

= BOOK REVIEWS

**L. Stange. A Systematic Catalog, Bibliography and Classification  
of the World Antlions (Insecta: Neuroptera: Myrmeleontidae).  
Memoirs of the American Entomological Institute 74  
(Gainesville, FL 2004), 565 p.**

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The monograph under review is the result of multi-year work of the well known American entomologist Lyonell Stange. The catalog of antlion taxa, as of 2000, includes 1522 recent and 13 fossil species assigned to 201 genera out of 14 tribes.

The latest catalog of antlions of the World fauna was published by Hagen (1866). After that, only catalogs of generic and family-group names (Markl, 1954), or only generic ones (Oswald and Penny, 1991) were published. I and some other neuropterists keep catalogs of the World antlion fauna in the form of manuscripts and electronic databases, which are supplemented as a result of daily work of meticulous analysis of all the original and literary data. This review is based on comparison of Stange's monograph with my catalogs. In the process of reviewing I discovered about ten specific names which I have not known before. At the same time, I did not find some valid names (*Palpares campani* Navas, 1915; *Creoleon nigritarsis* Navas, 1921; *Nelees posterior* Navas, 1931; *Myrmeleon zanganus* Yang, 1987; *Myrmeleon lambkini* New, 1996), which seem to have omitted through some regrettable misunderstanding.

Thus, Stange's catalog is maximally complete but the author's treatment of valid names and synonyms calls for discussion. In the introduction Stange gives the number of generic names (359) entered in the catalog and the names of that group which he considers valid (202). The total number of specific names included in the catalog is not indicated, which is quite understandable since it is difficult to determine whether, besides valid names and synonyms, all the known combinations, misidentifications, invalid, replacing, rejected and emended names should be included, as well as those with varying endings and mere grammar mistakes and errata. The author only gives the number of specific names, which he considers valid (1522 recent and 13 extinct species) by the end

of his work on the catalog. Yet in the process of serial numbering, one of the numbers (p. 39) was omitted and another repeated (p. 362). Besides, the species described as *Myrmeleon nefandus* Walker, 1853: 357, was assigned to two different genera in the catalog: *Distoleon* (p. 157) and *Macronemurus* (p. 187). Similarly, the generic name *Licura* Navas, 1918 is synonymized with two different genera *Lemolemus* (p. 254) and *Elicura* (p. 252), so that the type species also acquires two positions.

The published variant of the catalog is arranged alphabetically within tribes, genera, and subgenera (with the exception of the genus *Cymothales*), whereas the family-group taxa are arranged according to the classification accepted by the author. This classification of the higher antlion taxa of the World fauna is published by Stange for the first time. It is based on Banks' (1911, 1912, 1927) classification of the World fauna and the author's original studies on American taxa (Stange, 1976, 1994). The classifications proposed by other neuropterists (Navas, Esben-Petersen, Markl, New, and myself), are simply not discussed.

Even though subspecies and infrasubspecies-level taxa have been described for no less than 100 antlion species, Stange uses subspecies names as valid in three cases only. It is impossible to understand why other subspecies are regarded as synonyms to the very species within which they were described (marked as "NEW SYNONYM:" p. 43, 50, 52 ... 367, etc.).

The great merit of Stange lies in establishing the taxonomic status and synonymy of many forgotten taxa by examination of the type specimens. Some of the 250 new combinations proposed, for example *Fadrina puellaris* (Navas) (previously in the genus *Acanthaclisis*) and *Lachlathethes furfuraceus* (Rmb.) (previously in the genus *Palpares*), seem to be quite well justified, whereas for others, such as *Palpares ertli* (Nav.) (previously in the genus *Negretus*), there

are no sufficient grounds. A revision of the genus *Nemoleon* with establishing a number of species and generic synonyms, part of which seems to be indisputable, deserves attention. Other generic revisions carried out by Stange do not appear convincing enough to be taken implicitly. This refers to the inclusion of all the species described in the genus *Bouleon* into the genus *Epacanthaclisis*, and also the creation of a separate genus *Gatzara* within the genus *Dendroleon*. The proposed synonymy of *Myrmecaelurus* with *Aspoesciana* and *Nohoveus* is absolutely wrong, since the last two names belong to certainly separate genera. Stange explains this act by the need for revision of the genus *Myrmecaelurus* s. l. (74 species), to examine its distinction from the genus *Naphis* (3 species). Another unfortunate commentary of Stange refers to the newly established synonymy of *Palpares* - *Negretus*. On p. 48, Stange writes that after a complete revision of the genus *Palpares*, *Negretus* may be again recognized as a separate genus.

