

NEW DATA ABOUT THE SPECIES *CHELIS MACULOSA* (GERNING, 1780) AND
GRAMMIA QUENSELI (PAYKULL, 1783) IN THE FAUNA OF ROMANIA
(LEPIDOPTERA: ARCTIIDAE)

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Summary:

New data about the species *Chelis maculosa* (GERNING, 1780) and *Grammia quenseli* (PAYKULL, 1783) in the fauna of Romania (Lepidoptera: Arctiidae)

The autor states that in Romania there exist two well-defined subspecies of *Chelis maculosa* (GERNING, 1780): the *ssp. maculosa* (GERNING, 1780), that is widespread in the western part (Transylvania and Banat) and the *ssp. mannerheimii* (DUPONCHEL, 1836) that is present in the eastern part of the country (Moldova, N-Muntenia and Doubroudja). *Grammia quenseli* (PAYKULL, 1793) is recorded for the first time in the Eastern Carpathians.

Key words: *Chelis maculosa* (GERNING, 1780), *Grammia quenseli* (PAYKULL, 1793), Romania

Rezumat:

Noutăți despre speciile *Chelis maculosa* (Gerning, 1780) și *Grammia quenseli* (PAYKULL, 1793) în fauna României, (Lepidoptera: Arctiidae)

Autorul afirmă că în România există două subspecii ale speciei *Chelis maculosa* (GERNING, 1780): *ssp. maculosa* (GERNING, 1780), răspândită în partea vestică (Transilvania și Banat) și *ssp. mannerheimii* (DUPONCHEL, 1836) care este prezentă în partea estică a țării (Moldova, N-Muntenia și Dobrogea). *Grammia quenseli* (PAYKULL, 1783) este semnalată pentru prima dată în Carpații Orientali.

Cuvinte cheie: *Chelis maculosa* (GERNING, 1780), *Grammia quenseli* (PAYKULL, 1793), România

Introduction

Chelis maculosa mannerheimii was described by Duponchel as found in the Kazakhstan steppes in 1836. For a certain period was considered a distinct species, and in the description enlisting-records of that time was recorded under the name *Chelis mannerheimii* (SPULER 1910).

In the Macro-Lepidoptera List of Romania from 1987, POPESCU-GORJ considered that all *Chelis maculosa* from Romania pertain to the subspecies *mannerheimii* (POPESCU-GORJ 1987). They are included similarly in the new Lepidoptera List of Romania (RÁKOSY, GOIA & KOVÁCS 2003). By comparison of the materials from different regions of Romania, it can be concluded, that in the fauna of Romania both *Chelis maculosa maculosa* (GERNING, 1780) and *Chelis maculosa mannerheimii* (DUPONCHEL, 1836) are present. The first species is widespread throughout Transylvania and Banat, and the second in the East of the country, in Moldavia, the Sub-Carpathians areas of Muntenia and in Dobroudja (Fig. 2). The differences between the two subspecies are highlighted in Table 1 and Image 1 and 4.

Gramia quenseli has been known only from Bucegi Mountains in the whole Carpathian-Chain up to the present.

Results and discussions

Chelis maculosa (GERNING, 1780)

Material: great number of individuals originated from different regions of Romania.

Being considered a spectacular species and with a great variety of spots-outlines and colour, a lot of subspecies had been described in time, that were based only on some local forms and individual varieties, such as: *monacensis* OSTHELDER, 1933; *aragonensis* STAUDINGER, 1894; *centralhispaica* DANIEL, 1935; *serratica* AGENJO, 1937; *aumayri* HUBER & STENGEL, 1989; *honesta* TAUSCHER, 1806; *latina* TURATI, 1909; *slivonensis* REBEL, 1903; *marsicana* DANNEHL, 1929; *boursini* DANIEL, 1935; *arlanzona* AGENJO, 1937; *nordiberica* AGENJO, 1937; *sultana* SCHWINGENSCHUSS, 1937 and *schwingenschussi* DANIEL, 1961. The most of these subspecies were synonymized, two subspecies were preserved that are differentiated more precisely, *Chelis maculosa maculosa* and *Chelis maculosa mannerheimii*.

Both are present in the fauna of Romania, the first species in the West of the country and the second in the East of the country.

The two subspecies differ slightly in point of their exterior appearance. The label comprises the external morphological characters, the flight periods, habitat types, the general spread and their spread in Romania. There are of course forms that seem intermediary ones between the two subspecies due to the high individual variety within this species.

