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Further Studies on *Maculineaalcon* DEN. & SCHIFF., 1775
(Lepidoptera: LYCAENIDAE)
from
Zsolt BALINT

Zusammenfassung: Der Autor hat Populationen des Bläulings *Maculineaalcon* DEN & SCHIFF aus dem Karpaten-Becken und vom Balkan untersucht. Er kommt zu dem Ergebnis, daß die Taxa *tolistus* FRHST 1917 und *curiosa* SZABO 1956 mit dem Taxon *xerophila* BERGER 1946 gleichzusetzen sind. Dieses ist eine Trockengebietsform von *alconalcon*. Zusätzlich werden Beobachtungen an asiatischem Material von *Maculineaalcon* mitgeteilt.

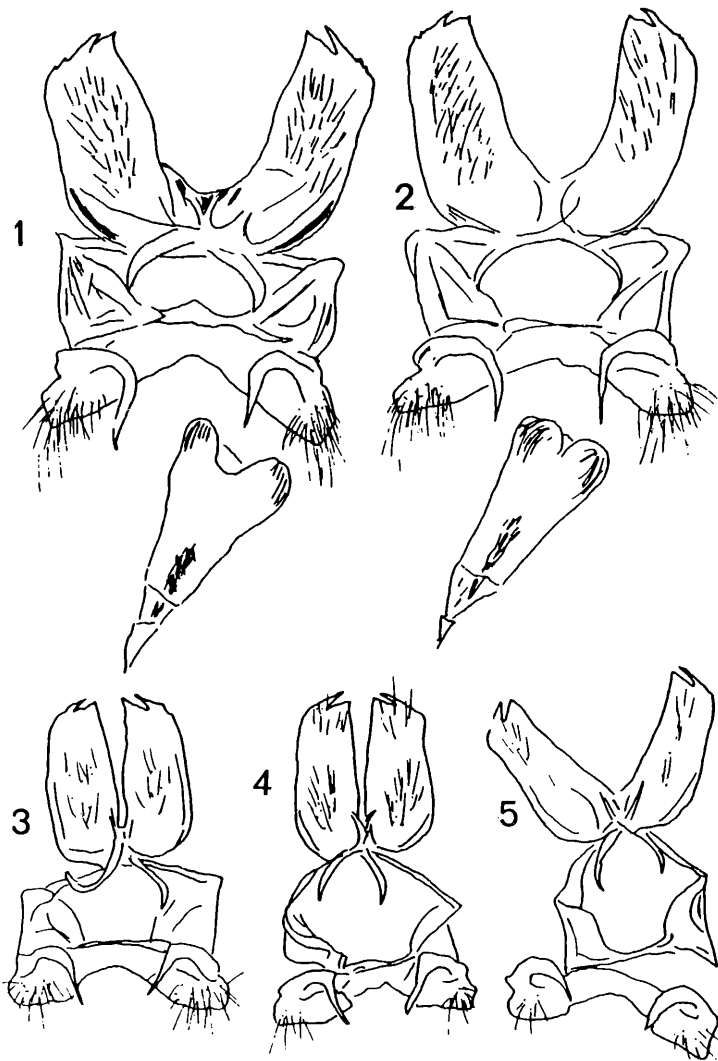
Abstract: The author has examined the *Maculineaalcon* DEN. & SCHIFF. populations of the Carpathian Basin and the Balkans. He concludes that the taxa *tolistus* FRHST., 1917 and *curiosa* SZABO, 1956 equal *xerophila* BERGER, 1946 being an infrasub-specific, dry-land form of *alconalcon*. Some notes on Asian *alcon* are also given.

