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Dans cette bibliographie se trouvent les textes originaux en anglais de MUÑOZ SARIOT *et al.* (2019), RUSSELL *et al.* (2005, 2006, 2007, 2011 a ,b, 2012 a-c, 2013 a ,b, 2014, 2015, 2016), TENNENT *et al.* (2010) et TIKHONOV *et al.* (2015). Pour lire ces textes en français voir la bibliographie de *M. ornata*.

ABADJIEV, S.P., 2000 – News in the distribution of *Melitaea punica telona* Fruhstorfer, 1908 in Bulgaria (Lepidoptera : Nymphalidae). *Atalanta*, Würzburg 31 (3/4) : 467-469.

https://www.zobodat.at/pdf/Atalanta_31_0467-0469.pdf

CHRISTOPH, H. 1893 – Lepidoptera Nova Faunae Palaearcticae. *Deutsche Entomologische Zeitschrift Iris* 6 : 86-89 [*Melitaea phoebe ornata* : p. 87. Locus typicus : Habitat circa Guberli (= Guberlya en région d'Orenbourg, fédération de Russie)].

Melit. Phoebe var. Ornata. Alae supra valde variae, maculis albicantibus et rufescentibus; subtus posticae albiae. Habitat circa Guberli, promontorium uralensium austrarium. Volat Majo.

<http://www.biodiversitylibrary.org/item/45618#page/104/mode/1up>

FRUHSTORFER, H., 1908 – Neue Argynnis und Melitaea. *Internationale entomologische Zeitschrift, Guben* 1 (41) : 310 [*Melitaea phoebe ogygia* nov. subsp., locus typicus : Poros, Meerenge von Salamis, Griechenland. *Melitaea phoebe telona* nov. subsp., locus typicus : Jerusalem, Palästina].

Melitaea phoebe telona nov. subsp.

Steht *aetherea* Evers, wie sie mir von Armenien, Orudbad, Persien und Sarepta vorliegen, am nächsten, nur ist die Grundfärbung noch aufgehellter, die Schwarzzeichnung zierlicher, nicht bindenförmig zusammenhängend, sondern mehr aufgelöst.

Medianfleckung der Hinterflügel namentlich bei den ♂♂ besonders verringert.

Gelbfärbung der Unterseite dominierender und heller als bei *aetherea*. Flügelform rundlicher als bei anderen Asiaten und den westeuropäischen Rassen, was bei den ♀♀ am meisten auffällt.

Patria: Palästina, Jerusalem, April 5 ♂♀. Coll. Fruhst.

Für die *phoebe* aus Griechenland dürfte sich vielleicht auch eine Bezeichnung empfehlen (*ogygia* nov. subsp.), da sie von großen Reihen westeuropäischer *phoebe* durch hellockergelbes Kolorit, noch zartere Schwarzfleckung als bei *telona* und lebhaftere hell rotbraune Submarginalbinden der Hinterflügel-Oberseite sich absondern.

Die schwarze Bänderung der Flügelunterseite präsentiert sich noch unscheinbarer als bei *telona*.

Patria: Griechenland, Poros, Juni 1903. Dr. A. Krüper leg.

<http://www.biodiversitylibrary.org/item/114081#page/332/mode/1up>

HESELBARTH, G., VAN OORSCHOT, H., & WAGENER, S., 1995 – Die Tagfalter der Türkei unter Berücksichtigung der angrenzenden Länder. Selbstverlag Sigbert Wagener, Bocholt, 3 volumes. [*Melitaea (phoebe) punica* Oberthür, 1876 (status novus) : vol. 2, p. 1030-1033; vol. 3, pl. 80, fig. 1-25]

KUZNETSOV, G.V., 2011 – Some data about biology *Melitaea telona* Fruhstorfer, 1908 and *Melitaea robertsi uvarovi* Gorbunov, 1995 (Lepidoptera: Nymphalidae) on Volgograd region. *Caucasian Entomological Bulletin* 7 : 83-84 ; pl. 6, 7.

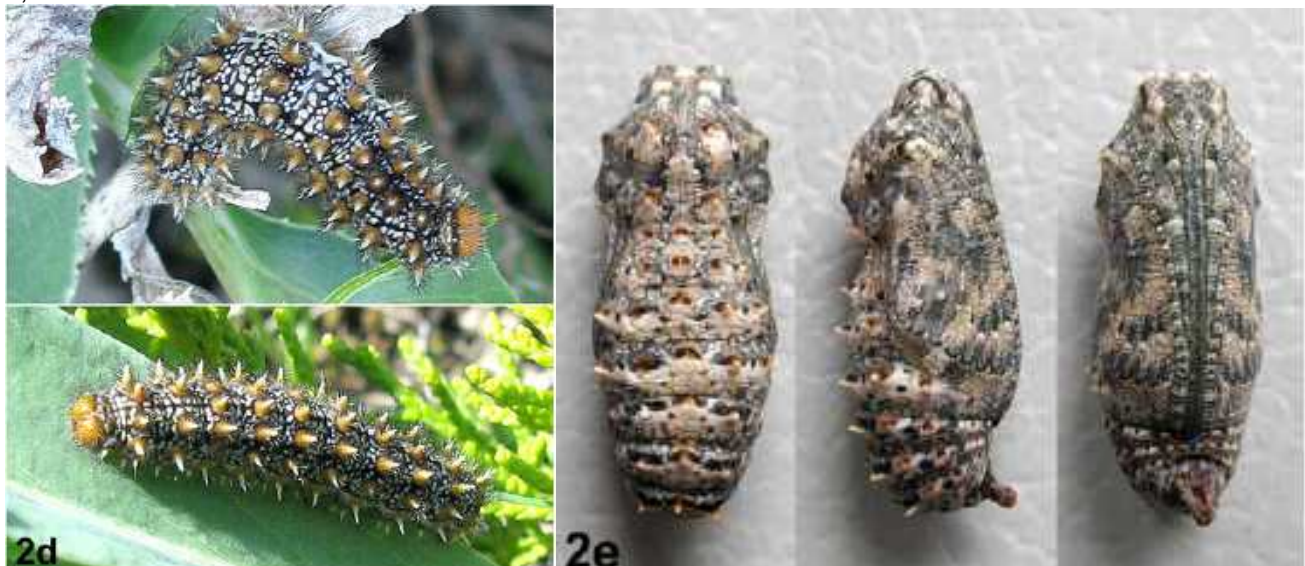


Fig. 2 d ,e : *Melitaea telona* (= *ornata*), adult larva and pupa.



