The true identity of butterflies originally recorded as *Hipparchia* (*Parahipparchia*) *pellucida* (Stauder, 1923) from the Eastern Aegean Greek islands of Lézvos and Ikaría (Lepidoptera: Nymphalidae, Satyrinae)

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Abstract. Old records of *Hipparchia* (*Parahipparchia*) *pellucida* (Stauder, 1923) from the Greek Islands of Lézvos and Ikaría, still being accepted as such, are shown to be erroneous due to misidentification of individuals actually belonging to the *H*. (*P*.) *volgensis* (Mazochin-Porshnjakov, 1952) / *H*. (*P*.) *christenseni* Kudrna, 1977 species-complex. The taxon *pellucida* is thus removed from the European butterfly faunal list. A record of *pellucida* from the western coast of Asia Minor based on the genitalia of a single female individual is considered invalid because the female appendages of this species in no way differ from those of either *volgensis* or *christenseni*, thus making it impossible to pinpoint the true identity of this individual.

Samenvatting. Er wordt aangetoond dat oude gegevens van *Hipparchia* (*Parahipparchia*) *pellucida* (Stauder, 1923) van de Griekse eilanden Lesbos en Ikaría foutieve determinaties zijn van exemplaren die in feite behoren dtot het soortencomplex van *H*. (*P*.) *volgensis* (Mazochin-Porshjakov, 1952) / *H*. (*P*. *christenseni* Kudrna, 1977. Het taxon *pellucida* wordt daarom afgevoerd van de Europese dagvlinderlijst. Een gegeven van *pellucida* van de westkust van Klein-Azië, gebaseerd op de genitalia van één vrouwelijk exemplaar, wordt eveneens betwijfeld omdat de kenmerken in de vrouwelijke genitalia van deze soort in geen enkel opzicht afwijken van die in *volgensis* of *christenseni*, waardoor het onmogelijk is om de ware identiteit van dit exemplaar vast te stellen.

Résumé. Les anciennes données d'*Hipparchia* (*Parahipparchia*) *pellucida* (Stauder, 1923) des îles grecques de Lesbos et d'Ikaría, toujours reconnues comme telles, se sont révélés erronées en raison d'une erreur d'identification d'individus appartenant réellement au complexe des espèces *H*. (*P*.) *volgensis* (Mazochin-Porshnjakov, 1952) / *H*. (*P*.) *christenseni* Kudrna, 1977. Le taxon *pellucida* est ainsi retiré de la liste faunique européenne des papillons. Une observation de *pellucida* de la côte occidentale de l'Asie Mineure basée sur les organes génitaux d'un individu femelle unique est considéré comme invalide parce que les appendices femelles de cette espèce ne diffèrent en rien de ceux de *volgensis* ou de *christenseni*, rendant ainsi impossible de déterminer la véritable identité de cet individu.

Key words: Nymphalidae – Satyrinae – *Hipparchia* – *Parahipparchia* – *H*. (*P*.) *pellucida* – *H*. (*P*.) *volgensis* – *H*. (*P*.) *christenseni* – Greece – Lézvos – Ikaría – Turkey – Asia Minor – İzmir – Misidentifications.

