

# A new noctuid moth from Bulgaria: *Oncocnemis confusa michaelorum* ssp. n. (Lepidoptera: Noctuidae)

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**Abstract.** *Oncocnemis confusa michaelorum* ssp. n. is described from the North Bulgarian Black Sea coast, near Balchik town. The new subspecies has a colony on a very small locality on the sandy rocks. *Oncocnemis confusa michaelorum* ssp. n. differs well in its external morphology from the other known *Oncocnemis* species. In its genital characteristics the new subspecies differs from *Oncocnemis confusa confusa* (Freyer, [1839]) by the characters in the vesica, best seen when it is everted. The genus *Oncocnemis* is new for the Balkan Peninsula.

**Samenvatting.** Een nieuwe Noctuide uit Bulgarije: *Oncocnemis confusa michaelorum* ssp. n. (Lepidoptera: Noctuidae)

*Oncocnemis confusa michaelorum* ssp. n. wordt beschreven van de Noord-Bulgaarse Zwarte-Zeekust, nabij Balchik. Daar leeft de nieuwe ondersoort erg lokaal in rotsachtig gebied. Uiterlijk verschilt *Oncocnemis confusa michaelorum* ssp. n. duidelijk van de andere gekende *Oncocnemis*-soorten. De genitalia tonen aan dat de ondersoort van de nominale *Oncocnemis confusa confusa* (Freyer, [1839]) verschilt in de vesica, het best zichtbaar wanneer deze uitgestulpt is. Het genus *Oncocnemis* is nieuw voor het Balkan schiereiland.

**Résumé.** Une nouvelle noctuelle de Bulgarie: *Oncocnemis confusa michaelorum* ssp. n. (Lepidoptera: Noctuidae)

*Oncocnemis confusa michaelorum* ssp. n. est décrite de la côte septentrionale de la Mer Noire en Bulgarie, près de Balchik. La nouvelle sous-espèce y vit très localement sur terrains rocageux. *Oncocnemis confusa michaelorum* ssp. n. est différent de toutes les autres espèces d'*Oncocnemis* connues par son aspect extérieur. Les genitalia montrent que la sous-espèce diffère de la sous-espèce nominale *Oncocnemis confusa confusa* (Freyer, [1839]) par la vesica évertée. Le genre *Oncocnemis* est nouveau pour la Péninsule balkanique.

**Key words:** *Oncocnemis confusa michaelorum* ssp. n. - Black Sea Coast - Bulgaria.

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On 10.VIII.1996 between Balchik Town and Touzlata, 2 km before Touzlata, J. Nowacki, M. Bunalski and myself, spent a night collecting on lamps. I climbed the sandy-rock slopes and stopped to collect in a biotope typical for this region (plate 1, fig. 10) in a small flat area close to nearly vertical slopes. The Polish colleagues put their lamps at no more than 100–150 m below me. At 21.00 we started to collect and half an hour later a female Noctuidae which was unknown to me came to my lamp. We collected for about 2 hours and during that time I took 13 males of the same species. On the stronger lamp of the Polish collectors no specimens at all of this noctuid were found. At 23.00 we stopped because a heavy rain started.

The species turned out to belong to the genus *Oncocnemis*, a genus not reported from the Balkan Peninsula before, and they belong to a new subspecies within *Oncocnemis confusa* (Freyer, [1839]). I visited the same region again and spent two more nights in the same locality. On the first day (23.VIII.1996) 9 males and 1 female were taken on a 160 W Hg lamp together with a 25 W black lamp within a period of less than 5 hours. Strong wind interrupted my activities. On 24.VIII.1996 it rained all night. On 25.VIII.1996 3 males and a single female were collected on a 160 W Hg lamp and 75 W black lamp. In 3 hours again a heavy rain put a stop to collecting.

This *Oncocnemis* species differs in external morphology from all the other known *Oncocnemis* species, except *Oncocnemis confusa*, but, it shows differences with this taxon as well, especially in the genital characteristics where the structure and shape of the everted vesica are clearly different. The correlation of these genitalic features with the habitus, as well as the distinct biotope and geographical isolation, is the reason why the population near Balchik is described here as a new subspecies.

