

A RECLARIFICATION OF THE MALES OF *ALLOPERLA CONCOLOR* AND *A. NEGLECTA* (PLECOPTERA : CHLOROPERLIDAE), WITH NEW DISTRIBUTION RECORDS FOR BOTH SPECIES¹

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ABSTRACT: Historically, there has been confusion concerning the identification of *Alloperla concolor* Ricker and *Alloperla neglecta* Frison. Studies of types and specimens determined by S.W. Hitchcock (United States National Museum of Natural History), T.H. Frison (Illinois Natural History Survey), and material in the author's collections revealed new characters allowing for accurate separation. Figures of the male epiproct of both species showing specific details are presented. New distribution records are also noted.

Adults of the genus *Alloperla* are generally recognized by their delicate habitus and lime green or yellow coloration *in vivo*. Presently, this genus includes 28 Nearctic species. Many of these species are regionally endemic and often are only locally abundant.

Ricker (1935) described *Alloperla concolor* from Horning's Mills, Ontario, Canada based on a male and two females. Frison, also in 1935 described *Alloperla neglecta* from North Carolina near Newfound Gap based on three males. In 1942, Frison synonymized *A. concolor*, after concluding that this species was "specifically identical with *neglecta*." Ricker apparently concurred with this opinion. However, Hitchcock (1968) presented morphological evidence that *Alloperla concolor* was a valid species, based on the shape of the male epiproct. He again in 1974 mentioned that both species were specifically distinct, based on the characters of the epiproct, Surdick (1985) listed *A. concolor* as being north-eastern in distribution and *A. neglecta* restricted to the southern Appalachian Mountains of North Carolina and Tennessee.

After we collected specimens of *A. concolor* from West Virginia in 1990, a review of the taxonomic status of both species was undertaken. Types of both species were examined, but unfortunately the male terminalia of the holotype of *A. concolor* had been lost (G. W. Wiggins, Royal Ontario Museum, personal communication). Additionally,

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material determined by Hitchcock (United States National Museum of Natural History) and Frison (Illinois Natural History Survey) were also examined.

RESULTS AND CONCLUSIONS

Figs. 1-6 illustrate the apex of the epiproct of both species. Contrary to Hitchcock's (1968) observations that the epiproct of *A. neglecta* lacked distal serration, both species have these serrations (Fig. 1). In lateral view the epiproct of *A. concolor* resembles the head of a duck, flattened and forming a distinct serrated edge at the top (Figs. 2A, 3), whereas *A. neglecta* has subparallel margins with the tip rounded (Figs. 2B, 5). In dorsal aspect the epiproct of *A. concolor* is nearly as wide as long, but in *A. neglecta* the epiproct is two times as long as wide (Figs. 1B, 5, 6). Specimens collected from southwestern Virginia, which were thought to be *Alloperla concolor* by Kondratieff and Kirchner (1987), are *A. neglecta*. This represents a northern range extension. The records of *A. concolor* from West Virginia represent a new state record and a southern range extension for this species. Map 1 indicates the recorded distribution of both species, including the records listed below.

