

***Stenoecia dos* (FREYER, [1838]) new to Greece and some observations on its preimaginal stages in Lesbos (Lepidoptera: Noctuidae)**

Wolfgang WAGNER

Dr. Wolfgang WAGNER, Baseler Strasse 6, D-70619 Stuttgart, Germany; wolfgang@pyrgus.de, www.pyrgus.de

Abstract: In May 2019 eight larvae of *Stenoecia dos* (FREYER, [1838]) have been found on *Silene subconica* FRIV. (Caryophyllaceae) in a coastal area near Kalloni on Lesbos Island (East Aegean Islands). In Europe, the species has been recorded so far only once in the Republic of North Macedonia in 1980. Larval habitat, larva and pupa are described and figured.

***Stenoecia dos* (FREYER, [1838]) – neu für Griechenland und einige Beobachtungen zur Larvalökologie auf Lesbos (Lepidoptera: Noctuidae)**

Zusammenfassung: Im Mai 2019 wurden acht Raupen von *Stenoecia dos* (FREYER, [1838]) an *Silene subconica* FRIV. (Caryophyllaceae) in einem Küstengebiet bei Kalloni auf der Insel Lesbos nachgewiesen. Die Art wurde in ganz Europa bislang erst einmal im Jahr 1980 in Nordmazedonien gefunden. Larvalhabitat, Raupe und Puppe werden beschrieben und abgebildet.

Introduction

Stenoecia dos has a quite small known distribution in Asia Minor (western and central Anatolia, HACKER 1990) and has been recorded with certainty only once so far in Europe. In early June 1980 it was found in the Republic of North Macedonia (“FYROM”) near Prilep (VON MENTZER 1981). Allegedly it has been also found in the European part of Turkey and near Istanbul (BESHKOV 2000). Even if the species may be found in a few more areas of the Balkans in future, it is a local and very scarce species, but can sometimes be abundant in its local and confined habitats. According to FAUNA EUROPAEA (2020), the species is listed for all former Yugoslavian countries including Slovenia which is surely an error originating from the Prilep record and the subsequent disintegration of Yugoslavia.

It is known that the moths (Figs. 1–2) fly during daytime around flowering *Silene* stands on which the adults feed. Presumably also the larvae develop on *Silene*. BESHKOV (2000) figures a copula on a *Silene* inflorescence. But more detailed information, e.g. real larval records, photos or descriptions of the early stages, has not been published so far.

In late May 2019 I visited Lesbos Island and as I lived in Skala Kallonis (Kalloni) I investigated the nearby Alykes wetlands thoroughly. Besides records of other interesting and in Greece only very locally recorded species of Lepidoptera like larvae of *Ocnogyna nogelli* LEDERER, 1865 (Erebidae, common here and in several parts of the island) and *Lasiocampa terreni* (HERRICH-SCHÄFFER, [1847]) (Lasiocampidae) – both new to Lesbos –, I found some large stands of *Silene subconica* with many larvae of

the noctuid *Hadena silenae* (HÜBNER, [1822]).

As I investigated these *Silene* plants a bit further I suddenly spotted another, smaller larva with narrow stripes. I thought to have found a larva of *Hadena pumila* (STAUDINGER, 1879) which should be common in nearby Anatolia but has only been recorded once in Europe and Greece. Careful examination revealed two more larvae. But all three proved to be parasitized after two days. Thus I took a sample of the *Silene* flowers in hope to obtain further larvae.

This succeeded and the resulting pupa showed my mistake: it was clearly a Oncocnemidinae pupa and not a Hadeninae. I already had an idea of the identity, but this idea proved right only after hatching of the adult after hibernation in March 2020.

Material and methods

Three larvae have been found on 22. v. 2019 in Lesbos Island (NE Aegean Islands, NE-Greece) east of Skala Kallonis (Kalloni, Alykes wetlands). All larvae proved to be parasitized. Thus I took a sample of *Silene* on 24. v. 2019. This *Silene* sample has been shaken out regularly every day. After about a week 5 larvae appeared and have been reared. Two created a cocoon, but only one pupated successfully and hatched in spring after three weeks in room temperature on 22. iii. 2020.

Results and discussion

Host plant and larval habitat

The larvae have been found only on *Silene subconica* on quite dry sandy soil with therophytes on bare ground, *Juncus* tufts and other plants near the beach (Figs. 14–16).

Further inland seasonally or permanent wet grasslands and (marsh landscape) bordered on the habitat. Thus the habitat of the larvae was a more or less narrow stripe between the open beach and the more closed canopy of the marsh landscape. The species shared the hostplant with the much more numerous larvae of *Hadena silenae*. The latter have also been found on other *Silene* there like especially *Silene colorata* POIR. But *Stenoecia dos* seems to be restricted to *S. subconica* at this site, when the low number of recorded larvae allows this conclusion.

I did not find this *Silene* species in inland habitats in Lesbos. There occurred other species like *Silene dichotoma* EHRH. that hosted larvae of *Hadena syriaca* (OSTHELDER, 1933), but at least in the small examined sample no *Stenoecia*.