Fig. 3 d , e : *Melitaea phoebe*, adulta larva, pupa

http://www.ssc-ras.ru/ckfinder/userfiles/files/16_GV%20Kuznetsov.pdf

KUZNETSOV, G.V. & STRADOMSKY, B.V., 2010 – About finding *Melitaea telona* Fruhstorfer, 1908 (Lepidoptera: Nymphalidae) in Volgograd region [In Russian with an English abstract]. *Caucasian Entomologica Bulletin* 6 : 193-196.

http://www.ssc-ras.ru/ckfinder/userfiles/files/10_GV%20Kuznetsov_BV%20Stradomsky.pdf

LAFRANCHIS, T., 2007 – *Melitaea ogygia* FRUHSTORFER, 1908 et *Melitaea phoebe* DENIS & SCHIFFERMÜLLER, 1775 en France et en Europe (Lepidoptera, Nymphalidae). *Bulletin des Lépidoptéristes Parisiens* 16 (36) : 38-43.

LAFRANCHIS, T., 2008 – Une nouvelle espèce de Rhopalocère pour la faune de France : *Melitaea ogygia* Fruhstorfer, 1908 (Lep. Nymphalidae). *Oreina* 2 : 5-7.



<http://oreina.org/docs/Lafranchis2008a.pdf>

LAFRANCHIS, T., JUTZELER, D., GUILLOSSON, J.-Y., KAN, P. & B., 2015 – La Vie des Papillons. Ecologie, Biologie et Comportement des Rhopalocères de France. Diatheo, Paris, 751 p. [*M. ornata* : p. 468-469]



<http://diatheo.weebly.com/la-vie-des-papillons.html>

MESA, L.S., & MUÑOZ SARIOT, M.G., 2017 – *Melitaea ornata* (Cristoph [sic], 1893), nueva especie para la Península Ibérica. Primeros datos de su morfología, biología y ecología comparada con los de *Melitaea phoebe* (Denis & Schiffermüller, 1775). (Lepidoptera: Nymphalidae). *Arquivos Entomoloxicos* 18 : 313-324.

MUÑOZ SARIOT, M.G., & MESA, L.S., 2019 – Nueva subespecie de *Melitaea ornata* (Christoph, 1893), con la descripción de sus estadios preimaginales (Lepidoptera : Nymphalidae). *Arquivos Entomoloxicos* 21 : 5-20.

«Abstract : New subspecies of *Melitaea ornata* (Christoph, 1893) with the description of its preimaginal stages (Lepidoptera : Nymphalidae) *Melitaea ornata baetica* ssp. nov. (Lepidoptera : Nymphalidae), from the Spanish provinces of Granada, Jaen, and Albacete, in the south of the Iberian Peninsula, is described. Its description is based exclusively on certain constant characters of the larval stages : the cephalic capsule is red-orange only in L7 and only in the upper half of the epicrania. The red-orange scoli are presented only in L4 and L7. Preimaginal stages are described and illustrated in detail».

L7



Fig. 1 a , b : chenille de *Melitaea ornata baetica* ssp. nov. au 7^e et dernier stade, à pleine maturité. 2 a , b : capsule céphalique du stade L4.



Fig. 3 : chenille de *M. phoebe* (D. & S., 1775) à sa maturité (7^e stade), pour comparaison. 4 : capsule céphalique d'une chenille de *Melitaea telona* (Fruhstorfer, 1908) d'Israël pour comparaison. 5 : chrysalide de *M. ornata baetica* ssp. nov.

http://www.aegaweb.com/arquivos_entomoloxicos/ae21_2019_munoz_sariot_sanchez_mesa_nueva_subespecie_melitaea_ornata_estadios_preimaginales_lepidoptera_nymphalidae.pdf

MUÑOZ SARIOT, M.G., & MESA, L.S., 2019 – *Melitaea ornata pseudornata* nuevo nombre de reemplazo para *Melitaea ornata baetica* Muñoz Sariot & Sánchez Mesa, 2019 (Lepidoptera : Nymphalidae). *Arquivos Entomoloxicos* 21 : 83-84.

http://www.aegaweb.com/arquivos_entomoloxicos/ae21_2019_munoz_sariot_sanchez_mesa_melitaea_ornata_pseudornata_nuevo_nombre_reemplazo_lepidoptera_nymphalidae.pdf

RÁKOSY, L. & VARGA, Z., 2000 – *Carcharodus orientalis* Reverdin, 1913 und *Melitaea (punica) telona* Fruhstorfer, 1908 (Lepidoptera : Hesperiiidae, Nymphalidae) in der Fauna Rumäniens. *Entomologica Romanica* 5 : 45-49.

RUSSELL, P., 2008 – Three new records of butterflies from the area of the Parco Nazionale del Cilento e Vallo di Diano (Campania, Italy): *Cacyreus marshalli* Butler, 1898, *Melitaea telona* Fruhstorfer, 1908 and *Pyrtonia tithonus* (Linnaeus, 1767) (Lepidoptera : Lycaenidae, Nymphalidae) *Entomologist's Gazette* 59 : 127-128.