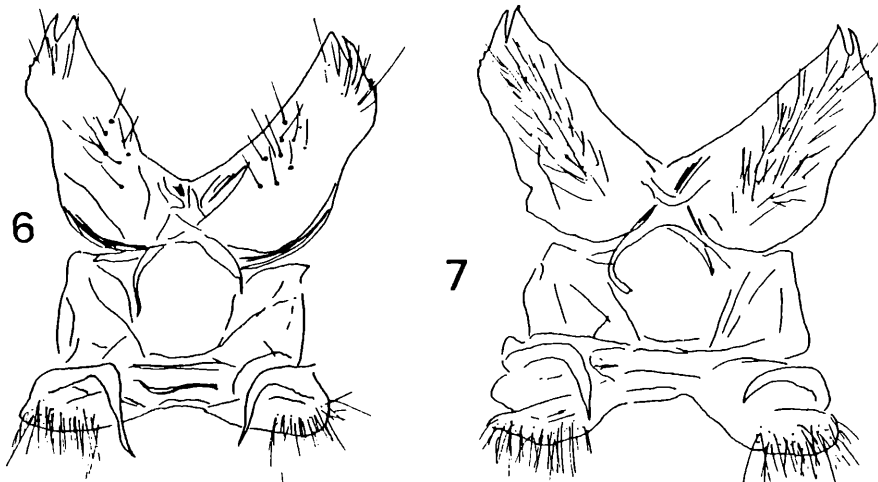
1. Introduction

The much-discussed question of *alcon* - *rebeli* came to an end in the English literature according to the papers by KAABER (1964) and URBACH (1964) with the solution that *rebeli* HIRSCH., 1904 is a high mountain subspecies of *Maculineaalcon*, DEN. & SCHIFF., flying locally in Central Europe also at lower elevation (HIGGINS 1970 and 1975). However, FORSTER (1955 and 1971) considered it an independent species in German literature, with *xerophila* BERGER, 1946 being a flatland representative of the preceding, in spite of the different opinion of BEURET (1949 and 1957).

The problem referred only to the case of *alcon* from Western and Central Europe. KAABER worked with specimens deriving only from this area, because the aim of his investigation was to explain the taxonomic status of "merely" Scandinavian populations of *alcon*. Actually this problem has its roots in BERGER's misidentification of the blue females of *alcon* as *rebeli* in the description of

xerophila (BERGER 1946). This error spread accordingly, namely that *alcon* populations living on dry habitats are dry-land representatives of *rebeli* which occurs in many places together with the nominate subspecies of *alcon* in Central Europe. KAABER attempted to solve the contradiction by segregating the Central European "rebeli" populations into three different subspecies: *xerophila* BERGER, *cruciata* BEURET and the nominate race (KAABER 1964).





Männliche Genitalarmaturen verschiedener *Maculinea alcon* Taxa
Male genitalia of *Maculinea alcon* taxa

1. *Maculinea rebeli* HIRSCH.; Styria / gen. prep. No. 2062, Ronkay/
2. *Maculinea rebeli* HIRSCH.; Tirol / gen. prep. No. 2063, Ronkay/
3. *Maculinea alcon* /f. *xerophila*/; Korična / gen. prep. No. 868,
Fazekas/
4. *Maculinea alcon* /f. *xerophila*/: Northern Hungary: Zemplén Moun-
tains /gen. prep. No. 830,
Fazekas /
5. *Maculinea alcon* /f. *xerophila*/; Southern Hungary: Mecsek Moun-
tains /gen. prep. No. 421,
Fazekas/
6. *Maculinea alcon* ssp.; Djarkent / gen. prep. No. 28, Bálint /
7. *Maculinea alcon* ssp.; Kuldscha / gen. prep. No. 29, Bálint /

2. Maculinea alcon of Eastern Europe

2.1. Maculinea alcon in the Carpathian Basin

KAABER had no material available from the Carpathian Basin and the Balkans. So he had no means to form an opinion on the rebeloid form flying in many places in Hungary. Butterflies from these populations were aggravating for Hungarian lepidopterologists who determined them as rebeli according to FORSTER or as alcon according to HIGGINS.

Several of our lepidopterologists had already worked on the Hungarian populations, but never as thoroughly as KAABER did on the Scandinavian alcon.

SZABÓ (1956) identified a great part of the Carpathian alcon population with the nominate race, while he described the alcon of the Bükk Mountains, Northern Hungary, as a distinct subspecies under the name ssp. curiosa. The females display an extensive blue basal suffusion. SZABÓ mentioned at the end of the description, that the new taxon resembles rebeli, especially one of its flatland forms, ssp. xerophila BERGER. However, very definitely stated, that the newly described taxon is a subspecies of alcon and not that of rebeli an asseveration which was rather debated at that time.

MOUCHA and NOVAK (1959), on the other hand, mentioned rebeli from Southern Slovakia in their faunistic work based on two females determined as rebeli by FORSTER.

Later KUDRNA (1974) repeated the same data.

