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A new species of the genus *Exoprosopa* (Diptera: Bombyliidae) from Turkey

Jozef Dils & Hikmet Özbek

Abstract. From 30 specimens, all caught in the south-eastern Turkish provinces of Hakkari and Van, *Exoprosopa ahtamara* sp. nov. is described. The new species is compared with closely related species in the genus *Exoprosopa*, but also with some species from the genus *Hemipenthes* which have a very similar external morphology.

Samenvatting. Een nieuwe soort uit het genus *Exoprosopa* (Diptera: Bombyliidae) uit Turkije
Aan de hand van 30 exemplaren, verzameld in de zuidoostelijke Turkse provincies Van en Hakkari, wordt *Exoprosopa ahtamara* sp. nov. beschreven. De nieuwe soort wordt vergeleken met de nauw verwante soorten uit het genus *Exoprosopa*, maar ook met enkele soorten uit *Hemipenthes* waarvan de externe morfologie sterk op die van de nieuwe soort lijkt.

Résumé. Une nouvelle espèce du genre *Exoprosopa* (Diptera: Bombyliidae) de la Turquie
Avec 30 exemplaires, tous capturés dans les provinces Hakkari et Van dans le sud-est de la Turquie, *Exoprosopa ahtamara* sp. nov. est décrit. La nouvelle espèce est comparée avec quelques espèces apparentée dans le genre *Exoprosopa*, mais aussi avec quelques espèces du genre *Hemipenthes*, qui ont une morphologie externe ressemblant beaucoup celle de la nouvelle espèce.

Key words. *Exoprosopa ahtamara* sp. nov. – Description – Turkey.

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Introduction

In the period 1987–2005, 30 specimens of a bombyloid fly were caught in the South-Eastern Turkish provinces of Hakkari and Van. In the annotated keys to the genera of African Bombylioidea (Diptera: Bombyliidae, Mythicomyiidae) by Greathead & Evenhuis (2000), these specimens run to the genus *Exoprosopa*

and apparently belong to a new species within this genus. The species has a rounded face, bud spines at the base of the claws and 3 submarginal cells.

At first glance, the species looks like *Hemipenthes morio* (Linnaeus, 1758) (Fig. 3) a very common and widely distributed species.

Paramonow (1928: 285) described *Hemipenthes exoprosopoides*, a species with 3 submarginal cells but without spines at the base of the claws, as follows: "Wie das aussere Aussehen, so zeigen auch die anderen Merkmale, dass wir es trotz der Anwesenheit von 3 Submarginalzellen mit einem Vertreter der Gattung *Hemipenthes* (*H. velutinus* nahe verwandt) zu tun haben. Anwesend sind alle Merkmale der Gattung *Hemipenthes*: Gesicht abgerundet, nicht vortretend; Stirn des Mannchens ausserordentlich schmal; das 3. Fühlerglied zwiebelformig, mit langem Griffel; Krallen nicht gezahnt; der obere Ast der 3. Langsader sehr weit vom Hinterrand abzweigend (die Strecke bis zum Hinterrand 1,5 mal kleiner als die Strecke zur Basis der 2. Langsader)."

Zaitsev (1976) described *Exoprosopa pullata* from a female, an *Exoprosopa* species with a dark-brown basal infuscation and with distinct teeth at the base of the claws.

The genitalia of *Exoprosopa* species are very variable and provide no characters for a more definite classification, neither in the male genitalia nor in the spermatheca.

We are persuaded that a careful examination of specimens in collections of *Hemipenthes morio* and *Hemipenthes velutina* (Meigen, 1820) from Turkey and the Middle East will reveal several specimens of the species described in this paper.

As this species is comparable to *Hemipenthes morio*, a very widely distributed species in the Palaearctic region, the description of *Exoprosopa ahtamara* sp. n., can be kept short.

Diagnosis

The male *Exoprosopa ahtamara* sp. n. is immediately distinguished from *H. morio* by the white scales on t6–7, that of the female by the absence of brown hairs on the collar, on the metapleurae and on terga 1–2.

From *Exoprosopa pullata* Zaitzev the new species is distinguished by the shape of the flagellum, which is conical and onion-shaped in *E. ahtamara* sp. n., and, like in the female of *H. morio*, by the absence of brown hairs on the collar, on the metapleurae and on terga 1–2.

Exoprosopa ahtamara sp. n.

Material examined: Holotype ♂, Turkey, Van, Kuskun Kıran Geçidi, N 38°23'13,5" E 42°47'42,0", 2300 m, 14/07/2004, leg. Dils J. & Faes J., in coll. ZMAN (Instituut voor Taxonomische Zoölogie, Universiteit van Amsterdam).

Paratypes: 5♂ + 8♀, Turkey, Van, Kuskun Kıran Geçidi, 2300 m, N 38°23'13,5" E 42°47'42,0", 14/07/2004, leg. Dils J. & Faes J.; 1♂, Turkey, Van, Kuskun Kıran Geçidi, 2100 m, 29/07/1992, leg. Lucas J. A. W.; 1♀, Turkey, Hakkari, Yüksekova, 1700 m, 28/06/1987, leg. Zwakhals C. J.; 5♂ + 1♀, Turkey, Van, Gevaş, N 38°16'10,6" E 43°04'1,3", 2000 m, 16/07/2004, leg. Dils J. & Faes J.; 1♂, Turkey, Van, Gevaş, N 38°16'30,8" E 43°03'52,5", 1868 m, 17/07/2005, leg. Dils J. & Faes J.; 4♂ + 2♀, Turkey, Van, Gevaş, N 38°16'30,8" E 43°03'52,5", 1868 m, 11/07/2005, leg. Dils J. & Faes J.;

1♀, Turkey, Van, Edremit, 15 km SW Van, 1750 m, 5–6/7/1992, leg. Van Der Poorten D. & De Prins W.; in coll. Ataturk University, Faculty of Agriculture, Department of Plant Protection, TR-25240 Erzurum, Turkey, JDPC (J. Dils personal collection, Stabroek, Belgium).

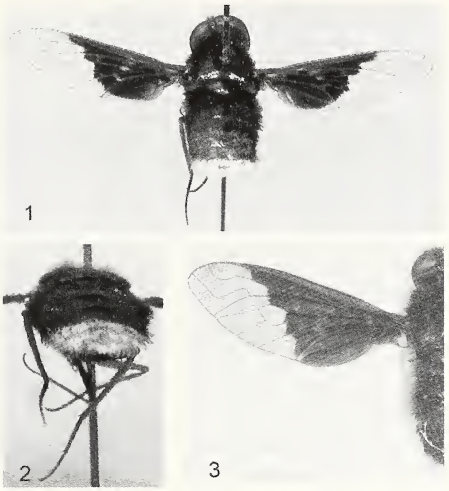


Fig. 1–2: *Exoprosopa ahtamara* sp. n., Holotype ♂, Turkey, Van, Kuskun Kıran Geçidi, N 38°23'13,5" E 42°47'42,0", 2300 m, 14/07/2004, leg. Dils J. & Faes J., in coll. ZMAN (Instituut voor Taxonomische Zoölogie, Universiteit van Amsterdam); **1**.– Dorsal view; **2**.– Tip of abdomen.
Fig. 3: *Hemipenthes morio* L. ♀, left wing.

Description:

♂: Head: Ground colour shining black. All hairs and scales black. Face protruding but rounded. Proboscis not protruding the bucal cavity. All hairs on antenna black, flagellum pear (onion) shaped with an equally long flagellum and a short flagellomere.

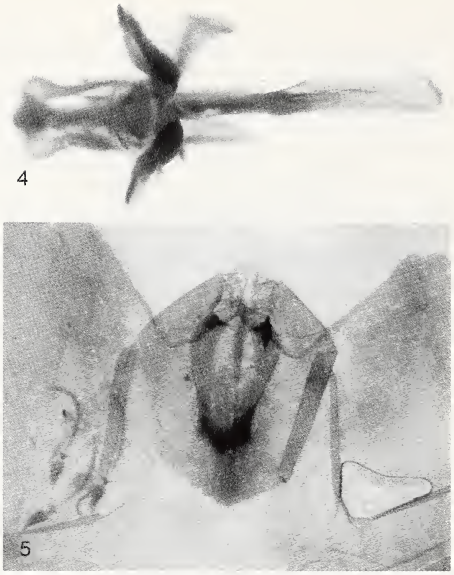
Thorax: Ground colour shining black, all hairs and scales black. Hairs on plumula white.

Wings: 3 submarginal cells, black marking more or less as in *Hemipenthes morio* but Cu2 and A1 posterior not completely filled black. Squama black. Haltera stem light brown, knob white.

Abdomen: Ground colour black. Hairs and scales on terga 1–5 black, terga 6–7 with white hairs and scales. (Fig. 1).

Legs: Black with black hairs and scales, no pulvilla. Spines at claws, pulvilla absent. No spines on tibia 1.

♀: The female is identical to the male except for the thoracical hairs on the plumula which are black, the absence of white hairs and scales at t6–7, the black marking on the wing which posteriorly extend to the wing margin, filling Cu2 and A1 completely black.



Figs. 4–5. *Exoprosopa ahtamara* sp. n. Paratype; **4**.– Phalic complex; **5**.– Spermatheca.

Etymology: The species in named after a small island on the south side of lake Van situated in South-East Turkey.

Acknowledgments

We wish to thank the late Dr. David Greathead for his generous and indispensable help. We also thank W. De Prins, J. A. W. Lucas, D. Van Der Poorten, and C. J. Zwakhals for their assistance in collecting some of the material.

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Preliminary work on the moth fauna (Lepidoptera: Heterocera) of Kazdağı National Park – II (Turkey)

Selma Seven

Abstract. In this study, moth specimens collected from Kazdağı National Park are evaluated and 32 taxa belonging to 12 families are identified. All of the species have been recorded for the first time from Kazdağı National Park. *Syndemis musculana* (Hübner, [1799]), known from Turkey with uncertain locality record, has been recorded with an exact locality for the first time. The distribution in Turkey of *Pancalia schwarzella* (Fabricius, 1798) and *Eudonia mercurella* (Linnaeus, 1758) are discussed. *Pyrausta ostrinalis* (Hübner, 1796) is recorded for the first time for the Turkish Crambidae fauna.

Samenvatting. Voorlopig studie van de nachtvlinderfauna (Lepidoptera: Heterocera) van het Kazdağı Nationaalpark – II (Turkije)
In deze studie worden de 32 Heterocera-taxa uit 12 families, verzameld in het Kazdağı Nationaalpark, besproken. Al deze soorten worden voor het eerst uit dit gebied vermeld. *Syndemis musculana* (Hübner, [1799]), voordien bekend uit Turkije zonder enige vindplaats, wordt hier voor het eerst met een duidelijke lokaliteit vermeld. De verspreiding in Turkije van *Pancalia schwarzella* (Fabricius, 1798) en *Eudonia mercurella* (Linnaeus, 1758) wordt besproken. *Pyrausta ostrinalis* (Hübner, 1796) wordt hier voor het eerst uit Turkije vermeld.

