

**Leraut, P. 2009. Moths of Europe, vol. 2, Geometrid moths.** – N.A.P. Editions, Verrières le Buisson, France, 808 pp., 158 colour plates, numerous line drawings and distribution maps. English text. ISBN 978-2-913699-09-4. Price 85.00 € (See [www.napeditions.com](http://www.napeditions.com)).

French lepidopterist Patrice Leraut recently published a second volume in the “Moths of Europe” series, three years after the publication of volume 1 on the Saturniidae, Lasiocampidae, Sphingidae, Arctiidae, etc. This pocket-size field guide on the European Geometridae, as the book is described on its back cover, will be welcomed as it covers the whole European fauna. Many good, regional, and comprehensive guides and monographs are available, but a synthesis on a European scale has not been published since the works of Culot (1917–1919, 1919–1920) and Prout in Seitz (1912–1916, 1934–39), both of which are outdated and Seitz has been out of print for many years.

The book opens with a general introduction to the Lepidoptera, followed by a classification of the Geometridae based on wing venation characters. There is a description of the European habitats of the Geometridae. Short chapters are also included on collecting, polymorphism, specimen preparation, identification, nomenclature, and conservation. The typical treatment of a species comprises a short description of the imago and differences between male and female, variation, similar species, biology, flight-time, distribution, status, comments, and a distribution map. The majority of the species covered are illustrated in 158 high quality colour plates, and if necessary, supplemented with black-and-white line drawings of diagnostic features of the genitalia and other characters.

This field guide is generally very helpful as an identification guide. The coverage in a field guide does not need to be comprehensive, a strategy the author has apparently chosen. Not all European species are illustrated in the plates, and in unillustrated species the reader is often, but not always, given an indication of the most similar taxa. Numerous non-European species are illustrated in the plates including some of which are highly unlikely to be found in Europe. I find the inclusion of these species somewhat irrelevant, but perhaps they are justified from a curiosity point of view? Many lepidopterists who are mainly interested in species identifications are likely to find this ‘colour atlas type of field guide’ with basic biological information about the species useful. I would have liked to see more specimens illustrated to show the variation within a species and the specimens would have been better shown in plates with a consistent magnification relative to each other. Locality details of the illustrated specimens would have been appreciated, giving better understanding of the correlation between the external appearance and the geographical area.

The book cannot only be treated as a field guide as it also proposes numerous taxonomic changes, but this latter aspect is dealt with in a debatable manner. My major problem is the apparent lack of scientific approach: In many cases the author does not provide information on the material upon which the conclusions are drawn. This means that the analyses are not verifiable. The results and conclusions may be correct, and I agree with some of them, but the lack of evidence makes them impossible to evaluate. If the taxonomic and nomenclatural decisions were removed from the book and submitted to a peer-reviewed journal, I find it hard to believe that such a journal would have published them in the way they are presented here.

I will now give some examples to support these observations.

- On page 9 Leraut lists the four new genera, seven species, and 17 subspecies described in the book. However, the wealth of other taxonomic and nomenclatural changes that are distributed throughout the book – new synonymies, new combinations, and new status revisions – are not listed. I was left to wonder about the rationale behind this decision.

- As mentioned earlier, some of the taxonomic conclusions of Leraut cannot be evaluated on a scientific basis because there is no indication on the (type) material on which the conclusions were drawn. As examples in this category there is the synonymisation of *Amorophogynia* Zeller,

