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The *Pyrgus alveus*-complex in Greece (Lepidoptera: HesperIIDae)

John G. Coutsis & Willy De Prins

Abstract. The existence in Greece of two separate morphs by external characters, but identical by male genitalia, in the *Pyrgus alveus* species-group complex is presented, and the probability that they may represent two distinct species is discussed.

Samenvatting. De *Pyrgus alveus*-groep in Griekenland (Lepidoptera: HesperIIDae)
In Griekenland komen twee groepen uit het complex van *Pyrgus alveus* voor die onderscheiden kunnen worden met uiterlijke kenmerken, maar identiek zijn in de mannelijke genitalia. De mogelijkheid dat het om twee aparte soorten gaat, wordt besproken.

Résumé. Le complexe de *Pyrgus alveus* en Grèce (Lepidoptera: HesperIIDae)
En Grèce il y a deux groupes dans le complexe de *Pyrgus alveus* qui sont séparables par des caractères morphologiques externes, mais qui sont identiques en ce qui concerne les genitalia mâles. La possibilité qu'il s'agisse de deux espèces différentes est discutée.

Key words: Greece – Lepidoptera – HesperIIDae – *Pyrgus* – *Pyrgus alveus alveus* – *Pyrgus alveus iliensis* – Taxonomy – Faunistics

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Introduction

In over 50 years collecting in Greece by the first author it has been found that in that country the *Pyrgus alveus* (Hübner, [1803])-complex, apart from including the distinct by male and female genitalia *Pyrgus armoricanus* (Oberthür, 1910), also contains two morphs with identical *P. alveus*-type male genitalia, but with different external characters, the first one being similar in all respects to nominotypical *P. alveus*, and ranging from the north-central to the northern part of the country, while the other resembling to a high degree *P. alveus iliensis* (Reverdin, 1912), and ranging from the southern to the north-central part of the country. A description of *P. alveus iliensis* is included in de Jong (1972: 92), and figures of it in De Prins & van der Poorten (1955: 7, figs. 3, 4). For practical purposes the former morph will henceforth be referred to as the *P. alveus*-morph and the latter as the *P. iliensis*-morph. It must be born in mind, however, that by doing so no implication is being made that the *P. iliensis*-morph is in any way an actual *P. alveus iliensis*.

Greek material studied

P. alveus-morph

44♂, 3♀ (coll. Coutsis), 11♂, 2♀ (coll. Ghavalás), 11♂, 3♀ (coll. Anastassiú).

P. iliensis-morph

10♂ (coll. Coutsis), 1♀ (coll. Ghavalás).

P. alveus-morph

Diagnosis

Male (figs. 1–3). (3 males also figured in De Prins & van der Poorten (1995: 10, pl. 1, figs. 1–3).

Wings: FW 13.5–18 mm in length, usually broad. Upper side: ground-colour dark blackish brown, spattered with few, dispersed, whitish scales evident only microscopically; FW whitish spots usually small, postdiscal one in S1b usually roundish. HW submarginal light spots faint, often barely visible; postdiscal light markings faint, ranging from barely visible (fig. 1) to quite evident (fig. 3), the latter figure representing a specimen with the most evident ones in our whole series of 66 males, and recorded in a locality totally devoid of the *P. iliensis*-morph; variability of these light markings well within the range of that of other *Pyrgus* species-group taxa in Greece, such as *P. armoricanus*, *P. serratulae* (Rambur, [1839]), *P. carthami* (Hübner, [1813]).

Genitalia: valva (fig. 11) as in nominotypical *P. alveus*.

Female (fig. 13)

Wings: as in male.

Genitalia (fig. 15): as in nominotypical *P. alveus*, characterized by the presence of two ventral pre-vaginal plates.

Bionomics

Locality records (map fig. 18, black circles): Makedonía (Mts. Varnús, Vítsi, Falakró, Kaimáktsalan, Zéna, Píramída, Lailiás, Béles; Rodópi range; Livaderó); Ípiros (S Píndos range, (Katára pass, Mts. Tzumérka, Lákmos; near Métsovo)); Thessalía (S Píndos range: Amárandó, Tría Potámia, Mt. Kóziakas).

Flight altitude: 800–1500 m, exceptionally –2000 m.

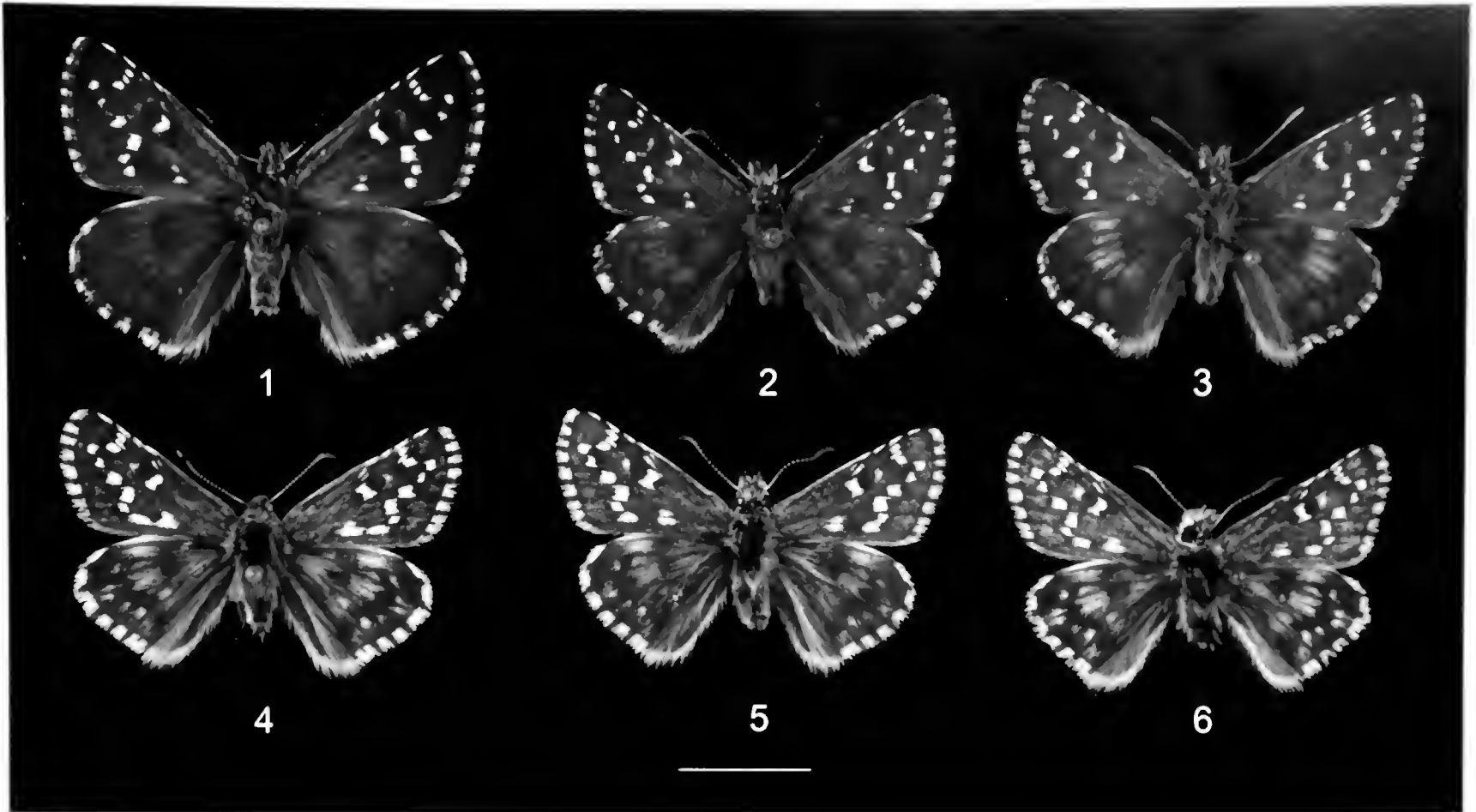
Flight period: end June – mid August.

Habitat: openings in deciduous, coniferous and mixed forests; at high altitudes occasionally straying into more open, treeless areas.

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Figs. 1–6. Upper side of male *P. alveus* species-group specimens from Greece. 1–3. *P. alveus*-morph, Macedonia. 1, 3. Flórina district, Mt. Varnús. 1. 1350 m, 30.vi.1990. 3. 1250 m, 20.vii.1991. 2. Dráma district, Mt. Falakró, 1600 m, 6.viii.1999. 4–6. *P. iliensis*-morph, Pelopónnisos, Mt. Ziria. 4, 5. 1650 m, 17.vii.2003. 6. 2000 m, 23.vii.2011. Scale bar = 1 cm.



Fig. 7. Male *P. cinarae* from Greece (reproduced from De Prins & van der Poorten (1995: 10, pl. 1, fig. 4, erroneously identified as *P. alveus*). Macedonia, Dráma district, Mt. Falakró, 550 m, 9.viii.1983. Natural size.



Figs. 8–10. Male *P. cinarae* from Greece, Macedonia, Flórina district. 8. Kristalopigi, 1000 m, 3.vii.1995. 9, 10. Mt. Varnús. 9. 1100 m, 13.vii.1993. 10. 1250 m, 20.vii.1991. Scale bar = 1 cm.

P. iliensis-morph

Diagnosis

Male (figs. 4–6). (2 males also figured in De Prins & van der Poorten 1995: 10, pl. 1, figs. 5, 6).

Wings: FW 13–15 mm in length, usually elongated. Upper side: both wings quite heavily peppered with whitish scales (feebly evident macroscopically, and very obvious microscopically), making ground-colour appear greyish-brown; FW whitish spots usually large, postdiscal one in S1b usually oblong; HW light markings complete and well defined.

Genitalia: valva as in nominotypical *P. alveus* (Fig. 12), but specimens with short styles more usual than in *P. alveus*-morph.

Female (fig. 14).

Wings: the single specimen at hand differs from the male by a reduction of the whitish scale suffusion upper side, and the less evident, or absent, HW light markings, resembling quite closely *P. armoricanus*, but having a more elongated FW than the latter does. As, however, this specimen is somewhat worn (microscopically left FW upper side whitish scale suffusion almost completely rubbed off, right FW partly so), it cannot be described with any higher degree of accuracy.

Genitalia (fig. 16): as in nominotypical *P. alveus*. Distinguished from the quite similar by external characters and syntopic *P. armoricanus*, by the two ventral, pre-vaginal plates, always absent in the latter (fig. 17).

Bionomics

Locality records (map fig. 18, black triangles): Pelopónnisos (Mts. Zíria, Helmós); Stereá Ellás (Mts.

Ágrafa, Vardússia, Kaliakúda, Gióna); Ípiros (S Píndos range: Mt. Tzumérka).

Flight altitude: 1400–2000 m.

Flight period: July – mid August (based on 10 males and a single female only; flight period probably starts end June).

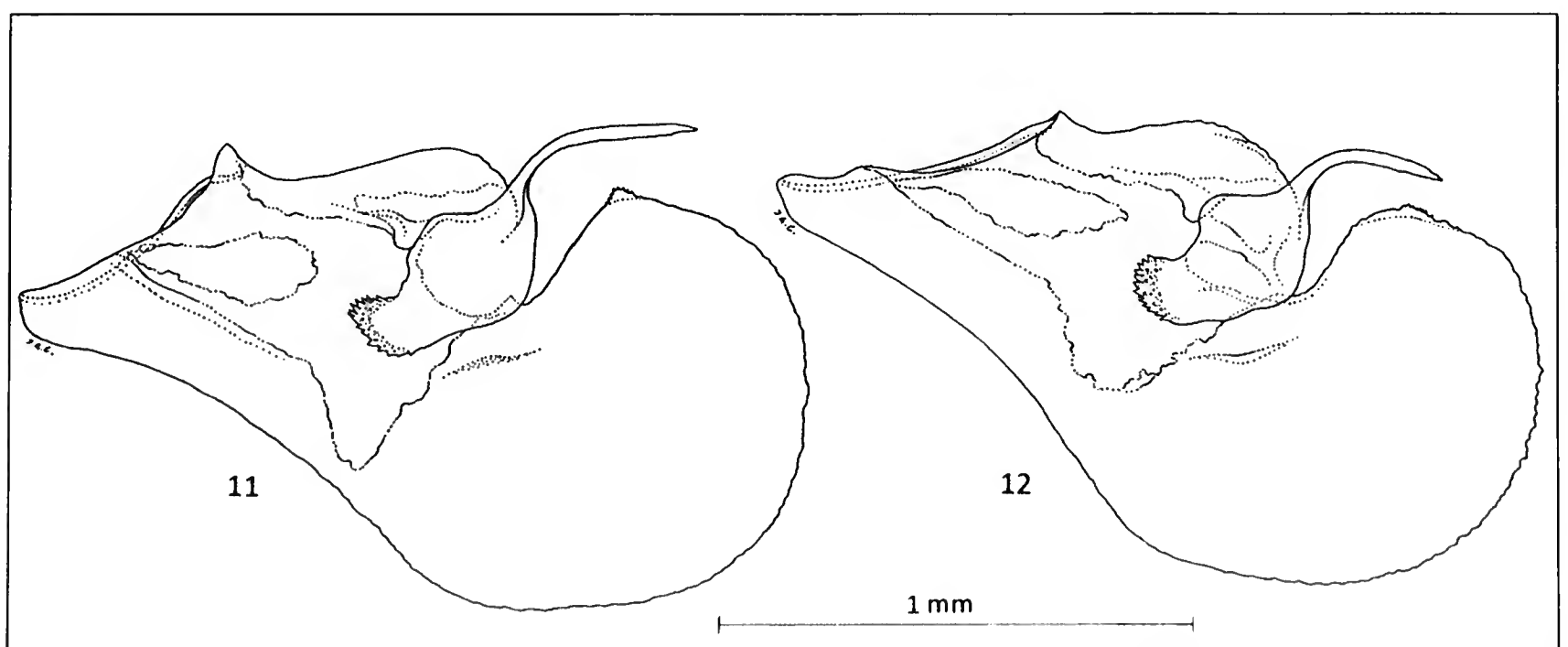
Habitat: exclusively xeric, rocky, with calcareous soil and sparse, bushy vegetation.

