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The Geometrid moths of Europe (update)





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Joint project of the [Zoologische Staatssammlung München](#) (Dr. Axel Hausmann) and [Apollo Books, Stenstrup](#) (Peder Skou)

This website aims to present an actual update to the Book series "The Geometrid Moths of Europe" (A Hausmann ed.). So far three volumes have been published, three are in preparation:

GME1 (Archiearinae to Geometrinae), Hausmann 2001: 42 species

GME2 (Sterrhinae), Hausmann 2004: 196 species

GME3 (Larentiinae I), Viidalepp & Hausmann (in prep. 2010): approx. 265 species

GME4 (Larentiinae II, Perizomini & Eupitheciini), Mironov 2003: 151 species

GME5 (Ennominae I), Skou & Sihvonen (in prep. 2011): approx. 140 species

GME6 (Ennominae II), Müller (in prep. 2012): approx. 170 species

Total: 964 species

In this website the species lists of Vols 1,2, and 4 are updated:

GME1 (Archiearinae to Geometrinae), Hausmann 2001: 4 new species (actual total: 46)

GME2 (Sterrhinae), Hausmann 2004: 4 new species (actual total: 200)

GME4 (Larentiinae II, Perizomini & Eupitheciini), Mironov 2003: 0 new species

Actual species total for the Fauna of Europe: 972 species

This website, in addition aims to comment taxonomy as it was presented in the recent book on European geometrids ([Leraut 2009](#))

[pdf of version 1 \(August 1, 2009\)](#)

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Systematic account

Archiearinae

Leucobrephos middendorffii (Ménétriés, 1858)



([highres photo](#), labels: Amur; photo: I. Kostjuk, University Kiev)

male genitalia-aedeagus, female genitalia

Recorded in the Polar Urals (#pers. comm.), new for the fauna of Europe. Locus typicus in eastern Siberia.

Desmobathrinae

Myinodes constantina (Hausmann, 1994)



([highres photo](#): Holotype, Algeria, Lambèse)

male genitalia-aedeagus, female genitalia

Recorded in central Spain (Exposito 2006), new for the fauna of Europe. Locus typicus in eastern Algeria.

Geometrinae

Thalerini

Kuchleria insigniata Hausmann, 1995
= *Kuchleria garciapitai* Exposito 2006 (synonym)

K. garciapitai was described as separate species from central Spain (Exposito 2006), quoting slight differences in male genitalia (saccus). Molecular data (COI barcoding) show these minor differences to fall under the variation of *K. insigniata*.

Kuchleria menadiara (Tierry-Mieg, 1893)

(highres photo: Sicily; photo: P. Parenzan)
 male genitalia-aedeagus, female genitalia
 Recorded in Sicily (Parenzan pers. comm.).

Hemitheini***Chlorissa pretiosaria*** (Staudinger, 1877)

(highres photo: Transcaucasia, Achalzich, leg. M. Korb)

male genitalia-aedeagus, female genitalia

Recorded in Astrachan desert, southern European Russia (Anikin pers. comm.), new for the fauna of Europe. Locus typicus in southern Caucasus.

Sterrhinae**Sterrhini*****Idaea textaria*** (Lederer, 1861)

(highres photo: *Idaea textaria*, Greece, Samos, leg. D. Fritsch)

male genitalia-aedeagus, female genitalia

Recorded on Samos island (Fritsch & Skou pers. comm.), new for the fauna of Europe. Locus typicus in Turkey.

Idaea davidi Gaston & Redondo, 2005



(highres photo: *Idaea davidi*, S Spain, Sierra Nevada, leg. J. Klimesch)

male genitalia-aedeagus, female genitalia

I. davidi was described as sister species of *I. humiliata* from southern Spain (Gaston & Redondo 2005). The justification of the species right for these Sierra Nevada populations merits further attention and analysis.

Two further *Idaea* species which were recently collected in southern Spain are new for the fauna of Europe. They will be presented on this site as soon as the related articles will be published.

