

First record of the female of *Lycaena sichuanica* in Sichuan, China (Lepidoptera: Lycaenidae)

Ruud Vis
Hans A. Coene

KEY WORDS

Faunistics, genitalia, Palaearctic, taxonomy

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When *Lycaena sichuanica* was described in 2001 from Sichuan, China, only the holotype, a male, seemed to be known. Some years later two more male specimens were found from the same location in the collection of Chambost, the collector of the holotype. The female of *L. sichuanica* remained unknown. During an expedition in 2009 in the Jiuzhaigou region in North Sichuan the authors discovered a small population of *L. sichuanica*, comprising both males and females. The female characters and the genitalia are described here for the first time.

Introduction

On 16 and 17 June 2009, we visited Jiuzhaigou Nature Reserve in North Sichuan. The reserve is situated in the Autonomous Tibetan & Qiang Prefecture Ngawa (figure 1). On a location (coordinates N 33° 07'635", E 103° 52'219") at an altitude of 2600 m we found five males and three females of *L. sichuanica*. The habitat was a 15-20° sloping meadow, situated between broad-leaved and pine forests, bordered by running water at the lowest side. The observed butterflies were in fresh condition and showed activity in sunny weather. Their flight was fast and powerful. Flowers were visited frequently and specimens rested from time to time with half open wings. They did not leave the habitat and were flying together with the following species: *Anthocharis tibetanus* Oberthür, *Sinopieris venata* (Leech), *Pieris erutae* Poujade, *Leptidea serrata* Lee, *Colias erate amdensis* Verity,

Colias fieldi Ménétrier, *Lethe yunnana* d'Abrera and *Aphantopus arvensis* Oberthür.

Lycaena sichuanica

The forewing of the female *L. sichuanica* is 15 mm long, and like most females in this genus, the apex is less pointed and the outer margin of the forewings is much more rounded than in the male (figures 2, 3). At a first glance the species looks similar to *L. phlaeas*, but the upper- and underside of the hind wings give diagnostic characters. For comparison we use ssp. *chinensis* Felder, of which its range covers China and Japan (figure 4):

- fringes of fore- and hind wings are conspicuously white (brownish in *L. phlaeas*)
- upper- and underside hind wings without the red submarginal band present in *L. phlaeas**
- underside hind wings ash-grey with only a postdiscal row of small spots.

* In *L. phlaeas* a peculiar forma exists without the red submarginal band on the upper- and underside of the hind wings, known as *f. postistriata* Robson. Only some veins are red (figure 5).

Female genitalia

Diagnostic characters of the female genitalia of *L. sichuanica* (figure 6) and those of *L. phlaeas chinensis* (figure 7) are:

differences in the ductus bursae:

- distally trapezium shaped in *L. sichuanica*, rectangular in *L. phlaeas chinensis*
- cervix bursae is slender in *L. sichuanica*, broad in *L. phlaeas chinensis*

differences in antrum:

- long and slender in *L. sichuanica*, broad in *L. phlaeas chinensis*
- These differences in female genitalia, differences in male genitalia (Bozano & Weidenhoffer 2001) and external diagnostic characters confirm the taxonomic status of *L. sichuanica* compared with *L. phlaeas chinensis*.



1. Map of China and Sichuan (capital Chengdu); the black dots indicate the locations where the holotype of *Lycaena sichuanica* (Barkam) and the population in Jiuzhaigou were found. Design: Jaap van Leeuwen

1. Kaart van China en Sichuan (hoofdstad Chengdu); de zwarte stippen geven de vindplaatsen aan van het holotype van *L. sichuanica* (Barkam) en de populatie in Jiuzhaigou.



2. *Lycaena sichuanica*, ♀, Sichuan, Jiuzhaigou, 2600 m, 17.VI.2009, (a) recto, (b) verso. Photos: Cees Gielis

2. *Lycaena sichuanica*, ♀, Sichuan, Jiuzhaigou, 2600 m, 17.VI.2009, (a) bovenzijde, (b) onderzijde.