Résumé. Etude préliminaire des hétérocères (Lepidoptera: Heterocera) du Parque National de Kazdağı – II (Turquie)
Dans cette étude les 32 taxa d'hétérocères appartenant à 12 familles, capturés dans le Parque National de Kazdağı, sont discutés. Toutes ces espèces sont mentionnées pour la première fois de ce parque. *Syndemis musculana* (Hübner, [1799]), auparavant seulement connu de Turquie sans localité précise, est mentionné ici pour la première fois avec certitude. La distribution en Turquie de *Pancalia schwarzella* (Fabricius, 1798) et de *Eudonia mercurella* (Linnaeus, 1758) est commentée. *Pyrausta ostrinalis* (Hübner, 1796) est mentionnée ici pour la première fois de la Turquie.

Key words: Lepidoptera – National Park – first record – faunistics – Turkey.

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Introduction

The Kazdağı National Park is situated in the north-west of Turkey at the border of the Edremit county (Balıkesir province) and north of the Edremit gulf. It is the highest elevation of the Biga peninsula which separates the Ege and Marmara regions. The highest mountain of Kazdağı National Park is Karataş Hill with an altitude of 1774 m. In this park, until 700–800 m *Pinus brutia* is present, and until 1400 m, mixed with *Pinus brutia*, are other tree species like *Fagus* and *Abies*. Also, the park has a rich flora in terms of medical plants like *Thymus*, *Salvia*, *Rhus coriaria* together with *Castanea*, *Quercus*, *Alnus*, *Platanus orientalis*, and sometimes *Cistus*, *Erica*, *Prunus spinosa*, *Rubus* sp.

National Parks and Nature Protection Areas are very important due to the fact that they represent the faunistic and floristic structure of their region. Nevertheless, only a few faunistic studies about national parks in Turkey have been published. The only work known is about the Gelibolu Peninsula National Park (Karatepe 1997). The Lepidoptera of Kazdağı National Park have been

identified for the first time during this study. The butterflies were submitted as a separate publication (Seven 2006), and have been treated as a separate group due to including some important and interesting records, giving some important data about the research area and being a basic work for detailed studies in the future, The moths of Kazdağı National Park are treated in the present paper and listed with their synonyms.

Studies including some important records for the research area are Mann (1861, 1862), Staudinger (1878, 1881), and Hacker (1990). Works used for the identication of some moth specimens are: Bleszynski (1965), Back (1973), Kuznetzov (1978), Lvovski (1981), Zagulyaev & Sinev (1981), Hacker (1989), Roesler (1993), Arenberger (1995), de Freina (1997), Naumann *et al.* (1999), and Koster & Sinev (2003).

Material and Methods

Field expeditions were carried out in the research area between the years 2004–2005. Specimens were collected with a light trap and placed in triangle papers by using pliers. After that, they were relaxed in a softening container in the laboratory, spread on setting boards according to museum material methods, dried and placed in collection boxes after labelling. The genital preparation number (GP) has been added when appropriate.

Oecophoridae

Pleurota pyropella ([Denis & Schiffermüller], 1775)

Material examined: Balıkesir, Edremit, Kazdağı, Kampalanı, 0800 m, 04.06.2005, 4♂ (GP2065♂).

Cosmopterigidae

Pancalia schwarzella (Fabricius, 1798)

Syn: *latreillella* Curtis, 1830. Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m 17.07.2005, 4♂♀ (GP2006♂).

Sesiidae

Chamaesphecia thracica Laštůvka, 1983

Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 1♂ (GP2067♂).

Zygaenidae

Adscita statices (Linnaeus, 1758)

Syn: *turcosa* Retzius, 1783; *heuseri* Reichl, 1964. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 04.06.2005, 6♂ 3♀; 16.07.2005 6♀ (GP2070♂).

Jordanita subsolana (Staudinger, 1862)

Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1200 m, 17.07.2005, 2♂ 5♀; Zirve, 1700 m, 1♂ 1♀ (GP2068♂, GP2069♂).

Zygaena filipendulae (Linnaeus, 1758)

Syn: *aries* Retzius, 1783. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1067 m, 03.07.2004, 1♂ (leg. Y. Durmuş), 1200 m, 17.07.2005, 2♂; Kamp alanı, 0800 m, 16.07.2005, 2♀.

Zygaena lonicerae (Scheven, 1777)

Syn: *graminis* Villers, 1789; *reichei* Dujardin, 1965; *microdoxa* Dujardin, 1965. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1067 m, 03.07.2004, 1♀ (leg. Y. Durmuş), 1200 m, 17.07.2005, 2♂ 2♀.

Tortricidae

Syndemis musculana (Hübner, [1799])

Syn: *musculinana* Kennel, 1899; *nipponensis* Yasuda, 1975. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1200 m, 05.06.2005, 1♂ (GP2063♂).

Pterophoridae

Emmelina monodactyla (Linnaeus, 1758)

Syn: *sibiricus* Caradja, 1920. Material examined: Balıkesir, Edremit, Kazdağı, Zeytinli, 0150 m, 06.06.2005, 1♂ (GP2059♂).

Pyralidae

Synaphe moldavica (Esper, 1794)

Syn: *schmidti* Hartig, 1941. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 04.06.2005, 9♂; Hasanboğuldu, 0200 m, 06.06.2005, 3♂.

Endotricha flammealis ([Denis & Schiffermüller], 1775)

Syn: *carnealis* De Lattin, 1951. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0750 m, 29.08.2004, 1♂.

Isauria dilucidella (Duponchel, 1836)

Syn: *ilignella* Zeller, 1839; *laternella* Eversmann, 1844; *crepusculella* Lederer, 1870; *incredibilis* Staudinger, 1879; *subsoritella* Ragonot, 1887; *satanella* Ragonot, 1887; *odontella* Ragonot, 1893; *ledereri* Ragonot, 1893. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1200 m, 05.06.2005, 1♂ (GP2072♂).

Lamoria ruficostella Ragonot, 1888

Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 1♂.

Crambidae

Pyrausta ostrinalis (Hübner, 1796) (First record for the Turkish fauna)

Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 1♂ 1♀.

Loxostege sticticalis (Linnaeus, 1761)

Syn: *lupulina* Clerk, 1756 nec Linnaeus, 1758; *miana* Müller, 1764; *sylvata* Panzer, 1804; *tetragonalis* Haworth, 1811. Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 1♂.

Heliothela wulfeniana (Scopoli, 1763)

Syn: *atralis* Hübner, 1788 nec Fabricius, 1775; *coerulealis* Caradja, 1917; *hübneri* Koçak, 1980. Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 24♂♀.

Eudonia mercurella (Linnaeus, 1758)

Syn: *mercuri* Fabricius, 1798; *mercurea* Haworth, 1811; *mercuralis* Hübner, [1825]; *portlantica* Westwood, 1845; *frequentella* Stainton, 1849; *concinnella* Curtis, 1850; *frequentalis* Herrich-Schäffer, 1862. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1200 m, 05.06.2005, 1♂. (GP2060♂).

Chrysocrambus craterella (Scopoli, 1763)

Syn: *rorella* Linnaeus, 1767; *klimeschi* Toll, 1938; *alpinus* Bleszynski, 1958; *abruzzellus* Bleszynski, 1958. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 04.06.2005, 1♀.

Agriphila latistria (Haworth, 1811)

Syn: *gueneellus* Duponchel, 1836; *monotaeniellus* Herrich-Schäffer 1852; *vectifer* Zeller, 1863; *vallicolella* Costa, 1885. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0750 m, 29.08.2004, 1♂.

Agriphila paleatellus (Zeller, 1847)

Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0750 m, 29.08.2004, 1♀ (GP2071).

Geometridae

Camptogramma bilineata (Linnaeus, 1758)

Syn: *brocatella* Fourcroy, 1785; *dumetata* Schrank, 1802; *bilinearia* Boisduval, 1840; *musauria* Freyer, 1846; *testaceolata* Staudinger, 1871. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 04.06.2005, 1♂.

Chlorissa cloraria (Hübner, [1813])

Material examined: Balıkesir, Edremit, Kazdağı, Hasanboğuldu, 0200 m, 06.06.2005 1♂.

Eupithecia breviculata (Donzel, 1837)

Syn: *anatolica* Schwingenschuss, 1939; *georgica* Vojnits, 1977. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1200 m, 05.06.2005, 1♂.

Chiasmia clathrata (Linnaeus, 1758)

Syn: *almacola* Wehrli, 1943. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 04.06.2005, 1♂.

Hylaea fasciaria (Linnaeus, 1758)

Syn: *prosapiaria* Linnaeus, 1758; *neustriaria* Hufnagel, 1767; *prasinaria* [Denis & Schiffermüller], 1775; *biliosata* Villers, 1789; *viridifasciosa* Esper, 1794; *cleui* Leraut, 1993. Material examined: Balıkesir, Edremit, Hasanboğuldu, 0200 m, 06.06.2005, 1♂.

Noctuidae

Autographa gamma (Linnaeus, 1758)

Syn: *messmeri* Schadewald, 1992; *voelkeri* Schadewald, 1992. Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800m, 04.06.2005, 1♀; Tozlu mevkii, 1000m, 05.06.2005 1♂; 1200 m 1♂.

Ephesia disjuncta (Geyer, 1828)

Syn: *separata* Freyer, 1848; *luctuosa* Staudinger, 1901 nec Hulst, 1884; *fumigata* Kuznetsov, 1903. Material examined: Balıkesir, Edremit, Kazdağı, Kampalanı, 0800m, 04.06.2005, 1♀; Tozlu mevkii, 1200 m, 05.06.2005 1♂.

Hadula trifolii (Hufnagel, 1766)

Syn: *chenopodii* [Denis & Schiffermüller], 1775; *verna* Esper, [1787]; *saucia* Esper, [1790]; *infraina* Haworth, 1809; *contribulis* Duponchel, 1827; *farkasii* Treitschke, 1835; *inquieta* Walker, 1857; *albifusa* Walker, 1857. Material examined: Balıkesir, Edremit, Kazdağı, Zirve, 1700 m, 17.07.2005, 1♂.

Lymantriidae

Lymantria dispar (Linnaeus, 1758)

Material examined: Balıkesir, Edremit, Kazdağı, Kamp alanı, 0800 m, 16.07.2005, 1♂.

Sphingidae

Hyles livornica (Esper, 1780)

Syn: *koechlini* Fuessly, 1781; *tatsienluica* Oberthür, 1916; *saharae* Gehren, 1936; *malgassica* Denso, 1944; *tatsienluica* Oberthür, 1944; *renneri* Eitschberger, Danner & Surholt, 1998. Material examined: Balıkesir, Edremit, Kazdağı, Tozlu mevkii, 1067 m, 03.07.2004, 1♂ (leg. Y. Durmuş).