*Oncocnemis confusa michaelorum* ssp. n. (plate 1, figs. 1-9)

Male (plate 1, figs. 1-5, 7-8): Wingspan 27-30 mm. Forewings ground colour extremely pale, silvery-whitish to greyish, sometimes with some ochreous scales. Crosslines and stigmata clearly visible in most of the specimens, orbicular, reniform and claviform stigmata light sometimes with some dark scales in the centre. In some specimens, e. g. the holotype the ground colour is clear white, only the fasciae, limited between them stigmata, and dark venae between the outer line of the postmedian and subterminal fasciae are visible. Costal margin light with black spots at the subbasal, antemedian, median and postmedian fasciae. Antemedian and postmedian fasciae with double black spots on the costal margin. Subterminal fascia not always present; if present, then only in the darker specimens, where it is darker, terminally followed by a narrow white dentate line. Terminal fascia wide, dark, sinuate, terminally sometimes with small white spots, pointed proximally between the venae, with a black dot or elongated spots in them, limited by the wing's end. Fringes light with a dark line. Antemedian and postmedian fasciae double with white field between the lines. The inner line of the postmedian fascia touches the reniform stigma. Median fascia wide, mostly distinct between orbicular and reniform stigmata, forming a square dark spot.

Hindwings are of the same coloration as the forewings but without any ochreous scales. In some specimens some dark scales are present. Postmedian fascia with a very thin black line, not clearly visible in all specimens. Terminal shade is a large black field, continuing to the margin. The distance between it and the postmedian fascia is smaller costally and larger anally. Fringes white basally and terminally, dark in their middle. Venae are dark, contrasting with the light ground colour.

Head, patagi, teguli, metathorax, and palpi silvery-whitish, abdomen concolorous. Antennae finely ciliate.

Female (plate 1, figs. 6, 9): Wingspan 29-30 mm. Like male, somewhat darker, the pattern is a little less distinct. Hindwings not as contrasting as in the male, the basal and discal fields with more dark scales.

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Legend of plate 1.

Figs. 1-9: *Oncocnemis confusa michaelorum* ssp. n. Bulgarian North Black Sea coast, between Balchik Town and Touzlata, 2 km to Touzlata.

1. Holotype ♂, 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg.

2-5, 7-8. Paratypes males.

2-5. 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg.

7-8. 23.VIII.1996, S. Beshkov, M. Beshkova & K. Beshkova leg.

6, 9 - Paratypes females.

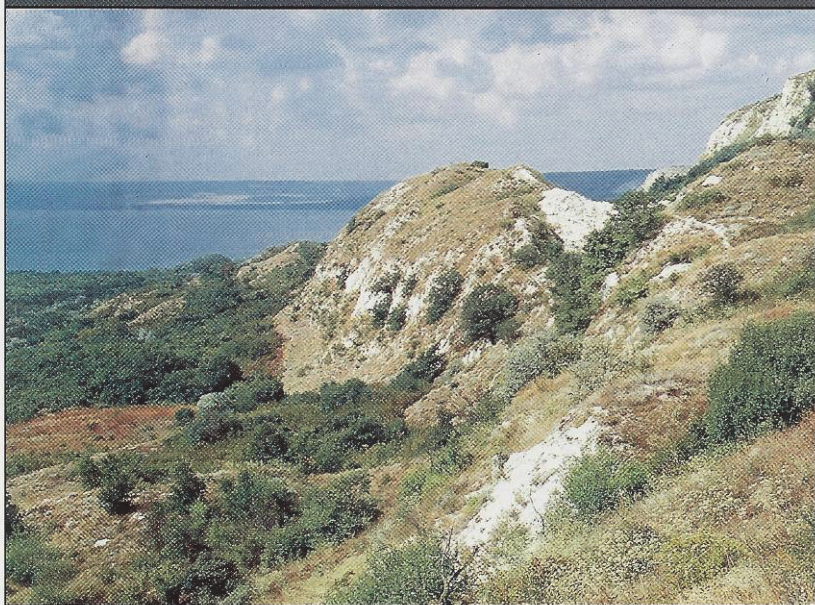
6. 25.VIII.1996, S. Beshkov, M. Beshkova & K. Beshkova leg.