3. *Lycaena sichuanica*, ♂, Sichuan, Jiuzhaigou, 2600 m, 17.VI.2009, recto. Photo: Frans Slieker

3. *Lycaena sichuanica*, ♂, Sichuan, Jiuzhaigou, 2600 m, 17.VI.2009, bovenzijde.



4. *Lycaena phlaeas chinensis* Felder, ♀, Japan, Mt. Kiuka, Gifu City, Gifu Pref., 11.IV.2004, (a) recto, (b) verso. Photos: Cees Gielis

4. *Lycaena phlaeas chinensis* Felder, ♀, Japan, Mt. Kiuka, Gifu City, Gifu Pref., 11.IV.2004, (a) bovenzijde, (b) onderzijde.



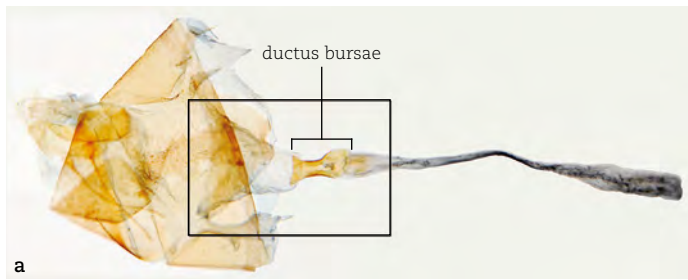
5. *Lycaena phlaeas* f. *postistriata*, ♂, Netherlands, Numansdorp, 28.VIII.1911, recto, in the collection Natuurhistorisch Museum Rotterdam. Photo: Frans Slieker

5. *Lycaena phlaeas* f. *postistriata*, ♂, Nederland, Numansdorp, 28.VIII.1911, bovenzijde, in de collectie Natuurhistorisch Museum Rotterdam.

Discussion

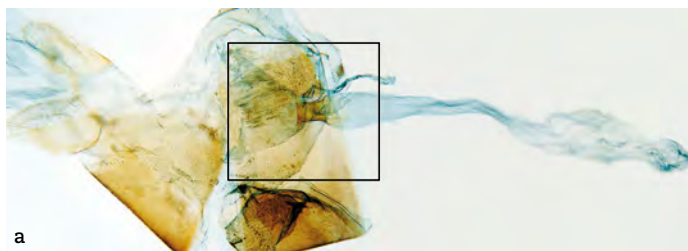
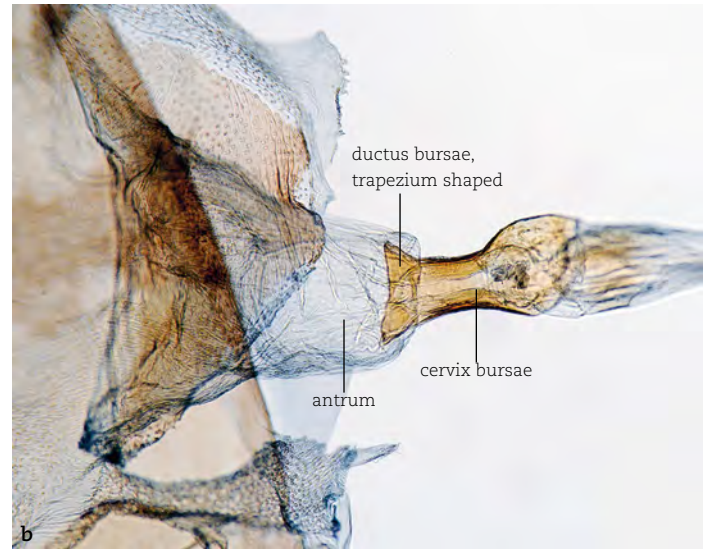
The type locality of the holotype is a pass near the town Barkam (N 31°50', E 102°17'), at 3000 m in the mountain range Qionglai Shan, in NW Sichuan. The specimens were collected between 8 and 18 June 1991. The location of our *L. sichuanica* is about

180 km NNE of Barkam. The Jiuzhaigou Reserve is situated in the Min Shan mountain range, at the border of the Chinese province Gansu. Min Shan and Qionglai Shan are in fact parts of the same mountain range. Specimens will be deposited in the Zoological Museum of Amsterdam.