Sphinx pinastri Linnaeus, 1758

Syn: *asiaticus* Butler, 1875; *saniptri* Strecker, 1876; *cenisius* Jordan 1931; *medialis* Jordan 1931; *euxinus* Derzhavets, 1979; according to De Freina & Witt, 1987. Material examined: Balıkesir, Edremit, Kazdağı, Zeytinli Deresi, 0150 m, 28.08.2004 1♂.

Macroglossum stellatarum (Linnaeus, 1758)

Syn: *nigra* Cosmovici, 1892. It was observed between 0150–1700 m altitude in almost all localities.

Results and Discussion

From Kazdağı National Park, 32 species belonging to 12 moth family are identified. All these species are here recorded for the first time from the Kazdağı National Park and 31 of them for the first time from the Balıkesir province. *Pyrausta ostrinalis* is recorded here for the first time for the Turkish Crambidae fauna. In the following, some of the important and rare species discussed.

Heliothela wulfeniana is distributed in Europa except the British Islands (Parenti 2000). It has been known from Turkey only from five localities up to now. In the research area, it was found in the subalpine zone at 1700 m altitude, where it occurs locally but abundantly.

Huemer & Karsholt (2005) stated that *Eudonia mercurella* is distributed in Turkey (Taurus coll., Staudinger, ZMHB). Koçak & Kemal (2006) mentioned that this species was recorded from the Trabzon province in Turkey without stating an exact locality. It seems that this taxon is distributed in two different zoogeographic regions in Turkey. The taxon identified from the Kazdağı National Park is an important record for the Turkish Crambidae fauna. From

Khalkidhiki (Greece) subspecies *puella* Leraut, 1982 was described new record for Aegean Region in Turkey. It has been thought that comparing differences and resemblance with the taxon determined from Balıkesir province and ssp. puella add new distribution data to the distirbutional area belonging to this species by collecting more specimens.

Pancalia schwarzella: wing span 14–15 mm. It is one of the important and rare species in Turkey. From the same genus, also *P. leuwenhoekella* (Linnaeus, 1761) is known to occur in Turkey (Koçak & Seven 2003). Sinev (1985) mentioned that *P. schwarzella* is distributed on high hills in the shore zone of Turkey. Turkey is also indicated in the distribution catalogue by Koster & Sinev (2003: 203). This taxon is present in the Kazdağı National Park and so its distribution in Turkey has been extended to Bursa and Balıkesir. In the research area, specimens have been observed in the subalpine zone at 1700 m, covered with *Astragalus*, while they were flying near *Lotus corniculatus* and only four specimens were caught.

Agriphila latistria: this species is known as rare and local in Turkey (Koçak & Seven 1997). It is here recorded for the first time from the Balıkesir province and also from the Aegean region. In the National Park, it flies in the grassy, open places in pine forests with *Juniperus*, *Berberis*, *Dipsacus*, *Echinops*, *Salvia*, *Verbascum*, and *Festuca* and near water patches.

Syndemis musculana: the larva of this species lives in woody plants. It is distributed in the Palaearctic region and known in Central Europe as widely spread (Razowski 2001). Koçak & Seven (2003) mentioned this species from Turkey with uncertain locality. In the present paper, it has been given with an exact locality record for the first time in Turkey. The species was caught in Pinus forest but it is local and rare in the Kazdağı National park.

Chlorissa cloraria: this species is confused with *Chlorissa viridata* (Linnaeus, 1758) because of the resemblance of their external morphology. It is distinguished from *C. viridata* by the dark outer margin of the costa and the sinuous edge of the hind wing (Hausmann 2001). The Turkish Geometridae list in Koçak & Seven (2003) does not include any data about *C. cloraria*. In Özdemir (2004) it is recorded from the provinces Bolu and Konya (Düzce). The taxon, identified from the Kazdağı National Park, is the first record for both the Balıkesir province and the Aegean Region. Specimens recorded from Turkey before as *C. viridata* should be studied again to establish their true identity.

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Boekbesprekingen

Brown, J. W.: *Tortricidae* (*Lepidoptera*). – In Landry, B. (Ed.): *World Catalogue of Insects*, Volume 5.
17 × 24 cm, 741 p., Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, apollobooks@vip.cybercity,dk, gebonden, 2005, DKK 960,00 (ISBN 87-88757-41-2).

Met meer dan 9000 soorten is de familie Totricidae een van de soortenrijkste vlinderfamilies. Ze komt wereldwijd voor en telt de meeste soorten in Midden- en Zuid-Amerika. De Nederlandse naam "bladrollers" komt van de levenswijze van sommige rupsen die een blad oprollen om in de holte daarvan veilig te leven. Vele soorten echter hebben heel andere levenswijzen, gaande van vrij levend tot boren in wortels en stengels. Deze catalogus wil een overzicht geven van alle soorten die tot nu toe wereldwijd zijn beschreven. Daarbij worden alle synoniemen vermeld, maar ook de infrasubspecifieke namen en foutieve spellingen. De catalogus is up-to-date tot 31 december 2004. Van alle namen werd de originele spelling nagekeken, de homonymie, het auteurschap, publicatiejaar enz. Deze uitgebreide klus werd niet door John Brown alleen geklaard; hij werd bijgestaan door Joaquin Baixeras, Richard Brown, Marianne Horak, Furumi Komai, Eric H. Metzler, Jozef Razowski en Kevin Tuck, allemaal bekende tortricidologen.

De hele catalogus is alfabetisch gerangschikt per genus en binnen het genus per soortnaam. Bij elk genus wordt vermeld tot welke subfamilie het behoort en meestal ook tot welk tribus. Tevens wordt de type-soort aangegeven. Bij de individuele soorten wordt de auteur en beschrijvingsjaar vermeld, en verder het originele genus, de referentie naar de oerbeschrijving en de type-lokaliteit. Indien bekend wordt ook aangegeven in welke musea de types zich bevinden.

Gegevens over de verspreiding van de soorten wordt niet gegeven, omdat dit in vele gevallen een herhaling zou zijn van de type-lokaliteit; vele soorten zijn nooit ergens anders gevonden. Dit geldt jammer genoeg niet voor de meeste Palaearctische soorten. Ook gegevens over voedselplanten ontbreken geheel omdat de kennis daaromtrent nog veel te fragmentarisch is.

Achteraan volgen nog een 32-tal notities over taxonomische wijzigingen en een alfabetische index. Het boek is erg volumineus, maar toch keurig uitgegeven en stevig ingebonden. Het is een must voor collectiebeheerders, musea en iedereen die zich ernstig op deze vlinderfamilie willen toeleggen.

Willy De Prins

Baldizzone, G., van der Wolf, H. & Landry, J.-F.: *Coleophoridae, Coleophorinae* (*Lepidoptera*). – In Landry, B. (Ed.): *World Catalogue of Insects*, Volume 8.
17 × 24 cm, 215 p., Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, apollobooks@vip.cybercity,dk, gebonden, 2006, DKK 360,00 (ISBN 87-88757-76-5).

In tegenstelling tot de overige families in de reeks "*World Catalogue of Insects*", is het bij de Coleophoridae nog niet zo lang geleden dat er een lijst gepubliceerd werd. Toch was een revisie hoogst nodig omdat sinds de laatste 17 jaar het aantal soorten met ongeveer 25% is toegenomen! De catalogus vermeldt 1342 soorten ingedeeld in 5 genera, waarvan *Coleophora* veruit het soortenrijkste is.

Van elke soort wordt de originele combinatie gegeven, de auteur, jaar en referentie van de beschrijving. Ook worden alle synoniemen opgelijst. De tot nu toe bekende verspreiding wordt aangegeven met een landenlijstje. Gegevens over voedselplanten werden weggelaten omdat er vele foutieve gegevens in de literatuur voorkomen. Achteraan volgt een uitgebreide literatuurlijst en een alfabetische index.

Het boek is, zoals alle delen in de reeks, keurig uitgegeven en gebonden in een harde kaft. Wie op de hele reeks "*World Catalogue of Insects*" intekent, krijgt een korting van 10%.

Willy De Prins

New data regarding the butterflies (Lepidoptera: Rhopalocera) of Romania, with additional comments (general distribution in Romania, habitat preferences, threats and protection) for ten localized Romanian species

Sylvain Cuvelier & Vlad Dincă

Abstract. During a field trip from mid July to early August 2006, the authors found new data regarding the distribution of different butterfly species (Rhopalocera: Papilionoidea and Hesperioidea) in Romania. All observations of this joint research trip are presented and focus is given on ten target species by additional comments on the distributional, ecological and legislative aspects in the country. *Erebia sudetica radnaensis* Rebel, 1915 is recorded for the first time in Făgăraş Mountains and the male genitalia of this Romanian taxon is figured for the first time as a novelty. The habitus of male and female *Boloria* (*Clossiana*) *titania transsylvanica* Tiltscher, 1913 is also figured.

Samenvatting. Nieuwe gegevens over de dagvlinders van Roemenië (Lepidoptera: Papilionoidea & Hesperioidea), met aanvullend commentaar (algemene verspreiding in Roemenië, habitatvoorkeuren, bedreiging en bescherming) voor tien lokale, Roemeense soorten
Gedurende een vlinderreis, van midden juli tot begin augustus 2006, vonden de auteurs nieuwe gegevens over de verspreiding van meerdere dagvlindersoorten (Lepidoptera: Papilionoidea en Hesperioidea) in Roemenië. Alle observaties van deze gemeenschappelijke zoektocht worden weergegeven waarbij aandacht gegeven wordt aan tien doelsoorten met additionele commentaren rond de verspreiding, ecologische en legislatieve aspecten in het land. Voor het eerst wordt *Erebia sudetica radnaensis* Rebel, 1915 gemeld uit het Făgăraş gebergte en worden de mannelijke genitalia van dit Roemeens taxon afgebeeld. Ook de habitus van het mannetje en het wijfje van *Boloria* (*Clossiana*) *titania transsylvanica* Tiltscher, 1913 worden geïllustreerd.

Résumé. Nouvelles données sur les papillons de la Roumanie (Lepidoptera: Papilionoidea & Hesperioidea), avec commentaires supplémentaires (répartition générale en Roumanie, préférence de biotope, aspects écologiques et législatifs) pour dix espèces locales en Roumanie
Lors d'un voyage lépidoptérologique, de la mi juillet au début août 2006, les auteurs ont trouvé des nouvelles données concernant la distribution de plusieurs espèces de papillons diurnes (Rhopalocera: Papilionoidea et Hesperioidea) en Roumanie. Toutes les observations de cette recherche sont présentées avec une attention spéciale pour dix espèces clés avec des commentaires sur leur distribution, aspects écologiques et législatifs dans le pays. Pour la première fois, *Erebia sudetica radnaensis* Rebel, 1915 est enregistré des Monts Făgăraş et les genitalia males de ce taxon roumain sont figurés. L'habitus mâle et femelle de *Boloria* (*Clossiana*) *titania transsylvanica* Tiltscher, 1913 sont illustré.