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Introduction

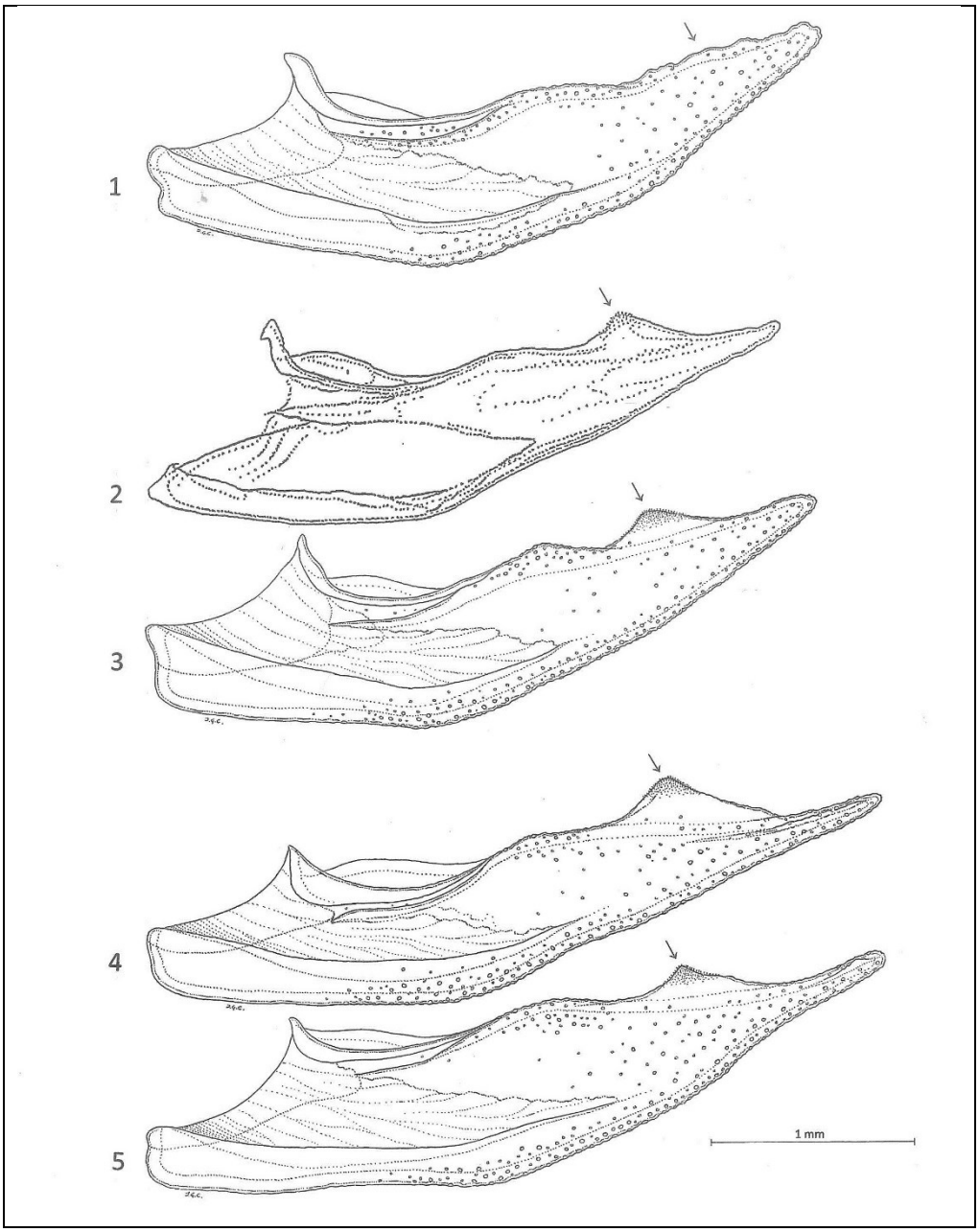
Hipparchia (*Parahipparchia*) *pellucida* (Stauder, 1923) was first recorded from the Eastern Aegean Greek Islands of Lézvos (= Lésvos, Lesbos) and Ikaría by Olivier (1993: 199, table 12; 220), who did so without the support of male genitalia figures, essential for diagnostic purposes in this difficult subgenus of phenotypically extremely similar to one another butterflies. The author instead simply mentions: "The presence of *Hipparchia pellucida* on Lésvos, but especially on Ikaría, is remarkable. The population from Lésvos is similar to material from the Pontic Mts. (Bolu) eastwards till the Caucasus. … The Ikaría population seems somewhat differentiated. Examination of the genitalia proved that this population should be ascribed to *H. pellucida*". As is usually the case, both these records have by now become widely accepted, and it is therefore by no means surprising that in one of the latest books on European butterflies (Tshikolovets 2011: 411) the distribution range for *pellucida* should also include "… Lesbos, Ikaria …"

[Note on spelling of Greek locality names: the system chosen is strictly phonetic, in order to show the non-Greek reader how Greek locality names are actually being pronounced by Greeks. The older system of using instead Latinized Greek locality names resulted in inaccurate pronunciation, often leading to confusion when asking to find a particular locality].

Reexamination of the male genitalia of "*pellucida*" specimens from Lézvos and Ikaría

The first of the two present authors had kindly been given a small series of "*pellucida*" specimens from both Lézvos and Ikaría by Olivier himself, and these remained for years in the first author's collection as undoubted *H. pellucida*. In a recent attempt, however, at providing genitalia drawings for a study on *Hipparchia* butterflies (Sbordoni *et al*. 2018), it was discovered that the "*pellucida*" male appendages extracted from the Lézvos material were in fact somewhat larger replicas of those of *Hipparchia* (*Parahipparchia*) *volgensis* (Mazochin-Porshnjakov, 1952), while those from Ikaría just about identical to those of *Hipparchia* (*Parahipparchia*) *christenseni* Kudrna, 1977, which in themselves are an even larger replica of the *volgensis* genitalia. As the male genitalia of *pellucida* differ from those of *volgensis* and *christenseni* primarily by evident valval characters, being quite similar to them in all other respects, we have decided to use exclusively this component for comparative purposes rather than the male genitalia as a whole. The valva of *pellucida* in lateral aspect (Fig. 1) is devoid of a dorsal, sub-terminal, triangular, extension,

having instead in its place a series of varying-in-number, weak, almost imperceptible swellings. In *volgensis* (Fig. 2) and *christenseni* (Fig. 4), as well as in the Lézvos (Fig 3) and Ikaría (Fig. 5) material, the valva in lateral aspect possesses a very evident dorsal, triangular extension, suggesting that the Lézvos and Ikaría populations show proximity to one another as well as to *volgensis* and *christenseni*, while at the same time exhibiting a distance from *pellucida*.