Intermediates

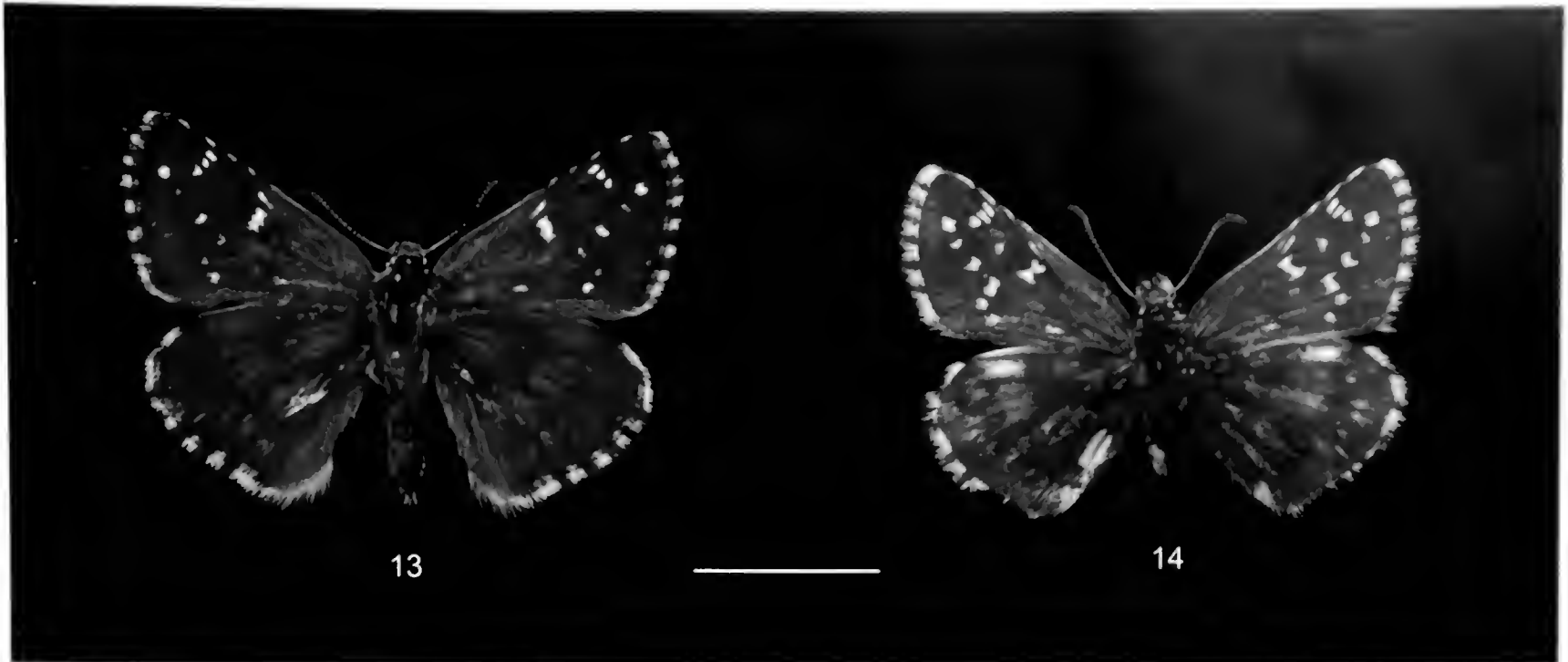
No intermediates between the two morphs have ever been recorded despite probable, occasional syntopism, as attested by the fact that on Mt. Tzumérka a *P. alveus*-morph specimen was recorded in *P. iliensis*-morph territory. The single male considered as an intermediate between the two in De Prins & van der Poorten (1995: 10, pl. 1, fig. 4), and reproduced here (fig. 7), is actually a *P. cinarae* (Rambur, [1839]), as can be seen by comparing it with three confirmed *P. cinarae* (figs. 8–10), and therefore should not have been used as a criterion for lumping together the *P. alveus*-morph and the *P. iliensis*-morph under *P. alveus alveus*.

Conclusion

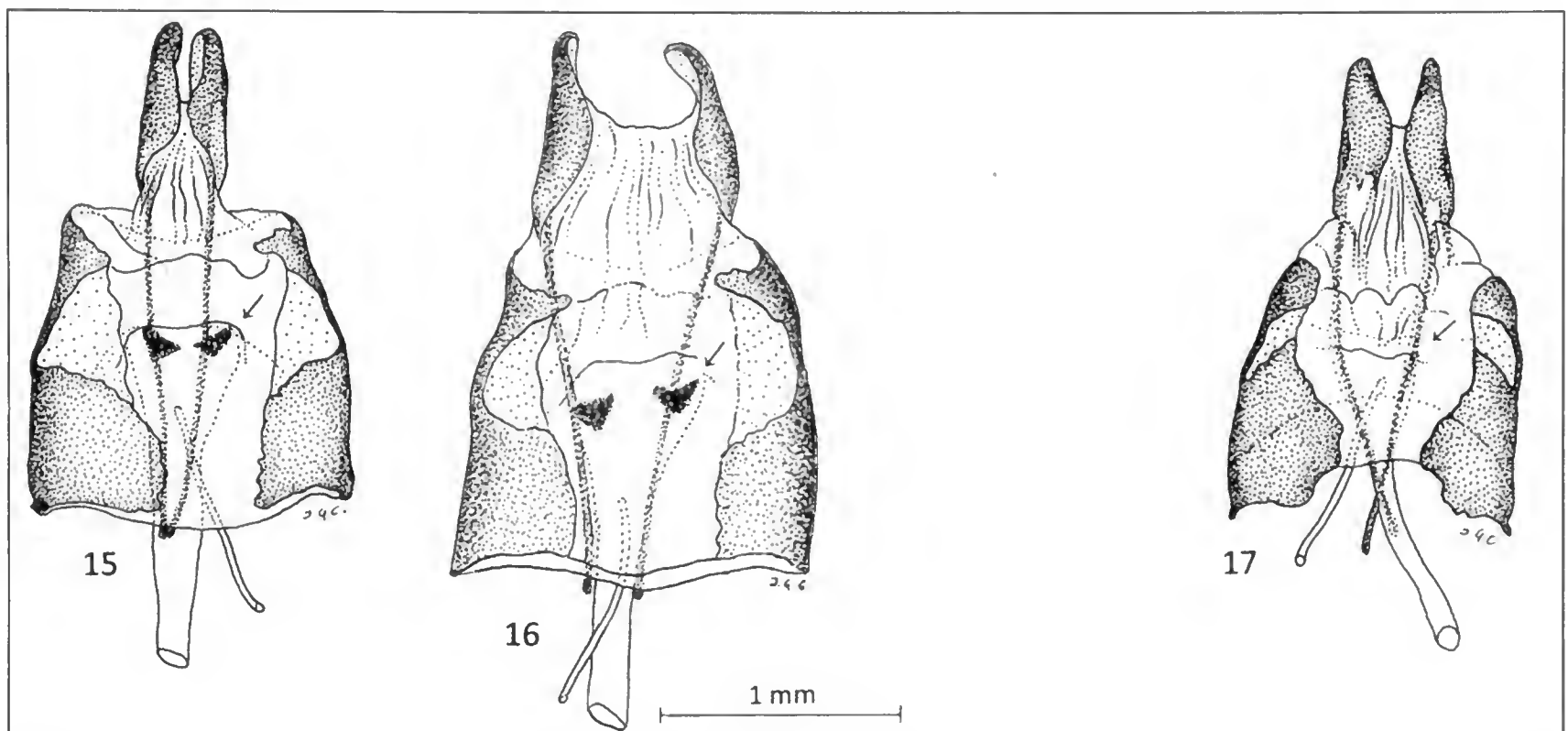
The constant external character differences between the two morphs under consideration, the lack of intermediates between them, despite occasional invasion of one morph into the other's territory, and their different habitat requirements, all are points suggesting that they probably represent two distinct species. A definitive answer to this hypothesis, however, must await knowledge of their chromosome number and karyotype, their DNA sequencing, as well as their immature stages and their breeding habits.



Figs. 11, 12. Lateral aspect of inner face of right valva of *P. alveus* species-group specimens from Greece. 11. *P. alveus*-morph. Makedonia, Flórina district, Mt. Varnús, 1250 m, 20.vii.1991. 12. *P. iliensis*-morph. Pelopónnisos, Mt. Zíria, 1650 m, 17.vii.2003.



Figs. 13, 14. Upper side of female *P. alveus* species-group specimens from Greece. 13. *P. alveus*-morph, Makedonia, Flórina district, Mt. Vítsi, 1350 m, 5.vii.1995. 14. *P. iliensis*-morph, Pelopónnissos, Mt. Helmós, 1700 m, 28.vii.2000. Scale bar = 1 cm.



Figs. 15–17. Ventral aspect of external genital elements of female *Pyrgus* specimens from Greece. 15, 16. *P. alveus* species-group specimens 15. *P. alveus*-morph, Ípiros, S Píndos range, near Katára pass, 1450 m, 5.vii.1971). 16. *P. iliensis*-morph, Pelopónnissos, Mt. Helmós, 1700 m, 28.vii.2000. 17. *P. armoricanus*, Makedonía, Dráma district, Mt. Falakró, 700 m, 6.viii.1982.

Biogeography

The distribution in Greece of the two *P. alveus* species-group morphs suggests that the *alveus*-morph most probably invaded that country from Central Europe, having found no geographic barriers along its expansion from north to south (the mountainous backbone of Greece, the Píndos range, extends in a north to south direction, and cannot act as a barrier). The fact that it did not expand any further south than northern and north-central Greece is probably due to the absence of suitable habitats to the south of these areas. The *P. iliensis*-morph, on the other hand, appears to have reached the Pelopónnissos from Asia Minor, probably at a time when Asia Minor and Greece were still geographically united, and the Aegean Sea had not yet been fully formed. Its northern expansion, reaching no further than north-

central Greece, suggests probable lack of suitable habitats to the north of that area. There exist a number of other Greek butterflies supporting the hypothesis of an invasion to the Pelopónnissos from Asia Minor, these being *Lycaena thetis* Klug, 1834, *Turanana taygetica* (Rebel, 1902), *Kretania eury pylus* (Freyer, [1851]), *Neolysandra coelestina* (Eversmann, 1843) and *Polyommatus (Agrodiaetus) iphigenia* (Herrich-Schäffer, [1847]), two of which, *L. thetis* and *N. coelestina*, were eventually able to expand northwards to central Mainland Greece. Finally, it is of interest to note that in Asia Minor there exist *P. alveus* species-group morphs that resemble to some extent the *P. iliensis*-morph, one such being *Pyrgus aladaghensis* De Prins & van der Poorten, 1995 (De Prins & van der Poorten 1995: 36–39, pl. 5, figs. 17–19, 25–27).

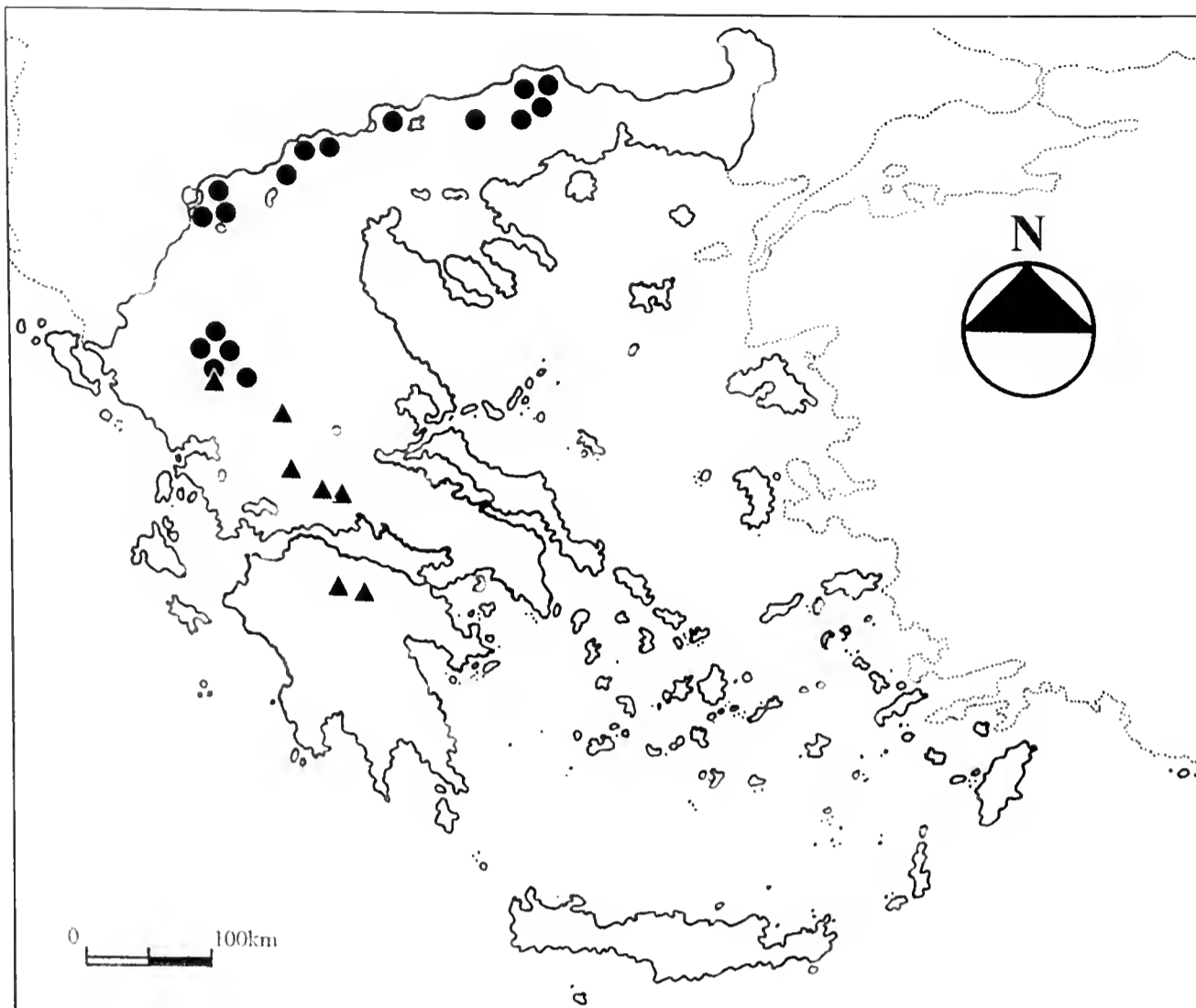


Fig. 18. Distribution map of *P. alveus*-morph (black circles) and *P. iliensis*-morph (black triangles) in Greece.

Acknowledgments

We are deeply grateful to Nick Ghalalás and Dr. Hrístos Anastassiú for having placed at our disposal all *P. alveus* species-group specimens in their collections, and

provided bionomic information; to the former also for allowing us to dissect the single female *P. iliensis*-morph in his possession. Our sincerest thanks are also due to Dr. Rienk de Jong for having reviewed this paper and given important advice.

References

- de Jong R. 1972. Systematics and geographic history of the genus *Pyrgus* in the Palearctic region (Lepidoptera, Hesperiiidae) — *Tijdschrift voor Entomologie* **113**(1): 1–121, 6 pls.
- De Prins W. O. & van der Poorten D. 1995. Rhopalocera and Grypocera of Turkey 14. Taxonomic revision of the *Pyrgus alveus* (Hübner, [1803]) complex from Greece to West China, with description of two new species from southern Turkey (Lepidoptera: Hesperiiidae) — *Phegea* **23**(1): 1–44.