9. 23.VIII.1996, S. Beshkov, M. Beshkova & K. Beshkova leg.

(Photographs S. Beshkov).

Fig. 10: Type locality of *Oncocnemis confusa michaelorum* ssp. n.: Bulgarian North Black Sea coast, between Balchik Town and Touzlata, 2 km to Touzlata (Photo S. Beshkov).

Plate 1



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Underside of both sexes are silvery-whitish with a wide dark terminal fascia, darker on the hindwings. In both wings fringes pale. In some specimens, e. g. the holotype, between the terminal fascia and the margin in the forewings a thin white line limited terminally by a small black dot on the margin between the venae. In most specimens reniform stigma is present as a small stroke, better visible in females. Postmedian fascia present, but indistinct in both wings. On forewings it forms a dark double spot at the costal margin.

Male genitalia (figs. 1–5; 8): Genital armature very similar to that of *Oncocnemis confusa confusa*, illustrated in Hacker (1986) and Ronkay & Ronkay (1995), only the harpes seem a bit rough. However, *Oncocnemis confusa michaelorum* **ssp. n.** differs clearly from it by its everted vesica. In *Oncocnemis confusa michaelorum* **ssp. n.** the everted vesica (figs. 1–4; 8) is longer than in *O. confusa confusa*, as long as the length of the aedeagus or more. In basal part it is twisted about 170° and goes parallel to the aedeagus, slightly curved externally in its middle. In the ventral side there are 5 very big cornuti with a large bulbous base, followed by another 4–5 big cornuti mainly in the proximal part and many smaller ones. Dorsal part of the vesica in its outer part is covered by many small cornuti. Basal part of the vesica is with one field of very small dot-like cornuti and with bigger cornuti on the dorsal side, continuing with smaller ones onto the apex. Terminal cornutus is long and thin, irregular, with a large bulbous base, surrounded by very long bristles.

Female genitalia (figs. 6, 7): Very similar to those of *Oncocnemis confusa confusa*.