Rezumat. Noi date privind fluturii diurni ai României (Lepidoptera : Rhopalocera), acompaniate de comentarii adiţionale (răspândire în România, preferinţe faţă de habitat, grad de periclitare, statut protectiv) pentru zece specii localizate din România
Cu ocazia cercetărilor pe teren efectuate între a doua jumătate a lunii iulie şi începutul lunii august 2006, autorii au cumulat o serie de date noi referitoare la distribuţia mai multor specii de lepidoptere diurne (Rhopalocera: Papilionoidea şi Hesperioidea) din România. În lucrarea de faţă sunt prezentate rezultatele acestor cercetări, punându-se accentul pe zece taxoni „cheie"; în cazul acestora sunt prezente comentarii adiţionale privind distribuţia pe teritoriul ţării, alături de aspecte ecologice şi legislative. *Erebia sudetica radnaensis* Rebel, 1915 este semnalată pentru prima dată din Munţii Făgăraş, armătura genitală masculă a acestui taxon fiind totodată figurată. Masculul şi femela taxonului *Boloria* (*Clossiana*) *titania transsylvanica* Tiltscher, 1913 sunt de asemenea ilustrate.

Key words: Romania – Rhopalocera – *Colias myrmidone* – *Leptidea morsei major* – *Argynnis laodice* – *Boloria titania transsylvanica* – *Erebia sudetica radnaensis* – *Erebia manto trajanus* – *Glaucopsyche rebeli* – *Glaucopsyche teleius* – *Pyrgus sidae sidae* – *Heteropterus morpheus* – distribution – habitat – protection.

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Introduction

The study of the butterflies of Romania started a few centuries ago with the field trip of Johann Centurius Graf von Hoffmannsegg (1766–1849) from Dresda who collected birds and insects in the area of Băile Herculane (south-western Romania). He is the one who collected there for the first time *Erebia melas* (Herbst, 1796) (based on this material it was later described as new for science by Herbst) and *Kirinia roxelana* Cramer (Rákosy 1996).

The first paper on Lepidoptera published in Romania (referring to Transylvania) was an paper from Fuss (1850) based on the material collected by Joseph von Franzenau (1802–1862). Franzenau's collection is deposited in the Zoological Museum of the Babeş-Bolyai University in Cluj-Napoca.

Many excellent publications have since then shown a high biodiversity and documented endemic species and subspecies in different ecoregions of the country. Despite this exhaustive documentation large parts of the country still remain un(der)explored mainly due to historical reasons.

Actually at least 200 species of butterflies have been recorded; approximately 15 taxa are doubtful or haven't been found back in recent years (Rákosy 2003).

Because nowadays land use is still very traditional, many species that are threatened in most of the European Community, still have good—albeit often local—strongholds in Romania.

As since January 1st 2007 Romania entered the European Community one might expect that just like in other countries joining the Union the agricultural, industrial and anthropogenic pressure will change dramatically and have negative effects on the natural richness and entomological fauna of the country.

Recent data on the distribution and habitats covering the whole territory therefore are urgently needed to secure as much as possible this high biodiversity for the future.

During a joint field trip from July 15th to August 1st 2006 the two authors visited different places in Romania (Transylvania, Banat & Muntenia) to study the entomological fauna. This article is a contribution to increase the knowledge on the distribution of the Rhopalocera of Romania and to identify important habitats to be secured for future generations.

Special attention is given to ten target species with new and unpublished data that are put in perspective with what is actually known on their distribution and habitats. All observations are presented in a synoptic table and all localities visited during this field trip are figured on a map showing the major relief. When

available, information is given on legislative aspects in Romania for these ten species.

Notes

If available, the protective status is mentioned according to the Minister Order no. 1.198/2005 for the actualization of the annexes no. 2, 3, 4 and 5 to the Government Urgency Ruling no. 236/2000 regarding the status of the natural protected areas, safeguarding of the natural habitats and of the wild flora and fauna, approved with modifications and amendments through Law no. 462/2001 (Anonymous 2005). Through this act, while also adding several species of national interest, Romania embraced the latest versions of the Habitats Directive and transposed them into its own legislation (see also Rákosy 2006). Information concerning the Lepidoptera order appears in annexes 2, 3A and 3B.

Annex 2 – includes plant and animal species whose conservation requires the designation of special areas for conservation and of avifaunistical special protection areas. They represent the cornerstone for the establishing of the Natura 2000 network in Romania.

Annex 3A – includes plant and animal species of Community interest, which require strict protection.

Annex 3B – includes plant and animal species of national interest which require strict protection.

A special mention needs to be made concerning the name of the lepidopterist Constantin Hormuzaki. Most of the authors who cited his work used the name "Hormuzachi". This also happened while citing him as the author of the taxon *Erebia pharte romaniae* which was followed by "Hormuzachi, 1937". According to Guşuleac (1937), the correct name is "Hormuzaki" while "Hormuzachi" is an obsolete version used in ancient Moldavia.

The nomenclature used in this paper is according to De Prins & van Oorschot (2005).

Colias myrmidone (Esper, 1781)

This endangered species is relatively widespread in Romania, as it was recorded from all its historical regions (Rákosy *et al.* 2003). Nevertheless, its large Romanian areal consists only of scattered colonies which often have small effectives and are isolated from each other. Faunistical records of *Colias myrmidone* were published by various authors (e. g. Mann 1866, Niculescu 1963, Popescu-Gorj 1964, König 1975, Căpuşe & Kovács 1987, Rákosy 1988, 2002, Rákosy & Neumann 1997, Burnaz 1993, 2001, 2003, Skolka 1994, Székely 1996, Stănescu 1995) and add valuable information to the knowledge of its distribution across the country. On the other hand, we have virtually no data which could indicate the effectives or the evolution of these populations in time. This state of fact raises serious question marks regarding the actual state of the conservation of this species. We have knowledge of a few certain cases of regression recorded in literature (e. g. Goia & Dincă 2006, Székely 2005), but these data are far from being satisfactory at the country's level.

The optimal habitat for *C. myrmidone* seems to be represented by vast mezophilous to mezoxerophilous meadows marked by shrubs and/or trees, reminding of sylvo-steppes. The most suitable meadows are those which are moderately grazed, but still preserve an abundance of *Cytisus* sp., in a patchy habitat consisting of different tree and/or shrub densities alternating to more or less steep slopes of open land (fig. 2).

During our visit in the areas south of Cluj-Napoca, we paid special attention to some places formerly known as very good sites for *C. myrmidone*, where hundreds of individuals could be seen in autumn on a few hectares. This situation persisted until the end of the 90's, when it was followed by a spectacular decline which led to the almost complete extinction of this species in the surroundings of the city (Goia & Dincă 2006). To our surprise and satisfaction, we found out that the species was recovering at these sites as we noticed several males and females.

It is very difficult to asses the true causes which underlay the decline of *C. myrmidone* at these sites, as there were no visible signs of change in land use to which the butterfly seems to be particularly sensitive (Freese *et al.* 2005, Dolek *et al.* 2005) and the climatic factor is in our opinion quite relative and difficult to interpret objectively. A possible cause may have been the land burning practice (Goia & Dincă 2006), but signs of fire were visible only in a part of its habitat. Therefore, until further and more elaborate studies are undertaken, the pronounced populational fluctuations of these colonies in the surroundings of Cluj-Napoca remain quite enigmatic. We do not completely exclude the possibility of a rather naturally induced cycle. As a potential comparison to the case of *C. myrmidone*, we mention that *C. erate* (Esper, 1805) also seems to be strongly regressing in certain parts of the country; this happens for example in the surroundings of Braşov (Székely 2005), where the species used to be very frequent.

Being a Community interest species, *C. myrmidone* is listed on annexes 2 and 3A of the Minister Order no. 1.198/2005. The Romanian Red List for butterflies (Rákosy 2003) designates *C. myrmidone* as a vulnerable species at national level, with populations ranging from near threatened to endangered at a local level.

As a conclusion, compared to the general state of fact present in Europe (Ivinskis 1998, Van Swaay & Warren 1999, Beneš *et al.* 2002, Freese *et al.* 2005, Dolek *et al.* 2005), Romania may be one of the best strongholds for the conservation of *C. myrmidone*. This assumption is based not only on the many literature records, but also on the traditional land use practices which are still relatively widespread in the country and which are often favourable for many butterflies including *C. myrmidone*. This means not only that many of the previously recorded colonies may have survived, but also that there might still be several undiscovered (or unpublished) colonies which would increase the number of known sites. As a matter of fact, a new locality near Băişoara was identified in 2005 (Cuvelier & Spruytte 2006).

Fig. 1.– Map of Romania with the visited localities (15th of July – 1st of August 2006); BR = Braşov (Transylvania), BU = Bucharest (Muntenia), CN = Cluj-Napoca (Transylvania), CO = Constanta (Dobrogea), CR = Craiova (Oltenia), IA = Iasi (Moldavia), TI = Timişoara (Banat).

Fig. 2.– Habitat of *Colias myrmidone*, Romania, south of Cluj-Napoca, 1.viii.2006 (photo V. Dincă).

Leptidea morsei (Fenton, 1882)

The current faunistical data concerning this species, suggest that *L. morsei* is relatively widely distributed in Romania, with records from several of the country's large historical regions, as shown in the Catalogue of the Romanian Lepidoptera (Rákosy *et al.* 2003). Nevertheless, although the Romanian areal appears to be quite large, there is a low number of records per region.

The Romanian protection status of *L. morsei*, according to the Minister Order no. 1.198/2005, is that of a priority conservation species listed both in annex 2, and annex 3A, embracing the European legislation. The Romanian Red List for butterflies (Rákosy 2003) designates *L. morsei* as an endangered taxon, both at regional and national level.

Although the species is considered as highly threatened and possesses a strong legislative background, we should take into consideration the similarities with the more common and widespread *Leptidea sinapis* (Linnaeus, 1758), which is often neglected by lepidopterists collecting in the field. As identification in flight is practically impossible, it is very likely that many populations have been missed because of this similitude. As an argument, we identified it at seven distinct locations (table 2) during a relatively small number of days in the field and we also collected it at several other locations in the country during the last years (Dincă obs.).

In Romania, the species is usually found along mature deciduous forest margins and clearings, also forest roads. Yet, not all forests are suitable for this species: ecoton areas with a complex structure implying trees, shrubs and parcels of well developed open vegetation seem to be the preferred sites. The adults can very rarely be found far from the forest, flying in open habitats such as hay fields. The statement of Tolman & Lewington (1997) that *L. morsei* often flies in the same habitats as *Neptis sappho* (Linnaeus, 1758) is accurate for Romania too, where *N. sappho* locally develops strong populations.