Parectopa robiniella (Lepidoptera: Gracillariidae), a leafminer of black locust *Robinia pseudoacacia*, new to the Belgian fauna

Jean-Yves Baugnée

Abstract. Some mines of *Parectopa robiniella* Clemens, 1863 (Lepidoptera: Gracillariidae) were found on 17 August 2007 on *Robinia pseudoacacia* L. (Fabaceae) in the valley of the river Lesse at Hour (Province of Namur). It is the first time that this Nearctic species was found in the Benelux. Information on the biology and distribution of this species are provided.

Résumé. *Parectopa robiniella* (Lepidoptera: Gracillariidae), une espèce mineuse du robinier faux-acacia *Robinia pseudoacacia* nouvelle pour la faune belge

Le 17 août 2007, quelques mines de *Parectopa robiniella* Clemens, 1863 (Lepidoptera: Gracillariidae) ont été trouvées sur *Robinia pseudoacacia* L. (Fabaceae) dans la vallée de la Lesse à Hour (province de Namur). C'est la première fois que cette espèce néarctique est signalée dans un pays du Benelux. Les informations relatives à la biologie et à la répartition du papillon sont résumées.

Samenvatting. *Parectopa robiniella* (Lepidoptera: Gracillariidae), een bladmineerder op witte acacia *Robinia pseudoacacia*, nieuw voor de Belgische fauna

Op 17 augustus 2007 werden enkele bladmineerders van *Parectopa robiniella* Clemens, 1863 (Lepidoptera: Gracillariidae) op *Robinia pseudoacacia* L. (Fabaceae) gevonden in de vallei van de Lesse te Hour (provincie Namen). Het is de eerste maal dat deze Nearctische soort uit de Benelux wordt vermeld. Details over de levenswijze en de verspreiding worden gegeven.

Key words: *Parectopa robiniella* – Lepidoptera – Gracillariidae – Alien species – Belgium – Faunistics – Leafminer – *Robinia*.

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On 17 August 2007 some leaf mines of *Parectopa robiniella* Clemens, 1863 (fig. 1) were found on black locust *Robinia pseudoacacia* L. (Fabaceae) in the valley of the river Lesse at Hour (Hour, province of Namur). The site is located along the bike trail occupying an old railroad, at an altitude of about 140 m a.s.l. Our identification was kindly confirmed by Willem Ellis. It's the first record of the species for Belgium and the second Belgian member of the genus *Parectopa*, in addition to *Parectopa ononidis* (Zeller, 1839). That increases the number of Belgian Gracillariidae to 100 species (De Prins & Steeman 2010).



Figure 1. *Parectopa robiniella* Clemens, 1863, Belgium, Namur, Hour, 17.viii.2007, mine on *Robinia pseudoacacia*, leg. and photo J.-Y. Baugnée.

Parectopa robiniella is a native moth species to North America (USA and Canada) that has been accidentally introduced in Europe where it was recorded for the first time in Northern Italy in 1970 (Vidano 1970). It then

spread gradually throughout South and Central Europe (Table 1). Its occurrence is reported from Austria, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Italy, Lithuania, Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine (Olivella 2001; De Prins & De Prins 2010; Buszko 2010; Lopez-Vaamonde *et al.* 2010). Lately, the species is also mentioned from Russia (Gninenko 2009). In France the first record come from Alpes de Haute-Provence in 1986 (Martinez & Chambon 1987). More recent observations are provided from the department of Gironde (Laguerre 1999; Laguerre & Dauphin 2007). Here, the moth was very abundant in various localities in 2000 and it was difficult to find black locusts which were free of mines. Three years later, however, the mines have become extremely rare everywhere (M. Laguerre, in litt). In Germany *Parectopa robiniella* was found from 2000 in Brandenburg, then in 2007 in Baden-Württemberg and Saarland and in 2008 in Bavaria and Rhineland-Palatinate (see Lepiforum). It has not yet been observed in The Netherlands, Great-Duchy of Luxembourg, Fennoscandia and the British Isles.

Within its native area *Parectopa robiniella* is an oligophagous leafminer on several woody Fabaceae: *Robinia pseudoacacia* L., *Robinia hispida* L., *Robinia viscosa* Vent., *Amorpha fruticosa* L., *Desmodium* sp., *Galactia volubilis* (L.) Britt. and *Meibomia* sp. (see De Prins & De Prins 2010). In Europe, this alien species appears to be restricted to *Robinia pseudoacacia* (Ellis 2007). Since its appearance on the continent, the moth is regarded as a pest and is the subject of numerous ecological and biological studies, particularly in Italy, Hungary and other countries where the black locust has a great importance in forestry or apiculture (i.e. Bolchi

Serini 1990; Olivella 2005; Lakatos *et al.* 2006; Fodor & Hâruța 2009; Csóka *et al.* 2009). There are two or three annual generations, adults flying from May until September. The female lays its eggs on the underside of the leaf of the foodplant. The young larva causes a small irregular white mine in the angle of midrib with one lateral vein. Later it makes a characteristic white “amoeba-like” blotch mine on the upper surface of leaflets, which always includes the midrib of these (see Csóka 2003). The shape of this mine is at the origin of the English name “locust digitate leaf miner” given to the species. The greenish larva lives solitarily and, unlike most leafminer moths, it defecates outside its mine. Pupation takes place outside the mine, in a white cocoon attached to foliage, or hidden in the litter in the case of the autumnal generation (Csóka 2003; Ellis 2007).

Table 1. Progress of the colonization of *Parectopa robiniella* in Europe.

Country	Year	Reference
Italy	1970	Vidano (1970)
Switzerland	1971	Sauter (1981)
Slovenia	1982 ?	Macek (1984)
Croatia	1982 ?	Igrc & Maceljki (1983)
Hungary	1983	Maceljki & Igrc (1984)
France	1986	Martinez & Chambon (1987)
Romania	1988	Ureche (2006)
Slovakia	1989	Kulfan (1989)
Austria	1990	Huemer <i>et al.</i> (1992)
Czech Republic	1992 ?	Huemer (1993)
Bulgaria	?	
Poland	?	
Ukraine	?	?
Serbia	1994	Mihajlović <i>et al.</i> (1994)
Germany	2000	Stübner in Lepiforum (2010)
Spain	2001	Olivella (2001)
Russia	2007	Gninenko (2009)
Lithuania	2007	Ivinskis & Rimšaitė (2008)
Belgium	2007	Baugnée, this paper

Predators of *Parectopa robiniella* are especially passerine birds, bush-cricket, bugs and other insects. A number of parasitoid wasps (over 15 species) have been recorded from this moth, mainly belonging to the family of Eulophidae, most of these species are native from Europe, widely distributed and polyphagous (Bolchi Serini 1990; Csóka *et al.* 2009; see also De Prins & De Prins 2010). In Italy, the Nearctic Eulophidae *Closterocerus cinctipennis* Ashmead, 1888 was used since the beginning of the invasion to limit the moth

populations, which causes massive defoliation of black locust (Vidano & Marletto 1972).

As reviewed by De Prins & De Prins (2010), eight species of Gracillariidae are recorded in the world as leafminers on *Robinia pseudoacacia*, four of which are confined to North America and two were imported from this region into Europe, namely *Parectopa robiniella* and *Macrosaccus robiniella* (Clemens, 1859). Introduced on the European continent in early 1980, *Macrosaccus robiniella* was discovered for the first time in Belgium in 2001 where it at present occurs throughout (De Prins & Groenen 2001; De Prins & Steeman 2010). Its larva makes a white oval mine on the lower leaf surface, very distinct and easily recognizable from that of *Parectopa robiniella* (see for example Csóka 2003 and Lepiforum). A native species in Europe, *Phyllonorycter insignitella* (Zeller, 1846), has been cited from black locust in Russia (Kuznetsov & Baryshnikova 1998, in De Prins & De Prins 2010) but this maybe accidental (host plants are mainly herbaceous Fabaceae such as *Trifolium* and *Medicago*). In addition, another native leafminer, *Incurvaria pectinea* Haworth, 1828 (Incurvariidae) was observed for the first time on *Robinia* in 2008 in The Netherlands. Its polyphagous larva lives on various trees and produces a small mine combining short corridor and circular blotch (Ellis 2007).

Like *Macrosaccus robiniella*, it's clear that *Parectopa robiniella* is a new arrival in Belgium but it seems now very rare, contrary to the first moth. Indeed, if the black locust occurs in large part of the country, our recent investigations conducted in many localities of the provinces of Namur, Hainaut and Liège did not produce any positive results, while *Macrosaccus robiniella* was omnipresent. Both species share the same niche and can occur together on the same trees, but their respective cycle and phenology are quite distinct (Fodor & Hâruța 2009). Moreover, *Parectopa robiniella* seems more thermophilous, which could explain why this species spread more slowly towards the North and North-West.

In Belgium, these alien moths can not be treated as pest species because their host plant is also considered as an invasive alien species!

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References

- Bolchi Serini G. 1990. Parassitoidi di *Parectopa robiniella* Clemens e di *Phyllonorycter robiniellus* (Clemens) (Lepidoptera Gracillariidae). — *Bolletino di Zoologia agraria e Bachicoltura* **22**(2): 139–149.
- Buszko J. 2010. *Fauna Europaea: Gracillariidae*. — In: Karsholt O. & van Nieukerken E. J. (eds), *Lepidoptera, Moths. Fauna Europaea, version 2.2* — www.faunaeur.org [accessed 21 November 2010].
- Csóka G. 2003. *Levélaknák és levélaknázók – Leaf mines and leaf miners*. — Erdészeti Tudományos Intézet/Forest Research Institute, Budapest, 192 pp.

- Csóka G., Péntes Z., Hirka A., Mikó I., Matošević D. & George M. 2009. Parasitoid assemblages of two invading black locust leaf miners, *Phyllanarycter rabiniella* and *Parectapa rabiniella* in Hungary. — *Periodicum Biologorum* 111 (4): 405–411.
- De Prins W. & Groenen F. 2001. *Phyllanorycter robiniella*, een nieuwe soort voor de Belgische fauna (Lepidoptera: Gracillariidae). — *Phegea* 29(4): 159–160.
- De Prins J. & De Prins W. 2010. *Global Taxonomic Database of Gracillariidae (Lepidoptera)*. — www.gracillariidae.net [accessed 21 November 2010].
- De Prins W. & Steeman C. 2010. *Catalogue of the Lepidoptera of Belgium*. — www.phegea.org [accessed 21 November 2010].
- Ellis W. N. 2007. *Bladmineerders van Eurapa/Leafminers of Europe*. — www.bladmineerders.nl [accessed 21 November 2010].
- Fodor E. & Hâruga O. 2009. Niche partition of two invasive insect species, *Parectopa rabiniella* (Lepidoptera; Gracillariidae) and *Phyllanarycter rabiniella* (Clem.) (Lepidoptera: Gracillariidae). — *Research Journal of Agricultural Science* 41(2): 261–269.
- Gaedike R., Graf F., Kaiser C., Landeck I., Leutsch H., Nuss M., Stübner A. & Wauer S. 2003. Aktuelle Daten zur Kleinschmetterlingsfauna von Sachsen mit Hinweisen zu anderen Bundesländern (Lep.) IV. — *Entomologische Nachrichten und Berichte* 47: 77–80.
- Gninenko Y. I. 2009. *Invasive organisms in forests of Russia: state and prospects for protection against them*. — VI Congress of Plant Protection (Book II), Zlatibor, 23–27 November 2009, p. 126–132. [in Russian]
- Huemer P., Deutsch H., Habeler H. & Lichtenberger F. 1992. Neue und bemerkenswerte Funde von Kleinschmetterlingen in Österreich. — *Bericht des naturwissenschaftlich-medizinischen Vereins in Innsbruck* 79: 199–202.
- Ivinskis P. & Rimšaitė J. 2008. Records of *Phyllanarycter rabiniella* (Clemens, 1859) and *Parectapa rabiniella* Clemens, 1863 (Lepidoptera, Gracillariidae) in Lithuania. — *Acta Zoologica Lithuanica* 18(2): 130–133.
- Kulfan M. 1989. Occurrence of the American species *Parectopa rabiniella* (Clemens) (Lepidoptera, Gracillariidae) in South Slovakia. — *Biolgia* 44(2):185–188.
- Laguerre M. 1999. Sur quelques Lépidoptères hétérocères peu connus ou nouveaux pour la Gironde. 3ème note. — *Bulletin de la Société Linnéenne de Bordeaux* 27(2): 87–94.
- Laguerre M. & Dauphin P. 2007. Présence en France d'*Obaladiplosis robiniae* (Haldemann) (Diptera Cecidomyiidae), gallicole sur *Robinia pseudoacacia* L. (Fabaceae). — *Bulletin de la Société Linnéenne de Bordeaux* 35(3): 291–296.
- Lakatos F., Kovács Z., Stauffer C., Kenis M., Tomov R. & Davis D. R. 2006. — *Proceedings International Symposium of IUFRO Kanazawa 2003 "Forest Insect Population Dynamics and Host Influences"*, 14–19 September 2003, Kanazawa University, Japan: 67–71.
- Lepiforum e.V. 2010. *Bestimmungshilfe für die in Eurapa nachgewiesenen Schmetterlingsarten*. — www.lepiforum.de [accessed 21 November 2010].
- Lopez-Vaamonde C., Agassiz D., Augustin S., De Prins J., De Prins W., Gomboc S., Ivinskis P., Karsholt O., Koutroumpas A., Koutroumpa F., Laštůvka Z., Marabuto E., Olivella E., Przybyłowicz L., Roques A., Ryrholm N., Sefrova H., Sima P., Sims I., Sinev S., Skule B., Tomov R., Zilli A. & Lees D. 2010. Lepidoptera. Chapter 11. — In: Roques A., Kenis M., Lees D., Lopez-Vaamonde C., Rabitsch W., Rasplus J.-Y. & Roy D. (eds), *Alien terrestrial arthropods of Europe*. — *BioRisk* 4(2): 603–668.
- Maceljski M. & Igrc J. 1984. Bagremov miner *Parectapa rabiniella* (Clemens) u Jugoslavii. — *Zaštita Bilja* 35(4): 323–331.
- Martinez M. & Chambon J.-P. 1987. Note sur la présence en France de *Parectapa rabiniella* (Clemens), la mineuse américaine des feuilles de robinier (Lepidoptera, Gracillariidae). — *Nouvelle Revue d'Entomologie* 4(3): 323–328.
- Olivella E. 2001. *Phyllanarycter rabiniella* (Clemens, 1859) arriba a la península Ibérica (Lepidoptera: Gracillariidae). — *Butlletí de la Societat Catalana de Lepidopterologia* 87: 35–38.
- Olivella E. 2005. Biologia de dues espècies minadores de la fulla de *Robinia pseudoacacia* a Catalunya (Lepidoptera: Gracillariidae). — *Resums Sessia Conjunta d'Entomologia ICHN-SCL* 13(2003): 3–11.
- Sauter W. 1981. Interessante Neufunde von Microlepidopteren aus der Schweiz und Süddeutschland. — *Nata lepidopterologica* 4: 103–106.
- Ureche C. 2006. *Invasive leaf miner insects in Ramania*. — IUFRO Working Party 7.03.10. Proceedings of the Workshop on "Methodology of Forest Insect and Disease Survey in Central Europe", 11–14 September 2006, Gmunden, Austria: 259–262.
- Vidano C. 1970. Foglioline di *Robinia pseudoacacia* con mine di un Microlepidottero nuovo per l'Italia. — *L'Apicoltura Moderna* 61(10): 1–2.
- Vidano C. & Marletto F. 1972. Prospettive di lotta biologica contro il minatore di foglie di Robinia *Parectapa rabiniella*. — *Annali della Facoltà di Scienze Agrarie, Università di Tarina* 7: 417–424.

