

SCOLIOPTERYX LIBATRIX (LINNAEUS) (LEPIDOPTERA-NOCTUIDAE) IN MADEIRA ISLAND

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With 5 figures

ABSTRACT: The presence of *Scoliopteryx libatrix* (LINNAEUS, 1758) *Lepidoptera: Noctuidae - Ophiderinae* in Madeira is delt with.

This species has an ample geographical distribution, predominantly Euro-Asiatic, including references of its presence in North Africa and North American temperate regions. High flight capacity may be the cause of this wide distribution, so that its presence in Madeira is not surprising. Even so, a brief reference to this fact is justifiable, not only because *S. libatrix* constitutes one more element to join the already known lepidopterological patrimony of Madeira, but also because of some remarkable morphological and bio-ecological characteristics. Its chromatic composition, the profile of the external margin of its forewings and the particularity that it searches caves, tunnels and other dark places to hide, are examples of these characteristics. However, under the local ecological conditions, this protective behaviour against adverse seasonal factors may constitute a limiting factor of the abundance of this species.

RESUMO: *SCOLIOPTERYX LIBATRIX* (LINNAEUS) (LEPIDOPTERA-NOCTUIDAE) NA ILHA DA MADEIRA. Noticia-se a presença na Ilha da Madeira de *Scoliopteryx libatrix* (LINNAEUS, 1758), *Lepidoptera: Noctuidae - Ophiderinae*.

Esta espécie tem uma ampla área de distribuição geográfica, predominantemente euro-asiática, havendo referências sobre a sua existência no Norte de África e em regiões temperadas da América do Norte. A esta área de distribuição associa-se uma elevada capacidade de voo, não constituindo por conseguinte o aparecimento desta espécie na Ilha da Madeira uma grande surpresa. Mesmo assim, justifica-se que se faça uma breve referência ao acontecimento, não só pelo facto de *S. libatrix* constituir mais um elemento a juntar ao património já conhecido da lepidoptero-fauna da Ilha da Madeira, como também por possuir algumas características morfológicas e bio-ecológicas que merecem destaque. É o caso, por exemplo, da composição cromática e recorte da margem externa das asas anteriores e da particularidade que tem de procurar para se abrigar grutas, túneis e outros locais obscurecidos. Todavia nas condições ecológicas locais, este comportamento de protecção contra factores adversos sazonais podera constituir um factor limitante da abundância desta espécie.

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For the Island of Madeira 51 species of Noctuids were known, this number being now increased by the presence of *Scoliopteryx libatrix* (CARVALHO, 1981).

Despite the interest the exploration of the lepidoptera in Madeira has stimulated and the effort which has been dedicated by several entomologists to the study of this group of insects, *S. libatrix* was only found for the first time in March 1989, by the latter author of the current paper.

Nevertheless, because it was discovered in a tunnel, which is in harmony with the normal behaviour of the species in its geographical distribution area, one cannot be sure that *S. libatrix* has been recently introduced on the island. It could on the contrary mean that its existence in Madeira is already ancient. Actually, *S. libatrix* is a species that only occasionally is attracted by luminous sources, associated or not with traps, and differs on this behaviour from many other nocturnal lepidoptera common on Madeira Island. It is for this reason that it is difficult to capture specimens of *S. libatrix* the more usual ways, based on light effects. Such difficulties increase with the fact that this species does not abound and the places and seasons where the captures of nocturnal lepidoptera have been made were not the most favourable.

It is known that numerous species of lepidoptera are attracted by several substances, including ripe fruits, and *S. libatrix* is one of them.

In the tunnel where the specimens were discovered, 20% of them were dead and densely covered by fungi mycelium. This fact, and its ecological meaning in relation to the limitation of *S. libatrix* abundance, must be considered in a more thorough future study for the recognition of the distribution and antiquity of this species on the island, using a prospecting methodology suitable for its bio-ecological behaviour. For that purpose, several types of traps should be used, including food baits and without completely excluding the use of luminous traps and also the thorough observation of tunnels caves and other places suitable for adults to hide. Eventually, the presence of caterpillars could be searched on hosts known in other regions, such as poplars where the damage caused by *S. libatrix*, are generally not of any economic importance.