Table 1.	<i>Chelis maculosa maculosa</i> (GERNING,1780)	<i>Chelis maculosa mannerheimii</i> (DUPONCHIEL,1836)
Typ. Locality:	[Germany]: Frankfurt am Main (DE FREINA & WITT, 1987)	[Kazahstan]: Kirghisen steppe.
the head:	- brownish - grayish	- yellow – ochre (yellowish)
the thorax:	- brownish – with a matt dark brown spot	- yellowish – with a light brown spot
the front wings:	-brownish -less outlined black spots -black marginal spots of external edge missing (MURZIN, 2003)	- straw-yellow, ochre - more outlined black spots - black marginal spots of external edge present (MURZIN, 2003)
rear wings:	- more light red	- more scarlet red
flight period:	- V-VI și VII-VIII - in two generations	- IV-V, VII-VIII and X - in three generations
habitat types:	- limestone areas from the hilly and submountainous regions	- limestone areas under strong sunshine, forested areas of the steppe, steppes and in semidesert areas, on sands
general distribution:	- Spain, France, Southern Germany, Austria, Hungary, W-Romania, Southern Poland, Czech Republic, Slovakia, Bulgaria, Macedonia, Greece, European Turkey	- Eastern Romania, Ukraine, SW. Russia, Lower Don, Volga region, in the North up to the estuary of Kama River, The southern Ural, N. Kazakhstan, SW.Siberia, China (Xinjian)
distribution in Romania	Transilvania: Cluj, Fanatele Clujului, Turda, Cheile Turzii, Băile Turzii, Cheile Turului, Rimetea, Piatra Secuiului, Iernut, Lechinta, Cheile Trascăului, Ludaș, Târgu-Mureș, Viisoara, Suatu, -Satu Mare: Tasnad - Crisana ? -Banat: Băile Herculane	- Dobroudja: Hagieni, Albesti, Histria Mangalia, Vama Veche, Canaraua Fetii, Lipnita, Baneasa, Ion Corvin, Esechioi, Plopu, Sarinasuf, Babadag, Macin. -Muntenia: the Subcarpathian area of Buzău Moldavia: Tecuci, Drăgănești, Gârboavele-Galați,

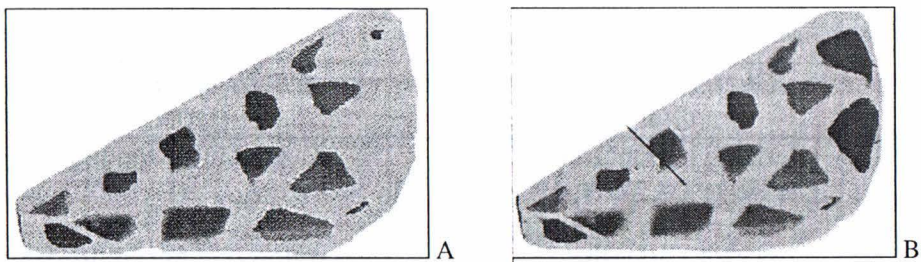


Fig. 1.- A (*Chelis maculosa maculosa* -black marginal spots of external edge missing) and B (*Chelis maculosa mannerheimii*- black marginal spots of external edge present) – after (MURZIN 2003).

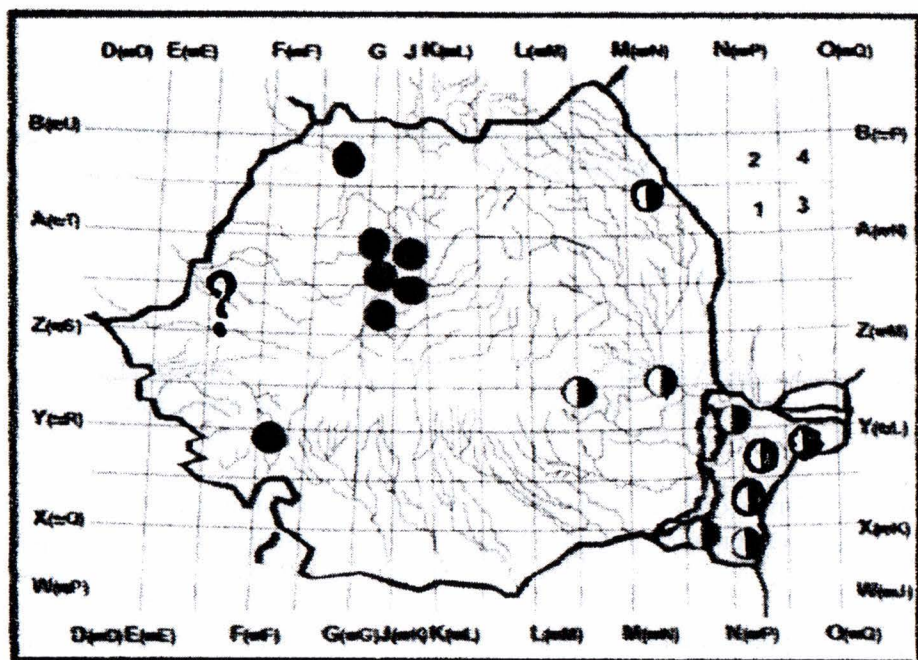


Fig. 2. Spreading in Romania; *Chelis maculosa maculosa* - ●
and *Chelis maculosa mannerheimii* - ○

Grammia quenseli (PAYKULL, 1793)

Material: Ciucaș Mountains, Gropșoarele Peak, 1850 m, 10.VI. 2007 (1♂)

A new species as far as the Oriental Carpathians are concerned, the Ciucaș Mountains represents the second mountain massif from where this species is known (Fig.3).