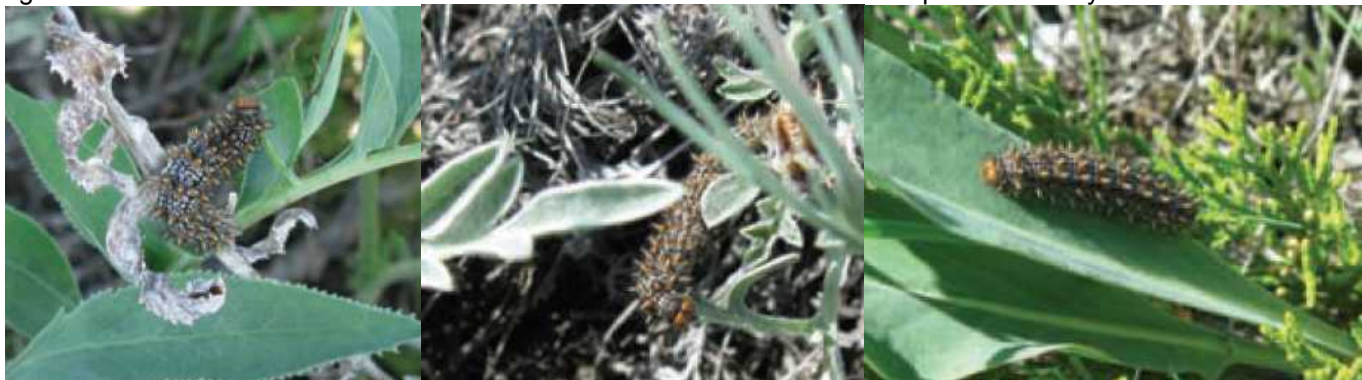
RUSSELL, P. J. C., GASCOIGNE-PEES, M., PATEMAN, J.E., & TENNENT, W. J. 2005 – *Melitaea emipunica* (Verity, 1919) stat. nov.: a hitherto unrecognised butterfly species from Europe (Lepidoptera: Nymphalidae). *Entomologist's Gazette* 56 : 67-70.

«Introduction : The first author (PR) visited the island of Sicily in May 2002, when a *Melitaea* species, assumed to be *Melitaea phoebe* ([D. & S.], 1775), was on the wing. It was noted that the uppersides of the wings of this *Melitaea* appeared paler yellowish brown than might be expected from southern European forms of *M. phoebe*. In May of the following year, MG collected a female 'phoebe' at 600 m elevation on Montagna Longa (ca 20 km east of Palermo), Sicily, which subsequently laid a fertile egg batch on a potted plant of Knapweed (*Centaurea nigra* L.) upon which the young larvae fed. Unexpectedly, at the end of July 2003, it was seen that the larvae had entered diapause, a circumstance that suggested univoltinism. Early 2004, JP took over responsibility for the larvae. January and February of that year were unseasonably warm in the south of England and in mid-February the larvae were seen to be no longer dormant, having possibly become active towards the end of January. The larvae were removed from the now dead potted *Centaurea* and placed on Spear Thistle (*Cirsium vulgare* Savi (Ten.)), known to be a host-plant of *M. phoebe*, on which they immediately began to feed. – It soon became clear that these larvae were quite unlike those of *M. phoebe* in appearance but, surprisingly, they bore a striking resemblance to the larvae of *M. cinxia* (Linnaeus). Their heads were not black, like those of *M. phoebe*, but brick red as in *M. cinxia*; their bodies also lacked the usual bright orange lateral markings of *M. phoebe* larvae but displayed instead a series of

small white spots, similar to *M. cinxia*. Within a month, 16 of the 22 larvae successfully pupated. White marbling on the pupae made them appear much paler in colour than those of either *M. phoebe* or *M. cinxia*. The 14 adults that subsequently emerged, beginning on the 7 March, were generally paler in colour than *M. phoebe*, but where in most respects inseparable from that species (...).

RUSSELL, P. & KUZNETSOV, G., 2012 – Some comments on recent observations by Russian researchers on *Melitaea ornata* Christoph, 1893, its host-plants and its relationship to *M. telona* Fruhstorfer, 1908 (Lepidoptera : Nymphalidae). *Entomologist's Gazette* 63 : 207-216.

«Synopsis : Recent studies on *Melitaea* species, under the names *ornata* and *telona*, by Russian researchers have been published mainly in Russian journals and have consequently been largely overlooked by western Europeans working on these and related *Melitaea phoebe* group taxa. The intention of this article is to bring recent Russian studies to the attention of western European lepidopterists. Studies, particularly by G.K. in Volgograd Province (south-eastern European Russia), have revealed that certain aspects of wing morphology, genitalia and early stages of *M. ornata* are similar to those of *M. telona* (= *ogygia* = *emipunica*) but dissimilar to those of *M. phoebe*. The known distribution of the taxon *ornata* in Russia is outlined and its known host-plants named and figured. It is here considered that *Melitaea ornata* is the correct name for the species recently known as *M. telona*».



Figs 1-3 : Final instar larvae from the Volgograd region feeding on *Centaurea ruthenica* (1), *C. marschalliana* (2) and *Serratula cardunculus* (3) ; 4-7 : *Melitaea ornata* reared ex larvae from Volgograd region (Mikhaïlkova, Ol'hovka district) ; 8 : Habitat of *M. ornata* in the Volgograd Region (calcareous ridge to the north-west of the Ilovlya River) ; 9 : Habitat of *M. ornata* in the Orenburg Region (Mt Verblyuzka, west of Donskoe) ; 10-13 : Host-plants of *M. ornata* in Russia : *Centaurea marschalliana* (10), *C. adpressa* (11), *Jurinea cretacea* (12), *Serratula cardunculus* (13).
Photographs : G.V. Kuznetsov, W.J. Tennent

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RUSSELL, P., & PAMPERIS, L.N., 2011 – A reassessment of the presence of *M. phoebe* ([Denis & Schiffermüller], 1775) (Lepidoptera : Nymphalidae) in the Aegean islands. *Entomologist's Gazette* 62 : 139-158.