MORPHOLOGICAL CHARACTERIZATION OF *S. LIBATRIX*

In Europe, where *S. libatrix* is commonly known as "The herald" in English or "La decoupure" in French, which in Portuguese means respectively "O Arauto" and "A Recortada" this species shows morphological characteristics that readily distinguish it from others in the same distribution area, the same occurring now in Madeira. Furthermore, although being within its extensive distribution area, *S. libatrix* may present some variations, especially on the wings pigmentation, generally this species constitutes an example for its relatively constant chromatic characteristics.

From Madeira Island only 7 specimens (2 males and 5 females) have been

observed, all similar to those known from Europe including Continental Portugal.

The occurrence of polymorphisms, like accentuated individual chromatic variation, which occasionally occurs in lepidoptera, is common on islands. This is the case in Madeira, for example, with the Noctuids, *Euplexia dubiosa* (BAKER), *Eumichtis albostigmata* (BAKER), *Phlogophora wollastoni* BAKER and *Noctua teixeirai* PINKER. Also with *Noctua pronuba* (L.), but this one without any notoriety in the island, because the chromatic variations of this species are common and known on the continental regions where it abounds.

The limited number of *S. libatrix* specimens observed doesn't eliminate the interest of studying a larger population, as well as adult specimens of different habitats and seasons. In these conditions, the eventual existence of polymorphic manifestations, particularly chromatic variations in *S. libatrix*, could have some meaning for the study of this species' ancientness in Madeira Island.

The males specimens observed had a span of 43,5 and 45,0 mm and the females specimens, between 42,3 and 46,7mm.

In spite of the facility of being distinguishable by particularities like pectinate antennae on the male and filiform antennae on the female and different conformation of the abdominal terminal region, the two sexes are sufficiently similar to justify that their general description is done together.

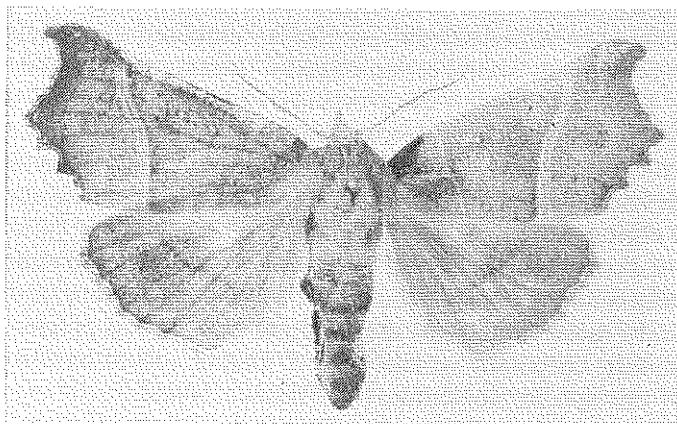
Both sexes have a predominant background coloration brownish-grey to dusky, somewhat uniform on the upper side of the hind wings and on the lower side of both pairs of wings.

The head is small, with the frontal region clothed with a dense tuft of uniformly coloured, reddish-ocher bristles, long labial palpi with identical colouring, ascending and projected on the apex. The thoracic collar is wide, hood like, crested on the median region, forming two transversal bands of distinct shades, the dorsal one lighter and reddish. *Patagia* with ample clothing of bristles the same as the transversal dorsal band of the thoracic collar. The forewings have the external margin scalloped, expanded on the median region and cogged from there to the side of the anal angle. On the upper side the fore wings have basal, median and terminal regions well delimited, respectively by the antemedian and postmedian lines that extend from the costal margin to the anal margin. The two postmedian lines which separate the terminal median region are sharp, continuous, whitish, parallel and close to each other.

