

## Errors in Descriptions of Larvae of *Thermonectus* Dejean (Coleoptera: Dytiscidae)

E.H. BARMAN<sup>1,\*</sup> AND JOHN H. EPLER<sup>2</sup>

**Abstract** - Mature larvae identified as *Thermonectus basillaris* by culture to adults revealed that larval characters attributed to the species and commonly used in taxonomic literature are incorrect. Species level identifications that are based on published descriptions of *T. basillaris* and *T. nigrofasciatus ornaticollis* (as *T. ornaticollis*) are problematic, even when these are the only two representatives of the genus in a local fauna.

*Thermonectus* Crotch is represented in the Southeast by relatively few species with only two, *T. basillaris* (Harris) and *T. ornaticollis* (Aubé), reported for Georgia (Turnbow and Smith 1983), Florida (Epler 1996), and North and South Carolina (Brigham 1982). Larson et al. (2000) have placed *T. ornaticollis* as a junior synonym of *T. nigrofasciatus*, assigning two subspecies, *T. n. nigrofasciatus* and *T. n. ornaticollis*. Mature larvae of the genus *Thermonectus* are identified easily (e.g., Barman 1998), and Wilson (1923) described larvae of *T. basillaris* and *T. n. ornaticollis* (as *T. ornaticollis*), providing characters used for identification of the two species when they are the only representatives of the genus. A proximal and lateral fringe of hair-like sensilla on the mandible of *T. n. ornaticollis* that are not shown on *T. basillaris* (Wilson's Figs. 60 and 61, respectively) have been used for identification of the two species in the Southeast (Brigham et al. 1982, Epler 1996). Hilsenhoff (1993) relied on the presence (*T. basillaris*) or absence (*T. n. ornaticollis*) of two prominent sensilla originating ventrally near the base of the ligula (Wilson's Figs. 64 and 66, respectively) to identify these species in Wisconsin, and Larson et al. (2000: p. 923) refer readers to Hilsenhoff's key in their treatment of larvae.

An examination of mature larvae, collected in central Georgia and identified as *Thermonectus basillaris* by culture to adults, revealed that neither character is suitable for species level identification of larvae of *Thermonectus*. The mandible of *T. basillaris* has hair-like sensilla in the same area as shown for *T. n. ornaticollis* (Wilson 1923). Although Wilson's figures clearly support a dichotomy based on this character, the mandible of *T. basillaris* was described in the text as having sensilla similar to those of *T. n. ornaticollis*. A footnote (Wilson 1923: p. 294)

<sup>1</sup>Department of Biological and Environmental Sciences, Georgia College and State University, Milledgeville, GA 31061. <sup>2</sup>461 Tiger Hammock Road, Crawfordville, FL 32327. \*Corresponding author - e.barman@gsu.edu.

stated that "this fringe was accidentally omitted from Figure 60; it should be the same as in Figure 61." The prominent labial sensilla shown on the labium near the base of the ligula of larvae of *T. basillaris* (Wilson's Fig. 64) are not present on the Georgia material. Consequently, larvae of *T. basillaris* and *T. n. ornatocollis* are likely to be identified as *T. n. ornatocollis* in Georgia, Florida, and North and South Carolina. These errors in Wilson's study indicate that his descriptions of larval Dytiscidae should be used with caution or not at all.

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