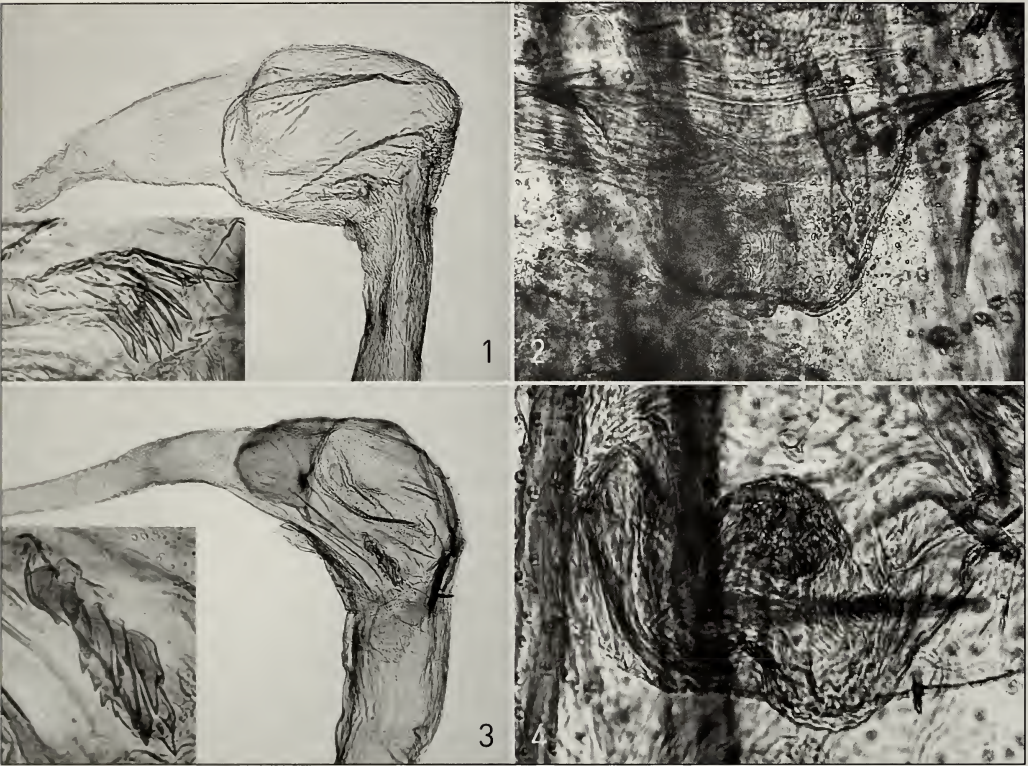
1849 (Note: This should read *Amorphogynia* Warren, 1894. Leraut has apparently used by mistake the author and year of description of *necessaria* Zeller, 1849, which is the type species of *Amorphogynia*) with *Lycia* Hübner, 1825, (already proposed by Viidalepp in 1996!) and the synonymisation of *Nyssiodes* Oberthür, 1880, with *Lycia* Hübner, 1825. Were the type specimens of the relevant type species examined? In which collections? What characters were found to support these views? *Narraga catalaunica* Herbulot, 1943 is stated on p. 72 to be 'bona sp., stat. rev.'. The authenticity of this claim is difficult to judge, even if correct, when Leraut writes only 'Examination of genitalia of *catalaunica* compared with those of *nelvae* from Morocco revealed that these two taxa are indeed distinct.' Only male genitalia are illustrated, and Leraut does not tell us whether the type material was examined. Under *Chiasmia aestimaria* (Hübner) (p. 71) he writes: 'Markings can be widely smoky in hue, as in f. *sareptanaria* (Staudinger, 1871) (often erroneously treated as valid species).' Who has made the 'error'? Why is it incorrect to treat this name as valid for a separate species or subspecies? *Kuchleria garciapitai* Exposito, 2005, 'is in my view only a synonym of *K. menadiara* [(Thierry-Mieg)]' (p. 55); under *Idaea sericeata* (Hübner, 1813) Leraut writes (p. 739): '*Idaea subrecta* (Prout, 1935) from High Atlas, bona sp., stat. rev., with transverse lines sinuous and closer together.', no genitalia are illustrated and the differences described are not self-evident from the specimens illustrated; under *Hylaea fasciaria* he writes (p. 212): 'The North African population has the moths smaller and dull green (red. f. unknown): ssp. *compararia* Staudinger, 1894, stat. rev. (previously treated as separate species).'; and under *Scopula incanata* one can read (p. 776): 'See also *Scopula punctabilineatella* (Lucas, 1937), bona sp., stat. rev., from Morocco.', but there is not even a separate text entry for *S. punctabilineatella* and further, there is no indication who has made the claim that this taxon is not valid at the species level and its relationship to *S. guancharia* (Alphéraky, 1889), which is not featured in the book is not mentioned. The list goes on, and examples of this kind are too numerous to mention.