The Butterflies and Skippers of the North-Aegean Islands of Híos, Psará and Lésvos (Greece). New observations and an update on their distribution (Papilionoidea & Hesperioidea)

Sylvain Cuvelier

Abstract. Recent fieldwork by different entomologists and research on the internet clearly indicate the need for an update concerning the butterfly and skipper species of the North-Aegean Islands of Híos, Lésvos and Psará. The data provided in this study, include species new for these islands as well as confirmation of some poorly documented species. *Pelopidas thrax* (Hübner, 1821) is recorded for the first time from Híos and confirmed for Lésvos. During this survey, 6 new species were recorded for Psará. *Cupido osiris* (Meigen, 1829) is reported as new to Híos and *Issoria lathonia* (Linnaeus, 1758) needs confirmation for the same island. For the first time, *Lycaena thersamon* (Esper, 1784) and *Brenthis daphne* (Bergsträsser, 1780) are being recorded here for Lésvos. An update is provided concerning *Gegenes* and the distribution of the *Maniola* taxa is discussed. Finally, an overview of the distribution of the butterfly and skipper species of these North-Aegean Islands is provided.

Samenvatting. De Dagvlinders en Dikkopjes van de Noord-Egeïsche eilanden Híos, Psará en Lésvos (Griekenland). Nieuwe observaties en een overzicht betreffende hun verspreiding (Papilionoidea & Hesperioidea)

Recent veldwerk van meerdere entomologen en onderzoek op het internet tonen duidelijk de nood aan voor een update over de soorten dagvlinders in de Noord-Egeïsche eilanden Híos, Lésvos en Psará. In deze studie worden gegevens opgenomen over soorten die nieuw zijn voor deze eilanden alsook bevestiging gegeven van sommige, slecht gedocumenteerde soorten. *Pelopidas thrax* (Hübner, 1821) wordt voor het eerst gemeld van Híos en bevestigd voor Lésvos. Gedurende dit onderzoek werden voor Psará 6 nieuwe soorten opgetekend. *Cupido osiris* (Meigen, 1829) is nieuw voor Híos en *Issoria lathonia* (Linnaeus, 1758) moet er bevestigd worden. Voor het eerst, worden *Lycaena thersamon* (Esper, 1784) en *Brenthis daphne* (Bergsträsser, 1780) hier vermeld in de literatuur voor Lésvos. Betreffende *Gegenes* wordt een actualisatie gegeven en de verspreiding van de soorten *Maniola* wordt besproken. Ten slotte wordt een synthese over de verspreiding van de dagvlinders van deze Noord-Egeïsche eilanden voorzien.

Résumé. Les Papillons de jour et les Hespérides des îles égéennes du Nord, Híos, Psará et Lésvos (Grèce). Nouvelles observations et mise à jour de leur distribution (Papilionoidea & Hesperioidea)

Des travaux récents sur le terrain par plusieurs entomologistes et une recherche sur internet montrent clairement la nécessité d'une mise à jour concernant la distribution des papillons dans les îles égéennes du Nord, Híos, Psará et Lésvos. Dans cette étude, des données sont fournies incluant des espèces nouvelles pour ces îles ainsi que la confirmation pour certaines espèces qui n'étaient pas bien documentées. *Pelopidas thrax* (Hübner, 1821) est mentionné pour la première fois de Híos et est confirmé pour Lésvos. Au cours des recherches 6 espèces nouvelles pour Psará ont été relevées. *Cupido osiris* (Meigen, 1829) est nouveau pour Híos et *Issoria lathonia* (Linnaeus, 1758) devra y être confirmé. Pour la première fois dans la littérature, *Lycaena thersamon* (Esper, 1784) et *Brenthis daphne* (Bergsträsser, 1780) sont mentionnés avec certitude de Lésvos. Une mise à jour est effectuée à propos des *Gegenes* et la distribution des différentes espèces de *Maniola* est commentée. Enfin, une synthèse de la distribution des papillons de ces îles égéennes du Nord est établie.

Key words: Greece – North-Aegean Islands – Híos – Psará – Lésvos – Rhopalocera – Papilionoidea – Hesperioidea – *Thymelicus acteon* – *Gegenes pumilio* – *Gegenes nostradamus* – *Pelopidas thrax* – *Pieris krueperi* – *Pontia edusa* – *Colias croceus* – *Lycaena thersamon* – *Lampides boeticus* – *Cupido osiris* – *Pseudophilotes vicrama* – *Charaxes jasius* – *Vanessa atalanta* – *Issoria lathonia* – *Brenthis daphne* – *Maniola jurtina* – *Maniola megalis* – distribution – faunistics.

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Introduction

Lésvos and Híos (with the adjacent small islands Inússes, Psará and Antípsara) are two of the largest, set apart North-Aegean Islands (Fig. 1). South of Híos there are two other Greek islands: Sámos and Ikaría. Situated north of Lésvos are the Greek islands of Thássos, Límnos and Samothráki plus the Turkish ones of Imbros, Tenedos and Tavşan Islands.

Lésvos is the third largest Greek island (1632 km²) and on its NE side its least distance from Turkey is only 5.5 km. Two unequal gulfs with very narrow openings to the Aegean Sea, the gulfs of Kalloní and Yéra, divide the island into three parts and are considered as being a local expression of a regional extension (Soulakellis et al. 2006). The northern part of the island is dominated by Óros Lepétimnos (968 m) and its western part by Profítis

Ilías (799 m), both of volcanic origin. The southeastern part consists of ophiolites, crystalline limestone and metamorphic rock and is dominated by Óros Ólimbos (967 m). Neocene and quaternary sediments are present in the gulfs and plains formed by the main river valleys.

Fifty kilometers south of Lésvos lies the island of Híos, the fifth largest of the Greek islands (842 km²), which is located to the west of and at a least distance of only 7 km from the Karaburun peninsula on the Turkish mainland. A ridge of mountains runs the length of the island. Óros Pellinéon (1297 m), the highest peak, is situated in the northern part of the island. The southwestern to the northeastern part of Híos consists of limestone and dolomites. Óros Amaní (806 m) rises on the northwestern edge of the island and is composed mainly of clastic rock. The lower, southeastern part of the island consists of fluvial-lacustrine deposits. Inússes,

a cluster (18 km²) of one larger and some surrounding smaller islands, is located between the northeast coast of Híos and Turkey.

The small island of Psará (44 km²) is located ca. 19 km west of Híos. The southwestern part is low. The highest point, Ághios Ilías (531 m), is situated in the northern part of the island. Metasedimentary rock systems are predominant in Psará. For a long time they were of unknown stratigraphic age and uncertain affiliation: “Mountrakis *et al.* (1983) correlated both units of Psará with the Subpelagonian Zone of continental Greece,

whereas Wallbrecher (cited by Dürr & Jacobshagen 1986) favoured an affiliation to successions from the southern Pílion peninsula and the northern Sporades of the Pelagonian Zone”.

Recent research now indicates that Híos and its surrounding islands of Inússes and Psará most probably represent a link between Pelagonian units in Greece and Sakarya–Anatolide–Tauride units in Turkey (Meinhold *et al.* 2007). It might well be that the distribution of the different species of the genus *Maniola*, in these islands, is also a reflection of the formation history of the islands.

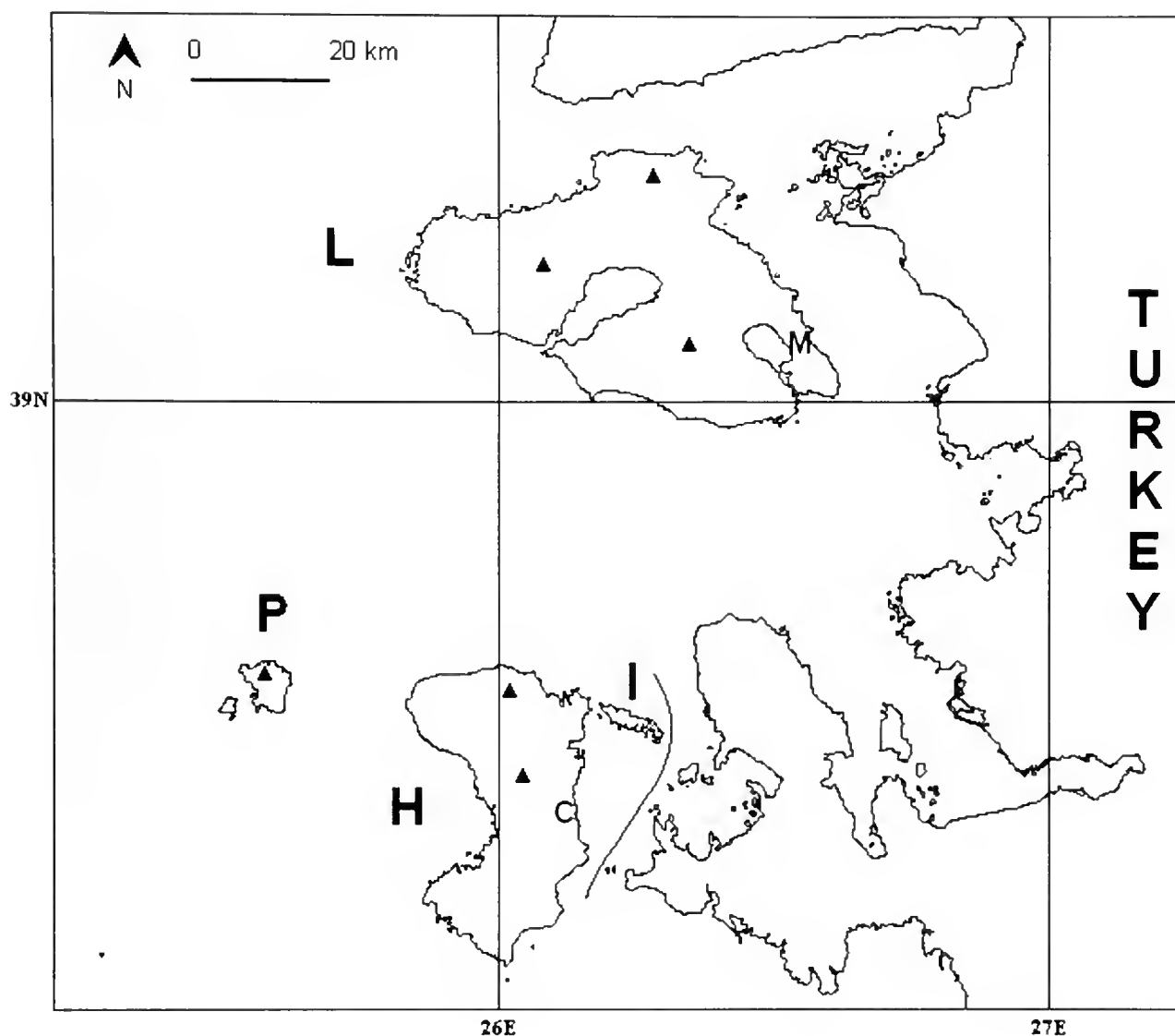


Fig. 1 – Map of the North-Aegean islands Lésvos, Híos and Psará and adjacent parts of Turkey.

Legend: C: Híos town; H: Híos; I: Inússes; L: Lésvos; M: Mitilini; P: Psará; peaks: ▲.

Most reviews about the butterfly fauna of these islands were published more than ten years ago (Olivier 1993, Dennis *et al.* 2000, 2001a, 2001b). Recently, Pamperis (2009) published distribution maps of all butterfly species of Greece, based on a compilation of data from his personal observations (red dots) and from a literature study including also data from extensive searches on the internet (blue dots). Internet sources come and go and are difficult to control, making the interpretation of all blue dots difficult. Dennis (2001a & 2001b) already emphasized the need for recorders to take voucher specimens of species considered to be new records for islands and this was recently repeated (Cuvelier & Mølgaard 2012, Coutsis & Ghalvalas 2013). Without voucher specimens, it is more difficult for biogeographical research to accept the observations as valid records or as adequate data for conservation purposes, even for conspicuous organisms. The recent maps in Pamperis (2009) also include question marks without giving specific comments about it. The interpretation of such data becomes very complex and

hazardous. The Distribution Atlas of Butterflies in Europe (Kudrna *et al.* 2011) proved useless for these islands as the resolution of the data is at a much larger scale, a fact admitted by one of the authors.

Recent surveys of other Greek islands have provided quite some new data but at the same time have also shown that the butterfly fauna of such areas has not yet been sufficiently studied (Cuvelier 2009, Cuvelier & Mølgaard 2012, Coutsis & Ghalvalas 2013). For the island of Psará, only five butterfly species have been mentioned in literature. Even when taking into account that the vegetation of this island consists mostly of short shrubs, this seems too low a number, indicating the need for new surveys in these North-Aegean Islands as well. Renewed investigations on the actual distribution of the butterflies are mandatory in order to monitor and protect important taxa and their habitats. Changes in the butterfly fauna since the Neolithic already must have had a major impact on the occurrence of some species and modern human activities add new threats that might further decrease biodiversity. Global warming as well

might yield rapid changes in the occurrence of taxa at the limit of their distribution but this needs to be interpreted with caution (Kudrna 2013).

Methods

During a field trip from 26th of May to 9th of June 2012 the author (SC) surveyed many localities on the three islands under consideration. Details are given in Appendix 2: Híos (Table 1), Psará (Table 2) and Lésvos (Table 3). Mike Taylor (MT) for Híos and Mike Hull (MH) for Lésvos provided many important and unpublished personal field observations that were made over many years of endeavour. The material from their research (not only Papilionoidea & Hesperioidea) is deposited in the Zoology collection of the World Museum at Liverpool (WML) and is one of the major sources for this analysis. Further data, included in this update, come from unpublished field observations by Peter Russell (PR), Diederik Van den Abbeele (DV), Daniël De Backer (DD) and partly published observations by Morten S. Mølgaard (MM) (Mølgaard 2013).

