejskih zbirki u razjašnjavanju rasprostranjenosti i statusa rijetkih i slabo poznatih vrsta Lepidoptera.

**Ključne riječi:** muzejske zbirke, povijesni nalazi, rasprostranjenost, rubna populacija, Senj, Dobiaš, Padewieth

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## INTRODUCTION

The hawk-moth *Sphingonaepiopsis gorgoniades* (Hübner, [1819]) is one of the rarest Sphingidae species in Europe, with a fragmented and poorly understood distribution at the western margin of its range. While the species is more widely distributed in parts of Asia and southeastern Europe, its occurrence in the Balkan Peninsula remains sporadic and insufficiently documented (PITTAWAY, 1993).

In Croatia, all published records have so far referred to the historical material collected in the early twentieth-century in the vicinity of Senj ('Zengg'), with no confirmed recent data until now. Notably, although the Croatian records represent some of the earliest European data for the species, no records younger than a century had been available from the country, whereas in several other Balkan countries the species has only been recorded during the last three decades.

The present study aims to clarify the occurrence and current status of *S. gorgoniades* in Croatia through a critical review of the literature, examination of museum specimens, and evaluation of recent records. Particular attention is given to the historical context of the material and to the reliability of the associated locality, date, and collector data.

**Abbreviations:** HNHM: Hungarian Natural History Museum; NHMUK: Natural History Museum, London; NHMW: Naturhistorisches Museum Wien

***Sphingonaepiopsis gorgoniades* (Hübner, [1819])**

*Neopterodonta gorgoniades* – DIDMANIDZE *et al.*, 2013: 280; SINEV, 2019: 289; SNEGOVAYA & PETROV, 2021: 109.

*Pterodonta gorgoniades* – REBEL, 1916: 105; SCHAWERDA, 1921: 112; DANNER *et al.*, 1998: 180.

*Pterogon Gorgoniades* – ABAFI AIGNER, 1903: 113; ABAFI AIGNER, 1904: 105; ABAFI AIGNER, 1907: 24; ABAFI AIGNER, 1910b: 77; GRUND, 1918: 63;

*Sphingonaepiopsis gorgon* – ZERNY, 1933: 60;

*Sphingonaepiopsis gorgoniades* – BESCHKOW, 1990: 75; DE FREINA & PIATKOWSKI, 1999: 267; MIHUŢ & DINCĂ, 2006: 3; SCHULZE & WEIGERT, 2006: 161; KITCHING & ZAHIRI, 2007: 43; DEMYANENKO, 2012: 214; MELICHAR & ŘEZÁČ, 2013: 175; SZÉKELY, 2016: 201; iNATURALIST, 2022; RAJAEI *et al.*, 2023: 266; BESHKOV *et al.*, 2024: 250; KRPAČ *et al.*, 2019: 121;

*Sphingoneopsis gorgoniades* – POLTAVSKY, 2005: 148; KOREN & ŠAŠIĆ, 2023: 60.

**Material examined** (n=11): Dobiasch Zengg '14-15 29.V. N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-1. NHMUK016480944 (no. 1); Zengg Padevieth 1900. E 95.25 gorgoniades ♂ CROATIA, Senj [Zengg] (Padevieth) 1900 Coll J. M. Cadiou Cadiou Coll BMNH (E) 2008-107 NHMUK016480948 (no. 2); Dobiasch Zengg 14-15 27.V. N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-1. NHMUK016480949 (no. 3); Nr. Zengg Croatia 15.VI.1914. N. C. Rothschild Coll. B. M. 1939-432. NHMUK016480950 (no. 4); Zengg Dobiasch 22.V.916 N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-1. NHMUK016480951 (no. 5); Dobiasch Zengg 14-15 17.V. N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-1. NHMUK016480952 (no. 6); Zengg Dobiasch 25.V.916. N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-1. NHMUK016480953 (no. 7); Zengg Dobiasch 25.V.916. N. C. Rothschild Coll. B. M. 1939-432. Rothschild Bequest B. M. 1939-

1. NHMUK016480954 (no. 8); Dobiasch Zengg '14-15 21.V. (no. 9); Zengg collectio Dr. Schawerda (no. 11); CROATIA AŽIĆ LOKVA 18.VI.2000. 200m lgt. PASTORÁLIS (no. 11).