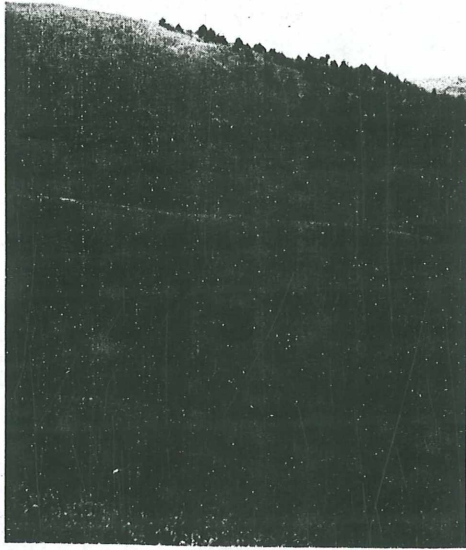
VARGA (1961) identified the Southern Slovakian specimens as ssp. curiosa, a form rather resembling the subspecies tolistus described by FRUHSTORFER, 1917, from Bosnia. VARGA also determined the alcon specimens from the Eastern Carpathians as ssp. tolistus. According to this author, it were useful to examine thoroughly the alcon populations of the Carpathian Basin, in order to decide whether they belong to rebeli or to a rebeli-like form of alcon living in dry habitats.

On the basis of VARGA's work, curiosa SZABÓ is treated in the Hungarian literature as an endemic subspecies of alcon of the Carpathian Basin, a close relative to ssp. tolistus FRUHST. (GOZMÁNY 1968 and GYULAI 1977).

FAZEKAS (1984) contends that the alcon populations inhabiting isolated sites in the Southern Transdanubia are referential tolistus.

During the last few decades alcon curiosa SZABÓ was discovered in the whole area of the Central Mountains of Hungary, and thus the theory of curiosa being also an endemic subspecies of the Torna Karst and the Bükk Mountains together with many other species of plants and animals could no more be substantiated. Comparing the specimens captured in this range and in the Southern Transdanubia with the illustrations given by BERGER and KAABER, and with the large alcon material found in the Lepidoptera collection of some great European Museums (Vienna, Munich, Bonn), I came to the conclusion that curiosa of the Carpathian Basin equals xerophila and also tolistus and is in fact the infrasubspecific, dry-land form of alcon. This "oecotype" differs from the palustrine alcon alcon in its morphology, well described by BERGER, and in some insignificant anatomical and phenological features.

These are all characteristics of the Hungarian populations, too. The rules of the ICZN do not apply to infrasubspecific forms; should, however, some students like to have a handle to distinguish for some reason the dry-land populations, I would suggest the use of the most expressive younger name f. xerophila.

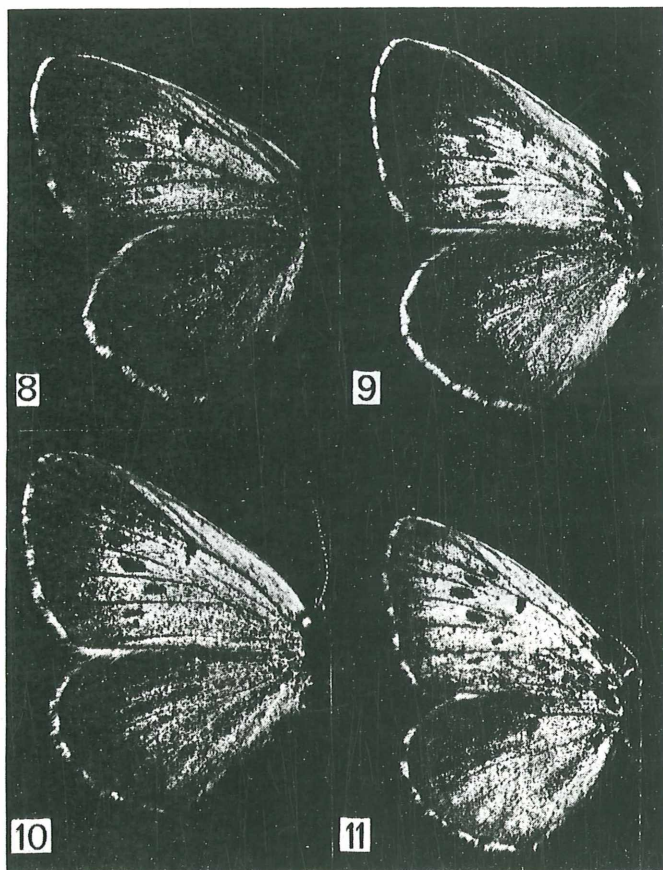


Lebensraum von *Maculinea alcon* f. *xerophila* in Mittel-Ungarn

Habitat of *Maculinea alcon* f. *xerophila* in Central
Hungary: Pest County, Nagykovácsi: Nagyszénás 550 m.

