

# The genus *Setina* Schrank, 1802 in Portugal (Lepidoptera: Erebidae, Arctiinae)

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## Abstract

The records of *Setina* Schrank, 1802 from Portugal are considered and it is concluded from specimens examined that all records belong to *S. cantabrica* Freina & Witt, 1985.

KEY WORDS: Lepidoptera, Erebidae, Arctiinae, *Setina*, Portugal.

## O género *Setina* Schrank, 1802 em Portugal (Lepidoptera: Erebidae, Arctiinae)

## Resumo

Os registos de *Setina* Schrank, 1802 oriundos de Portugal foram analisados e concluiu-se que todos os indivíduos examinados pertencem a *S. cantabrica* Freina & Witt, 1985.

PALAVRAS CHAVE: Lepidoptera, Erebidae, Arctiinae, *Setina*, Portugal.

## El género *Setina* Schrank, 1802 en Portugal (Lepidoptera: Erebidae, Arctiinae)

## Resumen

Los registros de *Setina* Schrank, 1802 originarios de Portugal han sido analizados y se concluye que todos pertenecen a *S. cantabrica* Freina & Witt, 1985.

PALABRAS CLAVE: Lepidoptera, Erebidae, Arctiinae, *Setina*, Portugal.

## Introduction

Published records of *Setina* from Portugal appeared under the name *S. irrorella* (Linnaeus, 1758). Subsequently they were transferred to *S. flavicans* (Geyer, 1836) without having been examined. Examination of all known specimens shows that they belong to *S. cantabrica* Freina & Witt, 1985, hitherto only known from north-west Spain.

## Abbreviations

ICT Instituto Científica e Tropical, Lisboa

IZPC Natural History Museum of the Sciences Faculty of Porto

MZCP Museu de Zoologia, Coimbra

## History

The first published record of any species of *Setina* from Portugal appears in CRUZ & GONÇALVES (1966): one example of '*Philea irrorella* Cl.' was taken by M. A. Silva Cruz at Souzanil (now Sousanil) in Douro Litoral in June (no year given). There is a specimen in her collection in IZPC dated June 1960. Subsequently in a paper on the Lepidoptera of Souzanil (CRUZ, 1971) she lists *Setina irrorella* (Clerck, 1759) with the flight time of June, but without new information. A few years later CRUZ & GONÇALVES (1977) published a list of Portuguese macrolepidoptera which includes '*Setina irrorella* Clerk'.

MONTEIRO & CARVALHO (1984) recorded *Setina irrorella* (Linnaeus, 1758) from two localities in Algarve, Monchique and Lagoa, both dated August 1968.

## Taxonomic status of *Setina* species in Iberian Peninsula

FREINA & WITT (1985) examined *Setina* specimens from Spain and southern France and concluded that *S. irrorella* was not present in the Iberian Peninsula, being replaced by *S. flavicans* (Geyer, 1836). In their opinion specimens from the French Pyrenees and northern Spain could be distinguished as a new subspecies *S. flavicans pseudoirrorella* Freina & Witt, 1985. They also recognised a new species *S. cantabrica* Freina & Witt, 1985 from the Picos de Europa in Asturias. On the map in FREINA & WITT (1987), North Portugal is included in the distribution of *S. flavicans*. Portuguese *S. irrorella* records were thus transferred to *S. flavicans*, but no Portuguese material had been examined. Since that time *S. flavicans*, but not *S. irrorella*, has continued to be listed for Portugal in several works including VIVES MORENO (1994), KARSHOLT & RAZOWSKI (1996), successive editions of Fauna Europaea (e.g. KARSHOLT & NIEUKERKEN, 2011) and WITT & RONKAY (2011). The subspecies *pseudoirrorella* is recognised in most of these works, but not in Fauna Europaea.

FERNÁNDEZ VIDAL *et al.* (2003) studied *S. cantabrica* in north-west Spain, finding it in León, Lugo and Orense as well as in Asturias. In some places it is sympatric with *S. flavicans*. They re-evaluated the distinguishing characters from *flavicans* and described the hitherto unknown female. They had no doubts that two species were present.

LERAUT (2006) follows FREINA & WITT (1987) in including Portuguese records under *flavicans*, but he has a wider species concept in this genus and considers that *flavicans* is no more than a subspecies of *irrorella*. He treats *cantabrica* as a subspecies of *S. roscida* (Denis & Schiffermüller, 1775), a species not previously considered in connection with the Iberian fauna.

## Material

In 2005 I had the opportunity to study the Silva Cruz collection in the Zoological Museum of the University of Porto. At this stage I was not able to borrow specimens, but I found and photographed four specimens: three from Souzanil, VI-1960, leg. M.A.S.C., and one from Serra das Meadas, Lamego dated VI-1968 ex larva, collected by Teodoro Monteiro. It was immediately clear from the extent of dark dots on the hindwing and the extent of yellow on the abdomen that these did not fit *S. flavicans*.

Two years later I visited Mosteiro de Singeverga, Santo Tirso, where I was able to examine Monteiro's specimens (figs. 1-3), of which there are nine: two from Monchique, labelled VIII-1963 and VIII-1967 (not 1968 as given in MONTEIRO & CARVALHO, 1984); four from Lamego, labelled January 1968, which were presumably collected as larvae in that month and another from this locality dated VII-1985 and two from Zimão, Trás-os-Montes, VIII-1978 and 7-VII-1981, without collector's name, but presumably Monteiro himself. There is no specimen from Lagoa. This is a lowland locality, not far from the southern coast of Algarve. Possibly the record is based on a transcription error.