**Distribution**

In Asia, listed from east to west, the species has been recorded from the following countries: Kazakhstan (MELICHAR & ŘEZÁČ, 2013), Kyrgyzstan (KITCHING & ZAHIRI, 2007), Uzbekistan (MELICHAR & ŘEZÁČ, 2013), Turkmenistan (DANNER *et al.*, 1998), Afghanistan (DANNER *et al.*, 1998), Iran (DANNER *et al.*, 1998; KITCHING & ZAHIRI, 2007; RAJAEI *et al.*, 2023), Iraq (DANNER *et al.* 1998), Azerbaijan (DIDMANIDZE *et al.*, 2013, SNEGOVAYA & PETROV, 2021), Georgia (DIDMANIDZE *et al.*, 2013), Armenia (DANNER *et al.*, 1998, DIDMANIDZE *et al.*, 2013, MELICHAR & ŘEZÁČ, 2013), Turkey (DANNER *et al.*, 1998, MELICHAR & ŘEZÁČ, 2013), Lebanon (DANNER *et al.*, 1998, MELICHAR & ŘEZÁČ, 2013), Jordan (MÜLLER *et al.*, 2005b), and Israel (MELICHAR & ŘEZÁČ, 2013, MÜLLER *et al.*, 2005a).

In Europe, listed from east to west, it occurs in the following countries: Russia (Volga–Don Region, Lower Volga Region, East Caucasus Region, Crimean Region, South Ural Region, and with uncertain records: Middle Volga Region and West Caucasus Region; DANNER *et al.*, 1998, MELICHAR & ŘEZÁČ, 2013, POLTAVSKY, 2005 and SINEV, 2019), Ukraine (KITCHING & ZAHIRI, 2007; Luhansk Region: DEMYANENKO, 2012), Romania (Dobrogea; MIHUȚ & DINCĂ, 2006, SZÉKELY, 2016), Bulgaria (BESCHKOW, 1990, BESHKOV *et al.*, 2024, 2025), Greece (DE FREINA & PIATKOWSKI, 1999, SCHULZE & WEIGERT, 2006), Montenegro (KRPAČ *et al.*, 2019), Albania (BESHKOV *et al.*, 2024), North Macedonia (DANIEL, 1964; VON MENTZER, 1975; HASSLER *et al.*, 1988; BESHKOV & MICEVSKI, 2019) and Croatia (KOREN & ŠAŠIĆ, 2023).

**Occurrence in Croatia**

The species was first reported from the territory of Croatia by ABAFI AIGNER (1903) from Senj (Zengg), based on material collected by M. Padewieth in 1902 or possibly earlier. He also provided a Hungarian vernacular name for the species, "törpe lappantyú pille" (ABAFI AIGNER, 1904), and later noted that it was observed in June in Senj (ABAFI AIGNER, 1907). In a subsequent paper (ABAFI AIGNER, 1910b), the species was reported again from Senj (Zengg), this time based on material collected by F. Dobiasch. Due to the lack of precise dates, it cannot be determined whether these records refer to the same material; however, the two collectors are in fact the same person, as discussed below in the biographical section. GRUND (1918) cited both Aigner papers (ABAFI AIGNER, 1903 and 1910b) and assumed that the record was most probably erroneous. In his paper, SKALA (1931) stated that the species had been collected several times at Senj (Zengg). In ZERNY (1933) the subspecies *pfeifferi* was described, and after the list of type material, a male specimen collected at Senj (Zengg) and preserved in the NHMW is also mentioned.