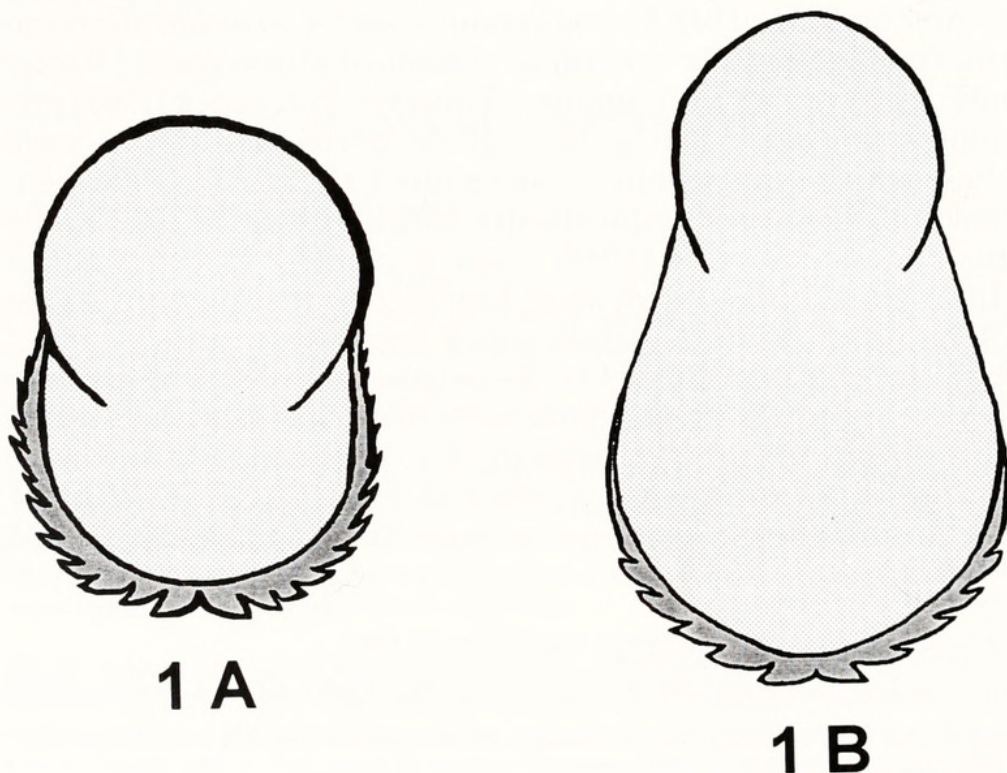


Fig. 1. Apex of epiproct, dorsal view. A., *A. concolor*; B., *A. neglecta*.

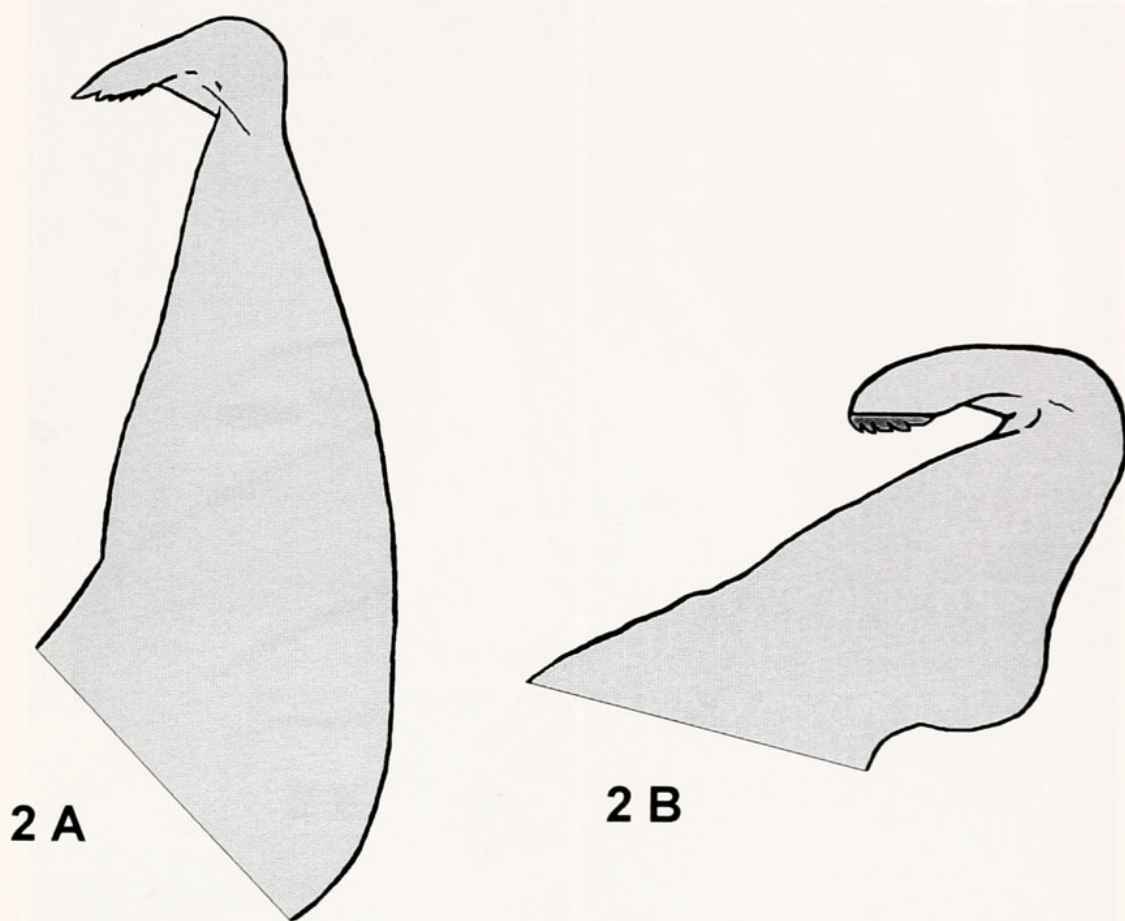
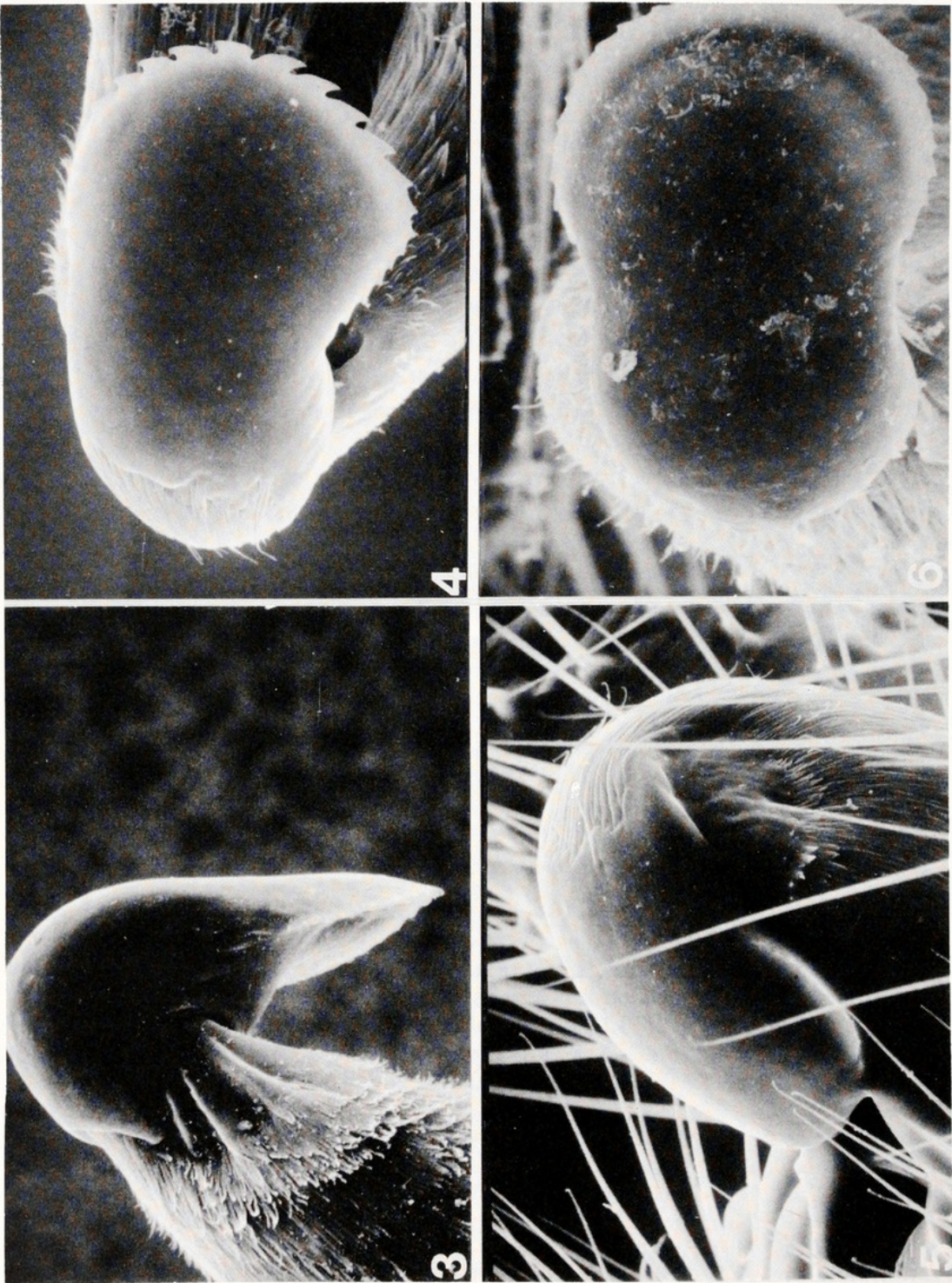