As both *Lathyrus niger* and *L. verna* are widely distributed and not threatened in Romania (Oprea 2005), the larvae may feed on both these species known as host plants (Tolman & Lewington 1997). Nevertheless, we have no detailed data to prove this statement; Niculescu (1963) in his monograph of the Romanian Pieridae doesn't mention any host plant for Romania, as this wasn't known at all at that time.

All in all, this is a very poorly studied species in Romania. Although the available data suggest a local and fairly rare species, we would say that it is rather a data deficient taxon. Our observations in Romania support the idea that *L. morsei* seems to be associated to a type of habitat which is suitable for other regressing species such as *Parnassius mnemosyne* (Linnaeus, 1758), *Euphydryas maturna* (Linnaeus, 1758), and *Lopinga achine* (Scopoli, 1763) (Beneš *et al.* 2002). Having no accurate data, due to the complete lack of a monitoring activity regarding this species, we can only suppose that it is somehow vulnerable, but with a question mark for the true causes of its (mainly) supposed

decline. Under these circumstances the status of priority conservation species attributed to *L. morsei* through the Minister Order no. 1.198/2005 becomes questionable. Moreover, this is the only Lepidoptera listed as a priority species in the Minister Order no. 1.198/2005. This situation is far from being in concordance with the general status of the Romanian Lepidoptera.

Argynnis laodice (Pallas, 1771)

This species is known to occur in the central and north-western parts of Romania (Crişana, Maramureş-Satu Mare and Transylvania), as well as in the north-east (Moldavia); a very old record (before 1900) comes from Dobrogea (Rákosy *et al.* 2003).

Although a very local species, *A. laodice* still develops strong populations in certain places in Romania. In Transylvania for example, a paper published by Moldoveanu & Dely (1982) showed that, until 1981, there were known 56 locations were this butterfly was recorded, including the ones where we also found it, namely south of Sighişoara (Mureş county) and Racoş (Braşov county) (table 2). At Racoş we identified only very few worn out specimens, probably because we arrived too late in order to catch the climax of the flight period. Nevertheless, the visit to the area located south of Sighişoara corresponded to the peak of the flight period and represented a good opportunity to see if the status of this population changed during the last decades, when it was recorded as common. We had the pleasant surprise to find that the butterfly is still abundant in the area and that its habitat is quite little affected by anthropogenic influences. The habitat of *A. laodice* is always represented by forest skirts (mainly *Quercus* forests) or clearings, characterized by three main features: relatively humid conditions, presence of *Viola* species (larval host plants) and well developed vegetation associated with an abundance of nectar sources (e. g. *Carduus*, *Telekia*). This type of habitat is often maintained in Romania through a traditional type of land use which allows the development of relatively complex forest margins. The fact that such a good flyer presents only localized colonies suggests that this species is very sensitive regarding its ecological requirements and therefore the quality of its habitat. Given the fact that traditional (extensive) land use is becoming rarer and rarer in the country, it is to be expected that this species, as well as many other taxa with similar habitat requirements, will suffer significant declines on medium term. As an example, the vigorous population we identified south of Sighişoara may be severely affected by the recent introduction of mechanical mowing exactly during the flight period of the adults. Another example is represented by the population from Cluj-Napoca which disappeared during the last two decades due to habitat alteration through pine plantation and anthropization (Goia & Dincă 2006).

Figs. 3–4. *Boloria titania transsylvanica*, Romania, east of Gheorgheni, 20.vii.2006, leg. S. Cuvelier; 3.– male, 4.– female (a = upperside, b = underside). (photo S. Cuvelier).

Fig. 5.– Habitat of *Boloria titania transsylvanica*, Romania, east of Gheorgheni, 20.vii.2006 (photo V. Dincă).

A. laodice is protected in Romania through the Minister Order no. 1.198/2005, being listed in annex 3B. The Romanian Red List for butterflies (Rákosy 2003) designates *A. laodice* as an endangered species at national level, with populations ranging from endangered to extinct at a local scale.

All in all, this is a local, but sometimes abundant species which is associated to a type of habitat that is very likely to suffer (or is already suffering) declines in many parts of the country. It is sure that many of the previously cited locations weren't visited during the last two or three decades, so we have no exact knowledge of the actual status of this species at the country's level.

Boloria* (*Clossiana*) *titania (Esper, 1793)

This species is known in Romania only from eastern Transylvania, namely the area of Depresiunea Giurgeului. A single record (5 specimens) comes from Berhina (Retezat Mountains – Meridional Carpathians) (Stănescu 1995); as there are no other records from that relatively well studied area, the presence of *B. titania* in the Retezat Mountains requires confirmation. The Romanian populations are represented by ssp. *transsylvanica* Tiltscher, 1913.

In the past the Romanian population has been classified under *Boloria* (*Clossiana*) *titania cypris* (Meigen, 1828) by different authors (Higgins & Riley 1970, Tolman & Lewington 1997). The habitus of the Romanian population however is quite different (figs. 3, 4). It's a smaller subspecies. The male upperside is brighter orange with finer black markings. The underside of the hind wing is marbled pale yellow-brown with violet tints with less contrast. The marginal chevrons are small and less marked. The ground colour of the females is paler on upper- and underside. Black markings are finer and the underside of the hind wing is less contrasted. The chevrons are less marked. Although brief, the original description given by Tiltscher (1913) points out most of the above mentioned characters which we remarked while analyzing the specimens we had at our disposal.

The habitat of *B. titania* is represented by mesohigrophilous meadows situated in the vicinity of coniferous forests (fig. 5). Males fly actively in the sun, while females are much more difficult to spot. They usually prefer the thin band of small clearings which appears at the interference between the meadow and the forest.

This is one of the most localized and most endangered butterflies in Romania. Looking for the species in suitable habitats in a narrow valley of the above mentioned region (east of Gheorgheni), we had the opportunity to observe several males and a few females. Although the species seems to be fairly abundant in favourable habitats, we noticed that it is highly threatened by land drainage due to the extension of holiday chalets. Therefore, the wet meadows present there are gradually replaced by buildings and often by a lawn while the species is forced to retreat to smaller and smaller areas fragmented by private properties. The traditional land use practices which are generally favourable for

many butterfly species (e.g. manual mowing, moderate grazing) are also expected to regress, especially if the land is seen as a source of income through selling as potential building area. Based on our field observations, we believe that the species might be present in a few other suitable habitats in the area, but the lack of time and the relative inaccessibility of such locations, didn't allow us to investigate those perimeters.

In the Romanian Red List for butterflies (Rákosy 2003), the species is listed as critically endangered, with populations ranging from critically endangered to extinct. *B. titania transsylvanica* is also listed in annex 3B of the Minister Order no. 1.198/2005. Despite its legislative protection status, we have no knowledge of efforts undertaken in order to actually preserve this taxon. The designation of some protected perimeters which should ensure the survival of the largest colonies seems mandatory. Further studies in potential habitats are also necessary in order to have a much more accurate situation of this taxon.

Erebia manto (Denis & Schiffermüller, 1775)

Although this species is relatively widespread in the Romanian Carpathians, its actual distribution has certain discontinuities; therefore, the current faunistical data indicate that *E. manto* is completely absent in the Western Carpathians as well as in the Parâng Massif and presents large areal gaps in the Eastern Carpathians as it doesn't occur in its southern part and in the Ceahlău Massif (Popescu-Gorj 1994). On the other hand, the records from Făgăraş Mountains are very old (Popescu-Gorj 1994). Our data confirm the presence of this species in Făgăraş Mountains and also point out its presence in the central-western part of these mountains.

The habitat is represented by subalpine grassland in the vicinity of coniferous forest untill well above the treeline (fig. 8). The biotopes in Făgăraş Mountains are steep south oriented slopes with tall grasses where grazing is probably not possible.

The populations occurring in the Romanian Carpathians are considered to belong to ssp. *trajanus* Hormuzaki, 1895. This formerly contested taxonomical status was analyzed and confirmed by Popescu-Gorj (1963, 1994) who, based on a rich material collected in different regions of the Romanian Carpathians, stated that all the populations of *E. manto* present in these mountains belong to ssp. *trajanus*. This statement was later also confirmed by Varga 1999. This subspecies is fairly variable and usually develops very local colonies, generally between 1300–1900 m (Popescu-Gorj 1963, 1994).

Due to its endemic character and because it develops local populations, *E. manto trajanus* is listed as vulnerable at national level in the Romanian Red List for butterflies (Rákosy 2003), with populations ranging from near threatened to vulnerable at local level. The species has no legislative protection status in Romania.

Fig. 6.– *Erebia sudetica radnaensis* male; Romania, Făgăraş Mountains (surroundings of Cabana Capra), 25.vii.2006, leg. S. Cuvelier (a = upperside, b = underside) (photo V. Dincă).

Fig. 7.– Male genitalia of *Erebia sudetica radnaensis*, leg. S. Cuvelier; prep. genit. no. 304/Dincă (photo V. Dincă).

Fig. 8.– Habitat of *Erebia sudetica radnaensis* and *E. manto trajanus* in the Făgăraş Mountains (surroundings of Cabana Capra), 24.vii.2006 (photo S. Cuvelier).

Fig. 9.– Piatra Secuiului, biodiversity hotspot with taxa such as *Pyrgus sidae*, *Heteropterus morpheus*, *Glaucopsyche rebeli*, *G. arion*, *Lycaena alciphron*, *Polyommatus dorylas*, *Erebia melas runcensis* etc. 5.vii.2005 (photo V. Dincă).

Erebia sudetica (Staudinger, 1861)

E. sudetica is considered to be one of the rarest and most local *Erebia* species in Romania. Its presence in the country is currently sure for only four areas, namely Rodna Mountains in Eastern Carpathians (Dincă & Goia 2006), Retezat Mountains (Diószeghy 1930, Căpuşe & Kovács 1987, Rákosy 1997), Godeanu-Ţarcu Mountains (König 1975) and Ciucaş Mountains (Czekelius 1900, Székely 1996) (all in the Meridional Carpathians), everywhere in scattered colonies which are poorly known or studied. A single old record is based on material collected during August in Bucegi Mountains (Meridional Carpathians) (Hormuzaki 1902, Popescu-Gorj 1952, 1963); the species has never been found in these mountains again and its presence there needs confirmation.