According to my observations there exists also an "intermediate" form between *alcon* and f. *xerophila*. The base of wings of the females exhibit much less of a blue suffusion; it is restricted merely to the base. This form flies in the mountain forest clearings and on volcanic grass slopes synchronously with the nominate race, therefore one month later than f. *xerophila*. Its

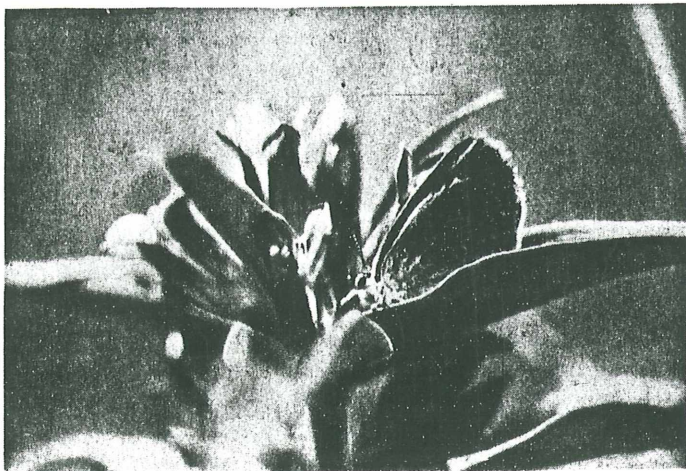
foodplants *Gentiana pneumonanthe* L. and *Gentiana cruciata* L.
This "oecotype" might be called f. mesophila, on the analogy
of *xerophila*.



Weibchen von *Maculinea alcon* f. *xerophila* aus Nord-Ungarn

Female specimens of *Maculinea alcon* f. *xerophila* from Northern
Hungary

8. Bükk Mountains: Bánkút cca. 950 m.
9. Bükk Mountains: Nagymező cca. 900 m.
10. Bükk Mountains: Hór-völgy cca. 400 m.
11. Torna Karst: Jósvaló cca. 300 m.



Weibchen von *Maculinea alcon* f. *xerophila* bei der Eiablage am Kreuzenzian, *Gentiana cruciata*

Female of *Maculinea alcon* f. *xerophila* laying eggs to *Gentiana cruciata* / Nagykovácsi, Nagyszénás
7. VII. 1982 a. m. 10³⁰ /

It may now be stated that *Maculinea alcon alcon* DEN. & SCHIFF. occurs within its range not only wetlands but also in mesophilous and xerophilous wood clearings and hillsides.

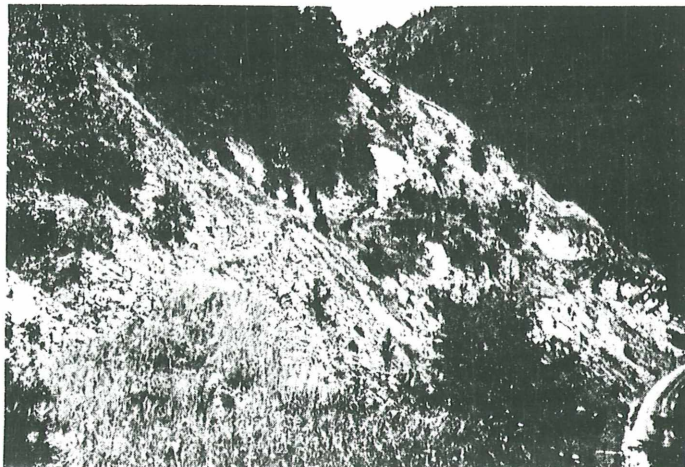
2.2 *Maculinea* of Transylvania and the Balkans

The *alcon* specimens of Transylvania and the Balkans differ from the preceding populations. There are more black scales in the ground colour of the males from both areas, the females are strictly unicolorous, while the underside of both sexes show a deeper brownish shade. The male valva is narrower and the terminal spine shorter than those of the nominate race.

The lepidopterous fauna of the Eastern and Southern Carpathians exhibits several Balkanic connections which can be observed also on the *alcon* specimens. Data from plain and hilly areas are rather sporadic, the butterfly appears mainly in the mountains, hence KÖNIG (1982) considers this *alcon* among the mountain species in Transylvania.

It seems that *alcon* form inhabiting the Southern Carpathians and the Western Transylvanian Mountains ("Munții Apușeni") resembles the populations of the Rila and the Rodope and differs from the Croatian and Macedonian populations only in insignificant characteristics. The two males from the Rila Mountains, Bulgaria, in the collection of the Hungarian Natural History Museum bear labels with the name *alcon alticola* ZÜLLICH, but I failed to find the description anywhere.