«Synopsis : Resulting from recent separation of *Melitaea telona* from *M. phoebe*, an assessment of the presence or absence of these two species in the Aegean islands is presented, based on a re-examination of previous records and personal observations by the authors. Some elements of morphology, which could provide characters to assist in the separation of the two species, are reviewed. *Carduus nutans*, a previously unrecorded host-plant for *M. telona*, is identified and figured. The recorded distributions in the Aegean islands of this and other known host-plants of *M. telona* in Greece are used as indicators of its presence in or absence from various Aegean islands. A *Cotesia* sp., which emerged from a wild caught larva of *M. telona* taken on Lésvos is reported».



Fig. 1 : Habitat of *Melitaea telona* on Lésvos (near Filia, Kalloni) where *Carduus nutans taygeteus* grows in abundance ; 2,3 : Reared ♂ and ♀ of *telona* ; 4 : first year plant ; 5,6 : second year plant of *C. nutans* in flower ; 7 a ,b : egg batch of *telona* on underside of a leaf of *Carduus nutans*.

[Reproduction des photos avec l'autorisation des auteurs](#)

RUSSELL, P. & PAMPERIS, L.N., 2012 – A reassessment of the presence of *Melitaea phoebe* ([Denis & Schiffermüller], 1775) (Lepidoptera : Nymphalidae) in the Aegean islands : addendum and corrigendum. *Entomologist's Gazette* 63 : 39-41.

«Synopsis : The eastern Aegean island of Chios, Greece, was visited in order to establish which species of *Melitaea phoebe* – like butterfly was present and what host-plant it was using. The lateness of the spring resulted in the delayed emergence of many species, including those of *Melitaea*, none of which was observed. *Carduus nutans* was not present at any of the locations from where the *Melitaea* sp. had been reported previously, but *Centaurea urvillei* was abundant on the island and thus it was concluded that this is most probably the host-plant of *M. telona* at Néa Moni».



Centaurea urvellei près de Néa Moní, probablement la plante-hôte de *M. telona* (= *ornata*) à Chios.
 Reproduction de la photo avec l'autorisation de l'auteur

RUSSELL, P., & PATEMAN, J., 2011 – Further observations on populations of *Melitaea telona* Fruhstorfer, 1908 (= *ogygia* Fruhstorfer, 1908; = *emipunica* Verity, 1919) in Greece and Italy (Lepidoptera : Nymphalidae). *Entomologist's Gazette* 62 : 7-31.

«Synopsis : This fourth part of an investigation into *Melitaea telona* Fruhstorfer has confirmed that larvae with both black and red tubercles can result from an egg batch oviposited from a single Greek female. The presence of this species, from an examination of reared larvae, has been confirmed from three sites in southern peninsular Italy. In captivity, Italian larvae were found to be highly oligophagous, even feeding on *Centaurea diluta* Aiton, an invasive species from North Africa, recorded here for the first time from the Calabrian littoral. A known host-plant, *Centaurea bracteata* (Scop.), and a number of potential host-plants growing in the vicinity of the Italian populations of *M. telona*, have been identified and are figured. The distribution of *M. telona* is revised, both from the results of the present study and reports from other entomologists. *Melitaea telona* from three sites in southern peninsular Italy are figured in colour».



Fig. 1 : ♀ of *M. telona* nectaring on *Centaurea raphanina* near Mamousia (Ahaia, Greece) ; 2 : The same plant with egg batch on underside of leaf ; 3 : ♂ of *Melitaea telona*, southern Italy (Mte Cervati, Campania) reared ex ovo ; 4-6 : Some known or potential host-plants in Italy : *Centaurea triumfetti*, *Centaurea bracteata*, *Centaurea diluta*.

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RUSSELL, P. & PATEMAN, J., 2012 – Some observations on populations of *Melitaea telona* Fruhstorfer, 1908 (Lepidoptera : Nymphalidae) in Turkey. *Entomologist's Gazette* 63 : 85-94.

«Synopsis : The presence of *Melitaea telona* Fruhstorfer, 1908, is confirmed from Muğla (south-west-Turkey, from an examination of reared larvae resulting from ova laid by a captured female ; the colour of the larvae indicated that this species is not conspecific with the taxon *punica*. In captivity, the *M. telona* larvae would not accept any of the species of *Centaurea*, which were utilized by those from Italian and/or Greek larvae from the Peloponnese, but accepted *Cirsium vulgare*, a known host-plant of *M. Phoebe* in Europe. The highly likely host-plant in SW. Turkey is identified as *Carduus nutans*. Larvae and adult butterflies of *M. telona* from Muğla and their

host-plant are figured in colour. Comments are made on the voltinism, ecology and distribution of *M. telona*.

Introduction : The observations reported here represent the sixth part of an investigation into the distribution and ecology of *Melitaea telona* Fruhstorfer, 1908 (Type locality [TL] : Jerusalem, Israel), recently recognized at species level and as being distinct from *M. phoebe* ([D. & S.], 1775) (TL : environs of Vienna, Austria) (cf. Russell *et al.*, 2005 ; 2007 ; 2011 ; Russell, Tennent & Hall, 2006). These two species can be separated tentatively from an examination of their hindwing undersides (cf. Russell & Pamperis, 2011 : 140, figs. 1-8) and also from their genitalia (Tóth & Varga, 2010), but with certainty only by the colour of the head carapace of their post diapause larvae, those of *M. telona* being red-brown in colour whilst those of *M. phoebe* are black ; this has been confirmed from the designation of a neotype for the taxon *Papilio phoebe*, with a known larval history, by Tennent & Russell (2010). Fieldwork was undertaken in May/June 2009 and June 2010 in south-west Turkey. A previously unrecorded host-plant for *M. telona* in south-west Turkey is recorded, based on both field observations and captive rearing. (...).



Fig. 1-6 : 3rd instar larvae of *Melitaea telona* (= *ornata*) on *Cirsium vulgare*, ♂ and ♀ resulting from rearing and habitat of *Melitaea telona* (= *ornata*) at Tuzlabeli geçidi near Muğla, Turkey ; 7-9 : *Carduus nutans*, supposed host-plant of *M. telona* in the wild, near Muğla.