Despite the difficulty of asserting the validity of the data, the internet remains a potential source of information. And indeed quite some observations, sometimes including photographs, became available during recent years. This gave the impression that many

species, new for some of these islands, had been found. But for the goal of this survey, the value of these sources often proved questionable and included doubtful records generating suspicion of invalidity about the total information of some websites. In the actual analysis, only three websites have been included. The first one (van Leeuwen 2011, URL1) provides a list of butterflies for Lésvos and as such it can be an important source for people researching the subject. The author has answered to all questions posed by the present author in a transparent way, but only the observations supported with photographs, sent on request, are included in this analysis. The two other retained URLs have photographs allowing certainty of determination of interesting taxa and mentioning sufficient details about the observations: Don (2010, URL2) and Schoenmakers (2012, URL3). For the latter two it was impossible to get in touch with the authors. All other internet sources have been ignored in this analysis because they lack the potential to validate the observations and especially the identifications for species belonging to genera with morphologically very similar species.

The nomenclature applied in this work for all included taxa follows the one used in Fauna Europaea (Vliegenthart *et al.* 2013) (URL4).



Fig. 2a – Habitat of *Thymelicus acteon* on Psará, Zoodhóhos Piyí, 46 m, 30.v.2012 (Photo: SC).

Fig. 2b – *Thymelicus acteon* ♂, Psará, Zoodhóhos Piyí, 46 m, 30.v.2012 (Photo: SC).

Fig. 2c – *Thymelicus acteon* ♀, Psará, Zoodhóhos Piyí, 46 m, 30.v.2012 (Photo: SC).

New data

Thymelicus acteon (Rottemburg, 1775). New to Psará.

A single but strong population was found in a small valley (Fig. 2a) near Zoodhóhos Piyí (46 m) on the northwestern side of Psará. Males and females (Fig. 2b & 2c) were fresh on 30.v.2012. Voucher specimens are in the reference collection of SC. In a model (Dennis *et al.* 2001a), based on a single short survey (Olivier 1993) on this island, *T. acteon* was not predicted for Psará. However, its occurrence is not completely unexpected as the species is known from the nearby island of Híos and has also been confirmed from many other Aegean islands.

Gegenes pumilio (Hoffmannsegg, 1804). Confirmed for Híos.

In two reviews (Dennis *et al.* 2000, 2001a), *G. pumilio* was not documented and also not predicted for Lésvos, Híos and Psará. However, it was soon added by the same author (Dennis *et al.* 2001b), on the basis of annual observations, since 1996, carried out during biodiversity research by the Liverpool Museum undertaken by MT. In the distribution map (Pamperis 2009) of *G. pumilio* there are no additional personal observations from the author for these islands and only a single blue dot is given for the northern part of Híos (Pamperis 2009). Voucher specimens (Coll. MT & MH) from Kambiá Beach (08.v.2000) and Thimianá (15.v.2001, 4–15.x.2002) are preserved in the WML and a photograph of the male genitalia from one of these voucher specimens is included (Fig 3). There is no evidence, known to the author, that *G. pumilio* has been observed on the nearby island of Psará or in Lésvos and its occurrence for these two islands was not predicted (Dennis *et al.* 2001a).

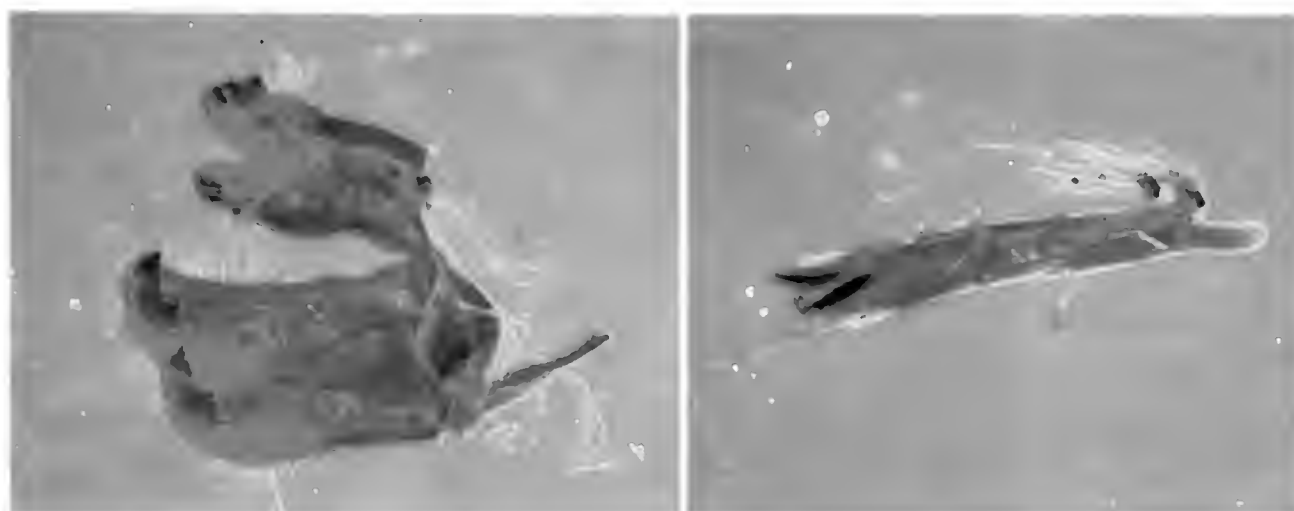


Fig. 3 – Male genitalia of *Gegenes pumilio*, Híos, Thimianá, 4.x.2002 (leg. M. J. Taylor). Genitalia preparation 4205, M. Hull.

Gegenes nostradamus (Fabricius, 1793). Confirmed for Lésvos and Híos.

G. nostradamus was not mentioned from Lésvos (Dennis *et al.* 2000, 2001a, 2001b) till the publication of the distribution map for this species (Pamperis 2009). This map does not mention a personal observation from the author but shows two blue dots in the Gulf of Kalloní that are based (oral comm.) on information given by MH. Voucher specimens from Skála Kallonís collected

between 19–24.ix.2008 are indeed preserved in the WML. *G. nostradamus* is also confirmed for Híos at Káto Faná on 27.ix.2002 by a voucher specimen in the WML and a photograph of the male genitalia is included (Fig 4). *G. nostradamus* was also regularly seen in October 2011 in an apartment garden in Vrondádhos (MT). There is no prediction (Dennis *et al.* 2001a) and there are at present no observations known to the author from the island of Psará.

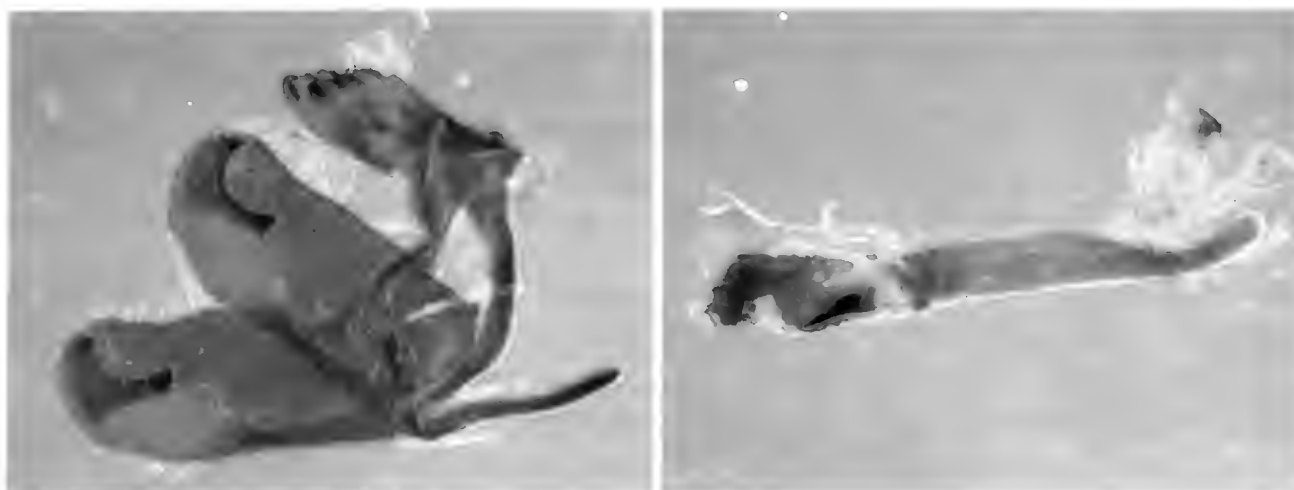


Fig. 4 – Male genitalia of *Gegenes nostradamus*, Híos, Káto Faná, 27.ix.2002 (leg. M. J. Taylor). Genitalia preparation 4206, M. Hull.

Pelopidas thrax (Hübner, 1821). New to Híos and confirmed for Lésvos.

In Greece, *P. thrax* was already known from three Dodecanese islands (Ródhos, Kastellórizo and Kos) and from Sámos (Cuvelier 2009). Recently, the species has

also been documented from Kalímnos, another Dodecanese island (Martin & Russell 2013). Along the Turkish coast the species is mentioned nearby Sámos but not nearby Híos and Lésvos. There is however one dot in the distribution map of *P. thrax*, much more north along

the Sea of Marmara (Hesselbarth *et al.* 1995). MT's earliest observation, in Híos, goes already back to the year 2002 and mentioned: "we just take a voucher specimen if something previously unrecorded turns up, as was the case when I came across several of the *P. thrax* flying in the abandoned coastal claypits in Thimianá on 8th October 2002." This female voucher specimen is figured here (Fig. 5a). The observation of several specimen leaves the impression that this is not a recent spread to the island of Híos and brings evidence that *P. thrax* is present since quite some years in the North-Aegean islands and is not due to a recent expansion as

suggested (Martin & Russell 2013). Other observations, cited by MT (oral comm.), support that the butterfly is a true resident of this island: "I found a male *Pelopidas thrax*, specimen number A14923, taken at Káto Faná in south Híos on the 23rd September 2009. I distinctly recall the event, there were large numbers of this species on the wing more than 50 perhaps more than 100. As it looked rather larger than the common Hesperids I took one voucher specimen which I only really looked at properly today." One male voucher specimen is figured (Fig. 5b).



Fig. 5a – *Pelopidas thrax* ♀, upper- and underside, Híos, Thimianá claypits, 10 m, 8.x.2002 (Coll. & Photo: MT).

Fig. 5b – *Pelopidas thrax* ♂, upper- and underside, Híos, Káto Faná, 5 m, 23.ix.2009 (Coll. & Photo: MT).

Fig. 5c – *Pelopidas thrax* ♂, Híos, Vrondádhos, 5 m, 7.x.2011 (Photo: MT).

Fig. 5d – Habitat of *Pelopidas thrax*, Híos, Keramía, 25 m, 28.v.2012 (Photo: SC).

Also at Vrondádhos, north of Híos town, MT photographed a male *P. thrax* (Fig. 5c). Like in the Dodecanese islands, it seems that also on Híos the spring generation is rare. A single fresh male was collected by SC at Keramía on 28.v.2012 in a typical wet waste ground with reed vegetation (Fig. 5d). Despite a lengthy search in this area no other specimens were seen. The voucher specimen is in the reference collection of SC. The actual situation with *P. thrax* in Lésvos is less clear. S. van Leeuwen (URL1) was the first to mention the presence of this species but she was unable to provide any evidence

(Cuvelier 2009). The distribution map of *P. thrax* (Pamperis 2009) shows only a blue dot along the Gulf of Kalloní. It is based on a photograph in a personal communication with a foreign entomologist. At least two URL have shown good photographs since then. The first certain observation from 28.ix.2010, known to the author, comes from H. Don (URL2) showing a fresh specimen feeding on a yellow flower in the coastal town of Síghri. B. Schoenmakers photographed a worn specimen basking on a stone at Skála Kallonís on 11.x.2012 (URL3). With the present knowledge it looks

difficult to comment on the status (migrating specimens or resident) of *P. thrax* in Lésvos but there is good evidence that it can be found in this island. *P. thrax* is not predicted (Dennis *et al.* 2001a) for Lésvos or Psará. There are at present no observations known to the author from the island of Psará.

Pieris krueperi (Staudinger, 1860). Confirmed for Híos and Lésvos.

P. krueperi was not known or predicted for Lésvos (Dennis *et al.* 2001a). This species was first mentioned in the website of Sylvia van Leeuwen (URL1) from 2005, on Óros Ólimbos. This information (oral comm. by Pamperis) is included as a blue dot in the map of this taxon (Pamperis 2009) but neither a voucher specimen nor a photograph is available (van Leeuwen, oral comm.). Voucher specimens were however already collected before 2005. Strong evidence is provided here: at Áryenos DD collected *P. krueperi* on 11.v.1999 and a voucher specimen is preserved in his reference collection. On 24.v.2002, DV also observed *P. krueperi* south of Áryenos by DV on and he collected voucher specimens as well. For Híos, the presence of *P. krueperi* has already been documented (Dennis *et al.* 2000, Tolman 1997) but only blue dots (no personal observations from the author) are given by Pamperis (2009). One worn specimen was collected by SC, north of Vrondádhos, on 31.v.2012 and is preserved in his reference collection.

Pontia edusa (Fabricius, 1777). New to Psará.

Single specimens were observed on 30.v.2012 by SC at Ahladhókambos (16 m) where one fresh male was collected and east of Nerovíghlia (12 m). This voucher specimen is in the reference collection of SC. There was >75% probability that *P. edusa* could occur on this island (Dennis *et al.* 2001a).

Colias croceus (Fourcroy, 1785). New to Psará.

C. croceus was observed on 30.v.2012 at different localities in the northern part of the island: at Zoodhóhos Piyí (46 m), in a valley southwest of Ághios Ilías (233 m), at the foot of Ághios Ilías (254 m) where a worn male voucher specimen was collected, at the Kímissi tis Theotóku Monastery (336 m) where a fresh female of the f. *helice* was collected and north of Ághios Ilías (352 m). The two voucher specimens are in the reference collection of SC. There was >90% probability that *C. croceus* could occur on this island (Dennis *et al.* 2001a).

Lycaena thersamon (Esper, 1784). New to Lésvos.

No publication provides evidence for the presence of *L. thersamon* in these islands. A question mark is present in the distribution map by Pamperis (2009). MH collected a fresh male (Fig. 6) at Skála Kallonís (39°12'22"N 26°13'3"E), Lésvos, on 21.ix.2002. The specimen is still in his private collection, though in due course it will be placed in the WML. Photographs were kindly taken and provided by MT. This male is the only known proof of the presence of this species on Lésvos. The occurrence of *L. thersamon* was not predicted for these three islands (Dennis *et al.* 2001a).