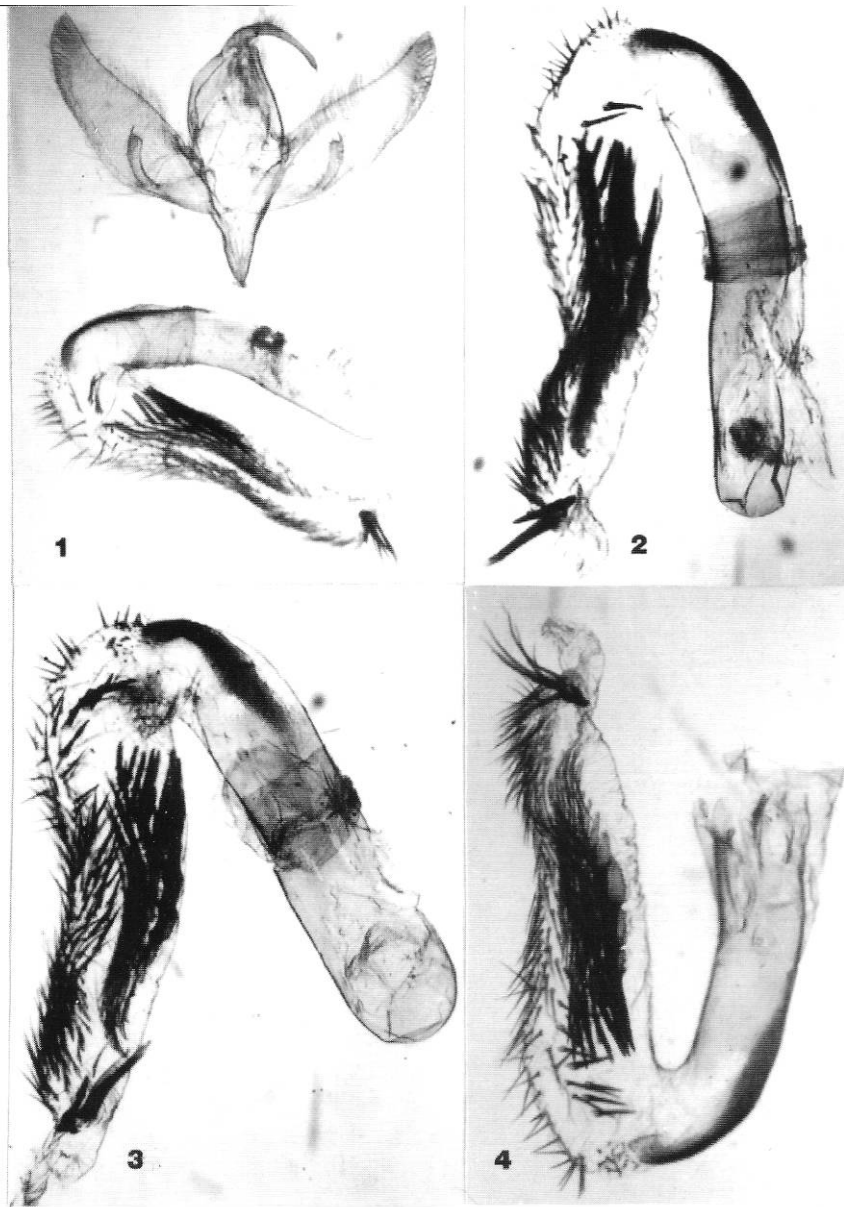
The closely related taxon *Oncocnemis confusa confusa* has a shorter, more twisted vesica, terminal cornutus is shorter and thicker. All cornuti on the vesica, except for the basal part, are equivalently small. Male and female genitalia of *Oncocnemis confusa confusa* and the genitalic differences between the related species are commented upon in Ronkay & Ronkay (1995). The genitalia of the other *Oncocnemis* species are illustrated in Gyulai, Hreblyay & Ronkay (1992), Ronkay & Ronkay (1995) and Ronkay (1988). They are clearly different from those of *Oncocnemis confusa michaelorum* **ssp. n.** More similar in genitalic characters is *Oncocnemis fuscipicta* Wiltshire, 1975, but it has a shorter and thicker harpe distended apically. An illustration of it can be found in Hacker (1986). *Oncocnemis confusa michaelorum* **ssp. n.** is a coastal taxon, whereas its closest relative *O. confusa confusa* inhabits xerothermic montane steppes at an altitude 1500–3000 m (Ronkay & Ronkay 1995). Most others *Oncocnemis* species are also mountainous.