According to the checklist published by KOREN & ŠAŠIĆ (2023), the species was collected only in the early 20th century near Senj (Zengg), and no evidence of its occurrence in Croatia has been recorded since. They cited three sources: ABAFI AIGNER (1910b), GRUND (1918), and ZERNY (1933). They also noted that a series of specimens is present in the NHMUK, and that one male specimen is housed in the NHMW, according to ZERNY (1933). These data were re-examined in the present study (see Tab. 1). Eight Croatian specimens were found in museum collections in London, two in Vienna, and one recent specimen in Budapest. The first ten preserved specimens date from the early 20th century, all originating from Senj. According to their labels, they were collected between 1900 and 1916 and bear the names Dobiasch and

Padewieth as collectors. One specimen from Senj lacks both date and collector information, but it certainly predates 1945, as it originates from the collection of Karl Schawerda, who died in autumn 1945 (ANONYMOUS, 1945).

In the 21st century, the species was collected in Croatia by Gábor Pastorális in 2000 and by Tamás Korompai in 2019; the former specimen is preserved in the HNHM, while the latter has unfortunately been lost. Tamás Korompai collected the specimen using a bucket trap, equipped with a 20W BL368 Sylvania compact fluorescent lamp as a light source. Gábor Pastorális captured a flying individual during daytime with a butterfly net while it was hovering around flowers.

A record is also available on a citizen science platform, suggested to be *S. gorgoniades* by its observer; however, based on the two uploaded photographs, it cannot be conclusively determined whether that larva represents *S. gorgoniades* or *Macroglossum stellatarum*, as no dorsal view is available. Details of the observation are as follows: Mihovilovići, 13 November 2022, photographed by Anton Gjeldum (iNATURALIST, 2022).

The distribution of the species in Croatia is shown in Fig. 1. Photographs are available for all specimens (and their labels) housed in NHMW, NHMUK, and HNHM collections; however, only the most recently collected specimen, preserved in Budapest, is illustrated here (Fig. 2).

**On the collectors**

The collector known in Hungarian as Dobiasch Ferenc (1862–1914), was a teacher, entomologist, botanist, natural history collector, and dealer with insects. His name appears in Croatian as Franjo Dobiaš or Dobijaš (SKEJO, 2018) and in German as Franz Dobiasch. He contributed data to the two-part series by Lajos Abafi-Aigner on the Lepidoptera fauna of the „*Magyar tengermellék, Horvátország és Dalmáczia*" (Hungarian Littoral, Croatia and Dalmatia) (ABAFI AIGNER, 1910a, 1910b), although Dobiasch did not provide a complete list of the species he had collected and observed. He published one paper in Hungarian on the observation of *Charaxes jasius* in Croatia (DOBIASCH, 1909). Under the pseudonym M. Padewieth, he published three papers in German, two of which included the description of three new insect species that are still considered valid today (MILOŠEVIĆ, 2001). His death was reported by DEGEN (1914) in *Magyar Botanikai Lapok*. Dobiasch also traded natural history material under the maiden name of his wife, M. Padewieth (MILOŠEVIĆ, 2001; ABAFI AIGNER & CSIKI, 1902). After Dobiasch's death, his widow continued the business with the help of their children (REBEL, 1916, SCHAWERDA, 1921). Bogomir Milošević gained access to a substantial amount of archival and estate material and planned to write a monograph on Ferenc Dobiasch, but did not complete the work before his death.

## DISCUSSION

Our revision confirms that *Sphingonaepiopsis gorgoniades* is represented in Croatia by a small number of historical specimens and very few recent records. Most of the historical material originates from the Senj area and dates from 1900 to 1916. These specimens are preserved in several major European collections.

A critical issue concerns the interpretation of specimen labels dated after the death of Franz Dobiasch. Several individuals collected between 1914 and 1916 are labelled "Dobiasch", although F. Dobiasch died on 16 April 1914 (DEGEN, 1914). A plausible explanation is that

these specimens were collected by his widow, Matilda Dobiasch (born M. Padewieth) (1866–1940), possibly with assistance of their children, who continued the family's natural history trade after his death (MILOŠEVIĆ, 2001). SCHAWERDA (1921) refers to the widow as "Frau Marie Dobiasch" and notes that she supplied material to Rothschild. REBEL (1916) also reported that members of the Dobiasch family collected *gorgoniades* specimens between 17 and 27 May during the years 1914–1916. These specimens may be identical with those preserved in the Rothschild Collection (now housed in NHMUK). The continued use of the Dobiasch name on labels may therefore reflect the persistence of the established family or business name rather than the identity of actual collector.