The presence of this Arctic-Alpine species in the Carpathians has been known since 100 years, the only recorded location in the whole Carpathians-Chain are the Bucegi Mountains, at 1800-2500 m altitude (ABAFI-AIGNER 1907; POPESCU-GORJ 1964; KÖNIG 1975; DINCĂ 2005).

Spreading: The Alps (France, Switzerland, Austria), The Carpathians (in Romania), Scandinavia (Lappmark, Laponia) Russia (Kola Peninsula, polar Ural, Altai, Tuva, East

Sayan, Transbaikial, Amur, Yakutia, Magadan, Vranghel Island, Kamceatka), North-Mongolia, Kazakhstan (Saur), Japan (Hokkaido: Mountain Daysedzu), the polar regions and the mountains of North-America from Labrador through the North-Western Territories and Yukon to Alaska.

This species is considered a very rare one in Romania. It has been collected as isolated individuals in the Bucegi Massif from the following sites: Babele, Caraiman, Peștera, Ialomiței Valley (POPESCU-GORJ 1964; KÖNIG 1975) especially during the period before 1960, when the alpine-subalpine area in the Bucegi Mountains had not been degraded so hard because of the abusive pasturing and of the uncontrolled tourism.

From 1970, as a consequence of the building cable car facilities, this mountain massif has been invaded by mass tourism, and the Lepidoptera fauna of the area has suffered irreversible alterations, many species became very rare ones. *Grammia quenseli* was identified after 2 emergent individuals, one individual was collected by the entomologist M. BRĂȚĂȘEANU at Babele in 1980 (this individual was taken by the collector when emigrating in Germany and it cannot be found in the collection left behind in Romania) and the second individual was collected by L. SZÉKELY also at Babele in 1984.

After the year 2000, the situation of this species has already been considered a critical one (RÁKOSY, GOIA, KOVÁCS 2003) but it has been found again by V. DINCA at Cota 2000 (Altitude 2000 m) in Bucegi Mountains on July 10, 2004 (DINCA 2005), and another individual was found in Bucegi, too, by L. PEREGOVITS from Hungary in 2006. (L. PEREGOVITS, pers. com.).

The scarcity of this species is explainable through its biology. Almost every individual collected in Romania were found in grass, because this butterfly rarely flies, as a matter of fact, it flies away only when disturbed. We don't know yet at what time of the day takes off this moth for mating, but for sure it is not a night species, for it has never been collected at artificial light or in light-traps placed within its habitat.

Some other night species are known from the alpine-subalpine area of the Bucegi Mountains that fly only during the day, such as *Xestia ochreago* (HÜBNER, 1809), *Parasemia plantaginis* (LINNAEUS, 1758) and *Lasiocampa quercus* (LINNAEUS, 1758) (females included). Probably the species could be found more easily in mature larva stage at the beginning of May after the snow melts, as in The Alps. This method should be tried on, because the grass is short in this period of the year and the mature larvae are looking for their place to turn into pupa.

Conclusions

Chelis maculosa is present in 2 distinct subspecies in Romania the subspecies *maculosa* that is spread in the western part (Transylvania and Banat) and the subspecies *mannerheimii* that is present in the eastern part of the country: Moldavia, Northern-Muntenia, and Dobrogea).

Grammia quenseli is signalled for the first time in the Eastern Carpathians (Ciucas Mountains).

Protection and threats

Chelis maculosa is not an endangered species in Romania. At least in Dobrogea, it is present in all steppe areas. It is highly probable that there are a great number of undiscovered populations.

Grammia quenseli is a protected species in Romania (Habitat Directive, Annex 3B) (RÁKOSY 2005).

The populations are found within the protection areas (national parks and reserves). Unfortunately, even nowadays, we can see sheep herds in these protected areas. Probably it will take long until environment protection laws will be observed in Romania.

