
This early entry in a new publication series is a monographic systematic treatment for North America of a large and difficult group of predatory staphylinid beetles. This group includes some of the most frequently encountered rove beetles, many accidentally introduced from Europe or elsewhere and commonly found in association with humans. The abundance of many species suggests they may play an important ecological role in some habitats, and some species have been recommended as possible biocontrol agents for agricultural pest insects. However, accurate identification of the more than 200 similar-looking species in North America has been very difficult for even specialists on staphylinids, and a great many new names, introductions, and taxonomic changes have accumulated since the last full review of Nearctic species by G. H. Horn more than a century ago. These taxonomic and identification problems have prevented full exploitation of the potential role of this group in ecological and biocontrol studies.

Smetana's revision, in preparation for more than a decade, is a monumental study providing comprehensive treatment of all included species, with sweeping taxonomic changes. Based on study of about 100,000 specimens from nearly 50 institutions and individuals, it covers 208 species in eight genera of Philonthina, excluding only three small genera of the subtribe whose North American species have been revised recently by others (*Cafius, Erichsonius* and *Neobisius*, with about 42 species total). Sixty new species and three new subspecies are described, six new generic and 73 new species-group synonymies proposed, one genus resurrected, four neotypes and 121 lectotypes designated, and 75 new combinations proposed including some for Palearctic species. A significant number (29) of the 208 species are documented as adventive, mostly originating from Europe; many are first rep...
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The extensive introductory sections
provide a detailed overview of the group,
including taxonomic history, natural history,
immature stages, fossils, and morphology
including a review of diagnostic characters.
An admittedly preliminary phylogenetic
analysis of most North American genera
attempts to "give evidence for or against the
monophyly of some genera" (see discussion
below). The main systematic treatment
starting on p. 47 includes identification keys
to the eight world subtribes of Staphylinini,
all 14 Holarctic genera of the subtribe
Philonthina, and the 208 Nearctic species of
the eight genera included in the revision.
The treatment for each genus includes
synonymy, general description, and other
discussion, and a good habitus drawing of at
least one species. Each of the larger genera
is divided into a series of informal species
groups, a very flexible approach that is
certainly preferable in our present state of
knowledge of Staphylinidae to the formal
recognition of subgenera with resultant
nomenclatural clutter (as illustrated, e.g., by
the messes in Atheta and Lepiusa). Species
treatments include full taxonomic data with
synonyms and discussion of types and
taxonomic changes; detailed descriptions,
accompanied by nearly 1500 figures of male
genitalia and other structures including many
scanning electron microscope photos; full
data on specimens examined including
indication of source collections (except for
a few very common species where only a
list of states and provinces is given), with
overall distributions summarized in the text
and shown on 107 fairly detailed "dot"
maps; and comments on the bionomics
and recognition of the species. Although
Mexico is not formally included in the area
covered by this revision, Smetana evidently
studied many Mexican specimens, and in the
case of North American species that also
occur in Mexico he includes Mexican
records in the "Material studied" lists and
on maps; at least 10 species are reported
from Mexico for the first time. Species
ranges that extend further south or into the
Old World are indicated only in a general
way in the text.

Most of the basic taxonomic work is
done very well, in the style of Smetana's
earlier revisions. Many new characters
useful for identification and phylogenetic
analysis are introduced or first surveyed
throughout this group. The higher
classification adopted is reasonable at the
present state of knowledge. Curiously, in
arguing for combining the subtribes
Triacrina and Xanthopygina (p. 47),
Smetana implies that a 1992 work by
Newton and Thayer found "character states
justifying the separation of Triacrina from
Xanthopygina" and cites his own 1977 work
for showing that Triacrina have "all the
cracter states of Xanthopygina", but
neither of the cited works discusses any
relevant character states for these groups.
The keys generally seem to work, with some
exceptions, especially in the subtribe key
when applied to non-Holarctic faunas (e.g.,
the separation of Philonthina from
Staphylinia using the shape of the ligula is
not only difficult to use in practice but also
unreliable because both states given occur
even among Neotropical species of the genus

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Most unfortunate, however, is his choice of how to count the dorsal pronotal punctures, an important systematic character in the species keys. After noting in the introduction (p. 29) that "there is little doubt that the authors who consider the first puncture, usually situated slightly lateral of the dorsal row, as belonging to the anterior marginal punctures and not homologous with the genuine punctures of the dorsal rows, are correct", he decides to "follow Ericson and most other authors, mostly for practical reasons, in considering this puncture as part of the dorsal rows". This choice is thus theoretically questionable as well as non-intuitive, and is not highlighted or illustrated with a labeled figure; a colleague who tried the Philonthus key and promptly veered off course using this character will doubtless not be the last to curse it!