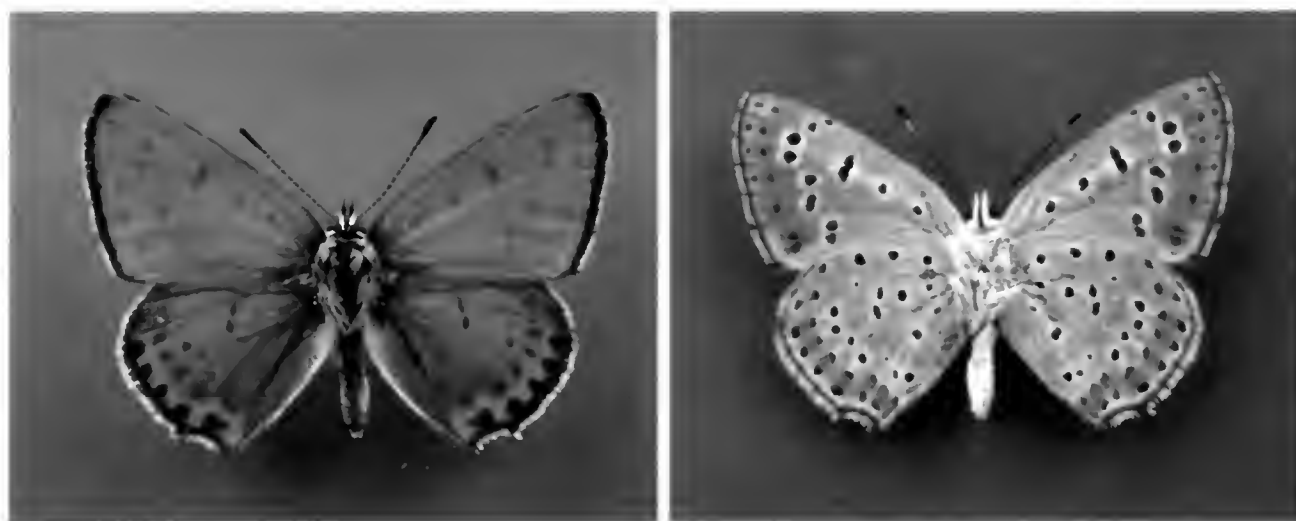


Fig. 6 – *Lycaena thersamon* ♂, upper- and underside, Lésvos, Skála Kallonís, 21.ix.2002 (Coll. MH).

Lampides boeticus (Linnaeus, 1767). New to Psará.

SC collected a single male specimen south west of Áyii Apóstoli (141 m) on 30.v.2012. No other specimens were observed. The voucher specimen is in the reference collection of SC. There was >50% probability that *L. boeticus* could occur on this island (Dennis *et al.* 2001a).

Cupido osiris (Meigen, 1829). New to Híos.

The species was unknown from and unpredicted for these three islands. In the Aegean, *C. osiris* has only been confirmed from the island of Límnos (Olivier 1988) and a

blue dot is also present for this island in the distribution map by Pamperis (2009). This species seems extremely rare in the Aegean Islands. The distribution map of *C. osiris* (Pamperis 2009) also shows a question mark for Lésvos. *C. osiris* is not included in the updated overview for Lésvos (Appendix 2) as it was not possible to verify the sources. MT collected a worn male (Fig. 7) at Ghrídhia, Híos, on 3.v.2000. The voucher specimen is preserved in the WML. This is the first evidence of the occurrence of this butterfly in Híos.

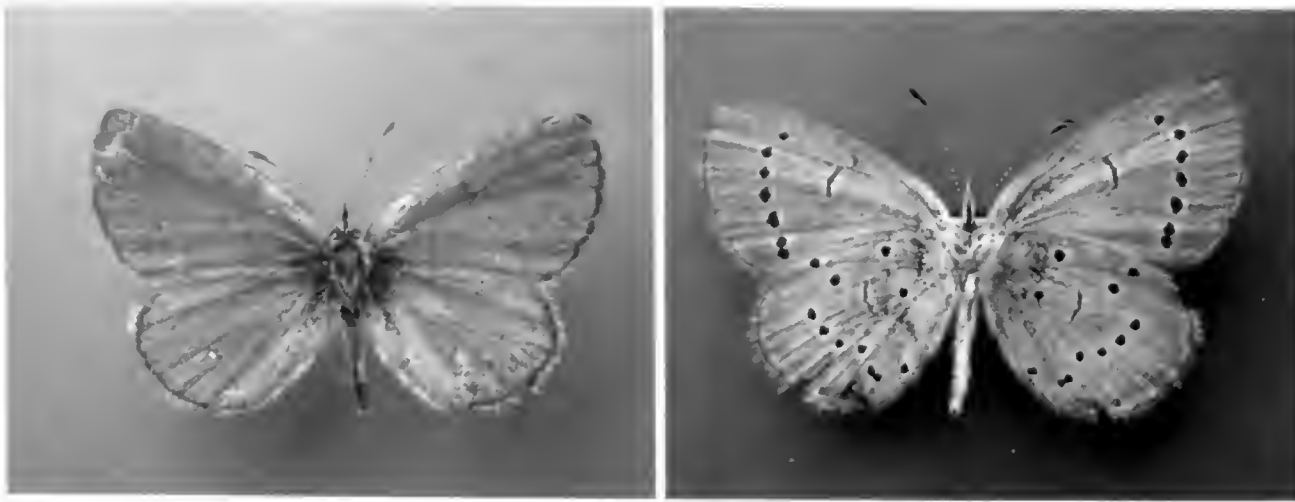


Fig. 7 – *Cupida asiris* ♂, upper- and underside, Híos, Ghrídhia, 3.v.2000 (Coll. MT).

Pseudophilotes vicrama (Moore, 1865). New to Psará.

A single female voucher specimen (Fig. 8b) was collected south west of Áyii Apóstoli (Fig. 8a) on

30.v.2012 and is preserved in the reference collection of SC. There was >50% probability that *P. vicrama* could occur on this island (Dennis et al. 2001a).



Fig. 8a – Habitat of *Pseudophilotes vicrama*, Psará, SW Aghii Apostoli, 30.v.2012 (Photo: SC).

Fig. 8b – *Pseudophilotes vicrama* ♀, Psará, SW Aghii Apostoli, 30.v.2012 (Coll. SC).

Charaxes jasius (Linnaeus, 1767). Needing confirmation for Lésvos.

There is good evidence for *C. jasius* from Híos and a voucher specimen collected on 12.vi.1997 at Káto Faná is preserved in the WML. For Lésvos, good evidence is lacking despite the fact that it is such a conspicuous butterfly. A recent indication of its occurrence was given by MM who observed *C. jasius* in the company of T. Kristensen on 7.vi.2013 at Megháli Límni and 7 km north of Kalloní but they were unable to photograph or collect a voucher specimen. There is >50% probability that *C. jasius* could occur on this island (Dennis et al. 2001a). There is no prediction for Psará and it is unlikely that this species will ever be found in this island as there is no suitable habitat for it.

Vanessa atalanta (Linnaeus, 1758). New to Psará.

A small, fresh voucher specimen was collected on 30.v.2012 at Nerovíghlia (14 m). *V. atalanta* was also observed at the Kímissi tis Theotóku Monastery (336 m) and south west of Áyii Apóstoli (141 m) on 30.v.2012. The voucher specimen is in the reference collection of SC. There was >90% probability that *V. atalanta* could occur on this island (Dennis et al. 2001a).

Issoria lathonia (Linnaeus, 1758). To be confirmed for Híos; confirmed for Lésvos.

For a long time there was no evidence that *I. lathonia* occurs on the three islands (Dennis et al. 2000) and the model for predicting the occurrence estimated >50 % chance but carefully mentioning: “unreliable, based on N

≤ 4 and/or of marginal significance” (Dennis et al. 2001a). Pamperis (oral comm.) observed the species near Aghiásson, on 24.vi.1994 from 400 to 600 m and this is already mentioned in his first book (Pamperis 1997). This observation is also marked as a red dot in the distribution map (Pamperis 2009). This locality was confirmed by PR observing the species at ± 675 m on 31.v.2008 and 5.vi.2008 (Russell 2009). On 6.vi.2012, SC also observed and photographed different specimens at altitudes above 700 m on Óros Lepétimnos on the northern side of Lésvos. In the observation list of MT, *I. lathonia* is not mentioned from Híos and also in the distribution map not a single dot is present (Pamperis 2009). Recently, on 2.v.2011, PR observed *I. lathonia* at Pirghí and at Kipuríes on 6.v.2012 but he did not collect a voucher specimen. Confirmation is needed. It is unlikely that *I. lathonia* will ever be found in the island of Psará, as there is no suitable habitat for it.

Brenthis daphne (Bergsträsser, 1780). New to Lésvos.

In the Aegean islands *B. daphne* was known only from Sámos (Dennis et al. 2000, 2001a) and no predictions could be made based on its occurrence in a single island. The distribution map for *B. daphne* (Pamperis 2009) is confirming this and only adds a personal observation from the same island. The species also seems rare in western Turkey (Hesselbarth et al. 1995). Knowing of no publications mentioning this species from Lésvos, the author was surprised to observe a single *B. daphne* feeding, high in a chestnut tree, on 6.vi.2012 near Lepétimnos (383 m). On 7.vi.2012 the species was again

found, in small numbers from Aghía Anna to Kríta and on a dust road towards Eftalú (294 m). The same day, west of Áryenos (372 m) the species was feeding on *Rubus* sp. and very common. On 8.vi.2012, near Fília (358 m), *B. daphne* was again common. Voucher specimens are in the reference collection of SC and males and females were photographed (Fig 9a-d). During the trip, SC met MH at Skála Kallonís and this observation was discussed. MH asked for a collected specimen for the WML as this looked new for the island and a single specimen was

kindly given. Mentioning this, months later, to MT it became clear that these observations were not the first observation of *B. daphne* from Lésvos: "When you met him in Skála Kallonís he told you that he had not taken/seen *Brenthis daphne* on Lésvos, however he had forgotten one specimen which he took 12th June 1989 at Skalohóri." Also PR informed me later having observed *B. daphne* in two localities near Fília on 30.v.2012. There is no suitable habitat for this species in Psará and it is unlikely that this species will be found in this island.



Fig. 9a – *Brenthis daphne* ♂, Lésvos, W Áryenos, 7.vi.2012 (Photo: SC).

Fig. 9b – *Brenthis daphne* ♀, Lésvos, W Áryenos, 7.vi.2012 (Photo: SC).

Fig. 9c – *Brenthis daphne* ♂, Lésvos, Aghía Anna to Kríta, 7.vi.2012 (Photo: SC).

Fig. 9d – *Brenthis daphne* ♀, Lésvos, Aghía Anna to Kríta, 7.vi.2012 (Photo: SC).

Notes

Thymelicus lineola (Ochsenheimer, 1808).

Sylvia van Leeuwen (URL1) mentions the observation of this species in 2005, halfway between Aghiásson to Assómatos. However, she could not provide a photograph or a voucher specimen and seemed uncertain about the identification. For this specific reason, SC collected all *Thymelicus* specimens met with in the field, and prior to releasing them had the tip of the antennae checked for identification purposes. Not a single specimen turned out to be *T. lineola*. Already in a previous article (Cuvelier & Mølgaard 2012) a question mark was given concerning the occurrence of this species on the eastern Aegean islands. The question mark can be deleted in the light of the above observations as this was the only doubtful record at that time. This question mark was later further supported by the presence of an alleged *T. lineola* in the WML. As, however this specimen finally proved to be a *Thymelicus sylvestris* (Poda, 1761), the question mark can now be deleted. It now appears certain that *T. lineola* is absent from Lésvos and therefore the species is not included in the table (Appendix 1).

Pieris mannii (Mayer, 1851).

P. mannii was reported once from Híos (Gaskin & Litter 1988). As its identification at times is problematic by wing characters and always impossible by genitalia, the record cannot be accepted with certainty. The said specimen was within all probability a *Pieris rapae* (Linnaeus, 1758) with exceptionally heavy black markings at the apex of the forewing upper side. This is not that uncommon in autumn. Pending its confirmation on the basis of further captures, the species is presently not included in the table (Appendix 1).

The genus *Maniola* (Schrank, 1801).

The distribution of the *Maniola* species in the Aegean islands is a complex puzzle and their status is still under study (Grill *et al.* unpublished data). Four *Maniola* species have been documented from these three islands but it is only in Lésvos that two species, *Maniola telmessia* (Zeller, 1847) and *Maniola megala* (Oberthür, 1909), are found on the same island and are partly synchronous and syntopic in a few localities. A new species of the genus, *Maniola chia* (Thomson, 1987), was described from Híos based on external morphology, genitalia, egg morphology, larval chaetotaxy and enzyme electrophoresis. This taxon is also present on the nearby island cluster of Inússes, east of Híos. Doubts remain on its status and some authors treat this taxon as a

subspecies of *M. jurtina* (Tshikolovets 2011). From Psará, the nearby island west of Híos, *Maniola jurtina janira* (Linnaeus, 1758) was mentioned for the first time by Olivier (1993): “On Psará, the very first males of *M. jurtina* (!) were just emerging on 19.V.” On p. 175 of the book, where this observation is mentioned, neither photograph nor genitalia are included. This observation is in contrast with the presence of *M. chia* on the nearby island Híos. This might shed some light on the unresolved question of the stratigraphic age and affiliation of the island.

Both units of Psará have been linked to the Subpelagonian Zone of continental Greece and this might explain the presence of *M. jurtina* in Psará and of another taxon on Híos and Inússes. Other sources favour an affiliation to successions from the southern Pílion peninsula and the northern Sporádhés (Meinhold 2007) of the Pelagonian Zone and the presence of *M. jurtina* only on the island of Psará becomes less clear cut but not impossible in this hypothesis. The most recent research indicates a link between Pelagonian units in Greece and the Sakarya-Anatolide-Tauride units in Turkey but asks as well for a reinvestigation of the (meta)sedimentary successions in the eastern Aegean Sea (Meinhold 2007). Again it offers potential to explain the distribution of *M. jurtina* but for the moment these assumptions are hypothetical. Different question marks are given in the distribution map of *M. jurtina* (Pamperis 2009) concerning the islands of Lésvos and Ikaría making the interpretation even more difficult. For Lésvos all data

used in the map (information kindly provided by Pamperis) come from doubtful sources (opinion SC). There is no evidence at all for the presence of *M. jurtina* in Lésvos and it is not included in the table (Appendix 1). In order to better document the situation, first for Psará, SC anticipated that the determination given by Olivier (1993) might have been based on a genitalia study by Coutsis, who indeed kindly supplied the documents (Fig. 10) that show the male genitalia of an undoubted *M. jurtina* from “eastern” populations. On 30.v.2012, *M. jurtina* was found by SC in many biotopes (Fig. 11a) from lowland at Ahladhókambos to an altitude of 356 m near the Kímissi tis Theotóku Monastery. Most males (Fig. 11b) were no longer fresh but females (Fig. 11c) had only recently emerged and a number of couples were observed in copula (Fig. 11d). For comparison purposes a photograph is also included of a couple of copulating *M. telmessia* from Lésvos (Fig. 12).