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RUSSELL, P. & PATEMAN, J., 2013 – To which *Melitaea* species does *nigrogygia* Verity, 1938, belong? Observations on a Croatian population of *Melitaea phoebe* ([Denis & Schiffermüller], 1775), with rearing results and comments on f. *occitanica* Staudinger, 1871 (Lepidoptera : Nymphalidae). *Entomologist's Gazette* 64 : 43-51.

«Synopsis : Following the separation of European *Melitaea phoebe* into two sibling species, *M. phoebe* and *M. ornata* (= *telona*; = *ogygia*; = *emipunica*), the many subspecies, races and forms of *M. phoebe* described by many different authors need to be assigned to their correct species. One such named race is *nigrogygia*, described and illustrated by Verity from Istria, Croatia ; these illustrations are compared with the *M. phoebe* - like butterflies presently occurring only a short distance from its type locality. To establish the larval head colour, the only 100 percent reliable method of specific determination, egg batches were obtained from two females, sampled from this population in 2011, and reared under 'laboratory' conditions in the U.K. It was noted that many of the resulting larvae, all of which had black heads, were weak and some were intermediate between those of the type form of *phoebe* (with a white lateral stripe) and those of the south western form *occitanica* (with an orange lateral stripe), suggesting that this population represented a mixture of these two fairly distinct forms of *M. phoebe*. Similar larval coloration and wing patterns of specimens of *M. phoebe* from a French population are demonstrated, indicating that there may be a transitional zone showing variability both in larval colour and adult wing pattern in locations where the distributions of the type form and the form *occitanica* of *M. phoebe* meet. It is concluded that race *nigrogygia* should most probably be placed as a form or race of *M. phoebe* rather than *M. ornata*».



Photographs : Final instar larvae of *Melitaea phoebe* reared ex ovo. 1 : f. *occitanica* ex ♀ collected near Nedešćina, Labinština, Istria, Croatia ; 2,3 : intermediate larvae between nominotypical form and f. *occitanica* ex ♀♀ from Nedešćina, Istria (2) and Méaulx, Var, France (3) ; 4 : nominotypical form ex ♀ from Slovakia (photo : D. Zitnan).

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RUSSELL, P., & PATEMAN, J., 2013 – Confirmation of the presence of *Melitaea ornata* Christoph, 1893 (Lepidoptera : Nymphalidae) on the eastern Aegean island of Chíos, Greece, and its host-plant. *Entomologist's Gazette* 64 : 217-224.

«Synopsis : Following poor spring weather during the previous visit to Chíos in 2011, the island was visited in early May 2012 to search again for *Melitaea phoebe*-like butterflies. The warm spring had resulted in their early emergence and they were becoming very worn ; however, many batches of ova were located on the undersides of the leaves of *Centaurea urvillei* at four different locations around the island. It was noted that females showed a preference for partially shaded plants for oviposition. The resulting L4 Larvae all had red-brown heads and were thus *M. ornata* as opposed to *phoebe*. The eight egg batches were reared through, producing adults mainly following an eight-month diapause in the spring of 2013. However, one batch of young larvae that had been left out in heavy rain continued feeding and pupated without entering diapause, adults emerging in the summer of 2012. It is tentatively concluded that only *M. ornata* (= *M. telona*) and not *M. phoebe* occurs on Chíos and the only host-plant being utilised is *Centaurea urvillei*».



Melitaea ornata on Chíos – 1 : Egg batch on *Centaurea urvillei* south of Kipouriés, 9 May 2012 ; 2 : *C. urvillei* in bud, Kipouriés ; 3 : Habitat of *M. ornata* showing the favoured position for oviposition on the *C. urvillei* plants partially shaded by the tree (*Pinus* sp.) near Anávatos ; 4 : L5 larva e.o., Anávatos, 4 May 2012.



Melitaea ornata on Chíos – 5 : Final instar larva, e.o., Kipouriés, 3 March 2013 ; 6 : pupa e.o., Anávatos, 1 August 2012 ; 7,8 : spring generation *M. ornata* reared e.o., Néa Moni, ♂ emerged 30 April 2013, ♀ 2 May 2013.

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RUSSELL, P. & PATEMAN, J., 2016 – Further observations on *Melitaea ornata* Christoph, 1893 (Lepidoptera : Nymphalidae) in the Republic of Macedonia. *Entomologist's Gazette* 67 : 15-22.

«Synopsis : Further records of *Melitaea ornata* from the Republic of Macedonia are provided, supported by observations of L4 and later stage larvae having red-brown heads, which separates this species from *M. phoebe*,

the larvae of which have black heads in every instar. *Centaurea grisebachii* is reported for the first time as a larval host-plant for *M. ornata*».



Fig. 1 : a habitat of *M. ornata* on the pass over Konečka Planina, Macedonia, 3 May 2014 ; 2,3 : *Centaurea salonitana* growing on the gravel slope in the habitat of *M. ornata*, Konečka Planina ; 4 : *Centaurea grisebachii* growing on the road verge, Katlanovo, Macedonia ; 5 : terraced hillside planted with *Robinia pseudoacacia*, Katlanovo, 8 May 2014, habitat of 2 ♀♀ retained for ovipositing ; 6-8 : ♂ (both sides) and ♀ reared ex ovo, Katlanovo.

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RUSSELL, P., & PATEMAN, J., 2019 – Confirmation of the presence of *Melitaea ornata* Christoph, 1893 (Lepidoptera : Nymphalidae) in Croatia and Bosnia and Herzegovina with its host-plants. *Entomologist's Gazette* 70 (2) : 79-92.

<https://www.ingentaconnect.com/content/pemberley/eg/2019/00000070/00000002/art00003?crawler=true&mimetype=application/pdf>

RUSSELL, P., PATEMAN, J., & VEROVNIK, R., 2014 – First record of *Melitaea ornata* Christoph, 1893, from Slovenia, with notes on its confirmed distribution and hybridisation with *M. phoebe* ([Denis & Schiffermüller], 1775). *Entomologist's Gazette* 65 : 135-153.