In 2005, Sylvain Cuvelier and Stef Spruytte collected a pair of small *Erebia* specimens on the southern side of the Făgăraş Mountains which, at a first sight, seemed to belong to *E. pharte* (Hübner, 1804) (Cuvelier & Spruytte 2006). During this 2006 trip to the Făgăraş Mountains, Sylvain Cuvelier had the opportunity to collect more *Erebia* specimens. Yet, after reanalyzing their habitus (fig. 6) and the genital apparatus (fig. 7) of several males, we arrived to the conclusion that they all belong to *E. sudetica*. Under these circumstances, this is the first record of this species from Făgăraş Mountains which therefore become the fifth group of mountains in the Romanian Carpathians where the species is surely present. Another specimen collected by Vlad Dincă during the last decade of July 2004 appreciatively in the same area (cabana Capra) was examined for this study and also proved to belong to this taxon. These new data make us support the assumption of Popescu-Gorj (1963) that the species might indeed be (or was) present in Bucegi Mountains, as this would link the populations from Ciucaş Mountains to those of Făgăraş and Retezat Mountains. On the other hand, Bucegi Mountains represent the recording place of another doubtful *Erebia* taxon, namely *E. pharte romaniae* (Hormuzaki, 1937) (Popescu-Gorj 1952, 1963, Popescu-Gorj & Szabó 1986). Taking into consideration the description by Hormuzaki (Popescu-Gorj 1952, Popescu-Gorj & Szabó 1986), we believe it is possible that *E. pharte romaniae* was confounded with *E. sudetica*. Regarding this subject, Varga (2002) supposes that *E. pharte romaniae* was confounded with aberrant specimens of *E. epiphron transsylvanica* (Rebel, 1908). Although we cannot exclude this possibility, we think it wasn't very likely for Hormuzaki to find four aberrant specimens (2♂ and 2♀) at the end of August 1936 (Popescu-Gorj 1952, 1963, Popescu-Gorj & Szabó 1986), as these specimens generally occur isolated. Furthermore, one of the locations (Valea Jepilor – in orig. "Valea Jepei") (Hormuzaki 1902) where *E. sudetica* was recorded in Bucegi is also a locality where *E. pharte romaniae* has been found (Popescu-Gorj 1952, 1963, Popescu-Gorj & Szabó 1986).

The whole taxonomical status of the Romanian populations of *E. sudetica* has been subject to several modifications. Based on the study of Varga 2002, the current variant is that they belong to ssp. *radnaensis* Rebel, 1915 (Rákosy *et al.* 2003), described from Rodna Mountains. Yet, Popescu-Gorj (1952, 1987)

considered that in the Romanian Carpathians only the nominotypical subspecies flies. In our opinion, these aspects might require additional studies, including molecular aspects.

The fresh specimens collected by us bear small and little marked black spots, sometimes only visible on the hind wing, which makes them very similar to *E. pharte*. In less fresh specimens these small black spots are often absent. This makes us think it is possible that *E. sudetica* and *E. pharte* were sometimes confused (especially if the specimens are not very fresh), meaning that there is a question mark on the real Romanian distribution of the two taxa.

In Făgăraş the habitat consists of subalpine grassland in the vicinity of coniferous forest from 1320 to 1400 m (fig. 8). The butterfly flies on south oriented slopes with tall grasses together with *Pieris bryoniae carpathensis* (Moucha, 1956), *Erebia epiphron transsylvanica* (Rebel, 1908), *E. manto trajanus* (Hormuzaki, 1895), *E. euryale syrmia* (Fruhstorfer, 1919) and *E. medusa psodea* (Hübner, 1804).

According to the current literature data and to our personal observations, in the Romanian Carpathians the species flies mainly in upper-mountain and subalpine regions, generally being confined to tall herbs meadows situated at the upper coniferous tree belt. It seems to develop very local populations, but while for example populations in the Czech Republic were thoroughly analyzed from the dispersal point of view (Kuras *et al.* 2003), we have no data concerning these aspects in Romania.

E. sudetica is listed on annexes 3A and 3B of the Minister Order no. 1.198/2005. Its presence on annex 3B is rather redundant because annex 3A already includes the species among the strictly protected ones at European level (therefore including Romania). In the Romanian Red List for butterflies (Rákosy 2003), the species is listed as endangered, with populations ranging from vulnerable to endangered at regional level.

Glaucopsyche* (*Maculinea*) *rebeli (Hirschke, 1904)

This species has a poorly known distribution in Romania. It has been recorded only from the north-western part of the country (Transylvania) (Rákosy *et al.* 2003), but it is very likely that the lack of records is in many cases due to the confusion with the very similar *G. alcon* (Denis & Schiffermüller, 1775). Nevertheless, the term "confusion" might not be the most appropriate one as the status of these two taxa is not completely clarified yet and it might be better to talk about different ecological forms of the same taxon (Tolman & Lewington 1997). Additionally, recent work regarding the phylogeny of the *Glaucopsyche* (*Maculinea*) group proves that the two "cuckoo" species (*G. alcon* and *G. rebeli*) show little genetic divergence, suggesting that they are probably a single ecologically differentiated species (Als *et al.* 2004, Bereczki *et al.* 2005). Other recent data also support this statement as *Gentiana cruciata* was found to be an

additional host plant for *Glaucopsyche* (*Maculinea*) *alcon* on a site in eastern Poland (Sielezniew & Stankiewicz 2004).

Under these circumstances, one of the most reliable methods of distinguishing between the two (disputed) taxa is by identifying either the larval plant species, or the host ant species. Therefore, we identified the species at three locations (table 2), based not on the adults, but on the eggs laid on *Gentiana cruciata*, considered as larval food plant for *G. rebeli*. While the record from Cluj-Napoca is a confirmation for that area (Goia & Dincă 2006), the record from Lacul Ivanu represents the first known location outside Transylvania, as Caraş-Severin County belongs to Banat (fig. 1).

Given the extremely poorly known distribution of this species in Romania, it is difficult to assess its habitat preferences. The available data suggest that it is a xeromountaineous species (rocky grasslands) (fig. 9), but it may also be found in hilly areas with moderately grazed bushy meadows.

The Romanian Red List for butterflies (Rákosy 2003) designates *G. rebeli* as a vulnerable taxon at national level, but ranging from data deficient to vulnerable at local level. The species has no legislative protection status in Romania.

This is in our opinion a rather normal state of fact; before elaborating concrete protection and conservation measures, it is necessary to undertake sustained actions in order to identify and survey the (supposed) genuine populations of *G. rebeli*. Only then will we be able to correctly evaluate the species' situation at national level. Nevertheless, taking into consideration the habitat preferences of *G. rebeli* and the distribution of *G. alcon* (which is not a common species in Romania), we may already assume that *G. rebeli* is very localized and already endangered in most of the cases. Taking into consideration the species' need for open and short herbaceous vegetation, one of the main management requirements would be, at least for some sites, rotational grazing which should ensure optimal condition both for the ants and larval host plants (Beneš *et al.* 2002).

Glaucopsyche* (*Maculinea*) *teleius (Bergsträsser, 1779)

According to the current data (Rákosy *et al.* 2003), the distribution of *G. teleius* in Romania is restricted to the central, north-western and north-eastern parts of the country. Yet, there is a significant lack of data due to the presence of very large regions that were completely (or almost completely) unstudied.

During our trip, we identified two strong populations belonging to this species (table 2). While the species was known to develop significant populations in the surroundings of Sighişoara (Rákosy & Weber 1981), the record from Racoş is new for the country.

In Romania, *G. teleius* is a local species although more widespread and common than *G. nausithous* (Bergsträsser 1779), the latter being currently known only from no more than three to four sites. Despite this fact, continuous

monitoring of the known populations seems mandatory since *G. teleius* has relatively high ecological standards (Beneš *et al.* 2002, Wynhoff 2001) and is the most sedentary of all the species of the genus (Wynhoff 1996, 2001).

G. teleius is protected in Romania through the Minister Order no. 1.198/2005, being listed both in annex 2 and annex 3A. The Romanian Red List for butterflies (Rákosy 2003) designates *G. teleius* as an endangered species at national level, with populations ranging from endangered to critically endangered at local level. These statements are realistic as the suitable habitats for this species present in Romania are regressing following the sad European trend.

We have no knowledge of any concrete management measures taken in Romania in order to preserve a certain population of *G. teleius*. Under these circumstances, the maintenance of most of the best habitats is due to the traditional land use still practiced in many parts of Romania, but the general tendency is against this state of fact. If accurate conservation measures are not taken during the following years, we estimate that most of the species related to marsh meadows will suffer significant declines in Romania.

Pyrgus sidae (Esper, 1784)

This is a rare species in Romania, usually very local and developing small colonies. It can be found in xeric grasslands or in more humid situations (mesophilous meadows), but almost always in places rich in flowers, similar to most of Europe (Tolman & Lewington 1997). Recent records (after 1980) come only from Transylvania and Dobrogea (Rákosy *et al.* 2003).

Our record from Rimetea - Piatra Secuiului (Western Carpathians) adds another interesting taxon to the list of valuable species recorded from this area (Rákosy *et al.* 1999) and a new locality for *P. sidae* in Transylvania, where it is known from a few records only (Fuss 1850, Schneider 1970, Rákosy 2002, Goia & Dincă 2006).

The species is listed on annex 3B of the Minister Order no. 1.198/2005. The Romanian Red List for butterflies (Rákosy 2003) designates *P. sidae* as an endangered species at national level, with populations ranging from endangered to vulnerable at local level.

Heteropterus morpheus (Pallas, 1771)

Although it was recorded from most of Romania's historical regions, except for vast areas in the south (Rákosy *et al.* 2003), this may be misleading as *H. morpheus* is a very local species in the country with few known colonies.

We found it at Rimetea - Piatra Secuiului (Western Carpathians), this being a new recording place for Romania. This population is of particular interest as it seems to be confined to two small areas of tall herbs surrounded by xeric habitats, at about 900 m (fig. 9); this is an example of how local this species may be, but also it suggests its ecological plasticity, being able to survive in such

isolated and reduced areas. Its frequent association to humid habitats such as marshy heaths (Tolman & Lewington 1997) combined with its local character and relative rarity, makes it a potentially endangered species. In Romania, this species is listed on annex 3B of the Minister Order no. 1.198/2005, while in the Romanian Red List for butterflies (Rákosy 2003) it is considered to be endangered at a national level, with populations ranging from vulnerable to endangered according to regional particularities.

It is again the case of a poorly understood distribution due to the lack of data. It is obvious that the species is local in Romania, but we know nothing about the status of its populations. Given its preference for humid habitats which are almost everywhere menaced, it is prudent to consider it endangered because of habitat loss.

Table 1. Visited localities in Romania (the symbols refer to the localities in table 2).