Although Smetana went to considerable effort to examine and discuss type material of hundreds of names, there are some quite serious omissions in this area, especially involving Neotropical species that extend into North America. In some cases (e.g., Philonthus furvus, P. piceatus, P. pauxillus, and Belonuchus rufipennis), several very similar species occur together in the vicinity of type localities in Mexico, Central or South America, hence there is a good chance that these names have not been correctly interpreted by later authors and in this revision. Smetana also adopted the unfortunate taxonomic habit of listing all synonyms as if they were originally proposed as full species; in the introduction (p. 44) he notes that he automatically treated varieties and even aberrations that may not be available names this way, leaving the task of determining the original status and availability of these names to others (and raising the possibility that some unavailable names will be inadvertently adopted because they appear to be available). Another area where Smetana's judgement seems questionable concerns three supposedly adventive species (Gabrius caudatus, G. splendidulus and G. velox) reported from North America for the first time here. The only cited North American records for each of these species are from very old specimens with state-only labels from one insect collection (Museum of Comparative Zoology) that includes many similar specimens that are known to be mislabelled. Smetana's unquestioning acceptance of these records is not consistent with his statement (p. 43) that "Specimens with very doubtful locality records (mislabelled specimens) are not mentioned in the text or located on the maps." In my opinion, these three species should not be considered as part of the North American fauna until reliable records have been found.

The phylogenetic analysis (pp. 32-42) is seriously flawed from the start; not only is it based on a regional rather than world fauna, but it inexplicably excludes the three North American genera (Cafius, Erichsonius and Neobisius) that were already revised and hence are justifiably excluded from the species revision. Within these severe constraints, the analysis is mostly reasonably well done. It includes two outgroups (a "generalized member" each of the subtribe Staphylinina and subfamily Paederinae, the latter I subtrib anotho: Platyr the wh individ first u include total r The st obtain (consist 53) ar lower term Twen multi respec exclu index homog small relat rel ev resol u the gen sought

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Smetana’s purpose in undertaking this phylogenetic analysis is not really clear, since he ignores even the few supported results in his generic classification. For example, in the analysis the genera Gabronthus and Laetulonthus are members of a “well supported monophyletic group” that also includes three species groups of Philonthus (p. 41 and Fig. 1), and Rabigus likewise clusters with another species group of Philonthus, but these are maintained as genera distinct from Philonthus. These small genera have been widely recognized, and retaining them “until a revision of the world fauna is completed and a complete data set is assembled” (p. 41) may be justifiable. Much more baffling and difficult to justify is Smetana’s resurrection of the name Bisnius for a whole series of species groups that have been included in Philonthus. According to his analysis, and not contradicted by any discussion, Bisnius is a subgroup of Philonthus and is also paraphyletic with respect to two other genera, Belonuchus and Gabrius, that share the correlated character states of slender protarsi lacking modified pale setae. Considering this vague justification (no unique or other consistent characters for Bisnius are mentioned), the strong likelihood that the protarsal characters have arisen more than once (definitely so in other subtribes of Staphylinini), the need to make extensive formal taxonomic changes (most of the new combinations in this work result from the recognition of Bisnius), and uncertainties about which Old World species of Philonthus must be transferred to it (a list of such species is provided on p. 516 followed by the comment that the list “is by no means complete; it may need some corrections and certainly inclusion of additional species ...”), it seems that the separation of Bisnius from Philonthus is premature and should also have been postponed until the world review mentioned above is completed.

The overall production of the volume is very good, with few typos or inconsistencies for a work of this size. An annoying exception is the variable way in which states and provinces are highlighted in the
"Material studied" lists: either in all-capital letters or in normal type but boldfaced (the latter being far easier to search for). Another annoyance is the somewhat random numbering of figures on each plate; apparently the figures were numbered first and then assembled onto plates in such a way as to make maximum use of space without regard to sequence. There are a few curious geographic misinterpretations (e.g., "PATZCUARO: Edo. de Michoacan" on p. 158 should of course be the reverse), and some distribution symbols seem slightly misplaced on the maps (e.g., the dots off the coast of Florida for Philonthus flavolimbatus and Belonuchus rufipennis). These very useful distribution maps were said to be "generated ... using a computer program" (p. 47); it would have been nice to know more about how this was done, as a point of general information as well as an indication of how accurate the symbol placements might be. Serious typos include at least one misnumbered figure (the lower of two Fig. 783's on p. 858 should be 787) and one erroneous figure reference (Fig. 1446 in the second half of couplet 3 on p. 49 should be 1455).

Notwithstanding the above criticisms, Smetana's revision is clearly a tremendous accomplishment that will prove extremely useful to systematists and other biologists for a long time. Unfortunately, such large-scale, comprehensive revisions are likely to be less frequently seen in the future, as the number of systematic positions declines and those in such positions come under increasing pressure to focus on more "modern" or locally relevant approaches and/or publish at a more frequent rate. Smetana is to be strongly commended for his perseverance in this massive project, and encouraged to complete the broader study of staphylinine genera alluded to in this work.

LITERATURE CITED


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