«Synopsis : Egg batches obtained from females, sampled from populations of *Melitaea ornata* - like butterflies in south-western Slovenia in 2011 and 2012, were reared under laboratory conditions in the U.K. Most unusually, heavy mortality of ova, larvae, pupae and imagines was observed and very few healthy butterflies resulted from the female captured in 2011. It is suggested that this female was *M. ornata* but had been fertilised by a male *M. phoebe* from a nearby population, producing a very few hybrid offspring. The rearings from the two females taken in 2012 produced adults from larvae with red-brown heads and thus were confirmed as *M. ornata* ; this is the first confirmed record of this species from Slovenia. The results of examination of the male genitalia of reared (i.e. known from head colour) *M. phoebe* and *M. ornata* are presented together with some wild-caught examples ; these are compared with the individual's wing morphology and larval head colour. Comments are made on the lack of recognition of *M. ornata* in some recent publications and stressing the doubtfulness of separating this species from *M. phoebe* using only characters of wing morphology. The continued confusion between these two species and with *M. punica* by recent authors is exemplified».





Fig. 1-6 : rearing material of *M. ornata* from Rakitovec, Slovenia : egg batch, hibernating larva, adult larva in spring, pupa and an emerged ♂. A few individuals developed immediately to a summer brood ; 7-9 : On 30 April 2013, Rudi Verovnik found a larva of *M. ornata* on *Carduus collinus* near Rakitovec.

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RUSSELL, P., TENNENT, W.J., & HALL, D., 2006 – Observations on the biology of the nominal taxon *punica* Oberthür, 1876, in the Anti Atlas, Morocco, with comments on its relationships to *Melitaea phoebe* ([Denis & Schiffermüller], 1775) and *M. emipunica* Verity, 1919 (Lepidoptera : Nymphalidae). *Entomologist's Gazette* 57 : 215-222.

«Introduction : Following the proposed elevation to species rank of *Melitaea emipunica* Verity, 1919 (= *ornata*), a *phoebe*-like butterfly occurring in Sicily (Russell & al., 2005), consideration is now given as to whether the nominal taxon *punica* Oberthür, 1876, the type locality (TL) of which is Lambessa [Tazoult-Lambèze], Algeria, is more closely related to *M. emipunica* (TL : district of Palermo, Sicily, Italy) or to *M. phoebe* ([Denis & Schiffermüller], 1775) (TL : Vienna, Austria). Other taxa occurring in southern Europe and beyond, with similar wing morphology to that of *M. phoebe* / *M. emipunica*, have previously been associated with *punica*. For example, Pamperis (1997 : 304-305, figs 1, 2) illustrated a specimen from the Peloponnese, Greece, of which he said 'We observed individuals, in [the Peloponnese] with less black marks [than *phoebe*] in postdiscal area [of the] unf [underside forewing], very similar in external characters to *Melitaea punica*'. Specimens of a similar form were referred by Higgins (1941 : 335) to the taxon *ogygia* Fruhstorfer, 1908 (TL : Island of Poros, NE. Peloponnese, Greece). Tristan Lafranchis (pers. comm.) recently found mature larvae in the northern Peloponnese, Greece, similar in colour to those of *M. emipunica* (i.e. unlike those of *M. phoebe*) feeding on a *Centaurea* sp. Most of the larvae had been parasitized but two pupated and produced females of the taxon *ogygia*. Additionally, Abadjiev (2001) gave several localities in southern Bulgaria for '*Melitaea punica*' and referred to a previous paper (Abadjiev, 2000) in which they were placed as '*Melitaea punica telona*', while Hesselbarth, van Oorschot & Wagener (1995) referred *punica*-like specimens from Turkey to '*Melitaea (phoebe) punica telona* (TL : Jerusalem)'.

The status of *punica* has been interpreted differently by different authors. For example, Higgins & Riley (1983 : 118) considered it to be a small subspecies of *M. phoebe* found throughout north-west Africa, except for high altitudes in the Moroccan High Atlas, where it is replaced by the slightly larger f. *gaisericus* Hemming, 1941. Tennent (1996 : 52-53) acknowledged that the nomenclature of the North African *M. phoebe* was potentially confusing, but considered *punica* to be a diminutive form of *M. phoebe* replacing *M. phoebe occitanica* (which occurs in mountainous and northern habitats in Morocco and Algeria) in hot, dry localities in the south of the region where its appearance was constant. It is not intended to provide a definitive answer here as to whether *punica* should be considered a distinct species but merely to indicate whether this taxon is more closely associated taxonomically with *M. phoebe* or with *M. emipunica* (= *ornata*).

The current political situation in Algeria has precluded obtaining living material from the TL of *punica*, but PR and DH visited the Moroccan western Anti Atlas, from where *punica* had been reported previously by Tennent (1996), from 4-6 April 2005, when the butterfly was found to be widespread and locally common. It was recorded from a number of localities : Âit Baha (750-1000 m), 5 April ; Igherm (1685 m), 8, 11, 15 April ; Sidi M'Zal (Tizi-n-Tarakatine) (1380 m), 9, 13 April ; Tnine-Tarsouale (1200 m), 9, 13 April, and also from near Alma (= Oulma) (175 m) at the extreme western end of the High Atlas in 4, 7, 10 April. Two females taken near Sidi M'Zal and Tnine-Tarsouale on 9 April laid batches of ova on the leaves of a potted *Volutaria muricata* plant (Asteraceae) (see Acknowledgements) obtained from the edge of a dry stream where *punica* was flying. These were brought back to the U.K. for rearing, together with adults of both sexes, collected from all the localities where they were observed, for further examination».



Figs 1 ,2 : *Melitaea*, taxon *punica*, fully grown larva and pupa, reared from an egg batch deposited by a ♀ taken at Tnine-Tarsouale, Anti Atlas, Morocco, on 9.06.2005 (P. Russell).