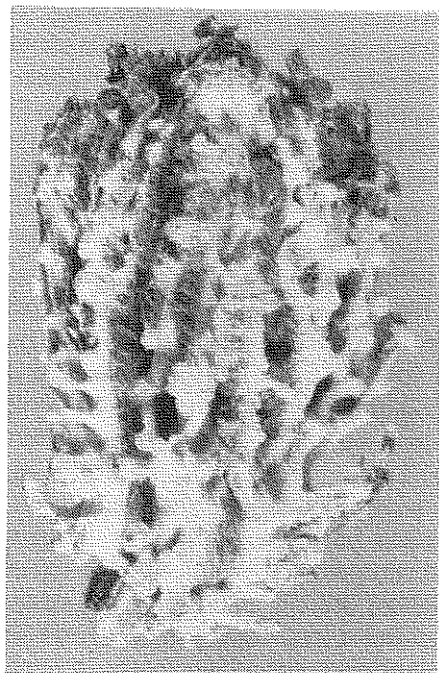
The terminal region is predominantly brownish-cream with thin and whitish longitudinal nervures; the basal and median regions show a colouration constituted by fine ocher-yellow and reddish, eye-catching punctuations, characteristic of this species. On the median region a median white spot and two black ones are distinguishable, the latter localized close to the double postmedian line, on its costal side. We can also observe a white spot on the basal region, although not always so sharp.

When on a resting position, the fore wings overlap the hind wings but their sur-

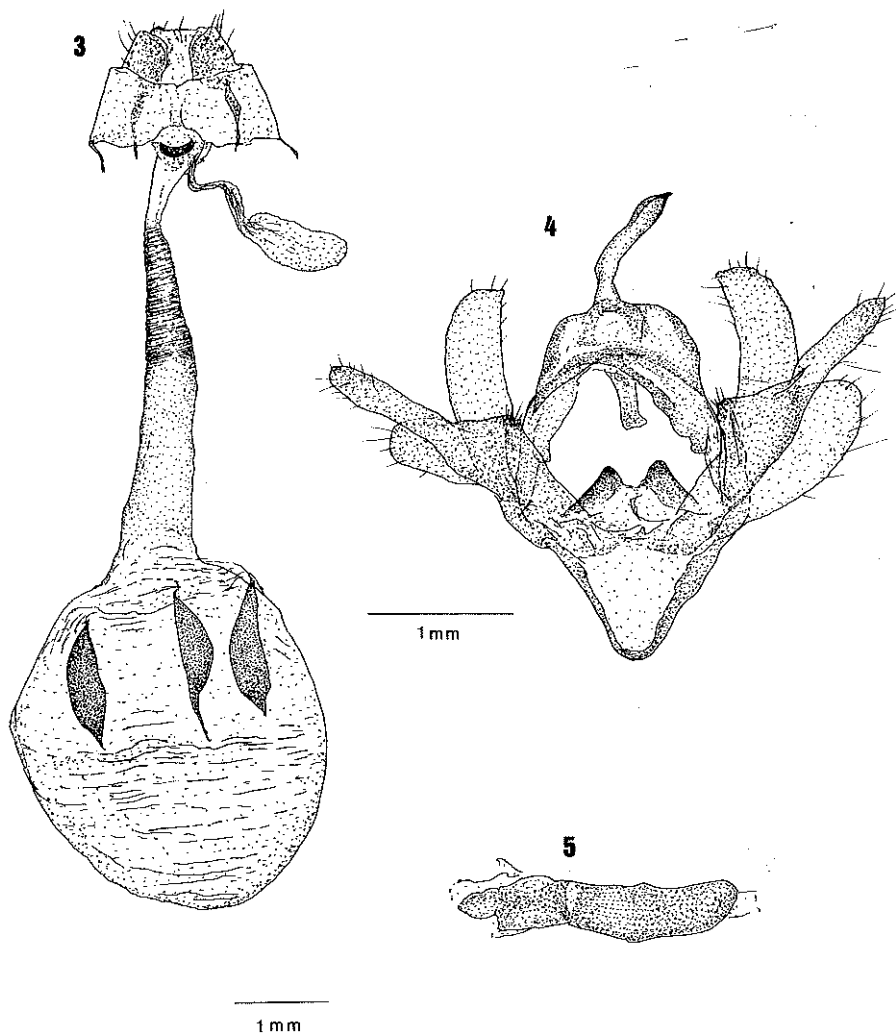
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Figs 1-2.- 1 - Male *S. libatrix*; 2 - Adult of *S. libatrix* covered by fungi mycellium as it was found in a tunnel.