Figs 1–5. Lateral aspect of inner face of right valva of *Hipparchia* (*Parahipparchia*) taxa.

1. *pellucida*, Crimea, Sudak.

2. *volgensis delattini*, Bulgaria, Kyustendil, Goranovci.

3. *volgensis*-group, Greece, Lézvos Island, Ayiásos.

4. *christenseni*, Greece, Kárpathos Island, Píles.

5. *volgensis*-group, Greece, Ikaría Island, Oxiá.

[Note: differences in length of part of valva immediately distad of dorsal, sub-terminal, triangular extension for all illustrated taxa other than pellucida due to individual variation and therefore devoid of any diagnostic significance].

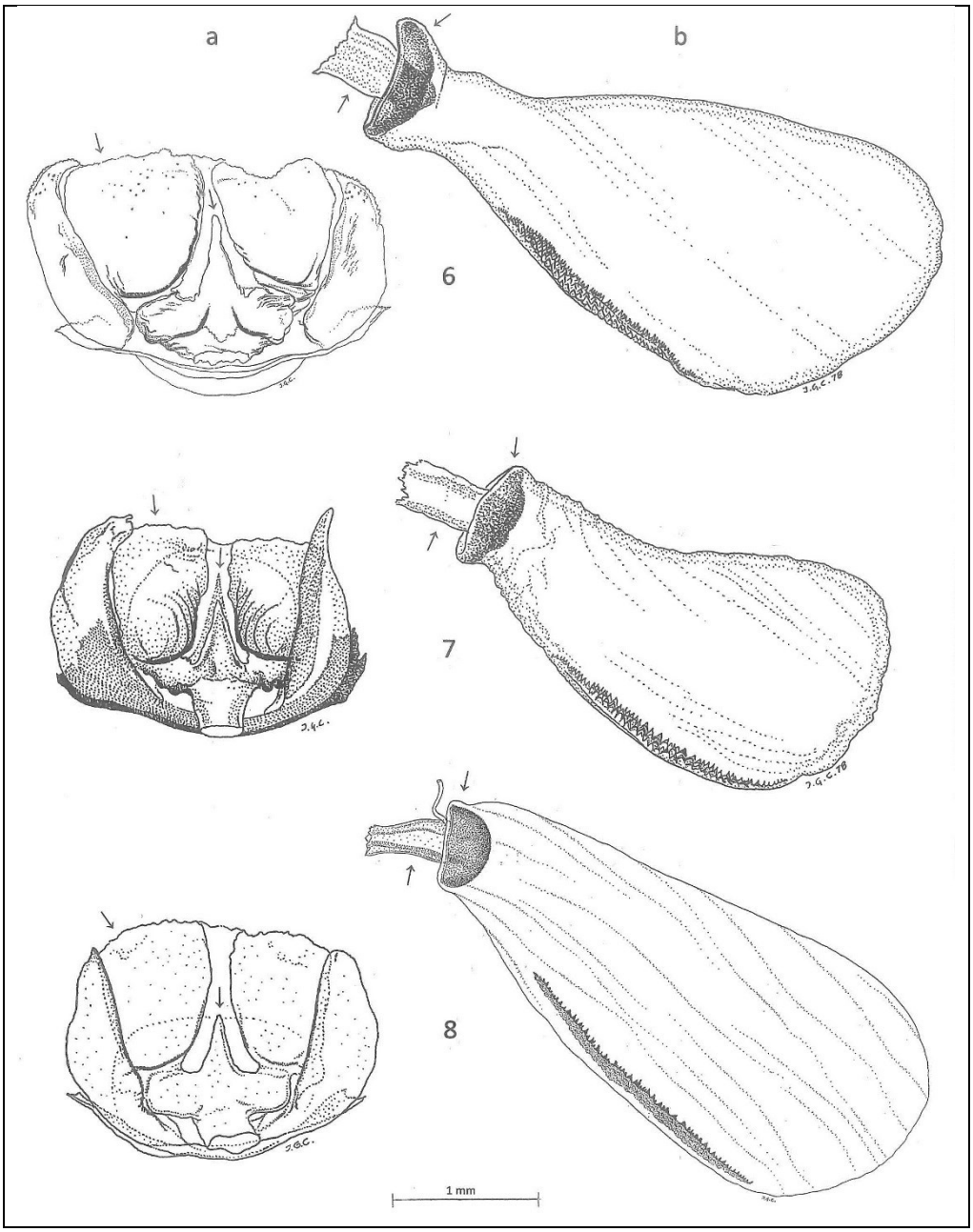
Reassessing the identity of *H.* "*pellucida*" specimens from Lézvos and Ikaría