In 2010 I visited the Instituto Científica e Tropical in Lisboa (IICT) which houses the collection of F. Carneiro Mendes. In the collection is a single specimen of *Setina* labelled Pedras Salgadas, VII-1938. The locality is in Trás-os-Montes. This record was never published.

There is one further possible record of *S. cantabrica* but it has to be treated as unconfirmed. In May

1999 I found a larva on lichen-covered rocks at Marvão, Alto Alentejo, which appeared to be a *Setina*, but it failed to pupate.

The Coleção Nacional in MZCP, Coimbra contains a specimen of '*Setina irrorella*' labelled "Coimbra". This is clearly different from any of the other Portuguese *Setina* specimens. There are many specimens of other species in this collection labelled either "Coimbra" or "Lisboa" which cannot possibly have a Portuguese origin. Some of these are species with no known locality nearer to Portugal than the extreme north-east of Spain, as for example *Araschnia levana* (Linnaeus, 1758), given for Coimbra by WATTISON (1930). In a later paper I intend to discuss these specimens in more detail, but in the meantime, it is safe to assume that the "Coimbra" *Setina* was not collected in Portugal.

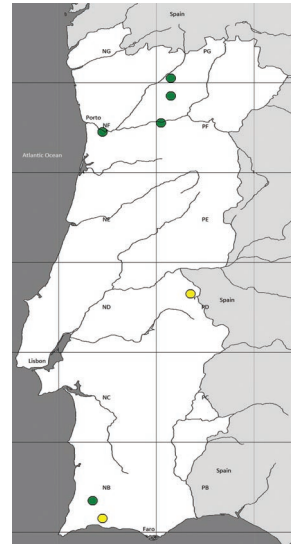
## Discussion

All Portuguese specimens seen are externally similar. The hindwing markings are less strong than in some illustrations of *S. cantabrica*, but the abdominal markings agree well with those described for *cantabrica*. The male genitalia of *cantabrica* are characterised by the slender parallel-sided tip to the saccus, sacculus with apex acute and somewhat produced beyond end of valva, ampulla on face of valva small, obtuse and not close to posterior margin, uncus short, widest beyond middle; aedeagus with a single large cornutus and smaller ones grading into a field of small cornuti. One dissected specimen from Monchique (figs. 4, 5) (Corley gen. prep. 3689) shows all these features. However two others, from Pedras Salgadas (fig. 6) (Corley gen. prep. 3522) and from Lamego (Corley gen. prep. 3367) differ in having slightly shorter and obtuse sacculi and at least two large cornuti in the aedeagus. These specimens have genitalia which best match *S. roscida* (Denis & Schiffermüller, 1775) as illustrated in FREINA & WITT (1987) and WITT & RONKAY (2011). It is improbable that specimens with such similar external appearance and with quite minor differences in male genitalia should belong to separate species, leading to the conclusion that Leraut's placement of *cantabrica* as a subspecies of *roscida* may well be correct. *S. cantabrica* is however substantially larger than *S. roscida*, with wingspan up to 28 mm compared with 20-24 mm in *S. roscida*. Portuguese specimens are all larger than the measurements Leraut gives for *roscida*.

Further light could be shed on the status of these populations by DNA barcoding. Unfortunately this is not possible for Portuguese populations unless fresh specimens can be found. For the moment, I consider that all Portuguese populations belong to *S. cantabrica*, whatever the status of that taxon may be.

The last recorded *Setina cantabrica* in Portugal is Monteiro's from Zimão in 1981. The absence of recent records might suggest that the species has declined or disappeared from Portugal, and this is likely to be the case at Sousanil where the area is now almost entirely given over to *Eucalyptus* plantation. However FERNÁNDEZ VIDAL *et al.* (2003) state that it flies by day, mainly in morning sunshine. They had just a single record at light. It is therefore possible that the present generation of lepidopterists in Portugal are not out in the field early enough to see it. Most collecting is done with mercury vapour lights and sheets, requiring the presence of the collector during the night until the end of the session. This is not conducive to morning collecting activity.

FERNÁNDEZ VIDAL *et al.* (2003) found *cantabrica* most frequently in areas with limestone rocks at altitudes between 1400 and 2100 m. Precise localities for the Portuguese specimens are not known, but most of the areas concerned have acid rocks and the range of altitudes is lower, from as low as 30 m if the Lagoa record is correct, or from 160-200 m at Sousanil, up to a maximum possible altitude close to 1100 m on Serra das Meadas near Lamego. The Portuguese records extend the distribution area of *S. cantabrica* very considerably to the south. These are presented here on the map, with the two unconfirmed records represented by yellow dots.



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**Figs. 1-6.**—1. *Setina cantabrica* Freina & Witt, Monchique. 2. *Setina cantabrica* Freina & Witt, Lamego. 3. *Setina cantabrica* Freina & Witt, Zimão. 4. *Setina cantabrica* Freina & Witt, male genitalia, aedeagus removed. Monchique. 5. *Setina cantabrica* Freina & Witt, aedeagus. Monchique. 6. *Setina cantabrica* Freina & Witt, aedeagus. Pedras Salgadas.