#### Material examined

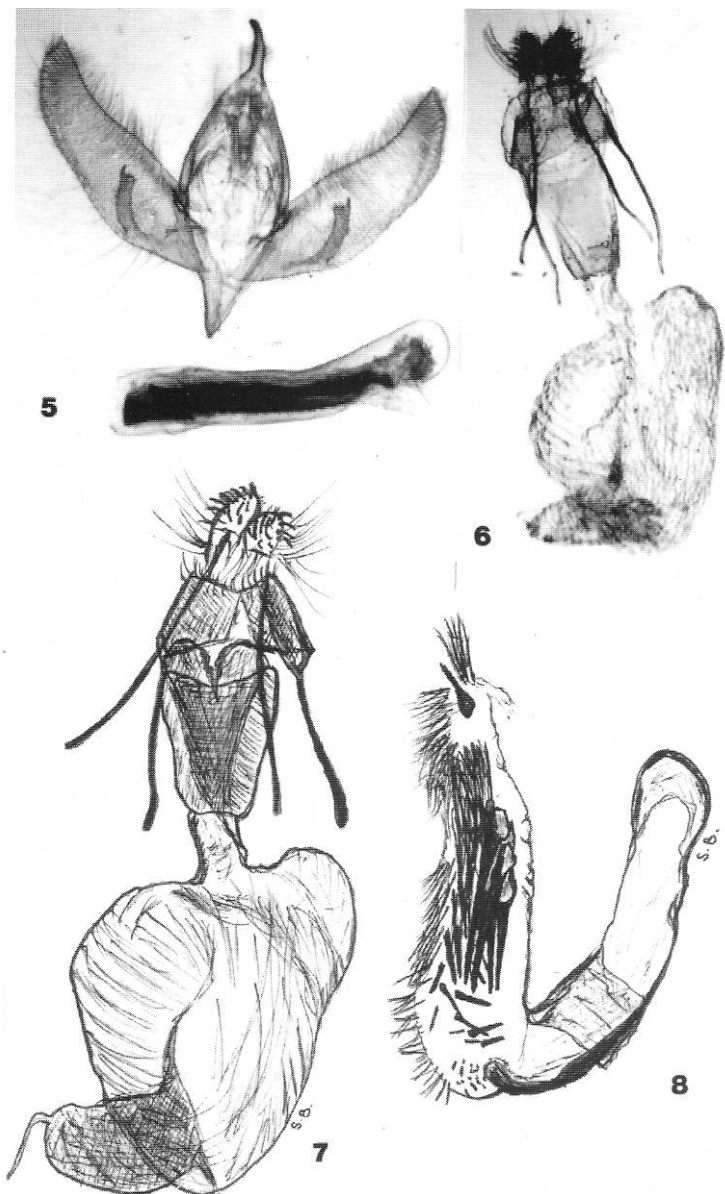
Holotype ♂ (plate 1, fig. 1) "Bulgaria, Black Sea coast, between Balchik Town and Touzlata, 2 km to Touzlata, 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg." (white paper), "Gen. prep. No. 7./04.IX.1996, S. Beshkov." (yellow paper), and "HOLOTYPE *Oncocnemis confusa michaelorum* Beshkov" (red paper). Deposited in coll. S. Beshkov, Sofia.

Paratypes: 24♂ and 3♀ from the same locality and with red label "PARATYPE *Oncocnemis confusa michaelorum* Beshkov": 12♂ and 1♀ 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg.; 9♂ and 1♀ 23.VIII.1996, S. Beshkov, M. Beshkova & K. Beshkova leg.; 3♂ and 1♀ 25.VIII.1996, S. Beshkov, M. Beshkova & K. Beshkova leg. Deposited as follows: 3♂ (10.VIII.1996) in coll. J. Nowacki (Poznan, Poland); 1♂ (23.VIII.1996) in coll. L. Ronkay (Budapest, Hungary); 1♂ in coll. Vlaamse *Phegea* 25 (4) (1.XII.1997): 156





Figs. 1-4: *Oncocnemis confusa michaelorum* ssp. n., all from the type locality. 1. - Holotype; 2-4 - Paratypes.  
 Fig. 1. 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg., prep. 7./04.IX.1996, Beshkov, ♂ genitalia with everted vesica.  
 Fig. 2. 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg., prep. 3./04.IX.1996, Beshkov, everted vesica.  
 Fig. 3. 10.VIII.1996, S. Beshkov, J. Nowacki & M. Bunalski leg., prep. 1./04.IX.1996, Beshkov, everted vesica.  
 Fig. 4. 23.VIII.1996, S. Beshkov, M. & K. Beshkova leg., prep. 5./04.IX.1996, Beshkov, everted vesica.



Figs. 5-8: *Oncocnemis confusa michaelorum* ssp. n., paratypes, all from the type locality.

Fig. 5. 23.VIII.1996, S. Beshkov, M. & K. Beshkova leg., prep. 9./04.IX.1996, Beshkov, ♂ genitalia, vesica not everted.