Downloadable actualised checklists (for collection labels)

Vol. 1

Vol. 2

Vol. 4

Some comments to Leraut (2009)

Patrice Leraut (2009): Moths of Europe, Vol. 2: Geometrid Moths. - N.A.P. Editions, 808 pp.

cf comprehensive book reviews in *Nota lepid.* 32 (2): 158-162 and *R.A.R.E.* XIX (1): 34-39

Preface

Recently the publication of the 'revision' of the genus *Sciadia* (Leraut 2008) surprised the scientific community by the interesting discovery that this genus splits into several species, such as by the fact that the study was not based on type studies, neither on sufficient material (strongly biased towards France) and furthermore draws wrong nomenclatorial conclusions. As a consequence the paper caused additional work to rectify the taxonomy of the group (Huemmer & Hausmann 2009). Such kind of scientific replication/rectification is not the way one likes to do, and it could have been avoided through contact and

correspondence. The new book on European geometrids (Leraut 2009), extends the same methodology to the whole family Geometridae at a European scale. The following explanations may be helpful as immediate information to the whole community and will soon be published in a journal in order to receive validity through a nomenclatural act.

General remarks to Leraut (2009)

the book has its strengths in its conception as richly illustrated identification guide in small pocket format, but nevertheless covering most European taxa of geometrids. Preparing such a book costs a lot of time, which has to be acknowledged,

see preface for some scientific shortcomings, e.g. insufficiently studied type specimens and collections (just basing on material from MNHN/Paris and a few French collections) such as poor contact to the international scientific community of geometridologists, as e.g. organized in the [Forum Herbulot](#) and its periodical meetings,

in the book, often localities are not indicated for the illustrated specimens, which makes their interpretation difficult,

the description of infrasubspecific forms is not conform with the Code (ICZN) of zoological nomenclature. All the presented 'names' are unavailable and need to be ignored in nomenclature,

many species are stated as being 'closely related' but without close relationship in the phylogenetic sense. A few examples, standing for many more: *Idaea metohiensis* - *Scopula marginepunctata*; *Idaea luteolaria*, *Idaea aureolaria*, *Idaea flaveolaria* - *Cleta filacearia*; *Scopula virgulata* - *Idaea sylvestraria*; *Scopula minorata* - *Idaea palaestinensis*. The intention of the author was to present species with 'similar' habitus, and the misleading term may be due to translation,

many of the proposed taxonomical and nomenclatural changes are proposed without justification or explanation, basing on personal opinion ('is in my view a separate species', 'does not appear to me an authentic species') and without presenting a clear statement of differential or common traits. In some cases just the formal change is done without any comment at all, e.g. *Scopula punctabilineatella* (Lucas, 1937), *bona* sp., stat. rev. (p. 776). Hopefully all this lacking information will be published elsewhere in the near future. The book does not have a synopsis with all taxonomical changes, therefore all these changes are addressed and briefly discussed here on this website.

Furthermore there are many apparent taxonomical and methodological errors, partly corrected here, partly requiring further study.

Details

Detailed, annotated presentation of conflictary taxonomy, 'conflicts' referring to different taxonomy in [Geometrid Moths of Europe](#) (GME), [Fauna of Europe database](#) (FoE), and 'online list of valid and nomenclaturally available names of the Geometridae of the World [Scoble & Hausmann](#) (2007):

GME 1

* *Leucobrepbos middendorffii* (p. 34, pl 1 fig 13 and index):
incorrect subsequent spelling. Correct: *middendorffii*.

* *Boudinotiana*: genus erected by Leraut (2002) for *notha*, *puella*
and *touranginii*. Genus can be accepted, cf. revision of Leraut
(2002).

* *Inurois aceraria*: Transfer to *Inurois* not justified with facts,
subjectively presented ("it is clear") without indication of
characters or synapomorphies. In contrast to Leraut's opinion, the
shape of uncus and the much shorter terminal process of valva
distinguish *A. aceraria* from *Inurois*. The cornutus is present also
in many *Alsophila* species, thus the arrow on fig. 21b does NOT
indicate a differential feature. Study of the fine revision in Inoue
(1943) would have given a correct view on the things and on
aceraria as a congener of *Alsophila*. Herewith transferred back to
Alsophila (*A. aceraria* comb. nov.

* *Pseudoterpna lesuraria* f. *stiparia*: upgraded from
infrasubspecific form to subspecies rank and called "ssp. *stiparia*
Rungs, 1950" which is not in conformity with the Code (ICZN)
concerning authorship. No justification, diagnosis or geographical
background given, thus not acceptable.