On the basis of the above finds we are now considering all hitherto published records of *H. pellucida* from Lézvos and Ikaría as representing misidentifications of specimens belonging instead to the *volgensis* / *christenseni* species-complex, and we are therefore excluding *H. pellucida* from the faunal list of European butterflies. But, *pellucida* apart, the final decision as which exactly species the Lézvos / Ikaría material really belongs to must await further research into the genetics of the *volgensis* / *christenseni* species-complex.

The identity of *H. christenseni*

This taxon was originally described as a separate species (Kudrna 1977) on the basis of male genitalic characters, setting it apart from the geographically and phenotypically proximal to it *Hipparchia* (*Parahipparchia*) *cretica* (Rebel, 1916). The author however missed the fact that the male genitalia of *christenseni*, though admittedly different from those of *cretica*, are in fact very close to those of *volgensis*, sharing with them the same proportions, and actually differing from them only in overall size. In fact if one compares the size of the male genitalia of Balkan Mainland *volgensis* to that of those of the Lézvos material and finally to that of those

of *christenseni* and the Ikaría material one notices a north to south ascending cline of similarly-proportioned but differently-sized appendages. At first glance all these points suggest possible conspecificity between the four, but we will at present regard them all as just having between them a close taxonomic relationship.



Figs 6–8. Dorsal aspect of sterigma (a) and lateral aspect of right side of bursa copulatrix minus sterigma (b) of *Hipparchia* (*Parahipparchia*) taxa.

6. *pellucida*, Iraq, Kurdistan, Sarsang.

7. *volgensis delattini*, Greece, Makedhonía, near Flórina.

8. *christenseni*, Greece, Kárpathos Island, Píles.

[Note: corpus bursae distensible, its overall size depending on amount of fluid carried inside it and having no diagnostic significance].

H. "*pellucida*" from the shores of Western Asia Minor: confirmation desirable

This record, involving a single female, was first published by Hesselbarth *et al*. (1995, vol. 2: 906; vol. 3: map 275) and refers geographically to İzmir town (= Smyrna), in İzmir Province. The identification of the specimen at hand was made on the basis of its genitalia, but the female appendages of both *H. pellucida* as well as *H. volgensis* and *H. christenseni* are in all respects identical with each other (Figs 6–8), all three having both a sterigma with large dorsal lamellae and a variable-in-length triangular mid-dorsal process tapering to an acutely pointed extremity, as well as a ductus bursae whose bend, when the component is viewed laterally, is hidden from view by the overlapping sides of the cup-shaped, heavily sclerotized pad located at the distal tip of the corpus bursae. Differences in the size of their stretchable corpus bursae are due to the amount of liquid matter contained in them and are of no diagnostic value. It therefore becomes obvious that it would require the study of the genitalia of a male individual in order to support the identification of this specimen as an uncontestable *H. pellucida*. Until this is carried out we are considering this record invalid.

[Note: for the terminology of the female genitalia please refer to Coutsis (1983)].

Discussion

The existence on Lézvos and Ikaría of *volgensis* / *christenseni* species-group taxa instead of *pellucida* appears more normal than having on these islands the latter species, known for its more easterly range (Bolu Province in Turkey and eastwards to Iraq, Iran, etc.). The first of the former two, *volgensis*, inhabits the Balkan Peninsula, ranging eastwards into Bulgarian and Turkish Thrace, from where, being in close proximity to the Dardanelles, it may have invaded western Asia Minor, and then spread over to Lézvos, an island generally possessing a butterfly fauna of purely Asiatic origin. The second of the former two, *christenseni*, inhabits the island of Kárpathos, located roughly midway between Kríti (= Crete) and the south-western coastline of Asia Minor and being in line with a series of other islands and submerged ridges that form a chain that ends northwards in the island of Ikaría. As this chain formed in the long past a continuous land-belt, most certainly also geologically united with Asia Minor as well, it makes sense that Ikaría should possess a *Hipparchia* morph that appears by genitalia identical to *christenseni*.

In view of all that has been said above it becomes obvious that a lot more work needs to be done in order to better understand the *Hipparchia* (*Parahipparchia*) situation in the western part of Asia Minor, hopefully to be soon carried-out by other lepidopterists.

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