Recent Croatian records, including specimens collected in 2000 and 2019 (the latter no longer preserved), together with a possible observation from 2022, suggest that the species may still occur in the country. Although sparse, these records indicate the possible persistence of a small and possibly overlooked peripheral population of *S. gorgoniades* in Croatia.

However, the available evidence highlights the value of integrating historical museum material data with recent observations. The case of *S. gorgoniades* in Croatia demonstrates how re-evaluation of historical collections, combined with careful evaluation of their context and provenance, can substantially improve our understanding of species distributions, particularly in rare and poorly documented taxa.

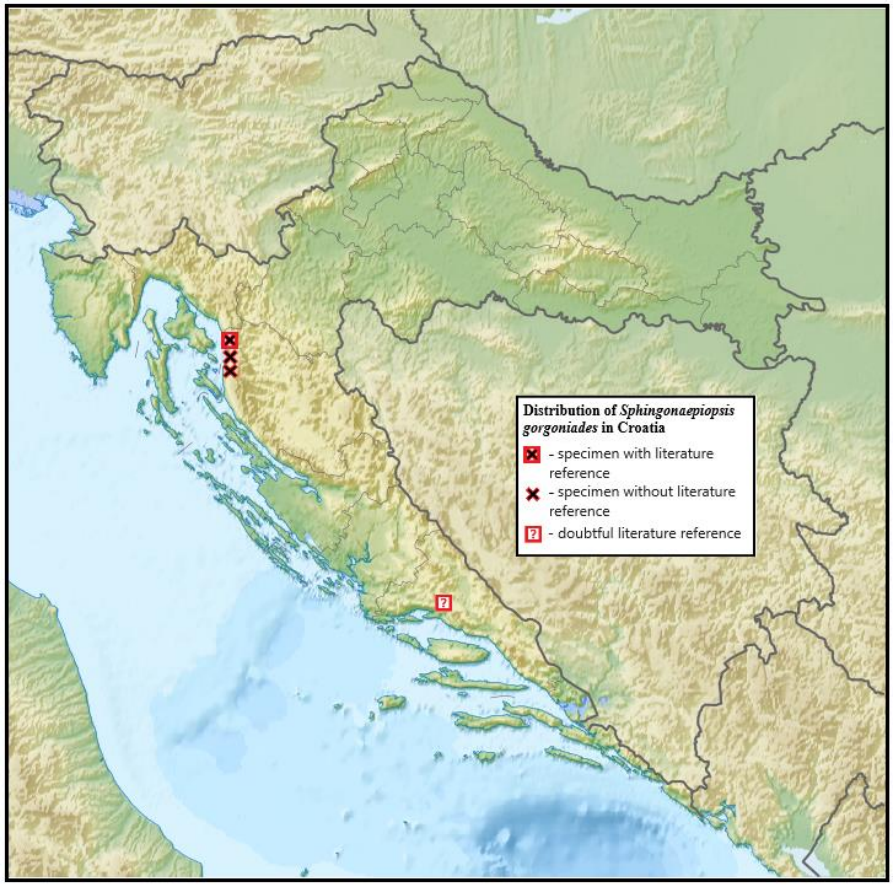



**Fig. 1.** Distribution of the Gorgon hawkmoth (*Sphingonaepiopsis gorgoniades*) in Croatia, based on literature records and museum material. Symbols indicate: specimen without a corresponding literature record (mark); specimen with literature record (square with mark); doubtful literature record (square with question mark). Map compiled by G. Katona.