* *Comibaena levequei* Leraut, 2009: The presented 'differential
features' (of 4 just males from the same locality) in habitus and
genitalia from *C. pseudoneriaria* appear weak and require
confirmation by morphology of other material and DNA barcoding.
Preliminarily to be accepted.

* *Thetidia sardinica*: Suspected to be subspecies of *T. smaragdaria*
without examining material (not figured) and ignoring differential
analysis in GME1. To be maintained at species rank.

* *Hemistola siciliana*: Suspected to be subspecies of *H.*
chrysoprasaria without justifying or presenting arguments for this
view. To be maintained at species rank.

* *Eucrostes indigenata lanjeronica*: downgraded to synonymy,
justified only by the statement that such habitus forms "are found
elsewhere as isolated individuals". Though this is no reason to
draw into question a subspecific taxon, that change may be
preliminarily accepted until detailed examination about gene-flow
is available.

* *Bustilloxia saturata iberica*: downgraded to synonymy, justified
only by the statement that such habitus forms are found also in
Morocco. Reputely, *iberica* is founded only on characters of wing
pattern, but Hausmann (2004) presents also differences in male
pectination and female genitalia, ignored by Leraut (2009). To be
raised again to subspecies rank (stat. n.).

* *Kuchleria insignata*: Downgraded to "synonym or subspecies" of
K. menadiara despite citation of differential characters but
without bringing arguments for synonymy ("to me does not appear

an authentic species"). To be raised to species rank again (stat. n.).

* *Hemithea aestivaria alboundulata*: Raised from synonymy to subspecies rank, vaguely stating some differences in male genitalia, but without describing these differences and without examining the possibility of clinal distribution of characters. Still awaiting a thorough analysis and well-done differential analysis, downgraded again to synonymy.

* *Chlorissa viridata* / *cloraria*: Fig. 32: The differential feature of valva costa is almost inexistent on the left valva, but dramatically overdrawn on the right side. The indicated structure on the aedeagus of *C. viridata* is not a significant differential feature.

* *Chlorissa obliterated*: Downgraded to subsp. of *Chlorissa viridata*, though mentioning differential features in habitus and genitalia. To be raised again to species rank (stat. n.).

* *Phaiogramma estruscaria* (p. 59 bottom): incorrect subsequent spelling. Correct: *etruscaria*.

* *Microloxia herbaria virideciliata*: Downgraded to synonymy. Genetically there are strong arguments to keep *virideciliata* as separate taxon 1.5 % genetical distance (COI, pairwise distance, K2) from populations of nominate subspecies in Italy. Differences in habitus (near to constant) slight differences and male and female genitalia are outlined in Hausmann (2004). Therefore better to be raised again to subspecies rank (stat. n.).

* *Microloxia herbaria*: Reputedly distributed in Morocco, but Moroccan populations belong to sister species *M. ruficornis*.

* *Pseudoterpna coronillaria* f. *viridescens*: pl. 4 fig. 2: rather looking as a form of *P. pruinata*. Possibly a product of hybridisation.

* *Microloxia simonyi assetata*: pl. 8 fig 10 probably a misidentification and belonging to *M. schmitzi*, requiring dissection.

GME2

* Genus *Lythria*: New evidence (Ounap et al. 2008) from a well done revision revealing this genus to be a sterrhine genus, not a larentiine.

* *Cleta ramosaria*: Distribution in France (correctly) drawn into doubt in the text, but occurrence in south-eastern France marked on the map.

* *Idaea agrestaria* (p. 736): incorrect subsequent spelling. Correct: *agraria* (on map and in index correct).

* *Idaea agrestaria* (sic!) (de Joannis, 1891): Upgraded from synonymy of *Idaea litigiosaria* to species rank vaguely stating differences in male genitalia, but without describing these differences and without examining the possibility of clinal distribution of characters. ("genitalia are different"). Still awaiting a thorough analysis and well-done differential analysis,

downgraded again to synonymy. Furthermore on the map the distribution of *Idaea litigiosaria* includes the whole territory from Morocco to Tunisia.

* *Idaea lusohispanica*: On the map erroneously reported for North Africa from Morocco to Algeria.

* *Idaea subrecta* was not described as a subspecies of *Idaea seriata* (recte *sericeata*).

* *Idaea subrecta*: Upgraded from synonymy of *Idaea sericeata calvaria* to species rank vaguely stating differences in genitalia, but without describing these differences ("genitalia are different"). Downgraded again to the above mentioned synonymy basing on the analysis presented in Hausmann (2004). Furthermore, inconsistently, on the map *sericeata* is reported for North Africa / Morocco.