Figs 3 ,4 : *Melitaea*, taxon *phoebe*, fully grown larva and pupa, all reared from an egg batch deposited by a female taken at San Angelo a Fasanella, Campania, Italy, on 8.07.2004 (G. Volpe).



Figs 5-8 : Reared living ♂ and ♀ from both sides, Tnine-Tarsouale, Anti Atlas, Morocco
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RUSSELL, P., TENNENT, W.J., PATEMAN, J., VARGA, Z.S., BENYAMINI, D., PE'ER, G., BÁLINT, Z. & GASCOIGNE-PEES, M., 2007 – Further investigations into *Melitaea telona* Fruhstorfer, 1908 (= *ogygia* Fruhstorfer, 1908 ; = *emipunica* Verity, 1919) (Lepidoptera : Nymphalidae), with observations on biology and distribution. *Entomologist's Gazette* 58 : 137-166.

«Introduction : This paper represents the third part of an investigation into the status of a previously unrecognised *Melitaea phoebe* - like butterfly taxon in the western Palaearctic region. Russell et al. (2005) alerted readers to the fact that early stage morphology and voltinism of a *Melitaea* butterfly in Sicily, previously thought to be *M. phoebe* ([Denis & Schiffermüller], 1775) (Type locality [TL] : Vienna, Austria), indicated a species distinct from *M. phoebe*. After some deliberation the name *emipunica* Verity, 1919 (TL : Palermo district, Sicily) was applied to this taxon, which was raised to species rank (but see below). It was acknowledged that in view of the large number of names proposed to describe various forms of *M. phoebe* in Europe, use of the name *emipunica* in this context may be considered provisional, and that the distribution of this species was as yet unknown. Varga, Szabó & Kozma (2005) coincidentally raised *ogygia* Fruhstorfer, 1908 (TL : Poros, Greece) to specific status based on a study of similar material from Hungary.

With hindsight, neither *emipunica* nor *ogygia* is the most appropriate name at species level, as will become clear. Varga, Szabó & Kozma (2005) and Russell et al. (2005) were each unaware of the others' work and as a consequence some confusion may have resulted in the literature. At a late stage in the preparation of the present manuscript, the second author discussed the subject with Zoltan Varga and Zsolt Bálint, both of whom agreed to co-author this paper, thus presenting a united front. This explains some divergence in interpretation of, for example, the number of antennal segments present in adult *Melitaea* specimens (see below). Such matters do not materially affect the substance of this paper.

Hesselbarth, van Oorschot & Wagener (1995) synonymised a number of western Palaearctic *Melitaea* taxa similar in appearance, including *ogygia*, with *telona* Fruhstorfer, 1908 (TL : Jerusalem, Israel), and placed the latter taxon as a subspecies of what they referred to as a 'semispecies', viz. *M. (phoebe) punica* Oberthür 1876 (TL : Lambessa, Algeria). Russell, Tennent & Hall (2006) investigated the relationship of the nominal taxon *punica* with *M. phoebe* and *emipunica* and established from comparative larval morphology and voltinism that *punica* appears more closely related to nominotypical *M. phoebe* than it does to *emipunica*. They concluded that *emipunica* and *punica* are not conspecific and that, despite close similarity in adult morphology (see below), the taxa *M. telona* and what Russell et al. (2005) referred to as *M. emipunica* are not so closely related to the North African *punica* as some authors have previously supposed.

The present paper discusses the distribution, host-plants, early stage morphology and names relating to 'emipunica' and 'ogygia', which the authors now confidently assign to *M. telona* for reasons explained below. It also presents additional data from some populations of this butterfly in Hungary, Italy, Greece and Israel. The colour plates accompanying this paper, combined with those in Russell, Tennent & Hall (2006), illustrate relevant early stages and adults of *punica*, *occitanica* Staudinger, 1861 (TL : Iberia), *emipunica*, *ogygia* and *telona* in colour. This is not to declare or imply that issues first raised to Russell et al. (2005) are now fully resolved, but the data now provided allow further investigations into the *M. phoebe* and *M. telona* complexes to be more focussed. In order not to further confuse a potentially complex issue, we first discuss in some detail the question of the correct name to be used for what Russell & al. (2005) and Russell, Tennent & Hall (2006) called *emipunica*, and what Varga, Szabó & Kozma (2005) called *ogygia*, in order to allow consistent usage of names throughout the remainder of this paper. We then present field and rearing data from selected populations, larval morphology and distribution».



Some host-plants of *Melitaea telona/emipunica/ogygia* (= **ornata**) : 1 : *Centaurea deusta*, Calabria IT ; 2 ,3 : *Centaurea solstitialis*, Sicily IT ; 4 : *Centaurea raphanina*, Peloponnese GR ; 5 : *Centaurea salonitana*, Greece.



Some host-plants of *Melitaea telona/emipunica/ogygia* (= **ornata**) : 6 ,7 : *Centaurea achaia*, Peloponnese GR ; 8 : *Centaurea iberica*, Israel ; 9 : *Centaurea crocodylium*, Israel ; 10 : *Centaurea calcitrapa*, Sicily IT.



Larvae of *Melitaea* sp. : 1 : **phoebe**, Campania Italy ; 2 : **phoebe** : Alba, Romania ; 3 : **ornata** : Tzomet Golani, Israel



Larvae of *Melitaea* sp. : 4 ,5 : **ornata**, Mamousia (Ahaia), Greece; 6 : **ornata**, Jovafő, Szőlő, Hungary



Larvae of *Melitaea* sp. : 7 : **ornata**, Sicily ; 8 : **ornata** L4 with *Cotesia* sp., Greece ; 9 : **cinxia**, Calabria, Italy



Pupae of *Melitaea* sp. : 1 : **phoebe**, Campania, Italy ; 2 : **phoebe**, Alba, Romania ; 3 : **ornata**, Tzomet Golani, Israel ; 4 ,5 : **ornata**, Mamousia (Ahaia), Greece.



