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Eucera nigrilabris Lepeletier, 1841 is the host of Sphecodes rubripes Spinola, 1838 (Hymenoptera: Aculeata)

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Zusammenfassung

Ian Cross: ***Eucera nigrilabris* Lepeletier, 1841 ist der Wirt von *Sphecodes rubripes* Spinola, 1838 (Hymenoptera Aculeata).** Erst vor kurzem wurde der Artstatus von *Sphecodes rubripes* Spinola anerkannt, so dass die Wirtsarten dementsprechend unbekannt waren. Beobachtungen im rühjahr 2016 aus Prtugalt lassen vermuten, dass *Eucera nigrilabris* Lepeletier mit hoher Wahrscheinlichkeit der mögliche Wirt ist.

Summary

Only recently accepted as a full species, the host of *Sphecodes rubripes* Spinola has hitherto been unknown. However, observations in Portugal in the spring of 2016 provide evidence that *Eucera nigrilabris* Lepeletier is the probable host.

As one of the largest *Sphecodes* in Europe and with the contrasting red legs that give it its name, *Sphecodes rubripes* Spinola, 1841 is an impressive insect (male fig. 1). Originally believed to be a subspecies of *Sphecodes albilabris* (Fabricius), Bogusch and Straka (2012) consider it likely that *S. rubripes* is a full species in its own right. This is on the basis of not only differences in colour pattern, but also on phenology: males of *S. rubripes* being found in April and males of *S. albilabris* flying in the summer.

Abb. 1: *Sphecodes rubripes* ♂ near a *Eucera nigrilabris* nest (photo: I. Cross)

I can confirm the early flight period of *S. rubripes*. It is strongly protandrous, with males in the present study being found as early as the 19th February in the mild climate of the Algarve in southern Portugal whilst females did not appear until the 2nd March. Both were still present when the study came to an end on the 3rd March.

However, the host of *Sphecodes rubripes* has remained a mystery until now, though Jakub Straka (pers. comm. to D. Baldock) suggested a Eucerine bee as a likely candidate. Direct observations of host-seeking females proved difficult as few were in evidence during fieldwork in Portugal in February and early March 2016. Males, though, proved to be relatively frequent.

Most interestingly of all, both sexes were only found in a very circumscribed area. This happened to be at a site where *Eucera nigrilabris* Lepeletier, 1841 (fig. 2) was abundant but equally local. Given the size of *S. rubripes*, it seemed reasonable that one of the larger *Eucera* would be required as a host. Considering its early flight period (on the wing in the same area since the 23rd February) and the coincidence of inhabiting the same narrow area, *E. nigrilabris* seemed a very good candidate and it was decided to keep watch at a nest site.

Abb. 2: *Eucera nigrilabris* ♂ (photo: I. Cross)

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An *E. nigrilabris* nest site, of roughly 40 to 50 nests, was kept under observation from the 29th February to the 3rd March 2016. The site was along a narrow path in a shallow gully among soft rock cliffs. The surrounding vegetation consisted of coastal matos: including *Pistacia lentiscus, Osyris lanceolata, Suaeda vera, Atriplex halimus, Asparagus albus, Astericus maritimus, Lobularia maritima, Plantago serraria* and *Oxalis pes-caprae*. Most of the nests were out of the full strength of the sun, along a path that sloped gently down to the north-east. Furthermore, nests were often partially concealed under thin vegetation. This mainly consisted of *O. pes-caprae* leaves but, at times, incoming females of *E. nigrilabris* were obliged to work their way down through a maze of scrubby *Suaeda* branches.

The aggregation appeared to carry a heavy kleptoparasite load of *Nomada agrestis* Fabricius. At no time was the nest site completely free of *Nomada*. Indeed, at one moment a small "cloud" of five females was hovering together over an incoming female *Eucera*.

At one of many nests, a female *Eucera* was observed returning with a full scopal load of pollen (fig. 3). This probably came from *Oxalis pes-caprae*, which was the only flower the females were seen visiting. As the first day drew to a close, this same nest was also inspected by a male *Eucera*, either prospecting for females or looking for a safe roost site for the night (males were often seen entering active nests to roost towards the end of the day). The male can be seen in fig. 4 hovering over the nest entrance with antennae extended to check for scent, then in fig. 5 alighting for a closer inspection.

Roosting males usually flew straight into a nest entrance without pausing. However, despite returning time

Abb. 3: *Eucera nigrilabris* ♀ laden with pollen enters nest (photo: I. Cross).

Abb. 4: *Eucera nigrilabris* ♂ inspects nest for possible female (photo: I. Cross)

Abb. 5: *Eucera nigrilabris* ♂ alights to insept nest (photo: I. Cross)

Abb. 6: *Sphecodes rubripes* ♂ in *Eucera nigrilabris* nest (photo: I. Cross)

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and time again, this male was extremely reluctant to enter the nest. On closer examination the reason soon became evident: the white face of a male *Sphecodes rubripes* was visible just inside the entrance (fig 6). When disturbed the *Sphecodes* flew out but immediately entered another *Eucera* nest only a few centimetres away.

On another occasion a fresh female *S. rubripes* was found lying on the ground less than 20 cm from a *Eucera* nest.

Discussion

It could have been assumed that the male *S. rubripes* was simply using the *Eucera* nest as a temporary refuge. However, when disturbed, it quickly sought out another nest of the same species and entered without hesitation, rather than simply flying away. This suggests at least a familiarity with the nest area and that it was not intimidated by the scent of the host species. Males were seen several times within 30 cm of *Eucera* nests over the following days.
The presence of a female *S. rubripes*, so close to a nest entrance, was very suggestive. Its posture, lethargic with the abdomen curled under the body, was hard to explain. Unfortunately, I was unable to see whether it was the victim of a struggle with one of the host females.
None of these observations has the full force of a host-seeking female *Sphecodes* actually seen entering a *Eucera* nest or evidence from rearing from nests of known hosts. However, the circumstantial evidence does suggest strongly that *Eucera nigrilabris* is at least one of the hosts for *Sphecodes rubripes*. Though this doesn't preclude the *Sphecodes* using other hosts, either as the season progresses or at other areas within its range.

Literature

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Ampulex - Zeitschrift für aculeate Hymenopteren

Jahr/Year: 2017

Band/Volume: 9

Autor(en)/Author(s): Cross Ian

Artikel/Article: Eucera nigrilabris Lepeletier, 1841 is the host of Sphecodes rubripes Spinola, 1838 (Hymenoptera: Aculeata) 12-14