* *Idaea completa*: The differential diagnosis between *Idaea completa* and *Idaea affinitata* on p. 741 is erroneous, because basing on the misidentified specimen on pl. 134 fig 7.

* *Idaea affinitata*: pl. 134 fig 7 misidentified and belonging to *I. intermedia*.

* *Idaea filicata*: For Corsica both the occurrences of subsp. *levequei* Leraut, 2005 and nominate subspecies are reported with the remark that subsp. *levequei* "could be a separate species". Own research on such individual forms with forewing tip pointed and postmedial line clearly visible not revealing any constant difference in genitalia and neither genetically different (COI barcode fragment, n=25) from the other forms. Therefore to be downgraded to synonymy.

* *Idaea urcitana*: pl. 135 fig 12 probably a misidentification and possibly belonging to *I. alyssumata*, requiring dissection. In the text the differential diagnosis ("*I. urcitana* smaller and paler") definitely insufficient to separate the species.

* The 'vernacular' name "Libyan Wave" (pl. 135 fig. 18) for *Idaea mimosaria* (Guenée, 1858) is misleading, because that species is definitely not distributed in Libya, but in the Lebanon and nearby countries.

* *Idaea belemiata*: *Acidalia couloniata* Balestre, 1907 is synonym of *Idaea laevigata*, not of *I. belemiata* (cf. Hausmann 2004 after examination of types).

* *Idaea holliata* (Homberg, 1909): Downgraded from species rank to subsp. of *Idaea inquinata* without presenting facts (e.g. figures of the examined material), basing on the erroneous opinion to have examined "the type" and completely ignoring the recently published comprehensive revision of the species group (Hausmann 2005) with lectotype designation. Taxonomic change not acceptable.

* *Idaea humiliata*: When recognising *Idaea davidi* as separate species, the occurrence of *Idaea humiliata* in southern Spain is not correct.

- * *Idaea davidi*: pl. 138 fig 3: dissection needed, misidentification not excluded.
- * *Idaea joannisiata* f. *ibericata*: Without explicitly proposing a taxonomical change suggesting it to be downgraded from subspecies of *joannisiata* to synonymy. To be maintained at subspecies rank (cf Hausmann 2004).
- * *Idaea cervantaria* syn.n. *okbaria*: Downgraded from species rank to subsp. of *Idaea cervantaria* with statement to have "examined the type", referring, however, to a paralectotype of MNHN, Paris. Examination (brushing of male abdomen and control of the particular shape of valva costa) of the lectotype in coll Herbulot/ZSM confirming the proposed synonymy.
- * *Idaea cervantaria*: pl. 141 fig 14: very untypical, without dissection misidentification not excluded.
- * *Idaea distinctaria*: pl. 142, fig. 18: misidentification not excluded in specimens from southern France without dissection.
- * *Scopula incanata pastoraria* (Joannis, 1891): Upgraded from synonymy of *Scopula marginepunctata* to subspecies rank and subordinated under *S. incanata*. The type has been "examined" but it remains unclear whether it was dissected. The figure of the "type" (which kind of type?) shows a specimen which is more reminiscent of *S. marginepunctata* than of *S. incanata*. The taxon remains unclear until the genitalia of the name bearing type specimen will be controlled. Until then it should be kept in synonymy of *S. marginepunctata*.
- * *Scopula punctabilineatella* (Lucas, 1937): Upgraded from subspecies rank of *Scopula guancharia* to species rank without any comment. In fact this is a possible view, considering the different length of cerata, but the situation is not that easy when considering also the populations of *S. guancharia* from eastern Canarian islands and the fact that in the genus *Scopula* the length of cerata underlies a complicated pattern of variation and polymorphisms. Requiring a detailed integrated revision including molecular and morphological data.
- * *Glossotrophia confinaria*, *G. alba*, *G. mentzeri*, *G. rufomixtaria*, *G. sacraria*, *G. asellaria*: All species of the former genus *Glossotrophia* transferred by Sihvonen (2005) to genus *Scopula*. Such taxonomic position confirmed by own molecular research (Hausmann unpublished data; Hausmann & Hebert 2009).
- * *Rhodostrophia terrestraria dispar*: Downgraded from species rank to subspecies of *R. terrestraria*. Preliminarily acceptable, but type studies and detailed discussion should follow.
- * *Rhodostrophia cuprinaria*: (p. 786 and pl. 153 fig 15): Possibly misidentified. The species-group around *R. cuprinaria* and *R. peripheres* needs thorough analysis and revision, which is in progress (R. Trusch, Karlsruhe).
- * *Timandra comae*: pl. 154, fig. 6: possibly a misidentification and referring to *Timandra griseata*.

