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TRICHOGRAMMA NOMLAKI PINTO AND OATMAN (HYMENOPTERA: TRICHOGRAMMATIDAE): A REINTERPRETATION OF GENITALIC HOMOLOGIES AND NEW DISTRIBUTION RECORDS

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Abstract.—*Trichogramma nomlaki* Pinto and Oatman was recently described from a single male collected in northern California. Additional specimens now available from Alberta and North Carolina indicate that certain structures of the highly distinctive male genitalia were incorrectly interpreted in the original description. The genital capsule of a male from North Carolina is figured and labelled to indicate correct homologies. A discussion of intraspecific variation is included.

Trichogramma nomlaki was described recently from a single male swept from riparian vegetation in western Glenn County, northern California (Pinto and Oatman, 1985). As stated in the original description, male genitalic structure of this species is the most highly modified yet reported in *Trichogramma.* Because of this uniqueness and the fact that only one specimen was available, homologies were considered tentative.

Two additional collections of this species are now known. Two males and one female were recently reared by one of us (M.S.T.) from Hemerobiidae eggs collected 16 July 1984 from leaves of field corn, 15 km SW of Raleigh, Wake County, North Carolina. Also, a single male was taken at Waterton Lakes National Park, Alberta, at 1300 m elevation, by sweeping "birch-fir-poplar" on 20 June 1980 (W. Mason collr.). The genitalia of all additional males are more clearly visible than in the holotype. Examination of these specimens indicates that certain homologies originally suggested were incorrect.

The genital capsule of one of the North Carolina males is illustrated and labelled in Fig. 1. In the original description of *T. nomlaki,* the dorsal expansion of the gonobase (DEG) was described as reduced and lacking a posteromedial extension. The chelate structures (CS) were considered apparently bilobed and extending further posteriorly than all other genital structures (Pinto and Oatman, 1985). This error was due to a narrow dorsal fold at the base of the DEG being misinterpreted as the entire structure. A corrected description of the genital capsule is as follows:

DEG extremely broad and elongate, not notched laterally, with posterior extension deeply, broadly emarginate apically, moderately constricted at base, extending beyond apex of CS and gonostyli (GS); CS dorsolateral to GS, well scler-

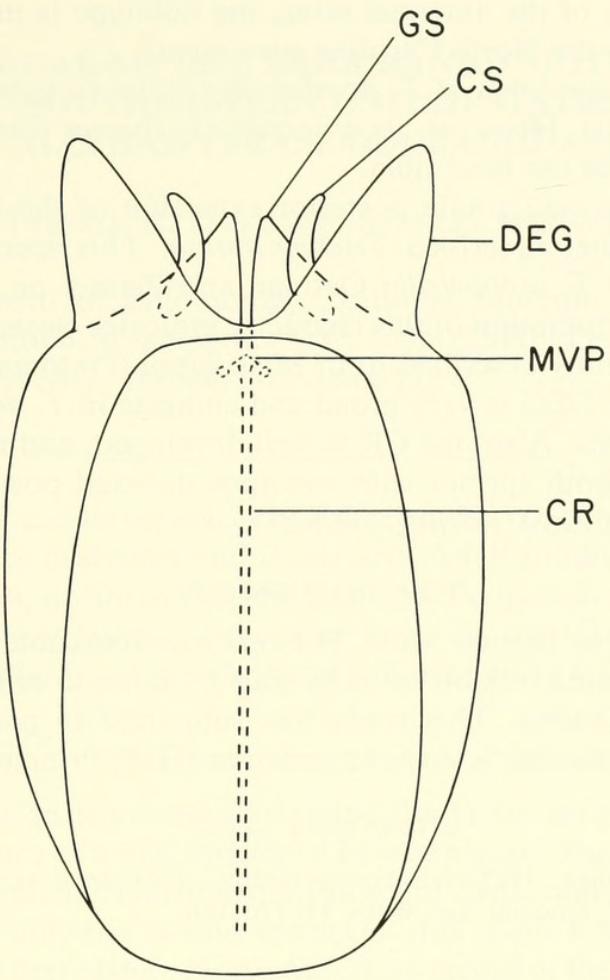

Fig. 1. Male genital capsule of *Trichogramma nomlaki* (dorsal view) from near Raleigh, North Carolina. See text for explanation of abbreviations.

otized, falciform, apex directed posterolaterally, attaining 0.95 (0.94–0.96) length of genital capsule, apical spine not apparent; GS ventromedial to CS, narrowly separated, attaining 0.92 (0.91–0.93) length of genital capsule; median ventral projection (MVP) poorly developed; chitinized ridge (CR) well developed, extending from MVP to base of genital capsule.

The genital capsule of both North Carolina males is somewhat more elongate than that of the holotype, measuring 0.55 and 0.57 as wide as long, respectively. In the male from Alberta it is similar to the holotype—0.67 as wide as long.

All other differences between the new material and the holotype also are minor. In the latter and the male from Alberta the anterior mesoscutellar setae are subequal in length to the posterior pair. In the North Carolina material they are shorter, varying from 0.6–0.8 the length of the posterior pair. Also, the number of setae between the vein tracts of the fore wing differ. For example, in the holotype and the Alberta male there are 43 and ca. 55 setae between the 4th and 5th tracts, respectively; in the North Carolina specimens the number varies from 14–18. The Alberta male has shorter flagellar setae, the longest being only ca. 1.6 the greatest flagellar width. In the other males this ratio varies from 2.2–2.5

Considering the distance between the collections of *T. nomlaki* and the paucity of material, we presently do not view this variation to be taxonomically significant.

Except for the length of the antennal setae, the holotype is more similar to the Alberta male than to the North Carolina specimens.

The single female specimen of *T. nomlaki* is similar to those of other *Trichogramma* in all respects. However, its ovipositor is shorter than most, measuring only 0.75 the length of the hind tibia.

The broad apically emarginate posterior extension of the DEG separates *T. nomlaki* from all other described *Trichogramma.* This species was originally considered closest to *T. atopovirilia* Oatman and Platner on the basis of DEG structure. Our reinterpretation of this character indicates closer relationship to *T. drepanophorum,* recently described from Mississippi (Pinto and Oatman, 1985). As in *T. nomlaki* the DEG is very broad and elongate in *T. drepanophorum* but not apically emarginate. Also, the CR is well developed, and the CS are similar. They are curved in both species with the apex directed posterolaterally rather than posteriorly as in most *Trichogramma.*

Acknowledgments

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