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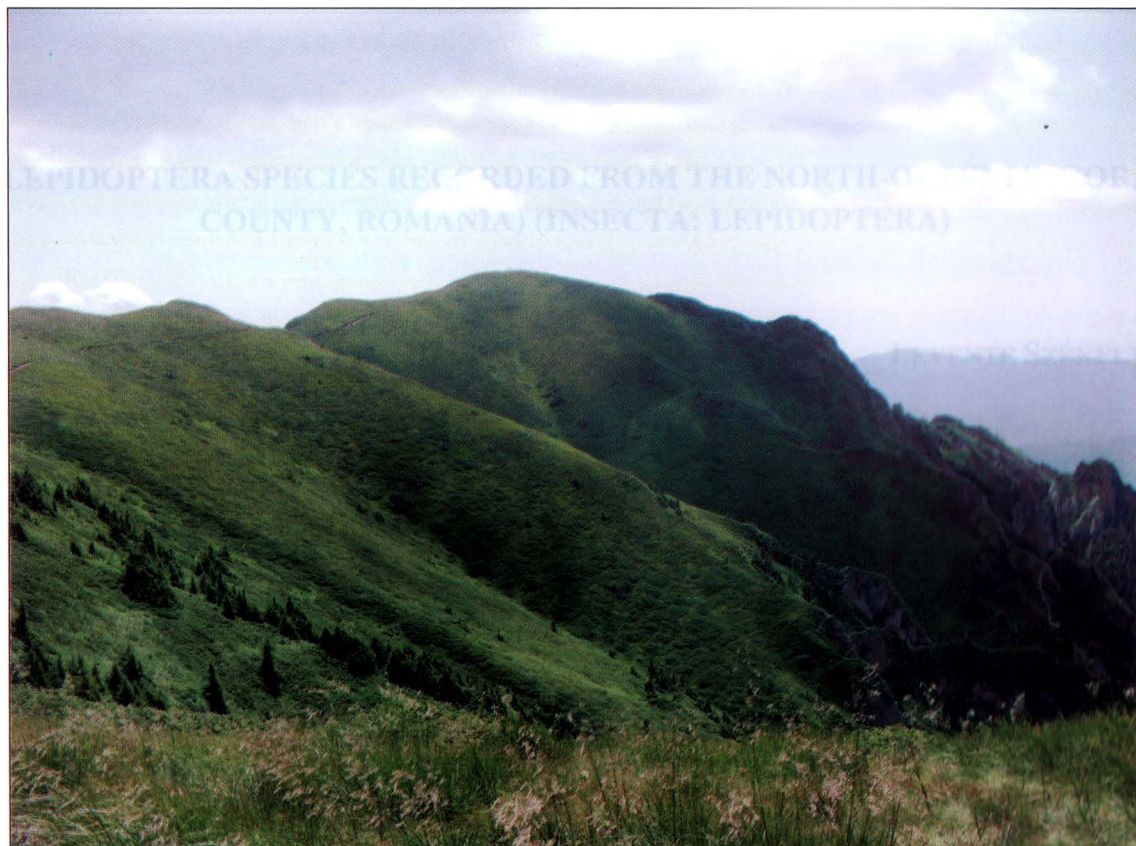


Fig.3. Romania, Ciucaș Mountains, Gropșoarele Peak, 1850 m ,
Habitat for *Grammia quenseli* in Eastern Carpathians. (Foto. L. Székely)

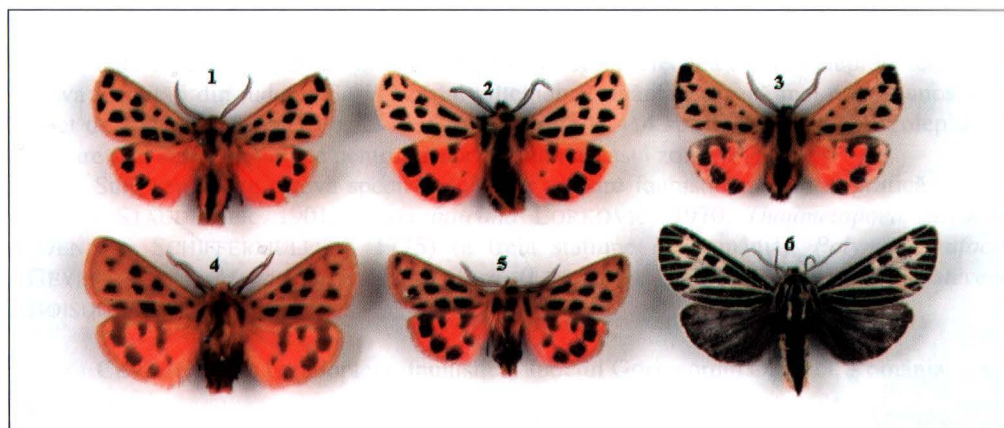


Fig.4. - 1. *Chelis maculosa mannerheimii*-♂-RO., Tulcea County, Sarinasuf-Plopu, 27.VIII.2009.
2. *Chelis maculosa mannerheimii*-♂-RO., Tulcea County, Sarinasuf-Plopu, 27.VIII.2009.
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6. *Grammia quenseli*-♂-RO., Ciucaș Mts., Gropșoarele, 1850 m, 10.VI.2007.