* *Cyclophora ruficiliaria*: pl. 156, fig. 1: possibly a misidentification and referring to *C. suppunctaria*, dissection needed.

* *Casilda consecraria*: pl. 158, fig. 2: misidentified: the black cell dots, the black collar and the terminal position of the white fascia do not allow to identify this specimen as *C. consecraria*. Correct identification probably *Scopula gastonaria* (dark form).

GME3

- *Lythria*: positioned between Ennominae and Larentiinae, though belonging to Sterrhinae (cf Ounap et al. 2008).

- *Lythria plumularia*: reported from Pyrenees but these old data are doubtful. The species is not mentioned by Redondo et al. (2009). In collections some very old specimens from "Hispania" [southern Spain] may be mislabelled, perhaps.

- *Lythria purpuraria*: Occurrence in Sardinia ignored

- *Lythria sanguinaria numantaria* Herrich Schäffer, 1852 raised to subspecies rank by Leraut (2009), reputedly due to 'differences in genitalia' herewith downgraded to synonymy (stat.n.), because of the lack of such constant differential features

- *Cataclysmes riguada*: Wrong map: no occurrence in Scandinavia and England (cf text)! But present on Sicily.

- *Cataclysmes festivata* reputedly "from Central Asia" raised to species rank by Leraut. However, true *festivata* was described from Far East, Amur! Since Leraut did not check the type material, it is not excluded, that he had examined Central Asian material which does not belong to *festivata*.

- pl. 77, fig. 15 *Cataclysmes festivata* from "Alexander Gebirge" (not "Gebiets"), misidentified, true identity, probably *C. shirniensis* Ebert, 1965 or *C. plurilinearia* Leech, 1897.

- *Cataclysmes uniformata*: raised to species rank, accepted.

- *Scotopteryx vicinaria illyriacaria*: misspelled to '*illycaria*'

- *Scotopteryx subvicinaria*: reputedly recorded in Europe, but basing on erroneous data, this is not a European element. The presented 'differential feature (postmedial dent)' is not valid for discrimination, neither significant nor constant.

- Pl. 78, fig. 18 (Macedonia): Misidentified: *S. vicinaria* rather than *S. subvicinaria*.

- *Scotopteryx bipunctaria*: records for Morocco (Rungs 1981) erroneous according to Leraut 2009 and attributed to *S. octodurensis*. Evidence lacking.

- *Scotopteryx aelptes*: reputedly recorded in South-east Europe together with *S. olympia*, but European 'records' of *Scotopteryx aelptes* referring to *S. olympia*.

- plates 78-81: several specimens of *Scotopteryx* sister species complexes may merit dissection to verify their species identity.

