

BOOK REVIEW

KUDRNA O., HAPKE A., LUX K., PENNERSTORFER J., SCHWEIGER O., SETTELE J. & WIEMERS M.: DISTRIBUTION ATLAS OF BUTTERFLIES IN EUROPE. Gesellschaft für Schmetterlingsschutz e.V., Halle, 2011, 576 pp., ISBN 978-3-938249-70-3. Price EUR 65.00.

Distribution of European butterflies has attracted the attention of butterfly collectors for several centuries. It has also led to frequent questions of why some species live here and others elsewhere. In addition, the earliest bio-geographical analyses (for instance de Latini, 1967) were also done on distributional patterns of Lepidoptera, mainly butterflies. On the other hand, the exact distribution of European butterflies was up to the recent past not well defined and in all pan-European field guides the distributions of many species are unrealistic (exact) dot-like distributions in the Western part of the continent and great general uncertainty about their distribution in the rest of the area. Such lack of information also occurs at a smaller scale, the national level. During the 20th century, many regional butterfly distribution maps based on exact mapping schemes were produced, from British Islands to Bulgaria and from Spain to Finland. Ten years ago, Otakar Kudrna (2002) published his first pan-European atlas, covering the whole area of Europe.

It is impossible to write a review of this new version of the butterfly distribution atlas without comparing it with the first edition, which is a black and white paperback, containing 228,931 data records from 465 recorders for about 486 species of butterflies. There were no details on the individual species other than the distribution maps. This atlas included many “small species”, i.e. subspecies, which some authors had elevated without appropriate reasons (and analyses) to species. This was done to detect the distributional ranges and overlapping areas. On the other hand, the generic arrangement was very strict, omitting all the “smaller genera”, for example *Pararge* and *Lopinga*.

The new version is very different in that it is a hard bounded book with a number of co-authors, colourful maps and brief comments on the distribution and conservation status of each species. Unlike the first version, the European part of Russia is omitted as there is still little information for this area of Europe. In spite of these changes, the data available in the second edition, at least optically, do not differ much from that in the previous edition, but it is based on three times the number of data records (now 655,000). The main change is the inclusion of some published regional mapping data (for instance for the Iberian Peninsula) and records from the Ukraine and Moldova. It is likely that information from sources like the distributional atlas of Romanian (Székely, 2008) and Bulgarian butterflies (Abadjiev, 2011) was omitted as there is no mention of it in the chapter on the “State of recording”, even though both publications are cited. There is also no mention that García-Barros et al. (2004) mapped the whole of the Iberian peninsula, i.e. not only Spain, but also Portugal. Furthermore, numerous records in the faunistic literature and old records of many of Natural History museums are not incorporated and as a consequence many old or very recent records are absent.

The new atlas uses the same Reference locality system, which was criticised by Kolev (2003), but as it now also includes geographic coordinates it is more robust but still subject to human

errors. On the other hand, the authors use the same time periods as used in 2002, i.e. before 1950, 1951–1980 and after 1981. For many species this results in a more optimistic view than is justified. For instance *Colias mirmydone* is already extinct at many sites within its “recent distribution” or there are no records of *Colotis evagore* north of Andalusia despite the fact, that this species has been recorded (and published) at least twice in the Southern part of Catalonia.

The new version of the atlas differs in the number of butterfly species – 441. Some of the differences are due to synonymizing some of the “minor species”, which are not recognised even by a number of the recorders. Also three species, *Polyommatus eros*, *eroides* and *menelaos* are synonymized because of the analyses of Vodolazhsky & Stradomsky (2008), whereas *Zerynthia cassandra* is erected according to Dapporto (2009). Also the generic level is now much more realistic and conforms to current knowledge (e.g., the generic arrangement of Polyommatinae is still an unsolved puzzle).

Furthermore, as in the previous atlas, this book does not only include maps and brief notes on each species. For example in chapter 3, Checklist of species, there is not just a list of names as in the first edition but also the first author’s (OK) view on the current use of vernacular names, definitions of species and genera, new methods used for species delimitation, the ICZN rules, the authorship of the so called “Wiener Verzeichnis” etc. I found the list of generic names with the type species very useful. For instance I did not know that the type species for *Satyrrium* Scudder, 1876, *Satyrrium fuliginosum*, is such a strange species, unlike to other *Satyrrium* species! On the other hand, I think that the list of synonyms of European butterflies presented is problematic. Whereas in some of the taxa the synonymies are well known, some other synonyms are questionable and in reality the taxa deserve further study and should be discussed. I see no reason, for instance, in synonymizing species like *Vanessa indica* and *V. vulcania*, i.e. representatives of two separate clades (see Wahlberg & Rubínoff, 2011) and many other such examples. After the typical content, i.e. species maps, this book continues with an analysis of the mapping effort and a revised version of European zoogeographic elements, concentrations of species, endemic and Red List taxa, and tries to identify the European butterfly hotspots.

Finally, as in many other books, there are several errors or mistakes. One such example is the map for *Scolitantides* (= *Pseudophilotes*) *baton* which includes on the Iberian Peninsula also dots for *S. panoptes* and vice versa.

What to say to end? The book really deserves attention and I can recommend it to everybody interested in butterflies.

REFERENCES

- ABADJIEV S.P. 2011: *An Atlas of the Distribution of the Butterflies in Bulgaria*. Pensoft, Sofia 335 pp.
DAPPORTO L. 2009: Speciation in Mediterranean refugia and post-glacial expansion of *Zerynthia polyxena*. *J. Zool. Syst. Evol. Res.* 48: 229–237.
DE LATINI G. 1967: *Grundriss der Zoogeographie*. Gustav Fischer, Jena, 602 pp.
GARCÍA-BARROS E., MUNGUIRA M.L., MARTÍN CANO J., ROMO BENITO H., GARCÍA-PEREIRA P. & MARAVALHAS E. 2004: Atlas

- de la mariposas diurnas de la Península Ibérica e Islas Baleares. *Monografías S.E.A.* **11**: 228 pp.
- KOLEV Z. 2003: Book review: Kudrna O. 2002: The distribution atlas of European butterflies. *Nota Lepidopterol.* **25**: 280–283.
- KUDRNA O. 2002: The distribution atlas of European butterflies. *Oedippus* **20**: 1–342.
- SZÉKELY L. 2008: *The butterflies of Romania*. Tipografia Brastar Print, Brasov, 305 pp.
- VODOLAZHSKY D.I. & STRADOMSKY B.V. 2008: Phylogenetic analysis of subgenus *Polyommatus* (s. str.) Latreille, 1804, based on mtDNA markers. Pt. 2. *Caucas. Entomol. Bull.* **4**: 237–242.
- WAHLBERG N. & RUBINOFF D. 2011: Vagility across *Vanessa* (Lepidoptera: Nymphalidae): mobility in butterfly species does not inhibit the formation and persistence of isolated sister taxa. *Syst. Entomol.* **36**: 362–370.

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