Figs 3-5. 3 - Female genitalia; 4 - Male genitalia; 5 - Aedeagus.

face remains distended, becoming evident in this position the postmedian double line of both wings, disposed transversally in continuity. There is however, in relation to the wings resting position, a great difference between *S. libatrix* and other Noctuids from Madeira, like the more redish specimens of *Phlogophora wollastoni* (L.), which also have the external margin of the fore wings cogged. But, even on this case, where some confusion could happen on the superficial recognition of the two species, these are easily distinguishable since the *Phlogophora spp.*, namely *P. wollastoni*, shows on the resting position the wings surface plaited due to folds that occur longitudinally, alongside the fore wings nervures.

BRIEF CHARACTERIZATION OF *S. LIBATRIX* BIO-ECOLOGY

Like it happens to the generality of other species, *S. libatrix* is also strictly dependent on ecological factors, namely the availability of food and climatic conditions. Hence, some differences related to the activity periods of *S. libatrix* will be found on the bibliography about this species, which actually is related - especially on its geographical distribution area - with seasonal rhythms in particular effects of temperature and seasons where food resources exist.

Bearing in mind these circumstances, it is generally known that the adults hibernate during Autumn and Winter, searching for that effect sheltered places, in nature - caves, tree holes and several anfractuositities - or even in conditions created by man, like basements and the interior of abandoned houses.

With the beginning of Spring and in regional synchronism with the rhythm of their hosts new bursting, the adults become active when the temperature is favourable and the females begin to lay the eggs. For that purpose they look principally for willows. But, references also exist to other hosts, namely poplars, hawthorns and ivies although in neither of them had occurred important attacks and the last two necessitate recent confirmation.

In Madeira Island the specimens were founded approximately on the first 10 meters of the tunnel and only on the ceiling. They didn't react to gas lantern light, so torpid they were.

This behaviour harmonizes with the detailed observations described in BOUVET *et al.* (1974) about lepidoptera living in cavernes.

GÓMEZ DE AIZPÚRUA (1985), on his succinct description, accompanied by elucidative colour fotos, reffers to the caterpillars, pupae and adults. This author points out that the caterpillars feed frequently on *Salix* in July and August, and pupate on these hosts by joining together some leaves with silk threads.

BURTON *et al.* (1973) refer an identical behaviour and indicate for the caterpillars a more expanded feeding activity period, from May to August.

GÓMEZ DE AIZPÚRUA (1985) states that the pupae had a life span of 17 days and the adults emerge late in August, maintaining the activity till October. The adults of *S. libatrix* have nocturnal activity and search for ripe fruits to feed on their juice. For this purpose, they have a relatively robust proboscis, spiny on the extremity, with morphological and functional characteristics typical of fruit piercing/sucking species. (BANZIGER, 1971, *in* GRASSÉ 1975). It is also signaled in Madeira the species *Ophiusa tirhaca* CRAMER, also known by its capacity of piercing fruits with the proboscis (BANZIGER, 1969). This author indicates that the adults of *S. libatrix* pierce ripen fruits, like peaches, figs, wild blackberries and european elder berries, besides others when in captivity, and *O. tirhaca* peaches and wild blackberries.