- Three species, *Xanthorhoe uralensis* Choi, 2003, *X. pseudannotinata* Vasilenko, 2007 and *X. pseudomajorata* Vasilenko, 2002 not mentioned at all, but *X. derzhavini* and *X. majorata* erroneously listed under *X. spadicearia*, though all five being closely related to the *incursata* species-group and partly synonym to each other.
- *X. derzhavini*: misspelled to '*X. derzhasini*'.
- *Xanthorhoe decoloraria*: Map with distribution all over Germany wrong, the species is restricted here to the southernmost parts in the Alps. Similarly the distribution in south-eastern Europe is drawn far too wide.
- *Xanthorhoe quadrfasiata*: Map with distribution all over Spain and Italy wrong, the species is restricted here to the Pyrenees resp. the Alps. occurrence in Sicily erroneous.
- 'Genus' *Odonthorhoe* (with mentioned species *alexandraria*, *tauarua*, *fidonaria*, *tianschanica*) validated at genus rank without analysis, just stating it to be 'distinct', though retained as synonym in Scoble (1999) and other recent revisions. Herewith again downgraded to synonym of *Xanthorhoe*.
- pl. 85, fig. 9: "Turkish Raker" (*O. alexandraria*) is a misleading name for a species definitely not distributed in Turkey, but in Turkestan.
- *Catarhoe basochesiata*: Existence of a second, allopatric vicariant species, *C. hortulanaria* in the eastern Mediterranean ignored here (cf. Hausmann 1995; 1997), Greece records on the map and in the text have to be assigned to *C. hortulanaria*. The species is later (under *C. permixtaria*) mentioned as unknown to the author.
- *Catarhoe mazeli* Viidalepp, 2008 regarded as synonym of *C. putridaria* (light coloured form) without basing on a morphological analysis. Herewith raised again to species rank, quoting differences in genitalia of both sexes (see original description).
- pl. 85, fig. 5 misidentified, referring to *C. mazeli* rather than to *C. putridaria*
- *Epirrhoe pupillata*: on the map the distributions throughout Scandinavia and Germany are wrong, in both regions it is restricted to the southernmost parts .
- *Epirrhoe latevittata*: Mentioned, under *E. timozzaria*, as unknown to the author. Better to be compared with *E. alternata* where it should be subordinated as subspecies or synonym (cf. GME3; FoEu database).
- *Camptogramma bilineata bistrigata*: Downgraded from species rank to subspecies of *C. bilineata*. Acceptable.
- *Entephria byssata*: Validated at species rank by Leraut, without mentioning the senior synonym and valid name *Entephria punctipes*. Herewith downgraded again to synonymy of *Entephria punctipes* (synonymy previously established in Hausmann et al. 2004 Fauna of Europe).

- *Entephria cyanata*: Map misleading, occurrence in Germany and Poland restricted to southernmost mountains (Alps, Tatra), not distributed in the Netherlands.
- *Entephria nobiliaria* vs. *flavata* pl. 87 figs 16-18: The figured moths would merit control of identification (e.g. by DNA), because presenting untypical differences in habitus.
- *Coenotephria salicata* vs. "*salicata ablutaria*" pl. 90 figs 12-13: The figured moths would merit control of identification (e.g. by DNA), because presenting untypical habitus features.
- *Coenotephria salicata ablutaria*: Downgraded from species rank to subspecies of *salicata* by Leraut, ignoring extensive studies with rearings, larval morphology, long series of dissections (e.g. published by Rezbanyai-Reser in several articles, e.g. 2008). Large genetical distance (e.g. *salicata* from Slowenja highland versus *ablutaria* from Slowenja lowland 5.8%; *salicata* from Switzerland highland versus *ablutaria* from North Italian lowland 5.4%) supporting and confirming separate species status, therefore (again) raised to species rank herewith (stat.n.).
- two different (female) genitalia figs 157b and 158c both reputedly showing "*Coenotephria salicata*".
- *Coenotephria topiaceata*: Occurrence in Italy, Apennines ignored in text and on map
- *Nebula nebulata*: Map misleading, occurrence in Germany and Poland restricted to southernmost mountains (Alps, Tatra).
- *Nebula achromaria*: Map misleading, occurrence in Germany and Poland restricted to southernmost mountains (Alps, Tatra).
- *Nebula ibericata*: The species is common in early spring and in autumn, not in July. Distribution (text and map) in Sicily erroneous, in Morocco replaced by *Nebula numidiata* (mentioned in Leraut under *N. nebulata*).
- *Eulithis mellinata*: Erroneously reported as present in Spain (map).
- *Eulithis pyropata*: Map misleading, occurrence in Germany and Poland restricted to north-easternmost mountains of both countries, in Sweden only in the south-easternmost part.
- *Chloroclysta miata*: Flight period is usually from September to May, not from "April to October".
- *Dysstroma latefasciata*: Flight period later, from mid-July to September rather than "June-July".
- *Cidaria distinctata* Staudinger, 1892: No parentheses required around author and year.
- *Cidaria ochracearia* Leech, 1897: No parentheses required around author and year.
- *Plemyria rubiginata*: Bivoltinism suggested ("May, July-August"), but the species is univoltine, usually from early June to early August.

