

## Rhopalocera of Turkey. 4.

### The specific problem of *Melitaea didyma* (ESPER, 1779) and *M. transcaucasica* (TURATI, 1919) (Lepidoptera : Nymphalidae) (\*)

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#### Summary

The discovery of apparently hybrid populations of *Melitaea didyma* (ESPER, 1779) and *Melitaea transcaucasica* (TURATI, 1919) in the Pontic Mountains, Turkey, has led to a study of the specific status of these taxa. All the evidence suggests that *M. transcaucasica* is a subspecies of *M. didyma*.

#### Introduction

*Melitaea didyma* (ESPER, 1779) is one of those species which exhibit a large variation locally as well as geographically. This has resulted in the description of numerous subspecies, of which several were appointed specific rank. Some of these were later reduced to subspecies level or were synonymized. For instance HIGGINS (1941) mentioned 56 subspecies of *didyma*, of which he synonymized 31, and in addition he mentioned some 20 modifications or variations. Since 1941 about 25 new subspecies were added, some of which were synonymized again.

One of the names related very closely to *didyma* is *M. transcaucasica* (TURATI, 1919), which was described by TURATI as a variation of *didyma*. HIGGINS (1941) appointed specific rank to *transcaucasica*, of which some subspecies were described from Iran.

The typical *transcaucasica* markings of the Russian populations are : on the upperside of both wings often complete marginal lunules, heavier marked and regular in the female, often a suffusion in the females as in darker forms of *didyma*; on the hindwing underside in both sexes black scales on the veins near the continuous orange postdiscal band, the postdiscal band bordered

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distally with a complete fine line of convex markings and submarginally often with very prominent crescents.

### Distribution

*M. didyma* has a wide distribution and is recorded from the southern half of Europe, from Morocco, Turkey, Syria, Lebanon and eastward over a wide area into China.

*M. transcaucasica* has been recorded from Russia, in and south of the Caucasus mountains, from north Iran, eastward into the Elburs mountains, and from north-east Turkey, westward to Gümüşhane.

### Ecology

*M. didyma* flies in open ground, in wet as well as dry areas, from sea-level up to about 3000 m.

*M. transcaucasica* has been collected in north-east Turkey from alpine pastures, from open areas between broadleaved trees as well as from rather dry open spots between pine trees on southern slopes, from 1500 m up to about 2200 m.

Several foodplants are known for *didyma*: *Plantago*, *Linaria*, *Veronica*, *Scabiosa* and *Verbascum*. Larvae of *didyma* were collected from *Verbascum* and *transcaucasica* was reared on *Plantago*.

### Some observations and study results

During one of our expeditions to Turkey we found a *Melitaea* population with *transcaucasica* markings in the province of Trabzon on a northern slope of the Pontic mountains, some 250 km from the Russian border. Because this was the most western locality known until then, the area was searched more thoroughly. We found some interesting populations of *Melitaea* on the southern slopes of the Pontic mountains in the province of Gümüşhane.

One population at 1600 m appeared to be distinctly *didyma*. There the species flew in a large clearing between old pine trees in large numbers together with species such as *Coenonympha arcania* and *Pseudochazara mamurra*. Only few specimens of that population showed faintly some *transcaucasica* markings.

About 2.5 km southward at 2000 m on a pass there was a very rich and variable vegetation where pine trees had been cut two or three years before; certainly not alpine like. At that locality we observed thousands of *Melitaea*,

we collected about 450 specimens and we looked at another 500 before we let them fly again. The population appeared to be a complete mixture of *didyma* and *transcaucasica*. Only a small number appeared to have all of the *transcaucasica* markings and a small number showed these markings not at all. Most of the specimens showed all possible combinations of markings from *transcaucasica* to *didyma*.

From a study of *didyma* material from west of the meridian over the Caspian Sea and of *transcaucasica* from its entire known distribution area we have made the following observations :

- Specimens from Europe can have typical *transcaucasica* markings ; in particular from Wallis, Switzerland, and one specimen from the island Hvar, Yugoslavia, at sea-level.
- From the wetter high localities *didyma* generally show on the upperside of both wings a suffusion in the females and a darker and intenser colouring in the males than has been found in material from elsewhere.
- In very dry and hot areas with poorer vegetation *didyma* tend to show reduced markings and a paler colour on the upperside of both wings in both sexes.
- In Turkey and Iran typical *didyma* has not been recorded from within the known distribution area of *transcaucasica*.
- In their known distribution areas *transcaucasica* exhibits as much variation as *didyma*.
- The different populations of *transcaucasica* often have more or less different wing markings.

For instance in comparison with the material from the Caucasus we have found the following differences :

The submarginal lunules on the upperside of both wings in both sexes are more pronounced and more complete in populations from northern slopes of the Pontic mountains, and they are less pronounced and more *didyma*-like in populations from the Elburs mountains, Iran.

The black scales on the veins of the hindwing underside are not present in the Elburs populations and are variably present in Turkish populations. The fine convex markings which border distally the orange postdiscal band are less convex and sometimes straight and/or not full, in particular in the females, both in Turkey and in Iran.

- Remarkable differences have been found between the populations in Turkey. In particular, a variable presence of the black veins on the underside hindwing in the males, more or less complete marginal lunules on the upperside of both wings in both sexes, and/or more or less heavy suffusion of the female upperside.
- The larvae of *transcaucasica* do not differ from those of *didyma*.



- No significant constant difference could be found between the genitalia of *transcaucasica* and those of *didyma*.

### Conclusion

Considering the above-mentioned findings, we conclude that *Melitaea transcaucasica* is not a good species, but a subspecies of *M. didyma*. This view is perhaps most strongly supported by the fact that in Turkey there is a rather obvious transition between *didyma* and *transcaucasica* with complete transitional populations as well as populations almost fully representative for both. Furthermore, *transcaucasica* has been found to copulate very successfully with *didyma*, which would seem to exclude its ranking as a separate species.

### References

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### Memorandum

Dieser Nummer liegt eine Rechnung für den Jahresbeitrag 1990 bei. Mitglieder, die bereits ihren Beitrag für 1990 überwiesen haben, bitten wir, diese Rechnung als gegenstandslos zu betrachten. Korporative Mitglieder erhalten vom Schatzmeister eine gesonderte Rechnung.