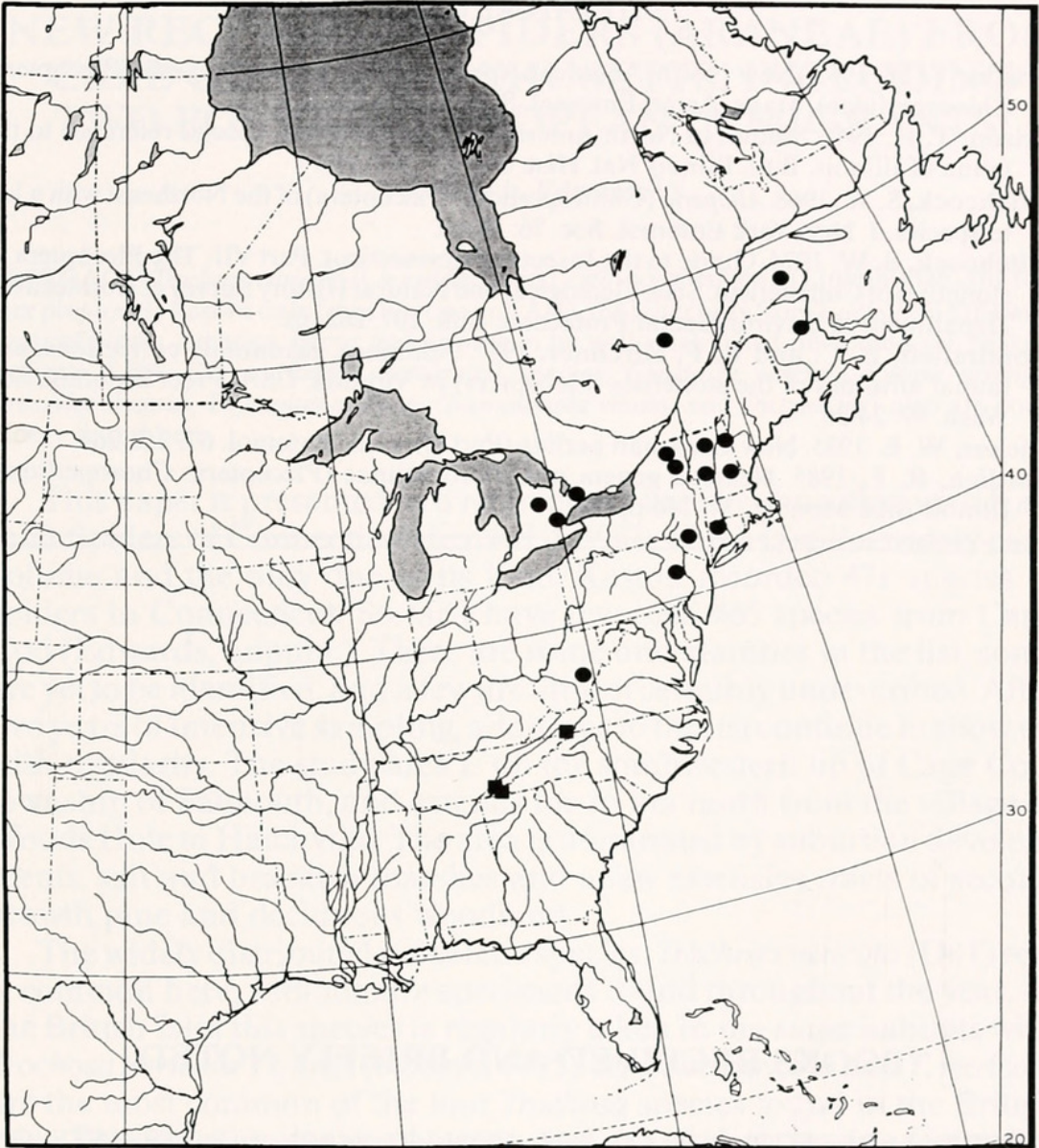
Fig. 2. Epiproct, lateral view. A., *A. concolor*; B., *A. neglecta*.