A series of ungrounded decisions resulted in the inclusion of 8 quite separate genera into the combined genus *Distoleon*. Consequently, an absolutely subjective case of secondary homonymy was created in this genus (p. 164), involving two species *Distoleon umbratus* (Navas, 1919) (previously in the genus *Feinerus*) and *Distoleon umbratus* (Navac, 1930) (previously in the genus *Salvasa*), which are placed in different tribes in other classifications. There are many such cases of secondary homonymy. Certainly, all the previously known but unsolved naming problems are also listed in the catalog, but Stange never suggested a replacing name for any of them. On the contrary, the available replacing names are frequently (p. 273, 294, 340, etc.) not used as valid but synonymized with homonymous names. For example, for the valid name *Acanthaclisis debilis* Navas, 1932 (p. 340) there is a quite correct reference (Krivokhatsky, 1997) to synonymy with *A. curvispura* Krivokhatsky, 1990 and to homonymy with the valid name *A. debilis* Gerstaecker, 1888 (now *Syngenes*). At the same time, Stange not only does not accept but does not even cite the solution suggested in my paper; he leaves the junior homonym, rather than the junior synonym, as the species name, thereby raising again the already solved homonymy issue.

In the catalog, 58 species synonyms are established for the first time. Yet it would be reasonable to publish such solutions in taxonomic papers and not in catalogs, which do not include the author's reasoning. Without knowing the morphological basis for each of

Stange's nomenclatural act, any specialist would anyway have to re-examine the types and recheck every new combination or synonym. Even now, before the types are re-examined, the catalog contains a number of discrepancies concerning the systematics and nomenclature of many taxa. I would like to dwell on several cases which are well known to me and which can be explained within the framework of the present review.

Not all the new synonyms designated in this book are marked with "NEW SYNONYM" notes. For example (p. 36), synonymy of *Palparidius capicola* Per. = *P. nycterinus* Nav. has never been published before and requires such a note; the very interesting synonymy (p. 293) *Cueta trivirgata* (Gerst.) = *Creagris bechuamis* Per. has also never been suggested previously. However, about 30 combinations out of 250 designated in the catalog as "NEW COMBINATION" are not really new. In particular, combination *Nosa tigris* (Dalm.) (previously in the genus *Myrmeleon*) was established by Navas (1912), *Nosa tristis* (Hag.) (previously in the genus *Palpares*), by Wittington (2002), and *Creoleon lupinum* (01.) (previously in the genus *Myrmeleon*), by me (Krivokhatsky, 1998).

The note "Nomen **nudum**" is also used in the catalog fairly arbitrarily. For example, among the synonyms for *Dimares elegans* (Perty) the catalog gives two invalid names (p. 71):

= *Myrmeleon myrmerophagus* Perty (manuscript name after Navas, 1912a : 25).

= *Myrmeleon congruous* Hagen, 1861 : 325 (after Hagen, 1866b : 437). Nomen **nudum**.

It remains unclear why one of the names is placed into this category and the other is not. Even more enigmatic is the fact that some of such names (*Palpares solidus tekkensis* Kolbe, *Cueta lata* Nav.) are even accompanied with type specimen data. In fact, the invalid name *C. lata* is published for the first time, provided that it is not a misspelled invalid name *C. laeva* Nav. that was published earlier (Monserrat, 1985).

For the genus *Subgulina*, described by me, 5 species are listed in the catalog (no. 3 refers to two species, which must be a misprint). For the first species (p. 283) Stange establishes a completely unnecessary combination *Subgulina exigua* (Lupp.) (previously in the genus *Maracanda*), marked as "NEW COMBINATION." The fact is that this name does not require

a new combination: it had been synonymized with *Maracanda tallizkii* Lupp. before the genus *Subgulina* was described, and this synonymy had been further supported (Zakharenko and Krivokhatsky, 1993; Krivokhatsky, 1995, 1996, 1998). Even though all these works are cited by Stange, he not only does not accept our synonymy but does not mention it at all, and since both type series are deposited at the Zoological Institute, RAS (St. Petersburg), I know for certain that Stange never examined them. For *S. kershneri* (Kriv.), China is not mentioned under the "Distribution" header, even though the type series includes specimens from China and Mongolia. For *S. talitzkii* (Lupp.), the Ukraine is included in the distribution area, although a special investigation (Zakharenko, Krivokhatsky, 1993) showed the geographical labels of the holotype and several paratypes to have been mistakenly attached to the specimens. In fact this species does not occur in Ukraine, and its distribution is limited to Kazakhstan, Uzbekistan, and Turkmenistan, whence the rest of the type specimens originate. All these data can be found in the works that are cited in the catalog. The errors concerning this particular genus represent no exception; similar analysis may be performed for many other taxa.