Pupae of *Melitaea* sp. : 6: **ornata**, Jovafö, Szölö, Hungary ; 7 : **ornata**, Montagna Longa (Palermo), Sicily ; 8 : **ornata**, Fayence (Var), France ; 9 : **cinxia**, Calabria, Italy.



Imagines of *Melitaea ornata* (*emipunica*) from Montagna Longa. Sicily, e.o. from a ♀ collected in May 2003.

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RUSSELL, P., ZITNAN, D., & MAJOR, V., 2015 – Confirmation of the presence of *Melitaea ornata* Christoph, 1893 (Lepidoptera : Nymphalidae) in Macedonia (FYROM) and its host-plants. *Entomologist's Gazette* 66 : 13-24, 18 colour photographs.

«Synopsis : The presence of *Melitaea ornata* in the former Yugoslav Republic of Macedonia (FYROM) is confirmed, based on the red-brown colour of the heads of stage L4 and later instar larvae of both those taken in the wild and those resulting from several egg batches laid by caged females. These larvae produced adults that exhibited the typical hindwing underside pattern and genitalia of *M. ornata*. *Centaurea salonitana* and *Onopordum illyricum* are confirmed as host-plants for *M. ornata* in Macedonia, and *Centaurea phrygia* is identified as a previously unrecorded host-plant for *M. phoebe* in neighbouring Serbia. It is considered that the presence of *M. ornata* in Macedonia adds further evidence to doubt the relevance of the division, by recent authors, of this species into subspecies on a purely geographical basis».





Fig. 1-12 : Larval stages of *Melitaea ornata* and emerged ♀ from Macedonia and Serbia resulting from rearing ex ovo and findings in natural surroundings.

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RUSSELL, P. & TENNENT, W.J., 2016 – A synonymic list of names associated with western Palaearctic *Melitaea phoebe* (Denis & Schiffermüller, 1775) species group taxa (*M. phoebe* ; *M. punica* Oberthür, 1876 ; *ornata* Christoph, 1893) (Lepidoptera, Nymphalidae). *Nota Lepidopterologica* 39 (1) : 27-56.

TENNENT, W.J., & RUSSELL, P., 2010 – Designation of a neotype for the nominal taxon *Papilio phoebe* [Denis & Schiffermüller], 1775 (Lepidoptera : Nymphalidae). *Entomologist's Gazette* 61 : 147-153.

«Synopsis : Following recent recognition that a previously unrecognised *Melitaea* species – *M. telona* Fruhstorfer, 1908 – is present in Europe, adults of which can at present be distinguished only with difficulty from *Melitaea phoebe* ([D. & S.], 1775), a question of formal recognition of the nominal taxon *Papilio phoebe* ([D. & S.], 1775), is addressed. The collection of Ignaz Schiffermüller was deposited in the collections of the then Kaiserliches Naturalienkabinett (now Naturhistorisches Museum), Vienna, where it was completely destroyed by fire in 1848. No known syntypic material of *Papilio phoebe* is extant ; in order to maintain stability, and to avoid potential future confusion of *Melitaea phoebe* with *M. telona*, a neotype is designated for *Papilio phoebe* [D. & S.], 1775. The type locality of *M. phoebe* is environs of Vienna, Austria, where the species has been uncommon and sporadic in appearance. The neotype was reared from a gravid female collected in Vienna and is illustrated together with the larva and pupa that were prepared, but not published, by Schiffermüller and now in the natural History Museum (BMNH), London».



Fig. 1,2 : *Melitaea phoebe* [D.&S.], 1775, neotype ♂ ; 3 : egg batch from which neotype was reared ; 4-6 : early stages of the reared neotype of *M. phoebe* ; 7-9 : unpublished water-colours at the BMNH by Schiffermüller of the larva and of the pupa of *phoebe* with a preparatory drawing of the larva associated with *Centaurea scabiosa*.

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TIKHONOV, V., & RUSSELL, P., 2015 – Confirmation by larval head colour of the presence of *Melitaea ornata* Christoph, 1893 (Lepidoptera : Nymphalidae) in the Caucasus (Azerbaijan). *Entomologist's Gazette* 66 : 229-236.

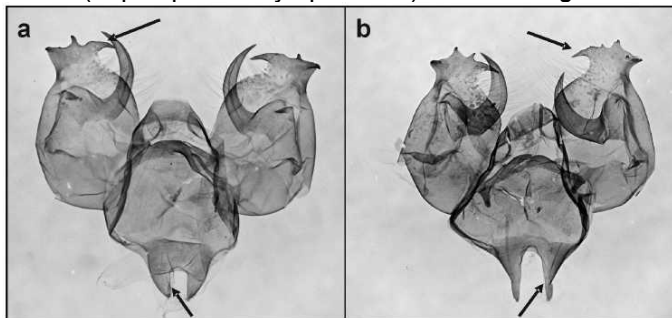
«Synopsis : The presence of *Melitaea ornata* Christoph, 1893, in the Caucasus is confirmed from the red-brown colour of the head of instar L4 and later larvae collected from the Turanchayskom Reserve, Azerbaijan. The host-plant in this region is identified as *Centaurea sosnowskyi* Grossh, which is newly recorded as a host-plant for *M. ornata*».



Fig. 1 : biotope of *Melitaea ornata* in Azerbaijan (Aghdash, Turianchay Reserve) ; 2 : male ; 3 : flower bud of *Centaurea sosnowskyi* Grossh ; 4 : pre-diapause larvae ; 5 : post-diapause larvae in the laboratory ; 6 : fully fed larva ; 7 : pupa. Photographs : V. Tikhonov and A. Ivanov.

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TÓTH, J.P., & VARGA, Z., 2010 – Morphometric study on the genitalia of the sibling species *Melitaea phoebe* and *M. telona* (Lepidoptera : Nymphalidae). *Acta Zoologica Academiae Scientiarum Hungaricae* 56 (3) : 273-282.



a = *phoebe*, b = *telona* (= *ornata*), p. 278

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