- The descriptions of new taxa are based on morphological evidence, but some of the diagnostic features are so minute and difficult to see in the line drawings that they cannot really be substantiated without further morphological and/or molecular analysis. For example *Harrisonodes* Leraut, 2009 is said to differ from *Lycia* Hübner, 1825 by minute differences in the male and female genitalia, but those are not illustrated. I illustrated these structures in Figs 1–4 and I question their value as a genus level synapomorphy. Leraut describes two new subspecies for *Parietaria serotinaria* (Denis & Schiffermüller), bringing the total to five, on the basis of small differences in the curvature of the phallus and wing pattern. He illustrates two male genitalia of *Parietaria serotinaria vesubiaria* Leraut (Figures 127a, 128c) that have different structures in the apex of the juxta, which appear more diagnostic than the mentioned phallus characters. Perhaps a mistake has occurred in the labelling of the plate? Many of the new taxa are extralimital, they are not found in Europe (e.g. *Isturgia tozeurensis* Leraut, *Ifrania* Leraut and *Menophra tameliltensis* Leraut). This approach cannot be justified because the book, after all, is a field guide for the European Geometridae.

- Numerous new forms are formally described: for example, six new forms for *Erannis defoliaria* (Clerck) alone! Here it suffices to say that according to the International Code of Zoological Nomenclature (1999), an infrasubspecific name is not available [Art. 45.5].

- Distribution maps are in many instances obscure, misleading or even wrong. It seems to me that for the species treated in the Geometrid Moths of Europe series (Hausmann 2001; Mironov 2003; Hausmann 2004) most of the maps are simply reproduced here as they appear in the original works. The distribution maps of the remaining taxa are superficial. According to the author: '...when the information [on the distribution] at hand is more imprecise, the distribution is given by country'. I agree that knowledge may be imprecise in certain areas of Europe, but I would argue that species distributions in many countries, like Finland, which I am familiar with, are very well known and accurate. Detailed information has been available in publications





**Figs 1–4.** Everted male vesica with sclerotisations shown in insert and female antrum of *Lyca alpine* (Sulzer, 1776) (Figs 1–2) and *Lyca hirtaria* (Clerck, 1759) (Figs 3–4). 1. Slide PS1399, 2. Slide PS1400, 3. Slide PS1322, 4. Slide PS1323. When Leraut described new genus *Harrisonodes*, *Ph[alae]na B[ombyx] alpine* being its type species, it was diagnosed to differ from *Lyca* (p. 110): ‘In [*Harrisonodes*] male, aedeagus features sclerotised ‘ridges’ in vesica, no sclerotized ‘arms’, and: ‘In [*Harrisonodes*] female, antrum is preceded by a sclerotized circular structure, which nevertheless has no sclerotized median patch.’ Leraut did not illustrate vesicas or the sclerotized circular structure of the antrum [lamella antevaginalis?]. Figures 1 and 2 illustrate that both mentioned species have similar sclerotized, spine-shaped structures in the vesica, and while the structure of antrum is diagnostic between *hirtaria* and *alpine* (Figs 3–4), such sclerotization is not found in other European *Lyca* species, thus questioning the value of mentioned male and female characters as genus level synapomorphies.

for decades (for example Mikkola et al. 1985; Mikkola et al. 1989; Huldén et al. 2000). The constantly updated distributions by biogeographical regions are even available on the internet (Kullberg et al. 2002). Thus the maps displaying the arctic-alpine *Pygmaena fusca* (Macaria!), see Kullberg et al. 2002; Scoble & Krüger 2002) in the hemiboreal zone of South Finland and in Skåne, Sweden, or *Narraga fasciolaria* (Hufnagel), a migrant species that has been recorded a few times in the southern coast of Finland, as occurring North of the Arctic circle, are very misleading. Several obvious distribution errors are also included; just to mention a few, the Mediterranean *Abraxas pantaria* (Linnaeus) is NOT recorded in Finland, whereas *Hypoxystis pluviana* (Fabricius) IS resident in Finland, *Cataclisme rigata* (Hübner) and *Apocheima hispidaria* (Denis & Schiffermüller) are NOT recorded in Finland (the map of the latter has been carefully drawn to exclude the northern part of the country thus indicating exact knowledge on its distribution), and the arctic, Eurosiberian *Timandra rectistrigaria* (Eversmann) certainly does NOT occur in Finland, Norway or Sweden, with a disjunct distribution in southern Sweden as is carefully drawn, etc. The errors are so numerous for one country alone that it must be