The range of their closely related ssp. *sevastos* RBL. & Z., 1931 (which is perhaps the same subspecies) extends from Macedonia to Croatia, therefore it is the subspecies of the Dinaric Mountains. These specimens are bigger and have wider wings, their underside is darker greyish brown. They have a better developed pattern, especially on the hind wings. The males are violescent. The discoidal spot on the front wing appears as a fine black line. The black border is identical and wide. The females are blackish brown, with some blue scales only on the base of the hind wings. The postdiscal spots on the upperside are hardly discernible, or they are wholly absent. On the slopes and in the basins of the Eastern Carpathians ssp. *limitanea* BALINT, 1985 is on the wing; this belongs among the relatives of *sevastos*. The wings of *limitanea* are more expanded, the imagoes are smaller than their relatives in the Dinaric Mountains. The ground colour of the males is a deeper blue without any violet shade, and covered with a fine black suffusion. The females are dark brown, the underside is also very dark, the pattern reduced. The underside of some females of *limitanea* is so dark and has such a pure pattern the submarginal portion that it might easily be mistaken for another species, *Maculinea nausithous* BERGST., 1779. Possibly



Lebensraum von *Maculinea alcon limitanea* in den Ostkarpaten: Rarău Berge, ca. 900 m

Habitat of *Maculinea alcon limitanea* in the Eastern Carpathians: Rarău Mountains, Zugreni ca. 900 m / Moldavia /

the data of *Maculinea nausithous*, published from the Eastern Carpathians, are attributable to mistaken identifications of this nature (ALEXINSCHI 1963).

3. Notes on Asian *Maculinea alcon*

HIRSCHKE (1904) described rebeli from the Styrian Alps as a variation of *alcon*. For a long time this name was used for all of the *alcon* populations of the Alps, until in 1949 BEURET subdivided them into subspecies. Morphologically *rebeli* is very different from *alcon*, but their genitalia do not differ. Accordingly BEURET and HIGGINS also denied a specific status to *rebeli*, referring to the fact that the "true *rebeli*" characteristics are constant only in the case of mountain populations and that in the structure of genitalia no differences of the kind appear which separate the different species on the genus *Maculinea*.

Yet rebeli-like subspecies are known not only from the Alps, but also from the Caucasus. STAUDINGER and REBEL (1901) submit a very brief description of an alcon form resembling rebeli under the name "var. monticola" from the Caucasus. Also the range was but briefly mentioned as "Cauc; Helv; Pont; ? Lyd." The "var. sordidula" of JACHONOV (1908) native subspecies of the steppes at the foot of the Caucasus and not identical with the mountain monticola, at least according to this author's description. I was unable to obtain any Caucasian alcon material, nevertheless the descriptions imply that rebeli-like populations do exist in the Caucasus and its confines.

There are two male alcon specimens from Central Asia substantiating the preceding considerations in the collection of the Hungarian Natural History Museum. They are so different from all described rebeloid alcon taxa that they surely represent an undescribed subspecies. The two large-sized specimens differ from the others also in their general appearance: the shape of wings is elongate and more angular, the pattern of the underside finer. They bear both alcon and rebeli characteristics. The costa of fore wings is straight as that of rebeli, apex pointed. Wings are narrow and extended. The ground color purplish blue, its black border is indistinct and of an uncertain width. The discoidal spot on the front wing appears as a fine black line. The underside is greyish brown, margin lighter. Marginal patterns are indistinct, postdiscal spots reduced, close to margin. The spots of base are absent, basal area exhibits some blue scales. The specimens were collected in the following localities: "Semirjetschensk, Djarkent and "Juldus, Kuldscha"

It should be noted that all rebeloid forms of alcon show the disjunct range characteristic of xeromontane species. They are native species of the mountains of Europe, especially of the Alps, then of the Caucasus and of the cold steppes of Central Asia.