Arbitrary treatment of taxonomic solutions of other authors shows in other cases as well. For example p. 35 states that the paratype *Stilbopteryx napaleo* (Lef.) belongs to *S. auricornis* Kimm. In fact, as established before (Riek, 1976), the paratype *S. auricornis* belongs to *S. napaleo*. In the work of McLachlan (1885), Stange misread the citation "*Myrmecaelurus Fedtschenkoi* Mac Lachlan n. s." as "*Myrmecaelurus Lachlan* n. s." and included this erroneous citation into his catalog as the separate item "*Myrmecaelurus Lachlan* Mac Lachlan 1885a: 610. **Nomen nudum**" (p. 270). For one of the subspecific taxa of the same species *Lopezus fedtschenkoi lachlani* Nav., Stange (p. 263) cites the work of Luppova (1961) in which this taxon is not mentioned.

Stange restores the original spelling (p. 55) of *Palpares libelloides* (Linnaeus, 1764) for the species mentioned in more than 150 publications under its traditionally accepted name *Palpares libelluloides* (Linnaeus, 1767), quite logically recognizing it as a subsequent misspelling. Such cases are considered in ICZN (4th edition, 1999 : 33.3.1), according to which the subsequent traditional spelling must be preserved and regarded as the correct original spelling.

Stange has always been noted for his ability to make hasty decisions and for the stage-like development of his views on the taxonomy of the groups of North and Central American fauna well known to him. This can be demonstrated by the example of *Chaetolon tripunctatus* (Bks.), a species whose name in the consecutive revisions published by Stange from 1961 to 1994 was used in combination with four presently valid generic names.

The book also contains some unchecked information without reference to its sources. For example, on p. 10, Stange asserts that there are types of Fabricius in the Zoological Institute, RAS, a fact unknown either to me (despite being the curator of this collection) or to the author of the monograph on Fabricius' material (Zimsen, 1964).

The monograph contains original keys to subfamilies, tribes, and genera of antlions based on both adults and larvae. Stange has re-examined some characters for all the taxa and used them for the first time in the taxonomy of antlions: the structure of the female genitalia, the shape and motility of the claws, chaetotaxy of the legs and head, etc.

Stange lists 2375 publications on antlions published before 2000; besides, the reference list and the catalog itself comprises about 10 later papers, including those which contain descriptions of new taxa (e.g., Holzel, 2001) or establish new combinations (Wittington, 2002). However, some of the papers with publication date after 2000 (e.g., Stange, 2002) are not included, due to which it is quite impossible to understand the proposed treatment of a whole group of species of the genera *Euptilon* and *Psammoleon*.

In the reference list there are incomplete citations which would be insufficient to locate the relevant publications. There are also numerous mistakes and misprints in translations and transliterations of non-English sources. The authors are often confused with editors, and one of the papers of E.P. Luppova (keys to antlions) published in the multivolume *Key to Insects of the European Part of the USSR* is cited in four different spelling variants (as Luppova, 1987; Dorokhova, 1987a; Dorokhova, 1987b; Medvedev, 1987). Several cases of mismatching publication year in the in-text citations and the reference list represent simple misprints. There are, however, stable discrepancies, related either to replicated errata or to the wrong citation method. For example (p. 91), the reference for the species cited in the catalog as *Gatzara petrophila*

Miller & Stange, 2000 : 50 cannot be located in the list; instead we find Miller, Stange & Wang, 1999. Consequently, the species should be correctly listed as *Gatzara petrophila* Miller & Stange in Miller *et ai*, 1999 : 50. The same applies to all the rest of the species described in this paper. Similarly, the reference to the description of the species designated in the catalog as "*Brasileon amazonica* (Stange) 1989 : 16" cannot be found; the correct entry should read *Brasileon amazonica* (Stange in Miller & Stange, 1989 : 16).

The indices of Latin names, placed at the end of the catalog and aimed at quick search for the necessary taxa, are compiled carelessly: there are whole blocks of names which are not alphabetically arranged (*e.g.*, *Acanthaclisis-Acanthoclisis*, p. 527 or *angustatus-angusta*, p. 583); some names cited in the catalog are not to be found in the index there at all (*e.g.*, *Tomateres*, a repeatedly used misspelling of the generic name *Tomatares*).

The indices are inoperable in cases of change of genus name endings that arise when new combinations appear and in other cases. For every name, the index

gives only one, often arbitrarily chosen variant of spelling. I have found over 20 cases of varying ending of genus names in different species in the catalog and in the index, and also their deviations from the original endings. In the catalog there are also many cases of disagreement in the grammatical gender between the genus and species names. For example, species name: in the genus *Myrmeleon* (masculine) even in valid combinations are sometimes used with feminine [*gut-tata* (Nav.), *mediata* (Nav.)] or neuter endings (*mould-sorum* New, Smithers, *tigrinum* ♀).

References to page numbers are missing in some citations throughout the catalog. Some misprints should be compiled into a special list, so as to avoid their replication.

I have attempted to collect the remarks referring both to mistakes and misprints, *i.e.*, to the technical editing of the book, and to the author's work. The more such remarks will be presented to the author, the more exact and correct will be its next variant. The present edition certainly has its value as a reference manual and will be an important aid for a large circle of antlion experts.