assumed that similar errors are common regarding other countries' distributions also, perhaps indicating that no proof-reading of the maps has been done.

- Several recent advances on the higher classification of the Geometridae are largely ignored and no arguments are presented for why this is so. These include, for example, the proposed new generic concepts of the Macariini (Scoble & Krüger 2002), the Scopulini (Sihvonen 2005), the demonstrated Sterrhinae association of the Lythriini (Öunap et al. 2008), the Gnophini association of *Cleorodes* (Viidalepp et al. 2007), and the *Timandra* association of *Timandra rectistrigaria* (Eversmann) (Sihvonen & Kaila 2004).
- Incorrect and inconsistent spellings occur, eg. *Leucobrepheos middendorffii* for *L. middendorffii*, *Phaiogramma etruscaria* for *P. etruscaria*.
- The reference list is very short for a book of this magnitude. Original research articles have not been cited, apart from one self-citation of an article describing a new form.
- Many European taxa do not have a separate entry in the book, neither are they mentioned in the index. Some of these are briefly mentioned in the text, but in seemingly random places, e.g. *Limeria macraria* Staudinger, 1982, under *Brachyglossina hispanaria* (Püngeler, 1913), and *Eupithecia sardoa* Dietze, 1910, under *E. pusillata* (Denis & Schiffermüller, 1775). Further, some species would have benefited from a separate entry as they are newly discovered in Europe, for example *Lithostege fissurata* Mabilbe (Hausmann & Seguna 2005).
- Cross-referencing of taxa is sometimes confusing. For example, under *Macaria artesiaria* (Denis & Schiffermüller) Leraut writes: 'Several *Isturgia* and *Perigune* [are similar]' but no reference is given to *Macaria ichnusae* Govi & Fiumi. Under *M. ichnusae* (not illustrated) he writes that '*Macaria artesiaria* is [similar]'
- Leraut questions the validity of *Timandra griseata* Petersen (not indexed in the book) and *Timandra comae* Schmidt as separate species (p. 786). I would have appreciated an analytical approach to this much discussed issue, where the author could have presented concrete, material-based counter arguments, as have the proponents of this hypothesis (e.g. Kaila & Albrecht 1994, Öunap et al. 2005).
- This appears to be the first monograph that does not illustrate the genitalia for the species-rich Sterrhinae genera *Scopula* Schrank and particularly *Idaea* Treitschke. The identification of these moths is sometimes impossible without such additional information. This omission is puzzling because the genitalia of numerous taxa of other subfamilies are widely illustrated.

This leads my review to the topic of publishers' responsibility. What roles have the publisher and the publishing editor played in producing this book? Has the publishing editor accepted the manuscript for publication without any critical comments and without familiarising himself with its content? The scientific level of this book is likely to reflect badly on the publisher. N.A.P. Editions, France.

The examples above show only the various categories of questionable conclusions and errors, and they are repeated throughout the book. Given my experience in the administration of research funding in Europe, this publication will not help to dispel the persistent image that taxonomy is an old-fashioned, non-scientific discipline. To conclude, the taxonomic changes (new synonymies, new combinations, status revisions) proposed by Leraut will need to be carefully reconsidered by subsequent authors, particularly in cases where no data on examined material are provided. Actually some preliminary work has already been done (Hausmann 2009). The evidence supporting the descriptions of new taxa is rather slim in some instances, and those will also need to be evaluated carefully. I hope that the author and the publisher will learn from these critical remarks and consider them when preparing the next volume of the *Moths of Europe*, announced for 2010 on the internet.



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