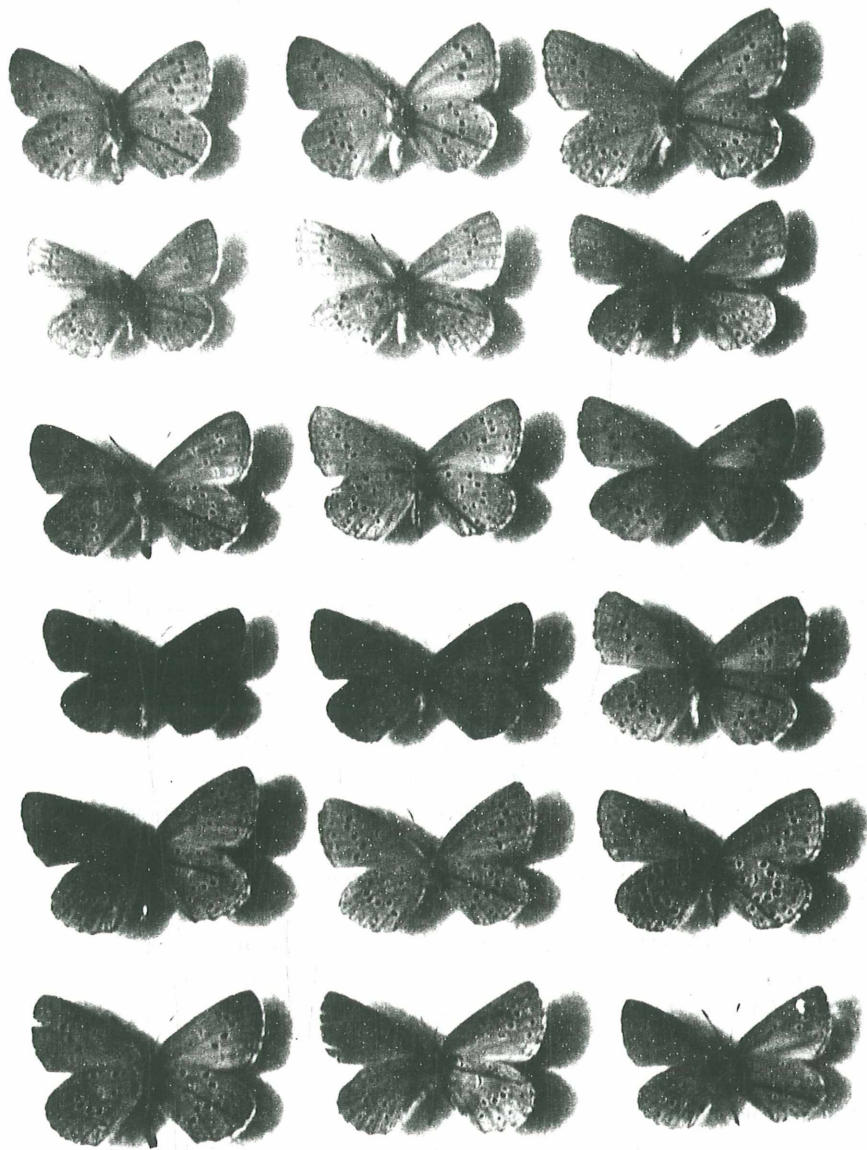
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Colour Plates A B

- A1 *Maculinea alcon alcon*, male
Budapest: Rómaifürdő
- A2 *Maculinea alcon alcon*, female
Budapest: Rómaifürdő
- A3 *Maculinea alcon f. xerophila*, female
Bükk Mountains
- B1 *Maculinea alcon rebeli*, male
Styrian Alps: Hochschwab
- B2 *Maculinea alcon rebeli*, female
Styrian Alps: Hochschwab
- B3 *Maculinea alcon alpicola*, female
Simplon village
- C1 *Maculinea alcon f. xerophila*, male
Bükk Mountains
- C2 *Maculinea alcon f. xerophila*, female
Torna Karst
- C3 *Maculinea alcon "alticola"*, female
Western Transylvanien Mountains: Scarișoara
- D1 *Maculinea alcon limitanea*, male PARATYPE
Eastern Carpathians: Cheile Bicazului (Békás-szoros)
- D2 *Maculinea alcon limitanea*, female PARATYPE
Eastern Carpathians: Micfalău (Mikófalú)
- D3 *Maculinea alcon "alticola"*, female
Rodope Mountains
- E1 *Maculinea alcon sevastos*, male
Croatia: Bjelolasica
- E2 *Maculinea alcon sevastos*, female
Croatia: Bjelolasica
- E3 *Maculinea alcon sevastos*, female
Dinaric Mountains: Durmitor
- F1 *Maculinea alcon "alticola"*, male
Bulgaria occ. Mon. Rilski
- F2 *Maculinea alcon* ssp., male
Kuldscha
- F3 *Maculinea alcon* ssp., male
Djarkent

Anordnung:		
Order:		
A	1	3
B	1	3
C	1	2
	1	3
	1	2
	1	3
	1	3
	1	3





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