**Tab. 1.** Literature and collection records of the Gorgon hawkmoth (*Sphingonaepiopsis gorgoniades*) from Croatia, arranged chronologically by year of collection or observation. Publication references are listed below the table. Original record data are reproduced verbatim.

| No. | Locality (larger) | Locality (smaller, verbatim) | Date | Collector | Publication / Collection |
|---|---|---|---|---|---|
| 1 | Lika-Senj | Zengg | 1900 | Padewieth, Coll. Cadiou | NHMUK |
| 2 | Lika-Senj | Zengg | 1902? VI. | Padewieth | ABAFI AIGNER, 1903, 1907; GRUND, 1918 |
| 3 | Lika-Senj | Zengg | | Dobiasch | ABAFI AIGNER, 1910b; GRUND, 1918 |
| 4 | Lika-Senj | Zengg | 1914.VI.15. | Coll. Rothschild | NHMUK |
| 5 | Lika-Senj | Zengg | '14-15.V.11. | Dobiasch, Coll. Rothschild | NHMUK |
| 6 | Lika-Senj | Zengg | '14-15.V.21. | Dobiasch | REBEL, 1916; ZERNY, 1933; NHMW |
| 7 | Lika-Senj | Zengg | '14-15.V.27. | Dobiasch, Coll. Rothschild | REBEL, 1916; NHMUK |
| 8 | Lika-Senj | Zengg | '14-15.V.29. | Dobiasch, Coll. Rothschild | NHMUK |
| 9 | Lika-Senj | Zengg | 1916.V.22. | Dobiasch, Coll. Rothschild | REBEL, 1916; NHMUK |
| 10 | Lika-Senj | Zengg | 1916.V.25. | Dobiasch, Coll. Rothschild | REBEL, 1916; NHMUK |
| 11 | Lika-Senj | Zengg | 1916.V.25. | Dobiasch, Coll. Rothschild | REBEL, 1916; NHMUK |
| 12 | Lika-Senj | Zengg | before 1945 | Coll. Dr. Schawerda | NHMW |
| 13 | Lika-Senj | Ažić Lokva | 2000.VI.18. | Pastorális G. | HNHM |
| 14 | Lika-Senj | Sveti Juraj | 2019.VII.24–27. | Korompai T. | |
| 15 | Split-Dalmatia | Mihovilovići | 2022.XI.13. | Gjeldum A. | iNATURALIST, 2022 |

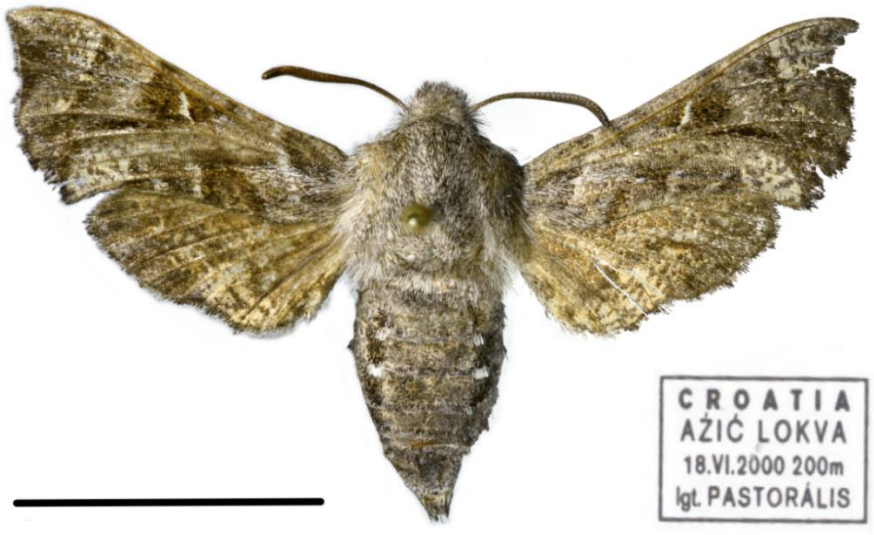



**Fig. 2.** Recently collected Croatian specimen of Gorgon hawkmoth (*Sphingonaepiopsis gorgoniades*), preserved in the collection of the Hungarian Natural History Museum. Photo: B. Tóth.

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