A new record of Chersotis curvispina Boursin, 1961 (Lepidoptera: Noctuidae) in Iran

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A new record of Chersotis curvispina Boursin, 1961 (Lepidoptera: Noctuidae) in Iran

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Chersotis curvispina Boursin, 1961 as a species of the subfamily Noctuinae has been first recorded for the fauna of Iran. Illustrations of the collected single male and its genitalia as well as notes on its bionomy and species distribution are presented. The species is compared with its known sister species Ch. hahni (Christoph, 1885). The list of seven recently collected species and subspecies of this genus from Iran is also provided.

The species Chersotis curvispina Boursin, 1961 was described only from its type locality in southern Turkmenistan, north-western Afghanistan and north-western Tajikistan. As a result of new expeditions, this species was recorded in Iran for the first time. This report compares the species with the closely related species Chersotis hahni. The wing pattern of the collected male and its genitalia are depicted in the report and supplemented with notes on bionomy and distribution. The list of seven newly collected species and subspecies of this genus from Iran is also presented.

Introduction

Lederer (1872) described the first Iranian Chersotis (Ch. capnistis (Lederer) from Asterabad [Gorgan] in the north of Iran. Six years later, during an expedition to Shahkouh (northern Iran), Christoph (1877) reported three other Chersotis species: Ch. elegans (Eversmann, 1837), Ch. multangula (Hübner, [1803]) and Ch. alpestris (Boisdoual, [1837]). The report also included descriptions of two new species discovered in Shahkouh: Ch. fimbriola raddei (Christoph, 1877) and Ch. hahni (Christoph, 1885).

Thereafter, other authors described more taxa of this genus in Iran: Ch. firdussi Schwingenschuss, 1937, Ch. sterlis Brandt, 1938, Ch. binaloudi Brandt, 1941, Ch. nitens Brandt, 1941, Ch. sarhada Brandt, 1941, Ch. anachoreta forsteri Sheljuzhko, 1955, Ch. eberti Dufay and Varga, 1995, Ch. cryptographa Varga and Gyulai, 2002, Ch. gratissima zagros Gyulai and Varga, 2006 (Schwingenschuss 1937; Brandt 1938, 1941; Varga, Gyulai, and Miteleuski 2002; Gyulai and Varga 2006; Shirvani 2012). Several other Chersotis taxa have been reported from Iran in related paper (Hacker 1990; Hacker and Meineke 2001; Ebert and Hacker 2002). Many of these records are in disagreement with the data on the distribution of these species indicating that they have probably been misinterpreted (Peter Gyulai, pers. comm.).

Material and methods

Sampling was done in north-eastern Iran using a light trap (about 1.8 m in height) with a generator-driven mercury vapour lamp (150 W).

Genitalia of the collected specimens were prepared for the study according to the method cited in Fibiger (1997) with minor modifications. Identifications were confirmed by Peter Gyulai (Hungary). The newly recorded specimen together with its genitalia slide (#52) as well as samples of Ch. juvenis and Ch. larixia asiatica were deposited in P. Gyulai’s private collection (Hungary). Other materials were deposited in the Insect and Mite Collection of Ahvaz, Department of Plant Protection, Shahid Chamran University of Ahvaz, Iran.

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Results

*Chersotis curvispina* (Figures 1–4)


**Type-locality.** Kopet-Dagh (S Turkmenistan).

**Type material.** Holotype ♂ from Kopet-Dagh (S Turkmenistan), in Bavarian State Coll. of Zoology (ZSM); paratypes: 1 ♂, 1 ♀, Kopet-Dagh; 3 ♀, Herat (Afghanistan), all in ZSM; 1 ♂ Arwas; 1 ♂ Ashkhabad; 1 ♂ Sarawschan (north-western Tajikistan), all in Coll. Natural history Museum, Wien.

**Material examined.** 1 Male: Iran, Province Khorasan-e-Razavi, the Kopet-Dagh Mountains, 1675 m, 37° 14′ 52″ N 58° 28′ 37″ E, 07.IX.2010. Leg. M. M. Rabieh, in private collection P. Gyulai (Hungary).