- *Thera firmata*: Distribution on Corsica (subsp. *tyrrhenica* Tautel & Billi, 2009) not mentioned in text and on map.
- *Thera ulicata*: Reputedly occurring on Corsica (text), but not figured on map. Probably referring to subsp. *tyrrhenica* Tautel & Billi, 2009 (see under *T. firmata*). Map indicating occurrence all over Italy and on Balkan peninsula, referring to *T. firmata*, too.
- *Thera obeliscata*: Reputedly occurring in North Africa (map), data probably erroneous.
- “*Thera variata cembrae*”: *cembrae* downgraded from species rank to subspecies of *variata* without presenting any reason or analysis for that nor quoting several recent analyses in literature. Herewith raised again to species rank, quoting striking genetical distance (detailed analysis in GME3) to *T. variata* which is about 6fold the distance between *variata* and *britannica*.
- Fig. 165/166: The illustration of genitalia of a “*Thera* sp. nov. (in press)” without any corresponding reference in the text and without any geographical indication is not very helpful. Given the variability of *Thera* genitalia, the indicated “differences” do not represent valuable differential features.
- *Thera callidaria* (p. 629) and pl. 95, fig. 18 (type): The taxon *callidaria* was so far retained to be valid at species rank in the genus *Antilurga* (Scoble 1999). Leraut transfers it to *Thera* without giving any reason or analysis. The photograph of the type, grace to its publication by Leraut, however, clearly allows to put it in (senior!) synonymy with *Mattia adlata*. Therefore, this species should be cited as “*Mattia callidaria* (Joannis, 1891) (syn. *Mattia adlata* syn.n.).
- pl. 96 fig. 4, “Singular Spanish Carpet” (*Polythrena coloraria*) is a misleading English vernacular name for a species definitely not distributed in Spain, but in north-eastern Russia.
- pl. 96 fig. 9, possibly misidentified and referring to *Lampropteryx suffumata* rather than to *Electrophaes corylata*. Awaiting dissection or DNA barcoding.
- *Eustroma reticulata*: Map misleading, occurrence in Spain and Italy restricted to northernmost mountains (Alps, Pyrenees).
- *Electrophaes corylata*: Map misleading, occurrence in Spain and Italy restricted to northernmost mountains (Alps, Pyrenees).
- *Colostygia aptata*: Occurrence on Sicily lacking on map.
- *Colostygia austriacaria*: Occurrence in Bulgaria lacking on map.
- *Colostygia sericeata*: Mentioned under *C. tempestaria* though (very) closely related to *C. multistrigata*.
- *Colostygia wolfschlaegerae* and *C. fitzi*: Mentioned under *C. tempestaria* though (very) closely related to *C. olivata*.
- *Colostygia corydalaria*: Mentioned as bona species on p. 631 under *C. tempestaria* ignoring its identity as *Pseudobaptria bogumilaria* (Rebel 1904) (cf Mironov 2003; Hausmann et al in

Fauna of Europe 2004). The same taxon is again mentioned on p. 655 as *Pseudobaptria corydalaria* separately from *P. bogumilaria*.

- *Colostygia 'larentiaria' (laetaria)*: The name *larentiaria* is introduced by Leraut as (reputed) senior synonym for the name *Colostygia laetaria* which was in continuous use for more than 100 years. Apparently the type specimen has not been examined. Without such an accurate and documented examination of the type specimen the taxonomical change cannot be accepted and the taxon *larentiaria* must be treated as junior synonym to *C. kollariaria* (cf. analysis in GME3) despite its erroneous subordination under *laetaria* in Scoble (1999).

- *Colostygia laetaria ('larentiaria')*: Occurrence in Carpathians (mentioned in text but lacking on map) erroneous.

- *Coenocalpe millierata* erroneously subordinated as subspecies under *C. lapidata*, stating their genitalia as being identical with those of *C. lapidata*, ignoring several constant differential features, e.g. basal lobe of sacculus larger than in *C. lapidata*, sacculus projection stronger curved, costal projection shorter (detailed analysis in GME3). Herewith raised again to species rank (stat.n.).

- *Horisme corticata*: Occurrence in the "Middle East" doubtful, awaiting confirmation

- *Horisme vitalbata staudingeri*: Locus typicus in Amur region, thus easternmost Asia, not central Asia.

- *Melanthia procellata*: Map and text misleading, occurrence in Spain and Italy restricted to northernmost mountains (Alps, northern Apennines, Pyrenees, Asturia).

- *Melanthia alaudaria*: Occurrence in western Bulgaria not mentioned.