Fig. 6. 25.VIII.1996, S. Beshkov, M. & K. Beshkova leg., prep. 8./04.IX.1996, Beshkov, ♀ genitalia.

Fig. 7. 23.VIII.1996, S. Beshkov, M. & K. Beshkova leg., prep. 10./04.IX.1996, Beshkov, ♀ genitalia.

Fig. 8. 23.VIII.1996, S. Beshkov, M. & K. Beshkova leg., prep. 10./04.IX.1996, Beshkov, everted vesica.

Lepidoptera Collectie Antwerpen (VLCA, Belgium); 1♂ in coll. K. Soichiro (Settsu, Osaka, Japan); 1♂ in coll. J. Gelbrecht (König Wüsterhausen, Germany); 1♂ in coll. H. Hacker (Staffelstein, Germany); 1♂ in coll. M. Petersen (Pfungstadt, Germany); 1♂ in National Natural History Museum, Sofia; 1♂ in coll. B. Goater (Hampshire, England); 1♂ in Natural History Museum (London, England) and 1♂ in Entomologischen Museum Dr. U. Eitschberger (Marktleuthen, Germany). The rest of the paratypes are in the collection of the author.

### Distribution

The type locality is not more than 1 km from the sea coast. In the region the cliffs are very high, nearly vertical. Behind and parallel to the cliffs is a forest mainly of *Prunus mahaleb*, *Pyrus*, *Amygdalus*, *Carpinus*, *Ulmus campestris*, *Acer*, *Elaeagnus angustifolia*, *Crataegus monogyna*, *Quercus*, *Fraxinus*, *Paliurus spina-christi* and many others. Behind the forest follows an area with high grass vegetation with *Peucedanum arenarium* and many other herbs, and single bushes of *Paliurus*, *Prunus*, *Elaeagnus angustifolia*, *Colutaea arborescens* and others, as well as many small *Pinus* trees. After this hilly meadow there are again nearly vertical white sandy-rock slopes. The white-silvery colour of these slopes is the reason why this area is called "Silberküste". The area above the slopes is agricultural land. *Oncocnemis confusa michaelorum* ssp. n. is known only from the type locality. In the past the region near Balchik has been assiduously worked by collectors and many interesting species have been reported from there (see Caradja 1930, 1931, 1932, 1934; Zukowsky 1937; Popescu-Gorj 1964; Slivov 1976; Beschkov 1990; Beshkov 1992, Beshkov 1993, 1995; Beshkov in press; Beshkov & Goater in press.). The district of Balchik seems to be one of the most interesting places in Europe for entomology. Many endemic subspecies are described from there, though some of them with a doubtful taxonomic status. They are as follows: *Autophila asiatica argentea* (Caradja, 1930); *Autophila dilucida argentea* (Caradja, 1930), *Meganola albula nivalis* (Caradja, 1934), *Auchmis detersa argentea* (Caradja, 1932), *Eremodrina pertinax argentea* (Caradja, 1930), *Dichagyris melanura albida* (Caradja, 1931), *Dichagyris renigera argentina* (Caradja, 1930), *Yigoga flavina pretiosa* (Caradja, 1931), *Agrotis obesa nivea* Caradja, 1932. All of them are of the same light silvery colour as the slopes. Some other species also have light forms, but they are constant only in some of the above mentioned taxa. Only one of the subspecies mentioned above is darker (*Yigoga flavina pretiosa*), which already is synonymised (Beshkov 1996).