6. *Lycaena sichuanica*, ♀, (a) genitalia habitus and (b) antrum-ductus bursae, prep. RV1297, idem as 2. Photos: Cees Gielis

6. *Lycaena sichuanica*, ♀, (a) volledig genitaal en (b) antrum-ductus bursae, prep. RV1297, idem as 2.



7. *Lycaena phlaeas chinensis*, ♀, (a) genitalia habitus and (b) antrum-ductus bursae, prep. RV1298, idem as 4. Photos: Cees Gielis

7. *Lycaena phlaeas chinensis*, ♀, (a) volledig genitaal en (b) antrum-ductus bursae, prep. RV1298, idem as 4.



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References

Bozano GC & Weidenhoffer Z 2001. Lycaenidae part I. In: Guide to the butterflies of the Palearctic region (G C. Bozano ed): 1-60. Omnes Artes.

Bozano GC 2004. New records for recently de-

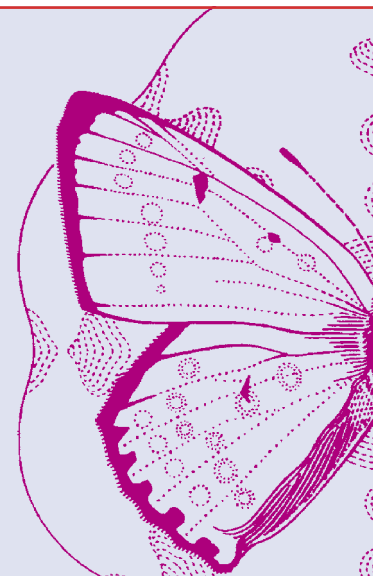
scribed Chinese butterflies (Lepidoptera: Lycaenidae; Nymphalidae, Satyrinae). Nachr. Entomol. Ver. Apollo, N.F. 25 (1/2): 25-26.

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Samenvatting

Eerste waarneming van het vrouwtje van *Lycaena sichuanica* in Sichuan, China (Lepidoptera: Lycaenidae)

Lycaena sichuanica werd in 2001 beschreven van Sichuan, China, door Bozano & Weidenhoffer. Aanvankelijk was alleen het holotype bekend, een mannelijk exemplaar. Enkele jaren later werden van dezelfde locatie nog twee mannetjes gevonden in de collectie van Chambost, de verzamelaar van het holotype. Het vrouwtje van *L. sichuanica* bleef onbekend. Tijdens een expeditie in 2009 in de Jiuzhaigou regio in Noord Sichuan vonden de auteurs een kleine populatie van *L. sichuanica*, met zowel mannelijke als vrouwelijke exemplaren. De locatie in Jiuzhaigou ligt ongeveer 180 km NNE van Barkam, de plaats waarvan het holotype werd beschreven. De vindplaats van het holotype en de onze liggen in dezelfde bergketen. De kenmerken van het vrouwtje alsmede de genitalia worden hier voor de eerste keer beschreven. De verschillen in het vrouwelijk en het mannelijk genitaal alsmede de diagnostische uiterlijke kenmerken bevestigen de taxonomische status van *L. sichuanica* ten opzichte van *L. phlaeas chinensis*.



Ruud Vis

Natuurhistorisch Museum Rotterdam
Postbus 23452
3001 KL Rotterdam
curators@nmr.nl

Hans A. Coene

Zoölogisch Museum Amsterdam, Afdeling Entomologie
Plantage Middenlaan 64
1018 DH Amsterdam