The adults are attracted by very ripe bananas (GÓMEZ-BUSTILLO *et al.* 1979). This particularity has interest for the capture of *S. libatrix* and also because in Madeira Island exists a great number of banana plantations. This, nevertheless, does not mean that *S. libatrix* constitutes a danger for this crop, in view of the bananas over-ripen state that is necessary for being pierced. However, because of the appetite of this species for other fruits, the effects on these are yet to be investigated, although on its extensive geographical distribution area *S. libatrix* is not signaled as a pest of economic importance. The same could be said in relation to *O. tirhaca*.

ACKNOWLEDGEMENTS

The authors are very grateful to Mr. ANTÓNIO JOSÉ L. CONTENTE for the drawings of *S. libatrix* genitalias and figure composition, and also to the specialists Dr. VICTOR SARTO I MONTEYS and Dr. UGO DALL'ASTA for the bibliography made available to us.

REFERENCES

- AUBERT, J. F.:
1968. *Papillons d'Europe. II Nocturnes et Sphingides*. Éditions Delachaux et Niestlé Neuchâtele (Suisse).
- BANZIGER, H.:
1969. Erste Beobachtungen uber fruchtestechende Noctuiden in Europa. *Bull. Soc. Ent. Suisse*, 42 (1-2): 1-2.
- BOUVET, Y. *et al.*:
1974. Quelques aspects de l'écologie et de la biologie de *Triphosa* et *Scoliopteryx* lépidoptères cavernicoles. *Ann. Spéleol.* 29 (2): 229-236.

BURTON, J. *et al.*;

1973. *The Oxford Book of Insects*. Oxford University Press.

CARVALHO, J. P.:

1981. *Macrolepidópteros Nocturnos (Heteróceros) dos Arquipélagos da Madeira e das Selvagens* (Insecta, Lepidoptera). *Bol. Soc. port. Ent.*, N° 19: 22 pp.

FORSTER, W. & Th. A. WOHLFARTH:

1971. *Die Schmetterlinge Mitteleuropas Eulen (Noctuidae)*, IV - Francklische Verlagshandlung. Stuttgart - 329 pp.

GÓMEZ de AIZPÚRUA, C.:

1985. *Biología y Morfología de las orugas. Lepidoptera. Noctuidae - Dilobidae. Boletín de Sanidad Vegetal*. Tomo I. Fuera de serie n° 5. Ministério de Agricultura y Pesca y Alimentacion. Direccion General de la Produccion Agraria.

GÓMEZ BUSTILLO, M. R.; M. ARROYO VARELA & J. L. YELA GARCIA :

1979. *Mariposas de la Península Ibérica . Heteroceros III*. Servicio de Publicaciones del Ministerio de Agricultura, Pesca y Alimentacion - Madrid. 263 pp.

GRASSÉ, P.P.:

1975. *Traité de Zoologie, anatomie, systématique, biologie*. Tomé VIII, fasc. 3. Masson et Cie. Paris. 144 pp.

HERBULOT, C.:

1971. *Atlas des Lépidotères de France, Belgique, Suisse, Italie du Nord*. II. Hétérocères. Éditions N. Boubeé et Cie. Paris. 144 pp.

LYNEBORG, L.:

1975. *Moths in Colour* - Blandford Colour Series.

MANDHAL-BARTH:

1974. *Woodland Life* - Blandford Colour Series.

MEYRICK, E.:

1968. *A revised Handbook of British Lepidoptera* E. W. Classey.

REICHHOLF-RIEHM, H.:

1984. *Borboletas. O Mundo da Natureza*. Edição portuguesa, Circulo de Leitores. Lisboa. 286 pp.

SARTO I MONTEYS, V.:

1980. *Heteróceros cavernícolas*. *Bull. Cat. Lep.*, 29: 7.

SOUTH, R.:

1980. *The Moths of the British Isles*. Frederick Warne & Co.. Ltd. London. Tomo I: 427 pp., Tomo II: 379 pp.

TREMBLAY, E.:

1986. *Entomologia applicata*. Vol. 2, Part. II - Lignori Editore. 402 pp.

Received 13.03.90