**Identification.** Antennae ciliate; head, thorax and abdomen light grey; wingspan 31–39 mm. Ground colour of forewing light grayish brown; basal line prominent with two black dots, antemedial line with black mark before orbicular stigma; median area with a quadrangular black mark between stigmata, larger reniform stigma, elliptical; further black marks along costa at lines tips; a black postmedial arcuate line, subterminal area light grey, subterminal line dark brown, narrower toward inner margin, terminal line dark brown or blackish, light grey fringes; hind wings light grayish with darker grayish brown venation, background slightly darker toward margins (Figure 1). Externally, this species is similar to *Ch. hahni* (Christoph, 1885) which was described from Iran and recorded in northern (Elburz Mts.), south-western (Zagros Mts.) and south-eastern (Baluchestan) Iran (Hacker 1990; Ebert and Hacker 2002). These two species fly sympatrically only in Pish Qaleh in Khurasan-e-Shomali (Peter Gyulai, pers. comm.). However, *Ch. curvispina* has a smoother appearance and has less sharp and well-developed drawings than *Ch. hahni*. These two species can be easily differentiated according to the characteristics of the genitalia in both the sexes (Boursin 1961; see following).

**Male genitalia.** Valve short and rounded at the tip, without cucullus and corona, clasper strongly developed and thumb-like, curved outward; clavus absent, juxta small (Figure 2). Aedeagus slightly curved, ecum swollen, vesica long, distally narrowed with a strong dagger form cornutus at base (Figures 3 and 4). It differs from *Ch. hahni* in the lower angle of valvel end, longer valval tips, smaller and narrower fultura inferior; furthermore, cornutus in *hahni* is straight while in *Ch. curvispina* it is shorter and curved, as the species name implies; carina in *Ch. curvispina* is regularly simple, but generally thorned and longer in *Ch. hahni* (see Figures 3–5). However, there is a considerable individual variation among specimens (Peter Gyulai, pers. comm).

**Female genitalia.** Ductus bursae in *Ch. curvispina* is much longer and broader, and before ostium bursae a little bit extended, while in *Ch. hahni*, in this area, a strong hump is present; lateral lobe of bursa copulatrix has different form; bursa in *Ch. curvispina* is markedly different in this lobe and is slightly angled and is not balloon-shaped and round like those in *Ch. hahni*. Signa in the form of 4 small oblong chitinized areas in *Ch. curvispina*, but only 2 or 3 perfectly rounded signa in *Ch. hahni* (Boursin 1961).

**Distribution.** This species is known to exist only in southern Turkmenistan, eastern Afghanistan and central Uzbekistan (Boursin 1961). The southern parts of the Kopet-Dagh Mountains, north-eastern Iran, in Khorasan-e-Razavi province are a newly identified location of the species (Figure 6).

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Figure 1–5. External and internal morphological characters: 1, wing pattern of *C. curvispina*, male; 2, armature, 3, aedeagus with everted vesica, 4 and 5, drawings of aedeagus of *Ch. curvispina* (4) and *Ch. hahni* (5) after Boursin 1961. Cornuti in both species and apical spine in *Ch. hahni* are flagged with streak, drawings are out of scale.
Bionomics. The area in Iran from which the species were collected was rocky and mountainous with a sparse bush and shrub cover (Figure 7). Adults were attracted to the light trap in the early evening. The flight period was observed from early May to mid-September (Boursin 1961). Description of its early stages and host plants are yet unknown, but plants of the genera *Vicia, Trifolium, Plantago, Galium, Asperula* and *Cirsium* do occur in the sampling locality. More extensive surveys are needed to identify potential host plant(s) of this moth species.

Newly collected *Chersotis* taxa from north-eastern Iran (alphabetically sorted):

1. *Ch. alpestris ponticola* (Draudt, 1936)  
2. *Ch. curvispina* (Guenée, 1852)  
3. *Ch. fimbriola raddei* (Christoph, 1877)  
4. *Ch. florumora* (Orchard, 1937)  
5. *Ch. semna* (Schwingenschuss, 1937)  
6. *Ch. larixia asiatica* (Schwingenschuss, 1938)  
7. *Ch. ? juvenis* Staudinger, 1901  

Note: New material is needed to confirm this record.

Discussion

The new record of *Ch. curvispina* has broadened the knowledge of this species’ distribution. The specimens were collected from the Kopet-Dagh Mountains in the north of Khorasan-e-Razavi province in north-eastern Iran. The major part of Khorasan is believed to be a transitional area included in the Irano-Turanian subregion of the Saharo-Gobian biogeographic region of the Palearctic realm (Fet 1994). The region has contact with surrounding lowland biotas, including that of the vast Asian desert (mainly in Turkmenistan). So, the specificity of fauna and flora of Khorasan-Kopetdag lies in its mixed character, as it includes a combination of western (mostly Mediterranean) and eastern (Turanian) elements. This type of habitat promises a rich insect fauna especially for the family Noctuidae s. l. It is expected that future studies will yield more records and descriptions of new taxa in the region.

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