

**STENELMIS MAERKELII MOTSCHULSKY AND *S. VITTIPENNIS*
ZIMMERMANN AS SYNONYMS OF *S. BICARINATA* LECONTE
(COLEOPTERA: ELMIDAE)**

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Abstract.—During a revision of *Stenelmis* in the Nearctic region, *S. maerkelii* Motschulsky and *S. vittipennis* Zimmermann were found to be synonymous with *S. bicarinata* LeConte, based on examination of type specimens. A lectotype is designated for *S. vittipennis*; details leading to the discovery and designation of the lectotype are provided. Correct and erroneous references in the literature for these three taxa are documented.

Key Words: Elmidae, *Stenelmis*, *bicarinata*, *maerkelii*, *vittipennis*, synonymies, lectotype

When Sanderson (1938) revised *Stenelmis* in North America he keyed and redescribed *S. bicarinata* LeConte 1852, *S. maerkelii* Motschulsky 1854, and *S. vittipennis* Zimmermann 1869. Subsequent studies used his concepts of these species until Brown (1987) discovered that the holotype of *S. bicarinata* differed from Sanderson's description of the species, and he deferred the redescription of *S. bicarinata* to Schmude. While revising Nearctic *Stenelmis* the senior author found that the lectotype of *S. maerkelii* and what is presumed to be the type of *S. vittipennis* are the same species as the holotype of *S. bicarinata*. The presumed type (see following discussion) of *S. vittipennis* also differs from Sanderson's concept of that species. We believe the species that Sanderson described as *S. vittipennis* is a phenotypic variant within the broad geographical range of *S. grossa* Sanderson. To promote correct identification of species in future publications, including one we have prepared on the riffle beetles of Wisconsin, we are synonymizing *S. maerkelii* and *S. vittipennis* with *S. bicarinata*. Thus, species identified as *S. maerkelii* using published keys and descriptions (Sanderson 1938,

Brown 1972) are *S. bicarinata* and those identified as *S. vittipennis* are probably *S. grossa* Sanderson. A detailed discussion describing events leading to this synonymy follows.

Stenelmis maerkelii.—In 1987 the lectotype from the Zoological Museum of the Moscow State University, U.S.S.R. was examined by the senior author, who agreed with Sanderson's (1938) concept of this species.

Stenelmis bicarinata.—Brown (1987) discovered that the holotype did not represent the species Sanderson (1938) redescribed and discussed, and he described *S. cheryl* (*S. bicarinata sensu* Sanderson). Brown reported that the holotype of *S. bicarinata*, a male specimen, lacked a spinous ridge on the mesotibia. Upon examining the holotype in 1989, we were surprised to find that it had a spinous ridge on the mesotibia, and furthermore, we concluded that it was conspecific with the type of *S. maerkelii*. We discussed the situation with Dr. Brown, who agreed that he had somehow erred in his diagnosis. Brown had examined material he believed to be *S. bicarinata* from a broad geographical range in the central and south-

eastern U.S. This material includes two new species (males of both lack the mesotibial ridge) that will be described later. One of these species was mistakenly referred to as *S. bicarinata* (Barr and Chapin 1988).

Stenelmis vittipennis.—The type specimen, which was collected in South Carolina (Zimmermann 1869), was reported by Sanderson (1938: 704) to be in the LeConte collection at the Museum of Comparative Zoology (MCZ), Harvard University. The senior author examined all specimens of *Stenelmis* in the MCZ collection and the only *Stenelmis* in the LeConte collection with a South Carolina locality label was the holotype of *S. linearis* Zimmermann, the other species of *Stenelmis* described by Zimmermann (1869). In the MCZ's main collection a single *Stenelmis* with an "S.C." locality label was found. This beetle and the holotype of *S. linearis* have nearly identical labels. Both have a small, printed, "S.C." locality label, a small label with a handwritten number (7801. and 7857., respectively), and a large handwritten determination label "*Stenelmis* (underlined) *vittipennis* Zim.," and "*Stenelmis* (underlined) *linearis* Zim." These old labels are arranged in the same order on their pins, and the handwriting on the corresponding labels is identical. The only difference is the additional red, TYPE label on the specimen of *S. linearis*. Hagen (1889: 57) states in his biography of Zimmermann that "a great part (of Zimmermann's collection) is in LeConte's collection, and can be recognized at once by the numbers on the pins in Zimmermann's hand-writing." The number labels described above are likely those referred to by Hagen.

Most other institutional collections were examined for specimens of *Stenelmis* and one similarly labelled individual was found in the Snow Museum collection, University of Kansas; it bears a label indicating prior housing in the MCZ. This beetle is a specimen of *S. sinuata* LeConte (listed in Sanderson 1938: 701), and it was probably ob-

tained by Dr. Sanderson when he worked on his revision at the University of Kansas. It bears an identical "S.C." locality label, an identical number label (7800.) in the same handwriting as those mentioned above, and two labels that read "Com. Type *Stenelmis sinuata* Lec. P. J. Darlington" and "Harvard College Collection."

The above circumstances lead us to believe that the specimen found in the main MCZ collection is the unmarked holotype of *S. vittipennis*, or at least a part of the type series. Instead of having been given directly to LeConte, this beetle could have been part of Zimmermann's collection that was bought by Lewis and sold to Crotch, who in turn sold it to the MCZ (Hagen 1889: 57). Because Zimmermann did not designate a holotype or indicate he was examining a single individual when describing his species, we are designating this specimen as the lectotype to stabilize nomenclature. It is labelled: "S.C."/"7801."/"*Stenelmis* (underlined) *vittipennis* Zim."/"LECTOTYPE *STENELMIS VITTIPENNIS* Zimmermann Det. K. Schmude 1990 (red label)." Bright (1976: 187), under nearly identical circumstances, designated a lectotype for *Pityophthorus pullus* (Scolytidae), another species described by Zimmermann.

Through correspondence with Dr. Sanderson we learned that he compared the type of *S. vittipennis* with several of his own specimens and realized later that he had not sufficiently studied his material before making these comparisons. Consequently, what he ultimately erroneously redescribed as *S. vittipennis* differed from the type and had a more northern distribution.

Stenelmis bicarinata LeConte

Stenelmis bicarinatus LeConte 1852: 44.

[*nec* Sanderson 1938: 679, Brown 1972: 20, Brown 1983: 10, Barr and Chapin 1988: 136]

Stenelmis maerkelii Motschulsky 1854: 12, 1859: 50 (as *Stenelmis Märkelii*) NEW SYNONYMY.

S. maerkeli Zaitzev 1910: 23
S. märkelii Sanderson 1938: 705
S. markelii La Rivers 1949: 221
S. markeli Sanderson and Brown 1959: 67

Stenelmis vittipennis Zimmerman 1869: 259
NEW SYNONYMY.

[*nec* Sanderson 1938: 702, Brown 1972: 21, Brown 1983: 12]

A description of *S. bicarinata* appears in Sanderson (1938) as *S. maerkelii*; a redescription will appear in the impending revision by Schmude and Hilsenhoff (in prep.). Current records indicate that the range for this species includes the northern areas of the western Great Lakes region, Quebec south to northern Georgia, Alabama, and Mississippi, and west into the Ozarks.

What Sanderson (1938) considered to be *S. vittipennis* has a wide geographical range with considerable morphological variation, even within populations. This variation falls within that of *S. grossa*, a south-central U.S. species, and *S. vittipennis sensu* Sanderson should be referred to as *S. grossa*. This problem will be dealt with in greater detail in the revision.

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