### Ecology

It is strange that the new *Oncocnemis* taxon has only been found recently in such a well explored area, especially as it is strongly attracted to light. Probably the reason for this is that the new taxon inhabits only a specific biotope on the sandy-rocks slope and is extremely local, though not rare in its biotope. Maybe it flies only in this biotope without ever leaving it. During the first collecting night 14 specimens were collected on the slopes, while lower down not a single one was observed on an even stronger lamp. The altitude of the type locality is less than 100 m. The known flight period is 10–25 August, but the condition of the specimens suggests that *Oncocnemis confusa michaelorum* ssp. n. probably flies from the end of June to the first half of September. In the type locality the most common plants at the time of collecting were: *Agrimonia eupatoria*, *Agropyron brandzae*, *Althaea canabina*, *Artemisia maritima*, *Artemisia pontica*, *Aster oleifolius*, *Bromus commutatus*, *Bupleurum affine*, *Centaurea diffusa*, *Centaurea sositialis*, *Cephalaria leavigata*, *Cephalaria uralensis*, *Cichorium intybus*, *Coronilla elegans*, *Discurainia sofia*, *Echinops ritro*, *Elaeagnus angustifolia*, *Eryngium campestre*, *Euphorbia seguierana*, *Falcaria vulgaris*, *Galium humifusum*, *Gypsophila glomerata*,

*Hieracium* sp., *Kochia scoparia*, *Lactuca saligna*, *Linaria genistifolia*, *Linum angustifolium*, *Lotus corniculatus*, *Marrubium vulgare*, *Melica ciliata*, *Melilotus albus*, *Odontites serotina*, *Ononis spinosa*, *Origanum vulgare*, *Peganum harmala*, *Potentilla bornmulleri*, *Reseda lutea*, *Satureja coerulea*, *Scleranthus perennis*, *Silene otites*, *Teucrium chamaedrys*, *Teucrium polium*.

### Conservation status

*Oncocnemis confusa michaelorum* ssp. n. is an extremely local endemic species, inhabiting steep slopes, which are naturally protected from human activities. Only one road passes through the area, near the type locality. Both the relief and the stony littoral are the reasons why the region north of Balchik is a well preserved wild area. Big resorts were built on places along the sea with a sandy coast and there nature is totally destroyed. Near the locality of *Oncocnemis confusa michaelorum* ssp. n. there is no urbanisation and future builders of resorts have no commercial interest in the biotope of this local population. All this makes it easy to protect this area. Many other interesting species from different groups occur here. *Oncocnemis confusa michaelorum* ssp. n. is syntopic and synchronic with the following: *Triodia amasinus dobrogensis* (Caradja, 1932), *Lasiocampa quercus* (Linnaeus, 1758), *Idaea camparia* (Herrich-Schäffer, [1852]), *Idaea obsoletaria* (Rambur, 1833), *Therapis flavicaria* ([Denis & Schiffermüller], 1775), *Nychiodes waltheri* (Wagner, 1919), *Hyles gallii* (Rottemburg, 1775), *Hyles hippophaes* (Esper, 1793), *Eilema morosina* (Herrich-Schäffer, 1848), *Clytie syriaca* (Bugnion, 1837), *Lygephila procax* (Hübner, [1813]), *Aedia leucomelas* (Linnaeus, 1758), *Meganola albula nivalis* (Caradja, 1934), *Nycteola sicilana* (Fuch, 1899), *Oxicestra geographica* (Fabricius, 1787), *Cryphia ochsi* Boursin, 1941, *Cryphia amasina* (Draudt, 1931), *Acontia urania* Frivaldsky, 1835, *Heliothis maritima bulgarica* (Draudt, 1938), *Periphanes delphinii* (Linnaeus, 1758), *Mesoligia furuncula* ([Denis & Schiffermüller], 1775), *Mesapamea didyma* (Esper, 1788), *Leucania putrescens* (Hübner, [1824]), *Euxoa cos crimaea* A. Bang-Haas, 1906, *Dichagyris melanura albida* (Caradja, 1931) and many others. Of them *Euxoa cos crimaea* is new for the Balkan Peninsula and *Hyles hippophaes* is new for Bulgaria (Beshkov in press.). An eventual protection of this area will cover steppes and coastal biotopes, both such biotope types are endangered in all of Europe.

### Etymology

The new species *Oncocnemis confusa michaelorum* ssp. n. is dedicated to my wife Michaela, as well as to my friends and colleagues Michael Petersen (Pfungstadt, Germany) and Michael Fibiger (Sorø, Denmark).

### Acknowledgements

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