Material Examined: *Alloperla concolor*: **Ontario, Canada:** Horning's Mills, 1 m pinned (holotype), 2 f pinned. **Connecticut:** Hartland, 14-VI-1966, SW Hitchcock, 1 m, 1 f. Barkhamstead, 1-VI-1967, SW Hitchcock, 4 m 3 f. **New Hampshire:** North Woodstock, 13-VI-1964, SW Hitchcock, 3 m, 8 f. **West Virginia:** Nicholas Co., near Richwood, North Fork Cherry River, 14-V-1990, B. C. Kondratieff, J. L. Welch & R. F. Kirchner, 2 m, 1 f; same but 2-VI-1992, 1 m.

Alloperla neglecta: **North Carolina:** Swain Co., (near) Newfound Gap, 3560 ft, 28-V-1934, TH Frison, 1 m (paratype); Haywood Co., Shining Rock Natl. Rec. Area, East Fork Little Pigeon River, 17-V-1983, BC Kondratieff & RF Kirchner, 18 m; same but 23-V-1990, BC Kondratieff, RF Kirchner & JL Welch, 7 m, 6 f. **Tennessee:** Sevier Co., (West Prong) Little Pigeon River, (near) Newfound Gap, 14-V-1939, TH Frison & HH Ross, 4 m; Sevier Co., Gatlinburg, 14-VI-1940, TH Frison *et al.*, 1 m 5 f. **Virginia:** Grayson Co., Lewis Fork, 2-VII-1978, RF Kirchner & GT Voreh, 4 m; same but 18-V-1990, BC Kondratieff, RF Kirchner & JL Welch, 58 m, 35 f.



Figs. 3-6. Epiproct, *A. concolor*; 3. Lateral (680X), 4. apex, dorsal view (810X). *A. neglecta*; 5. lateral (600X), 6. apex, dorsal view (925X).



Map 1. Distribution of *A. concolor* (●), *A. neglecta* (■).

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Kondratieff, Boris C and Kirchner, Ralph F. 1993. "A Reclarification Of The Males Of *Alloperla concolor* And *A-neglecta* Species." *Entomological news* 104, 73–78.

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