Symbol	Locality	Altitude (m)	County	Date
A	Pecinişca	200 – 680	Caraş-Severin	15.vii.2006
A	Pecinişca	200 – 250	Caraş-Severin	27.vii.2006
B	Cheile Drăstănicului - Prisăcina	350 – 900	Caraş-Severin	28.vii.2006
C	Bolvaşniţa - Vârful Arjana	500 – 1350	Caraş-Severin	16.vii.2006
D	North Motel Dumbrava - Vârful Arjana	280 – 1500	Caraş-Severin	29.vii.2006
E	Valea Cernei - Lacul Ivanu	535	Caraş-Severin	27.vii.2006
F	Dobraia	850	Caraş-Severin	28.vii.2006
G	Munţii Făgăraş (Cabana Capra)	1320 – 1400	Argeş	24.vii.2006
G	Munţii Făgăraş (Cabana Capra)	1320 – 1400	Argeş	25.vii.2006
G	Munţii Făgăraş (Cabana Capra)	1320 – 1400	Argeş	30.vii.2006
H	South of Vârful Laiţa	2200 – 2300	Argeş	25.vii.2006
I	Bâlea Lac - Vârful Capra	2100 – 2400	Argeş	30.vii.2006
J	Colun	400	Sibiu	26.vii.2006
K	Munţii Bucegi (Cabana Mioriţa - Vârful cu Dor)	1950 – 2100	Prahova	22.vii.2006
L	Munţii Ciucaş (Vf. Ciucaş)	1250 – 1830	Prahova	21.vii.2006
M	Racoş	500 – 550	Braşov	22.vii.2006
M	Racoş	500 – 550	Braşov	31.vii.2006
N	South of Sighişoara	550 – 600	Mureş	23.vii.2006
O	Izvorul Mureşului	850	Harghita	20.vii.2006
P	East of Gheorgheni	950 – 1050	Harghita	20.vii.2006
Q	Rimetea	500 – 800	Alba	18.vii.2006
R	Băişoara	500	Cluj	18.vii.2006
S	South of Cluj-Napoca	670 – 800	Cluj	01.viii.2006

Table 2. Butterfly species observed in Romania, the localities refer to table 1.

Localities:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Papilionidae																			
Papilio machaon	×		×	×	×		×							×	×	×	×	×	×
Iphiclides podalirius	×		×	×	×								×	×					×
Parnassius mnemosyne												×							
Pieridae																			
Aporia crataegi	×																		
Pieris brassicae				×								×	×	×	×	×		×	×

Localities:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Pieris bryoniae							×					×				×			
Pieris ergane	×																		
Pieris mannii	×	×		×	×														
Pieris napi / balcana	×			×						×		×	×	×		×	×	×	×
Pieris rapae	×			×	×		×	×	×	×	×	×	×	×		×	×	×	×
Pontia edusa												×							
Anthocharis cardamines																×			
Colias alfacariensis	×				×	×				×				×	×		×	×	×
Colias croceus	×			×	×					×			×						
Colias hyale													×						
Colias myrmidone																			×
Gonepteryx rhamni				×			×	×				×	×	×	×	×	×	×	×
Leptidea sinapis / reali	×		×	×	×					×		×	×	×	×		×	×	×
Leptidea morsei				×	×					×			×	×				×	×
Nymphalidae																			
Apatura iris			×	×		×							×	×	×	×			×
Apatura ilia			×											×	×				
Limenitis populi			×													×			
Limenitis reducta	×																		
Neptis sappho	×	×	×	×	×					×			×	×				×	×
Neptis rivularis			×		×										×	×	×		
Nymphalis antiopa	×																		
Nymphalis polychloros			×																
Inachis io	×		×				×	×	×	×	×	×	×	×	×	×	×	×	×
Vanessa atalanta	×		×	×	×		×	×		×		×		×	×	×	×	×	
Vanessa cardui	×		×	×	×					×	×	×	×	×		×	×	×	×
Aglais urticae				×			×	×	×		×	×			×	×	×		×
Polygonia c-album	×		×	×	×		×			×		×	×	×		×			
Araschnia levana	×		×	×						×		×	×			×	×	×	×
Argynnis paphia	×		×	×	×		×			×		×	×	×	×	×	×	×	×
Argynnis laodice													×	×					
Argynnis aglaja			×	×			×						×	×	×	×		×	×
Argynnis adippe	×		×	×	×		×						×	×	×	×	×	×	×
Argynnis niobe			×	×										×	×	×	×	×	
Issoria lathonia				×							×	×			×		×		×
Brenthis hecate			×														×		
Brenthis daphne			×															×	
Brenthis ino														×	×	×			
Boloria pales											×								
Boloria euphrosyne							×					×			×	×			
Boloria titania																×			
Boloria selene	×				×											×		×	×
Boloria dia	×		×							×			×	×	×		×		×
Melitaea phoebe													×						
Melitaea didyma	×			×						×			×	×	×		×	×	×
Mellicta athalia	×		×	×										×	×	×		×	
Mellicta aurelia															×		×	×	
Melanargia galathea	×		×	×	×					×			×	×	×		×	×	×
Hipparchia fagi	×			×													×	×	

Localities:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Hipparchia semele / volgensis			×	×													×		
Minois dryas										×			×	×				×	
Brintesia circe	×		×	×															
Erebia ligea			×				×									×	×		
Erebia euryale				×			×	×			×	×				×			
Erebia manto							×												
Erebia epiphron				×			×	×			×	×							
Erebia sudetica							×												
Erebia aethiops	×	×	×	×	×								×		×			×	×
Erebia medusa											×	×							
Erebia melas	×			×													×		
Erebia pandrose								×	×										
Maniola jurtina	×			×	×					×			×	×	×		×	×	×
Aphantopus hyperantus	×		×	×	×					×			×	×	×	×	×	×	×
Pyronia tithonus	×																		
Coenonympha pamphilus	×		×	×						×			×	×	×	×	×		×
Coenonympha arcania	×		×	×									×	×	×	×	×	×	×
Coenonympha glycerion															×	×			
Coenonympha tullia																×			
Pararge aegeria	×		×	×									×			×			×
Lasiommata megera	×																×		×
Lasiommata maera	×			×			×					×	×		×	×	×		
Lycaenidae																			
Hamearis lucina													×	×					
Neozephyrus quercus												×							
Satyrium acaciae	×																×		
Satyrium ilicis	×																		
Satyrium spini	×		×		×												×		
Lycaena phlaeas																×	×		×
Lycaena dispar													×			×			
Lycaena virgaureae	×		×	×	×								×	×	×	×	×		
Lycaena tityrus							×						×		×	×			
Lycaena alciphron	×		×												×	×	×		
Lycaena hippothoe																×			
Cupido argiades	×			×	×					×			×	×			×	×	×
Cupido decolorata													×				×		×
Cupido minimus	×			×									×			×	×	×	
Cupido osiris													×						
Celastrina argiolus	×		×	×	×					×			×						
Glaucopsyche alcon / rebeli													×						
Glaucopsyche rebeli					×												×		×
Glaucopsyche arion	×									×							×		
Glaucopsyche teleius													×	×					
Pseudophilotes vicrama																			×
Scolitantides orion	×	×																	
Plebeius argus										×			×	×	×				×
Plebeius idas										×			×						
Plebeius argyrognomon													×						
Plebeius eumedon														×					

Localities:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Plebeius agestis	×									×									
Plebeius artaxerxes				×								×							
Polyommatus semiargus										×					×	×		×	
Polyommatus thersites	×									×			×						
Polyommatus dorylas															×		×		
Polyommatus daphnis	×			×	×								×	×			×		×
Polyommatus coridon	×			×									×				×		×
Polyommatus bellargus	×																		
Polyommatus icarus	×		×	×	×		×			×		×	×	×	×	×	×	×	×
Hesperiidae																			
Pyrgus malvae										×									
Pyrgus alveus																×	×		
Pyrgus sidae																	×		
Carcharodus alceae	×																		
Carcharodus floccifera			×																
Erynnis tages	×			×	×					×			×	×			×	×	
Heteropterus morpheus																	×		
Carterocephalus palaemon																×			
Thymelicus lineola	×		×							×			×	×			×		×
Thymelicus sylvestris	×									×			×	×	×				
Hesperia comma													×						×
Ochlodes sylvanus	×		×	×	×					×			×	×	×	×	×	×	

Discussion

During our two weeks field trip to Romania, we identified 119 butterfly taxa. An additional four taxa require further and more careful examination in order to be identified at species level (table 2) and they will be subject to another study. All in all, this is an impressive number taking into consideration the fact that it represents about 60 % of the entire Romanian butterfly fauna. On the other hand, many of the visited locations bear an impressive butterfly diversity given the fact that, during only a couple of hours of field investigation on a few hectares, we managed to count more than 40 taxa in the following localities: south of Cluj-Napoca (42), south of Sighişoara (43), east of Gheorgheni (46), Pecinişca (47) on July 15, North Motel Dumbrava - Vârful Arjana (48), Rimetea – Piatra Secuiului (51), Racoş (54) on July 31.

Besides the ten taxa discussed above, several other of the identified species are fairly rare and/or localized in Romania, such as: *Pieris ergane* (Geyer, 1828), *Limenitis reducta* (Staudinger, 1901), *Brenthis ino* (Rottemburg, 1775), *Boloria pales* (Denis & Schiffermüller, 1775), *Erebia melas* (Herbst, 1796), *Coenonympha tullia* (Müller, 1764), *Lycaena hippothoe* (Linnaeus 1761), *Lycaena alciphron* (Rottemburg, 1775), *Cupido osiris* (Meigen, 1829), *C. decolorata* (Staudinger, 1886), *Plebeius eumedon* (Esper, 1780), etc. Our data also add information to the distribution in Romania of several taxa considered as data deficient (Rákosy 2003): *Glaucopsyche* (*Maculinea*) *rebeli* (Hirschke,

1904), *Polyommatus thersites* (Cantener, 1835), *Plebeius artaxerxes* (Fabricius, 1793).

Although these results represent only a "snapshot" of Romania's butterfly diversity, in our opinion it gives convincing clues about the excellent natural capital and potential of the country. We use the term "potential" because, comparing the amount of available data regarding the Romanian Lepidoptera fauna with the vast areas of seminatural habitats present in many regions, it is quite obvious that many butterfly populations of conservative, faunistical or other interest still remain to be discovered. As an additional example to the previously commented species, we mention *Polyommatus daphnis* (Denis & Schiffermüller, 1775), a fairly local species in Romania, which during the last 100 years was recorded only once (1984) in entire south-eastern Transylvania (Székely 2005) which is one of the best studied butterfly regions in Romania (Székely 1996, 2005). Therefore, we had the surprise to ascertain that the several males and females we identified at Racoş represent the second record in south-eastern Transylvania.

Romania's high butterfly diversity is mainly a consequence of its numerous natural and seminatural areas. Nevertheless, the main causes which determined the persistence of this favourable natural context often have nothing to do with active protective measures. It is rather a heritage of the Romanian traditional way of living which, among others implied (mostly involuntary) several very important habitat management aspects which are today highly appreciated and used as effective protection measures: manual mowing, non-chemized agriculture techniques, extensive grazing, selective and rotational deforestations, etc.

Unfortunately, as Romania is struggling to align to the European Union Standards, the traditional way of living once widespread in the countryside is now becoming rarer and rarer. This requires active conservation measures in order to safeguard at least the most important habitats and populations of the many national and Community interest species present in Romania. The studies undertaken in order to asses the effects on invertebrates of land-use type changes in Romania, although very few, provide valuable information concerning the threats emerging from such transformations (Cremene *et al.* 2005, Baur *et al.* 2006).