To make the picture more complete, herewith are mentioned some other North-Aegean islands from where the presence of *M. jurtina* is supported by the study of genitalia: Límnos (130 km north of Híos & Psará) confirmation by genitalia from Coutsis (oral comm.), Skíros (76 km west of Psará) the southernmost island of the Sporádhés archipelago from where Coutsis described the occurrence of *M. jurtina* without documenting the male genitalia (Coutsis 1976) but he confirmed to SC that it was done (oral comm.), Ándhros island (87 km SW of Psará) the northernmost island of the Kikládhes archipelago (Coutsis 1985) and confirmed by genitalia.

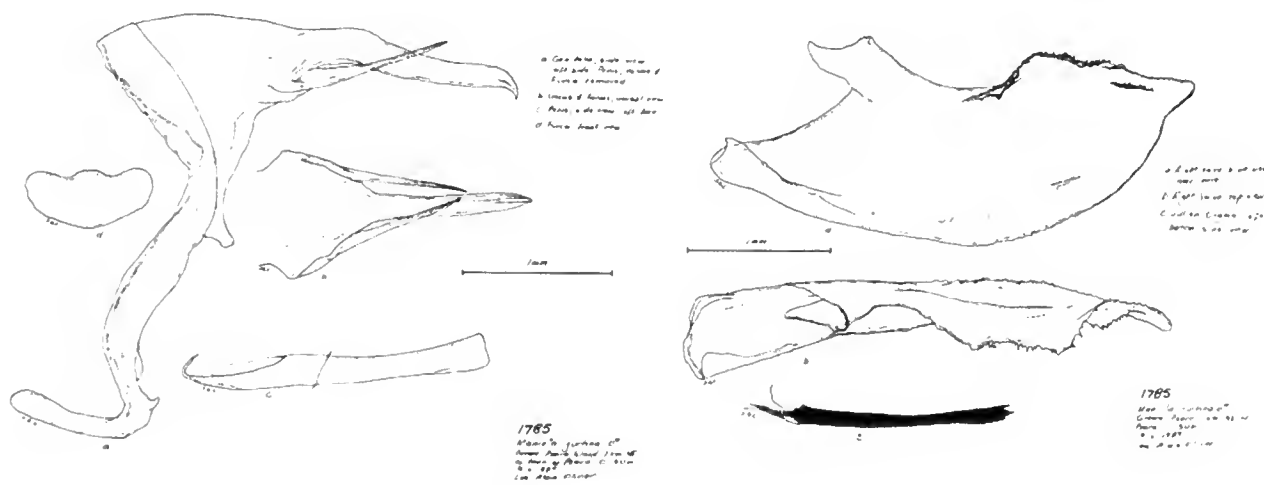


Fig. 10 – Male genitalia of *Maniola jurtina*, island of Psará, 1 km NE of town of Psará, (leg. A. Olivier). Genitalia preparation 1785 and drawing J. G. Coutsis.

SC sampled the different *Maniola* taxa in the three islands for the ongoing study of Grill and two specimens from Psará were included in the mitochondrial DNA analysis: “we sequenced two of your specimen from Psará for the mitochondrial COI region. They cluster within the *Maniola chia* and other *Maniola jurtina*

samples.” This seems to imply also that there is no genetic evidence separating these *Maniola* species that are now used in taxonomy. It would be very interesting to perform hybridization experiments between the different *Maniola* species to elucidate the puzzle.

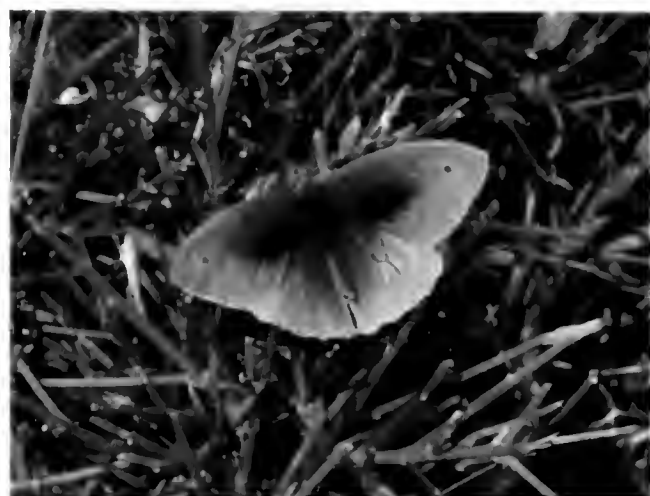


Fig. 11a – Habitat of *Moniolo jurtino*, Psará, valley S.W. of Profitis Ilias, 30.v.2012 (Photo: SC).

Fig. 11b – *Moniolo jurtino* ♂, Psará, Valley SW of Profitis Ilias, 30.v.2012 (Photo: SC).

Fig. 11c – *Moniolo jurtino* ♀, Psará, Ahladhókambos, 30.v.2012 (Photo: SC).

Fig. 11d – *Moniolo jurtino* copula, Psará, Ahladhókambos, 30.v.2012 (Photo: SC).

Fig. 12 – *Maniola telmessia* copula, Lésvos, Ághra, 4.vi.2012 (Photo: SC).

Very interesting is also the presence of *M. megala* on Lésvos, the only place in Europe where this species has been found. It was first mentioned as a footnote by Olivier (1988: 40) without giving much attention to this observation but it did not remain unnoticed (Tolman 1997, Tshikolovets 2011). For many years, the data for Greece were based only on this publication and its presence was never confirmed till the distribution map of *M. megala* (Pamperis 2009) added personal observations from different parts of Lésvos including also some blue dots. In the recent publication of Russell & Hall (2009) it is clearly stated that this species is found only in damp lowland localities and doubt is expressed on all other localities from where *M. megala* has been mentioned.

The criteria for its determination versus *M. telmessia*, the other *Maniola* species present in Lésvos, have been

clearly described (Russell & Hall 2009). These show that males (Fig. 13b) can be separated from *M. telmessia* based on the hindwing margin (pronounced scalloping for *M. megala* which is absent in *M. telmessia*) but this is not easy to use in the field. Wingspan of males is also a quite good indicator (Russell & Hall 2009) but should, in my opinion, never be used as a single criterion for the determination of butterflies. Unfortunately, the criterion of the hindwing margin is not at all valid for females and also the wingspan of both taxa have quite some overlap (Russell & Hall 2009). The upper- and underside of both *M. megala* (Fig. 13c–g) and *M. telmessia* females is very variable and makes the separation even more hazardous.

During my surveys in Lésvos and in all localities where *Maniola* specimens were flying, butterflies were collected for visual inspection. I was unable to confirm

the occurrence of *M. megala* at higher altitudes including the specific localities mentioned in the distribution map (Pamperis 2009) that were kindly provided by Pamperis. *M. megala* can be common (Fig. 13i), but very localized, and different populations in damp lowland habitats (Fig. 13a) have been found only in the Gulf of Kalloni separated by less than 4 km (MH, PR & MM). On 7.vi.2012, I observed a single courtship (Fig. 13h), but as the couple flew away over a massive *Rubus* bush, no actual copulation was observed.

MH informed me that one former habitat of *M. megala* is already completely ruined by building

activities. Other threats certainly include overgrazing. In one locality a sheep camp is nearby and a flock of sheep was seen grazing in the middle of the habitat. Further research on the biology and distribution of this taxon is needed. At present, there probably is not much more suitable habitat available and chances to find new populations in other parts of Lésvos seem very low. Protection and monitoring of grazing activities look mandatory to protect the remaining *M. megala* populations.

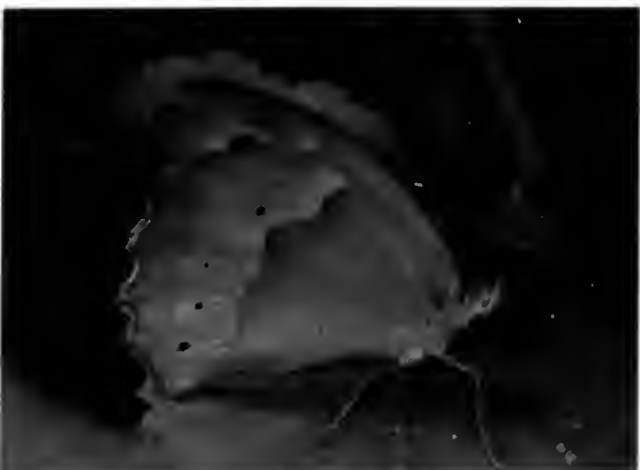


Fig. 13a – Habitat of *Maniala megala*, Lésvos, Gulf of Kalloni, 1.vi.2013 (Photo: SC).

Fig. 13b– *Maniala megala* ♀, Lésvos, Gulf of Kalloni, 5.vi.2012 (Photo: SC).

Fig. 13c – *Maniala megala* ♂, Lésvos, Gulf of Kalloni, 7.vi.2012 (Photo: SC).

Fig. 13d – *Maniala megala* ♂, Lésvos, Gulf of Kalloni, 9.vi.2012 (Photo: SC).

Fig. 13e – *Maniala megala* ♀, Lésvos, Gulf of Kalloni, 9.vi.2012 (Photo: SC).



Fig. 13f – *Maniola megala* ♂, Lésvos, Gulf of Kallóni, 7.vi.2012 (Photo: SC).

Fig. 13g – *Maniola megala* ♀, Lésvos, Gulf of Kallóni, 9.vi.2012 (Photo: SC).

Fig. 13h – Courtship of *Maniola megala* ♂ and ♀, Lésvos, Gulf of Kallóni, 7.vi.2012 (Photo: SC).

Fig. 13i – *Maniola megala* males gathering on *Rubus*, Lésvos, Gulf of Kallóni, 5.vi.2012 (Photo: SC).

Appendix

(see http://webh01.ua.ac.be/vve/Phegea/Appendices/Phegea_42-3_page_69.pdf).

1a Localities (maps) and observations of the author.

1b Updated overview of the butterfly distribution in the islands Híos, Psará and Lésvos.

Conclusions

Many new or unpublished data concerning butterflies have been provided for three North-Aegean Islands: Híos, Psará and Lésvos. The existing literature was critically analyzed and it looked mandatory not to include most of the data from the internet that were unreliable or impossible to check. For future research, we advocate to collect voucher specimens, especially for taxa that are unknown for an island, and to publish all observations in entomological journals. Among the most remarkable findings of this study are the extension of the distributional range of *P. thrax* to the North-Aegean islands Híos and Lésvos, adding six species new to Psará, two species new to Lésvos and one species new to Híos. The presence of *T. lineola* in Lésvos and *P. mannii* in Híos

is excluded based on lack of evidence. Notes on the genus *Maniola* provide more insight in their distribution and biology in the North-Aegean Islands and indicates that the taxonomy of this genus in these islands is not yet fully known. We encourage all entomologists to visit the Aegean islands for further research on the butterfly distribution. It certainly is possible to find new species for many islands that have been poorly surveyed and also in other periods of the year than formerly done.

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References

- Coutsis J. & Arch M. 1976. Spring Butterflies on the Island of Skyros, Greece. — *Entomologist's Record and Journal of Variation* **88**: 32–37.
- Coutsis J. 1985. Butterflies from the Greek Island of Andros, end June, 1983. — *Entomologist's Gazette* **97**: 10–12.
- Coutsis J. G. 2001. Skippers, butterflies, burnets and harvesters from the Greek island of Límnos, a skipper new to the Greek island of Santoríni and two butterflies new to the Greek island of Síros (Lepidoptera: Hesperioidea, Papilionoidea, Zygaenidae). — *Phegea* **29**: 9–17.
- Coutsis J.G. & Ghavalas N. 2013. Skippers and butterflies on the Greek island of Sími in early June 2012, and a list of all the skippers and butterflies that have hitherto been recorder from the island (Lepidoptera: Hesperioidea, Papilionoidea). — *Phegea* **41**: 12–16.