Colour plate: *Stenoecia dos* from Kalloni, Lesbos Island, East Aegean Islands, Greece, partially rearing from field larvae.— **Fig. 1:** Adult, 22. III. 2020. **Fig. 2:** adult, drying its wings after eclosion, 22. III. 2020. **Fig. 3:** Larva in the penultimate instar prior to moulting, 30. v. 2019. **Figs. 4–8:** Larva in the last instar, late May and early June 2019. **Fig. 7:** Partially buried into the *Silene* capsule. **Fig. 8:** Head and prothoracal shield. **Fig. 9:** Larva with redbrown colour prior to pupation, 6. vi. 2019. **Fig. 10:** Cocoon, 25. vi. 2019. **Figs. 11–13:** Pupa (Fig. 13: dorsal view), 25. vi. 2019. **Figs. 14–16:** Larval habitat near the beach, 23. v. 2019. — All photos by the author.

In other populations of *S. dos* closely related *Silene* seem to be the host plants. BESHKOV (2000) figures on page 285 a copulation on a very similar *Silene* species with dark-striped calyx. In Anatolia the species is found in quite dry flowery inland places with plenty of *Silene* and therophytes (e.g.: “flowery meadow”, BARON 2014), thus similar to the coastal habitat in Lesbos.

Larva

At least in the last two instars (Figs. 3–8) the larvae are largely striped maroon and creamy white. This white colour often has a yellowish touch. All stripes are irregularly shaped in their border regions. A broad white dorsal band is bordered at both sides by a pale broad field. This pale field appears like a mixture of both ground colours

and shows a narrow, distinctive darker brownish border on both sides. Next to the outer border a stripe like the white dorsal band ad-joins. Next there is a not so broad dark, maroon stripe, followed again by a white and then another maroon stripe. This last dark stripe includes the half of the black spiracles with their white corona. Below the spiracles a broad white stripe is bordered towards the ventral side by a narrow maroon line which is largely restricted to the central part of the segments.

The ventral side of the larva below that broken line is white. But directly below the stripe there is a black bristle point with white corona and an adjacent maroon ring. In segments with legs this bristle point with maroon ring is located between the broken maroon line and the outer base of the leg.

Prior to pupation the colour changes to redbrown (Fig. 9).

On the pronotum (Fig. 8) the dark stripes from the rest of the body continue, but are usually darker, almost black and heavier sclerotized, especially the two subdorsal ones. The head capsule (Fig. 8) is creamy white with dark bristle points with central white spots, blackish bordered stemmata and a maroon reticulate pattern that reminds a bit of fluffy clouds.

The total appearance (colour and pattern) is somewhat similar to that of the larva of *Omia cymbalariae* (HÜBNER, [1808–1809]). But in the latter the stripes are not so distinct as in *S. dos*.

Pupa

The pupa (Figs. 11–13) is yellowish redbrown with obtuse cremaster and straightened apex. Especially striking is the proboscis sheath. This sheath shows not only a long free terminal part as it is the case in some other species like *Calophasia* STEPHENS, 1829. Furthermore, *S. dos* is the only species I know where this free end of the proboscis sheath runs not only to the cremaster region, but is even bend over to the dorsal side and reaches there the mid of the abdomen again.

Except for the free end of the proboscis sheath the pupa is very similar in shape to that of *Omia cymbalariae*. Both larva and pupa confirm the transfer of *S. dos* from the Heliethinae (where it used to be listed for many decades) to the Oncocnemidinae (FIBIGER et al. 2009).

Life cycle

The pupa hibernates and the flight period is in spring. BARON (2014) gives early April, but HACKER (1989) May and June. Judging from the larval records in Lesbos Island the flight time should be late April to mid-May there. Thus the total flight time should be April and May in lowlands and May and June at higher altitudes. This flight time corresponds well with the development of

annual *Silene* species which flower in spring prior to the summer drought. Thus the species has only a single generation per year.

The exorbitant long proboscis corresponds well with the visited Caryophyllaceae: *Silene* has a long way into the flower to the nectar. Additionally the moths hover above the flowers like a sphingid. Both facts explain the need of a long proboscis.

It is still unknown where exactly the oviposition occurs, but most probably the eggs are deposited on the flower buds or on receptively within the flowers. The young larvae live within the flowers. The *Silene* sample resulted in five larvae in the penultimate and final instars after a week. If younger larvae would live more freely on the flowers they would have been detected earlier. The older larvae live partly free on the outside of the calyx of flowers and fruits where they are very well camouflaged. But they should still withdraw into the flower at least temporarily. The older larvae gnaw a circular hole through the calyx into the ovary and feed on the unripe seeds. Then the front part of the larva is buried into the *Silene* fruit. This behaviour is similar to that of *Omia* with *Helianthemum* (Cistaceae), but in the case of *Stenoecia* the holes are not helpful for searching larvae because *Silene* always hosts *Hadena* larvae with similar feeding scars.

Pupation occurs in the ground in a more or less globular earthy cocoon (Fig. 10).

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Autor(en)/Author(s): Wagner Wolfgang

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