A significant number of populations belonging to highly threatened butterfly and moth species should be safeguarded through the implementation of the Natura 2000 network in Romania. While the protected areas designation process is under way, we need much more recent distributional data in order to be able to elaborate effective management measures for the conservation of these habitats and species.

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Boekbespreking

Zilli, A., Ronkay, L. & Fibiger, M.: *Noctuidae Europaeae Volume 8 Apameini.*
21 × 29 cm, 323 p. waarvan 16 kleurenplaten en 41 zwartwit-platen, Entomological Press, Sorø, te bestellen bij Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, apollobooks@vip.cybercity,DK, gebonden met stofomslag, 2005, DKK 1.160,00 (ISBN 87-89430-09-3).

In dit voorlaatste deel uit de reeks "*Noctuidae Europaeae*" wordt het tribus Apameini behandeld. Daartoe behoren enkele "moeilijke" groepen zoals *Luperina*, *Photedes*, *Mesapamea* en *Oligia*. Voor het eerst in de reeks werd ook gebruik gemaakt van mitochondriale DNA-studies voor het vaststellen van de onderlinge verwantschap in de *Apamea*-groep. Dit leidde tot nogal drastische, taxonomische (en daardoor nomenclaturale) veranderingen, waardoor o.a. de algemeen bekende *Apamea monoglypha* nu tot het genus *Abromias* Billberg, 1820 moet gerekend worden. In het boek komen zo nog wel meer nomenclatorische verrassingen voor; zo wordt de zustersoort van *Mesapamea secalis* opnieuw *Mesapamea secalella* genoemd, omdat wordt aangetoond dat *M. didyma* een synoniem van *M. secalis* zou zijn. Dit hoeft allemaal echter niet tot paniek te leiden, want in Fauna Europaea (www.fauneur.org) werden deze naamswijzigingen niet doorgevoerd. Het toont alleen maar aan dat we nog slechts erg weinig weten over de reële fylogenetische verwantschappen van de verschillende soorten en dat er nog heel wat werk zal moeten verzet worden vooraleer er een stabiele nomenclatuur ontstaat.

In het boek worden 2 lectotypes vastgelegd, 7 nieuwe genera en 5 nieuwe soorten of ondersoorten beschreven, 3 genusnamen en 10 soortnamen krijgen een andere status, 2 genusnamen en 46 soortnamen worden gesynonymiseerd en 77 soortnamen komen in een ander genus terecht.

Het inleidend deel bevat hoofdstukken over de biosystematiek en de evolutie van de Apameini, de geschiedenis van de studie der Apameini, de biologie, diapauze en vliegtijd. In het systematisch deel wordt elke soort uitgebreid behandeld: volledige benaming met referentie naar de originele beschrijving, taxonomische notities, diagnose (= korte beschrijving) met verwijzing naar gelijkende soorten, bionomie (habitat, vliegtijd, voedselplanten) en verspreiding. Voor elke soort wordt de verspreiding in Europa op een kaartje voorgesteld.

Grote genera worden meestal opgesplitst in subgenera of nog verder in soortengroepen. Telkens worden de morfologische kenmerken aangegeven op grond waarvan dit gebeurt. Er is bij deze onderverdeling niet enkel rekening gehouden met de Europese soorten, maar ook met de andere die in het Palaearctische gebied voorkomen, en zelfs met die uit Noord-Amerika.

De kleurenplaten zijn samengesteld door David Wilson en van voortreffelijke kwaliteit; op grijze achtergrond worden alle behandelde soorten in natuurlijke grootte afgebeeld met uitstekende foto's, soms tot 70 exemplaren op één plaat. Hierdoor kon de variatie binnen vele soorten goed gedocumenteerd worden. De meeste afbeeldingen zijn dan ook zonder meer bruikbaar voor determineerdoeleinden, al zal men bij enkele moeilijke groepen toch zijn toevlucht moeten blijven nemen tot het bestuderen van de genitaliën. Van alle soorten worden de mannelijk en vrouwelijke genitalia afgebeeld op zwartwit-platen. Ze werden gefotografeerd door Vladimir Kononenko. Bij de mannetjes wordt de penis met uitgestulpte vesica naast het ventraal geprepareerde genitaal afgebeeld. Bij elke foto wordt vermeld uit welk land het exemplaar afkomstig is, het preparaatnummer en de preparator, zodat het mogelijk is om in de toekomst snel de originele preparaten terug te vinden voor verder onderzoek.

Achteraan volgt een literatuurlijst en een alfabetische index. Het hele boek is zeer zorgvuldig uitgegeven en gedrukt op kwaliteitspapier. Het zal voor lange tijd het standaardwerk blijven voor de Europese Noctuidae. Ondanks zijn prijs de moeite waard voor wie echt bezig wil zijn met Noctuidae.

Willy De Prins

An Oak coppice in Genk and its weevil fauna (Coleoptera: Curculionidae, Cryptorhynchinae)

Bart Bosmans

Abstract. Oak coppice can be considered a vegetation type providing a long-term continuity in living conditions. By sieving, a soil sample was taken from one specific Oak coppice. This sample was analysed on the presence of Coleoptera relic species of the genus *Acalles*.

Samenvatting. Een hakhoutstoof te Genk en zijn snuitkeverfauna (Coleoptera: Curculionidae, Cryptorhynchinae)
Hakhoutstoven vormen een relictvegetatie. Ze bieden een mate van continuïteit in leefomstandigheden over een langere tijdsperiode. Met een zeefstaalname werd op één specifieke locatie nagegaan of deze hakhoutstoof ook relict snuitkeversoorten uit het genus *Acalles* bevatte.

Résumé. Un taillis de chêne à Genk et son faune de curculionides (Coleoptera: Curculionidae, Cryptorhynchinae)
Les taillis de chênes ont connues une exploitation constante depuis des siècles. Cette continuité végétale à du créer un biotope stable. A l'aide d'un tamis un échantillon de substrat d'une spécifique taillis de chênes à été enlevé pour chercher la présence des espèces coléoptères du genre *Acalles*.

Key words: Coleoptera – Curculionidae – Cryptorhynchinae - *Acalles ptinoides* – coppice - small landscape elements – faunistics – Belgium – Flanders – Limburg.

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Genk has some sites of old Oak coppices. Most of these locations have known coppice practice until the early 20th century. One such concentration of coppices can be found at the Genk locality of Zwartberg (Belgium, province of Limburg). The coppices are situated within a declining heather on sandy soil, next to neglected pine plantations. The most impressive coppice stool (*Quercus petraea* – sessile oak) has been acknowledged as one of the most important autochthonous oak sites in Flanders (evaluated as certainly autochthonous) (Vander Mijnsbrugge *et al.* 2003: 210).

Discussion

The Oak coppice in question (FS7754, Zwartberg, Klaverberg), due to its autochthonous status, can be considered as a relic or indicator of a former natural woody vegetation (Vander Mijnsbrugge *et al.* 2003: 216). The cutting cycle in coppice favours growth of sprouts and the forming of 'brushes', knobs with an entanglement of fresh and dead twigs. The growing of 'brushes' and sprouts creates an ideal environment for the development of *Acalles* species. The presumption that a long-term continuity in vegetation should harbour weevil relic-species that are favoured by the sylvicultural coppice practice, was put to the test.

A soil sample was taken on 14.viii.2005. Conditions for soil-sampling were not ideal. The Oak coppice stands prone to weathering by wind and rain. Possibly since the early 20th century, the coppice is no longer in cultivation. At the trunk level, few sprouts or branches are present. Soil erosion slowly erodes

the top surface of the coppice mound. By brushing low branches and the soil around the trunks, some substrate was collected. The soil sample was processed during one week by method of an extraction funnel.

Fig. 1. Sampled sessile oak coppice (*Quercus petraea*) at Klaverberg (Genk, Zwartberg, FS7754).

Further investigation

After extraction, two specimen of *Acalles ptinoides* (Marsham, 1802) were retrieved. The find of *Acalles ptinoides* confirms the presumed presence of this species for the locality. Regardless of the fact that *A. ptinoides* is our most frequent species of the genus *Acalles*, it still indicates a continuity in living conditions at that specific site. Despite the unfavourable condition of the coppice mound, a population manages to develop. The sampled coppice is not the sole coppice within the locality. Many surround the sampled site. In contrast, most of these coppices are less exposed to the natural elements. They are largely covered by a layer of humus and leaf litter in which specimen can shelter. More shoots are present. Further investigation should point out if *A. ptinoides* is locally thriving and whether other species of Cryptorhynchinae are present.

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Boekbespreking

Waring, P. & Townsend, M.: *Nachtvlinders. Veldgids met alle in Nederland en België voorkomende soorten.*
14,5 × 21,5 cm, 415 p., doorlopend in kleur geïllustreerd, Tirion Uitgevers BV, www.tirionuitgevers.nl, gebonden, 2006 (ISBN 90-5210-625-8).

Deze veldgids is niet zomaar een vertaling van het oorspronkelijk Engelstalige werk, maar wel een bewerking ervan, vooral wat de geografische verspreiding van de verschillende soorten betreft. Dit onderdeel werd nl. volledig herwerkt naar de situatie in België en Nederland. Bovendien werden alle extra soorten die in beide landen voorkomen, maar niet in Groot-Brittannië, opgenomen. Van sommige maakte Richard Lewington zelfs afbeeldingen die in de bestaande kleurenplaten werden ingevoegd. Het is jammer, maar begrijpelijk, dat niet álle soorten konden afgebeeld worden.

Het inleidend deel bevat o.a. teksten over de morfologie van nachtvlinders, de levenscyclus, veldtechnieken om nachtvlinders te vinden en bescherming van nachtvlinders.

De tekst bij elke soort bevat een korte beschrijving van het uiterlijk, waardoor het in principe mogelijk moet zijn de verschillende soorten in het veld te kunnen determineren. Er wordt telkens verwezen naar gelijkende soorten. In aparte paragrafen worden details gegeven over de vliegtijd en het gedrag, de levenscyclus, voedselplanten van de rups, habitat en voorkomen in Nederland en België.

Naast de talrijke afbeeldingen op de kleurenplaten, die werkelijk van voortreffelijke kwaliteit zijn, komen er ook nog heel wat afbeeldingen in de tekst voor, meestal kleurenfoto's van rupsen.

Dat er nood was aan een dergelijk boek, blijkt uit het feit dat de eerste druk reeds na 2 maanden volledig was uitverkocht. Het is nu wachten op de tweede druk, waarin dan hopelijk enkele kleine drukfoutjes kunnen verbeterd worden. Tevens kan dan wat gewijzigd worden aan de informatie over de verspreiding, want door het succes van de eerste druk werd er zodanig naar nachtvlinders gekeken, dat er heel wat nieuwe waarnemingen, vooral over de verspreiding, bekend raakten.

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