- *Pareulype "lasithiotica nevadensis"*: Combined with *P. lasithiotica* (nominat subspecies unknown to Leraut, or both) ignoring Müller (1996), Hausmann & Aistleitner (1998), and Redondo (2009) where treated as subspecies of *berberata* quoting absence of constant differences in genitalia and genetical identity, detailed analysis in GME3. To be re-combined with *P. berberata*.

- *Pareulype berberata nevadensis*: definitely not "extremely pale".

- *Spargania luctuata*: Map and text misleading, no occurrence in Spain and Italy south of Alps and Pyrenees.

- *Rheumaptera hastata*: Map and text misleading, no occurrence in Spain and Italy south of Alps and Pyrenees.

- synonymy of genera *Hydria* and *Rheumaptera* stated without any analysis of characters; there are also arguments for separating both lineages, e.g. coremata, shape of juxta, sternum A8 a.s.o..

- *Rheumaptera cervinalis*: flight period indicated as “April-June (after wintering), July-September”. This species, however, overwinters as pupa and a summer generation occurs very rarely.
- *Rheumaptera montivagata incertata* (mentioned both under *R. cervinalis* and *R. montivagata*): downgraded to subspecies of *R. montivagata*, ignoring constant structural differences in genitalia and male hindleg (cf GME3). To be raised again to species rank (as e.g. in Scoble 1999; Hausmann et al. 2004).
- *Rheumaptera montivagata moscardonica* and *R. m. andalusica*: downgraded to subspecies of *R. montivagata*, ignoring constant differences in habitus and genitalia (cf GME3). Some of the differential features in genitalia figured by Leraut (figs 174 a-c). To be raised again to species rank (cf. Hausmann et al. 2004), with *moscardonica* being synonym to *andalusica* (syn. n.).
- *Rheumaptera gudarica*: so far known only from eastern Spain, Teruel. Occurrence in Morocco (Leraut 2009; figured under pl. 104, fig 8 from Ifrane) requiring confirmation, exact data should be published, e.g. whether the figured genitalia on Fig. 173b are from that specimen from Morocco.
- *Triphosa tauteli*: The presented differential features in male genitalia underly artificial variation due to pressure on the genitalia when being embedded. According to Redondo (2009) and Hausmann et al. (2004), *T. dyriata* is distributed also in Spain. When analysing Spanish populations in detail it becomes clear that *T. tauteli* is at maximum a subsp. of *T. dyriata*, if not linked with the latter by clinous character transitions. Therefore, *tauteli* needs downgrading to subsp. of *T. dyriata*. The taxon “*herzeti*” (“Lot” and “Jura” according to Leraut 2009) must sink to synonymy, or the description of a large number of “subspecies” would be necessary from other regions when applying the same criteria.
- *Triphosa “sabaudiata agnata”*: Downgraded from species rank (Scoble 1999) to subspecies of *T. sabaudiata* without presenting reasons, analyses or statistical details. To be maintained at species rank until detailed analysis is performed.
- *Philereme transversata*: flight period indicated as “May-July”. This species, however, usually flies from mid-June to mid-August, sometimes until early September.
- *Euphyia frustata*: the taxa *griseoviridis* (Corsica) and *fulvocinctata* (Spain) are said to be “definitely not a separate subspecies”. However, because of the existence of several differential features in male and female genitalia (shape of uncus, valva and antrum), both taxa should be maintained at subspecies rank.
- *Euphyia maximiliana*: Erroneously suggested to be a synonym of *E. frustata*.
- *Epirrita dilutata*: Not occurring in Morocco, Middle East and central Asia.

- *Epirrita christyi*: Author and year stated as “Prout, 1899” though “Allen, 1906” is generally accepted as valid reference. Text states absence from Corsica, map erroneously shows occurrence on Corsica.

- *Solitanea mariae*: Flight period stated as “July-August”. In Italy, however, the species is bivoltine: early May to mid-June; late July to mid-September, in the lowlands until late October. distribution in the text stated as “Corsica: Calabria”, despite wide distribution on Apennine peninsula.

Remarks: All statements in this entry will be explicitly analysed in the forthcoming Volume 3 of the “Geometrid Moths of Europe (GME)”, due to publication in 2010 or early 2011.

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further remarks to GME3 under construction

GME4

remarks under construction

GME5

remarks under construction

GME6

remarks under construction