- Cuvelier S. 2009. *Pelopidas throx*, a new species for the Island of Kós and an update of its distribution in Greece (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegeo* **37**: 84–93.
- Cuvelier S. & Mølgaard M. S. 2012. Butterflies and Skippers in the Dodecanese Islands (Greece): new data and an update on their distribution (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegeo* **40**: 66–80.
- Dennis R. L. H., Shreeve T. G., Olivier A. & Coutsis J. G. 2000. Contemporary geography dominates butterfly diversity gradients within the Aegean archipelago (Lepidoptera: Papilionoidea, Hesperioidea). — *Journal of Biogeography* **27**: 1365–1383.
- Dennis R. L. H., Olivier A., Coutsis J. G. & Shreeve T. G. 2001a. Butterflies on islands in the Aegean archipelago: predicting numbers of species and incidence of species using geographical variables. — *Entomologist's Gazette* **52**: 3–39.
- Dennis R. L. H., Olivier A. & Coutsis J. G. 2001b. Butterflies on islands in the Aegean archipelago: a correction, additions, an aid to identification and a cautionary tale. — *Entomologist's Record and Journal of Variation* **113**: 265–268.
- Gaskin D. E. & Littler E. A. 1986. Rhopalocera from Kefalonia, Zakynthos, Samos and Chios islands (Greece) and the Kusadasi Region (SW Turkey) in 1983 and 1984. — *The Entomologist's Record and Journal of Variation* **98**: 186–192.
- Gaskin D. E. & Littler E. A. 1988. Autumn butterflies of the Island of Chios (Greece) (Lepidoptera: Papilionoidea & Hesperioidea). — *Phegea* **16**: 81–84.
- Grill A., de Vos R. & van Arkel J. 2004. The shape of endemics: Notes on male and female genitalia in the genus *Moniolo* (Schrank, 1801), (Lepidoptera, Nymphalidae, Satyrinae). — *Contributions to Zoology* **73**: 293–303.
- Hesselbarth G., van Oorschot H. & Wagener S. 1995. *Die Togfolter der Türkei, mit Berücksichtigung der angrenzenden Länder*. 3 vols. — Bocholt (Germany), p. 1–1354, 1–847, pls. 1–141, maps I–IV, 1–342.
- Kudrna O., Harpke A., Lux K., Pennerstorfer J., Schweiger O., Settele J. & Wiemers M. 2011. *Distribution Atlas of butterflies in Europe*. — Gesellschaft für Schmetterlingsschutz, Halle, Germany. 576 p.
- Kudrna O. 2013. European butterflies, global warming and predicting future – Science or business? — *Entomologische Zeitschrift, Stuttgart* **123**: 103–113.
- Martin J & Russell P. 2013. Increasing numbers of records of *Danaus chrysippus* (Linnaeus, 1758) and *Pelopidos thrax* (Hübner, 1821) (Lepidoptera: Nymphalidae, Danainae; Hesperioidea) in the Eastern Aegean islands. — *Entomologist's Gazette* **64**: 85–93.
- Meingold G., Kostopoulos D. & Reischmann T. 2007. Geochemical constraints on the provenance and depositional setting of sedimentary rocks from the islands of Híos, Inousses and Psará, Aegean Sea, Greece: implications for the evolution of Palaeotethys. — *Journal of the Geological Society, London*, **164**: 1145–1163.
- Mølgaard M. S. 2013. Lesbos. — *Nordjysk Lepidopterologklub* **32**(4): 6–17.
- Olivier A. 1987a. Dagvlinders van de Griekse eilanden in drie verzamelingen (Lepidoptera: Papilionoidea). — *Phegea* **15**: 39–46.
- Olivier A. 1987b. Catalogue of the butterflies of the Greek islands in the collection of the Instituut voor Taxonomische Zoölogie (Zoölogisch Museum) Amsterdam. (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **15**: 77–88, 165–170.
- Olivier A. 1988. The butterflies of the Greek island of Límnos (Lepidoptera: Hesperioidea & Papilionoidea). — *Phegea* **16**: 33–42.
- Olivier A. 1993. *The butterflies of the Greek island of Ródos: taxonomy, faunistics, ecology and phenology with a tentative synthesis on the biogeography of the butterflies of Kriti (Crete), Kárpáthos, Ródos, the Eastern Aegean islands and Kipros (Cyprus)* (Lepidoptera: Hesperioidea & Papilionoidea). — Vlaamse Vereniging Voor Entomologie, Antwerpen, 250 p.
- Pamperis L. N. 1997. *The butterflies of Greece*. — A. Bastas, D. Plessas Graphic Arts S.A., Athens, 559 p.
- Pamperis L. N. 2009. *The butterflies of Greece. Second Edition revised and enlarged*. — Editions Pamperis, Athens, 766 p.
- Russell P. 2009. Confirmation of the presence of *Issorio lathonia* (Linnaeus, 1758) (Lepidoptera: Nymphalidae) on the eastern Aegean island of Lésvos. — *Entomologist's Gazette* **60**: 126.
- Russell P. & Hall D. 2009. Observations on *Maniola megolo* (Oberthür, 1909) (Lepidoptera: Nymphalidae, Satyrinae) on the Aegean island of Lésvos. — *Entomologist's Gazette* **60**: 159–174.
- Soulakellis N. A., Novak I. D., Zouros N., Lowman P. & Yates J. 2006. Fusing Landsat-5/TM Imagery and Shaded Relief Maps in Tectonic and Geomorphic Mapping: Lesvos Island, Greece. — *Photogrammetric Engineering & Remote Sensing* **72**(6): 693–700.
- Thomson G. 1976. Le genre *Maniola* Schrank (Lepidoptera, Satyridae): Notes sur les genitalia mâles et femelles. — *Linneana Belgica* **6**: 126–141.
- Thomson G. 1987. *Maniolo chia* – a new Satyrid from the Greek island of Chios (Lepidoptera: Nymphalidae: Satyrinae). — *Phegeo* **15**: 13–22.
- Thomson G. 2011. *The Meadow Brown butterflies, a study in genetics, morphology and evolution*. — Editions Thomson, Waterbeck, Scotland, 343 p.
- Tolman T. & Lewington R. 1997. *Field Guide of the Butterflies of Britain and Europe*. — Harper Collins Publishers, London, 320 p.
- Tshikolovets V. 2011. *Butterflies of Europe & the Mediterranean oreo*. — Tshikolovets Publications, Pardubice, 544 p.
- van Leeuwen S. 2011. Vlinders van Lesbos. — URL1: <http://home.zonnet.nl/Lesvos/vlinders.htm> Last update: 1 september 2011 (accessed 31.x.2013).
- Don H. 2010. Lesbos 21 sept. 2010 – 5 okt. 2010. — URL2: <http://www.scribd.com/doc/104090384/lesvos-2010-09-21-huub-don> (accessed 31.x.2013)
- Schoenmakers B. 2012. *Pelopidos thrax* (Pale Small-branded Swift), Skala Kalloni, Lesbos, Greece. — URL3 <http://www.geolocation.ws/v/W/File%3APelopidas%20thrax%20%28Pale%20Small-branded%20Swift%29%2C%20Skala%20Kalloni%2C%20Lesbos%2C%20Greece.jpg/-/en> (accessed 31.x.2013).
- Vliegenthart A., Verovnik R. & Wiemers M. 2013. Fauna Europaea, Butterflies. — In: Karsholt O., van Nieuwkerken E. J. & de Jong, Y. S. D. M. *Fauna Europaea: Lepidoptera. Fauna Europaea version 2.6.2*. — URL4: <http://www.faunaeur.org/index.php> (accessed 31.x.2013).

Monotoma picipes (Coleoptera: Monotomidae) aan de westrand van Brussel

Willy Troukens

Abstract. *Monotoma picipes* (Coleoptera: Monotomidae) at the westside of Brussels, Belgium

The author discusses the capture of 2 specimens of *Monotoma picipes* Herbst, 1793 in a light trap at Dilbeek (VB). This little beetle is rather common in Belgium.

Résumé. *Monotoma picipes* (Coleoptera: Monotomidae) à la périphérie ouest de Bruxelles, Belgique

L'auteur mentionne la capture de 2 exemplaires de *Monotoma picipes* Herbst, 1793 dans un piège lumineux à Dilbeek (VB). En Belgique ce petit coléoptère est plutôt commun.

Key words: *Monotoma picipes* – Monotomidae – Faunistics – Belgium – Coleoptera.

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Op 11.ix.2011 vond ik in mijn kleine Heath-val op het Roelandsveld te Dilbeek (VB) 2 exemplaren van *Monotoma picipes* Herbst, 1793 (fig. 1). Dit kevertje is een typische vertegenwoordiger van de familie Monotomidae waartoe in België nog een 10-tal andere soorten behoren. In de klassieke kevergidsen worden de Monotomidae nog ten onrechte ingedeeld bij de Cucujidae (Voght 1967:85).

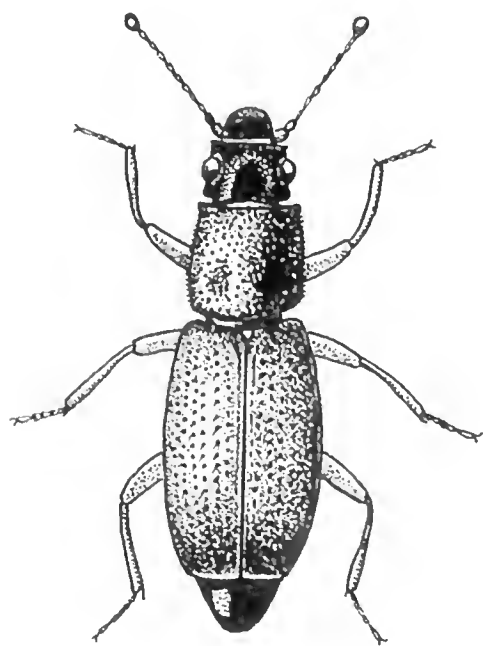


Fig. 1. *Monotomo picipes* Herbst, 1793.

Monotoma picipes is 1,8 à 2,5 mm lang en overwegend zwart of roodbruin (Keer 1930: 506). Ogen groot. Slapen korter dan de halve doorsnede van een oog. Wangen, net voor elk oog, met een puntig tandje. Halsschild grof en dicht bestippeld met stompe, tandvormige voorhoeken; de zijranden heel fijn gezaagd. Dekschilden donkerbruin tot roodbruin; relatief kort, waardoor een deel van het achterlijf onbedekt blijft. De dekschilden bovendien met stippelstrepen en bezet met

rijen borstelharen. Sprieten met een ronde eindknots. Zowel sprieten als poten roodbruin.

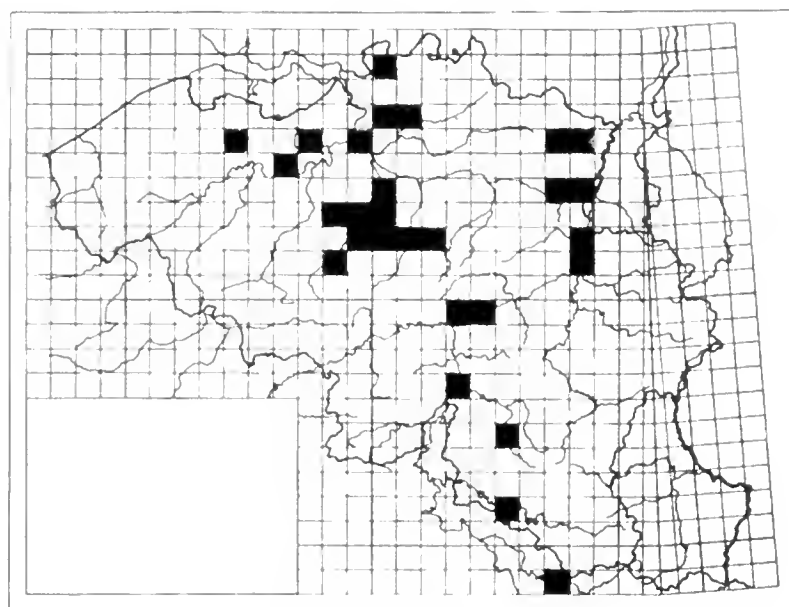


Fig. 2. Vindplaatsen van *Monotoma picipes* Herbst, 1793 in België.

In Europa is *Monotoma picipes* de meest algemene *Monotoma*-soort (Voght 1967:85). Ook in België is dit kevertje overal te vinden (fig. 2). De imago's zijn van mei tot oktober vaak in grote aantallen aan te treffen in composthopen en onder rottende planten (Harde & Severa 1982: 176).

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Bibliografie

- Harde K. W. & Severa F. 1982. *Thieme's kevergids*. — W. J. Thieme & Cie, Zutphen.
Keer P. M. 1930. *Calwer keverboek*. — W. J. Thieme & Cie, Zutphen.
Voght H. 1967. Cucujidae. — In: Freude, Harde & Lohse. *Die Käfer Mitteleuropas*. Band 7. — Goecke & Evers Verlag, Krefeld.

Sphenarches zanclistes (Lepidoptera: Pterophoridae) new for Japan and Thailand

Takahiro Mano & Cees Gielis

Abstract. *Sphenarches zanclistes* (Meyrick, 1905) is recorded new for the fauna of Japan and Thailand. *Megalorhipida deboeri* Gielis, 2003 is recognized as a junior synonym of *Sphenarches zanclistes* (Meyrick, 1905). A new hostplant is recorded: *Clerodendrum trichotomum* var. *esculentum* (Verbenaceae).

Samenvatting. *Sphenarches zanclistes* (Lepidoptera: Pterophoridae) nieuw voor Japan en Thailand. *Sphenarches zanclistes* (Meyrick, 1905) wordt nieuw gemeld voor de fauna van Japan en Thailand. *Megalorhipida deboeri* Gielis, 2003 is gemeld als junior synonym of *Sphenarches zanclistes* (Meyrick, 1905). Een nieuwe voedselplant wordt gemeld: *Clerodendrum trichotomum* var. *esculentum* (Verbenaceae).

Résumé. *Sphenarches zanclistes* (Lepidoptera: Pterophoridae), espèce nouvelle pour le Japon et la Thaïlande. *Sphenarches zanclistes* (Meyrick, 1905) nouveau pour la faune du Japon et de Thaïlande. *Megalorhipida deboeri* Gielis, 2003 est considéré comme synonyme plus récent de *Sphenarches zanclistes* (Meyrick, 1905). Une plante nourricière nouvelle est mentionnée: *Clerodendrum trichotomum* var. *esculentum* (Verbenaceae).

Keywords. Lepidoptera – Pterophoridae – Japan – Thailand – new synonym – species nova fauna – hostplant.

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Introduction

The first author recently examined Pterophoridae specimens. Among these a species was recognized to be closely related to *Sphenarches anisodactylus* (Walker, 1864). At closer examination, the difference of a more slender shape of the second fore wing lobe became apparent. The genital examination of these specimens made clear we dealt with *S. zanclistes* (Meyrick, 1905), a species known from the southern and south-eastern parts of Asia. With the present finds it is obvious the species has a distribution much further north than was anticipated before.

The second author compared the specimens with the type of *S. zanclistes* in the British Museum, and with a species he described from the island Irian Jaya, Indonesia: *Megalorhipida deboeri* Gielis, 2003. This led to the conclusion that *M. deboeri* is a junior synonym of *Sphenarches zanclistes* (Meyrick, 1905).

Sphenarches zanclistes (Meyrick, 1905)

Oxyptilus zanclistes Meyrick, 1905: 582. LT: Burma.

Megalorhipida deboeri Gielis, 2003: 357. LT: Indonesia, Irian Jaya. **Syn. n.**

Material: 1♂, JAPAN, Yabuchi-jima, Uruma-shi, Okinawa Pref. (Okinawa Island), 20-24.viii.2012, em. 5-10.viii.2012 (leg. S. Tominaga), e.l. flower bud *Clerodendrum trichotomum* var. *esculentum*

(Verbenaceae), gen. Mano 1434 (Coll. T. Mano); 3♂, 4♀, same data; 1 male, JAPAN, Kochinda, Yaese-cho, Okinawa Pref. (Okinawa Island), 10.ix.2002 (leg. S. Tominaga), e.l. flower bud *Clerodendrum trichotomum* var. *esculentum* (Verbenaceae), gen. Mano 1101 (Coll. T. Mano); 1♂, same locality, 7.ix.2002 e.l. same host, gen. Mano 1436 (Coll. T. Mano); 1♂, 1♀, same locality, 22-30.viii.2004 (leg. S. Tominaga), e.l. same host (Coll. RMNH); 5♂, 2♀, same locality, 10-19.viii.2002 (leg. S. Tominaga) (Coll. T. Mano, RMNH); 1♂, JAPAN, Itoman-shi, Okinawa Pref. (Okinawa Island), 12.viii.2004 (leg. S. Tominaga), e.l. flower bud *Clerodendrum trichotomum* var. *esculentum* (Verbenaceae) (Coll. T. Mano); 2♀, JAPAN, Mt. Otheadake, Nakijin-son, Okinawa Pref. (Okinawa Island), 8.ix.2008 (leg. M. Kimura) (Coll. T. Mano); 1♀, JAPAN, Banna-park, Tonoshiro, Ishigaki-shi, Okinawa Pref. (Ishigaki Island), 20.xii.2011 (leg. T. Hanatani) (Coll. T. Mano); 1♀, JAPAN, Midara, Taketomi-cho, Okinawa Pref. (Iriomote Island), 13.xii.2012 (leg. M. Kimura) (Coll. T. Mano); **New hostplant. New for Japan.**

2♀, THAILAND, Wiang, Pa Pao, Chang Rai, 1-5.v.2001 (Coll. T. Mano). **New for Thailand.**

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References

- Gielis C. 2003. Review of the Pterophoridae from New Guinea, with descriptions of eight new species. — *Zoologische Mededelingen, Leiden* **77**: 349–391.
- Meyrick E. 1905. Description of Indian microlepidoptera. — *Journal of the Bombay Natural History Society* **16**: 580–619.
- Walker F. 1864. *List of the specimens of lepidopterous insects in the collection of the British Museum* **30**. Tineites. — The Trustees of the British Museum, London, pp. 837–1096.