

NEW NEARCTIC CHLOROPERLIDAE (PLECOPTERA)

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Abstract.—Two new species of Nearctic Chloroperlidae are described: *Sweltsa voshelli* from Virginia and *Suwallia wardi* from Colorado. A key is provided for the identification of adult males of the eastern Nearctic species of *Sweltsa*.

There are presently 22 Nearctic *Sweltsa* species, of which six are eastern in distribution (Kirchner and Kondratieff, 1988; Stark et al., 1986; Surdick, 1985). A seventh species has been known from the Blue Ridge Mountains of southwestern Virginia for some time, and is described below.

Sweltsa voshelli Kondratieff and Kirchner, new species

Male.—Body length 7.0–7.5 mm; length of forewing 8.5–9.0 mm. General color bright yellow in life (yellow-white in alcohol). Pronotum with black margin, no center stripe. Middorsal region of abdominal terga 1–9 with black dash or mark. Terga 9 with transverse ridge (Figs. 1–2). Epiproct erectile, elongate, inflated, forming a flange dorsally (Fig. 1), in lateral view tapering evenly to a hook (Figs. 2–3).

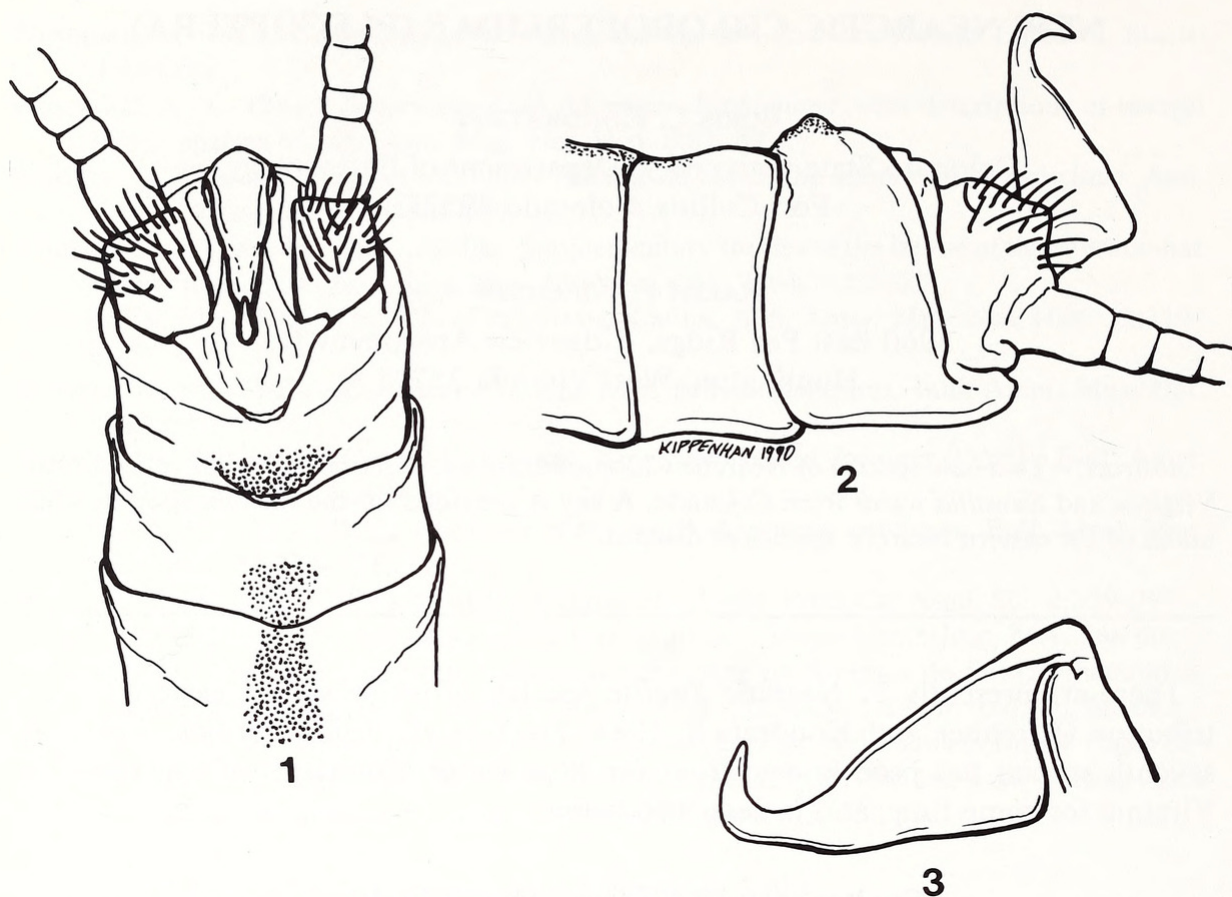
Female.—Body length 8.0–9.0 mm; length of forewing 9.0–10.0. General habitus and coloration similar to male. Subgenital plate rounded, extending to 8th sternum.

Types.—Holotype male, allotype female, Patrick Co., Virginia, small spring-fed stream bordering cemetery, Co. Rt. 605, 10 May 1982, B. C. Kondratieff; paratypes: same data as holotype 23 males, 10 females; same data except 10 May 1983, 10 males, 6 females; same data except 24 May 1990, B. C. Kondratieff, R. F. Kirchner and J. L. Welch, 7 males and 26 females; Patrick Co., Big Cherry Creek, Co. Rt. 637, 27 May 1983, B. C. Kondratieff, 1 male.

The holotype and 3 paratypes will be deposited in the collection of the United States Museum of Natural History, the remaining paratypes in the Kirchner Collection, Colorado State University Insect Collection, Virginia Tech, and Monte L. Bean Life Science Museum, Brigham Young University.

Etymology.—This species is named in honor of Dr. J. Reese Voshell, Jr., Virginia Polytechnic Institute and State University for his many contributions to knowledge of the aquatic insects of Virginia. He also helped stimulate the senior author's interest in aquatic biology.

Diagnosis.—*Sweltsa voshelli* belongs to a group of species which include *S. mediana*



Figs. 1–3. *Sweltsa voshelli*. 1. male terminalia, dorsal view. 2. male terminalia, lateral view. 3. epiproct, lateral view.

(Banks), *S. onkos* (Ricker), *S. pocahontas* Kirchner and Kondratieff, and *S. urticae* (Ricker). The male is most similar to *S. urticae*, but it can be easily distinguished by the even tapering of the epiproct to its hook (in lateral view) (Figs. 2–3), whereas, the epiproct of *S. urticae* abruptly narrows basally and has a U-shaped, notched hook (Fig. 7).

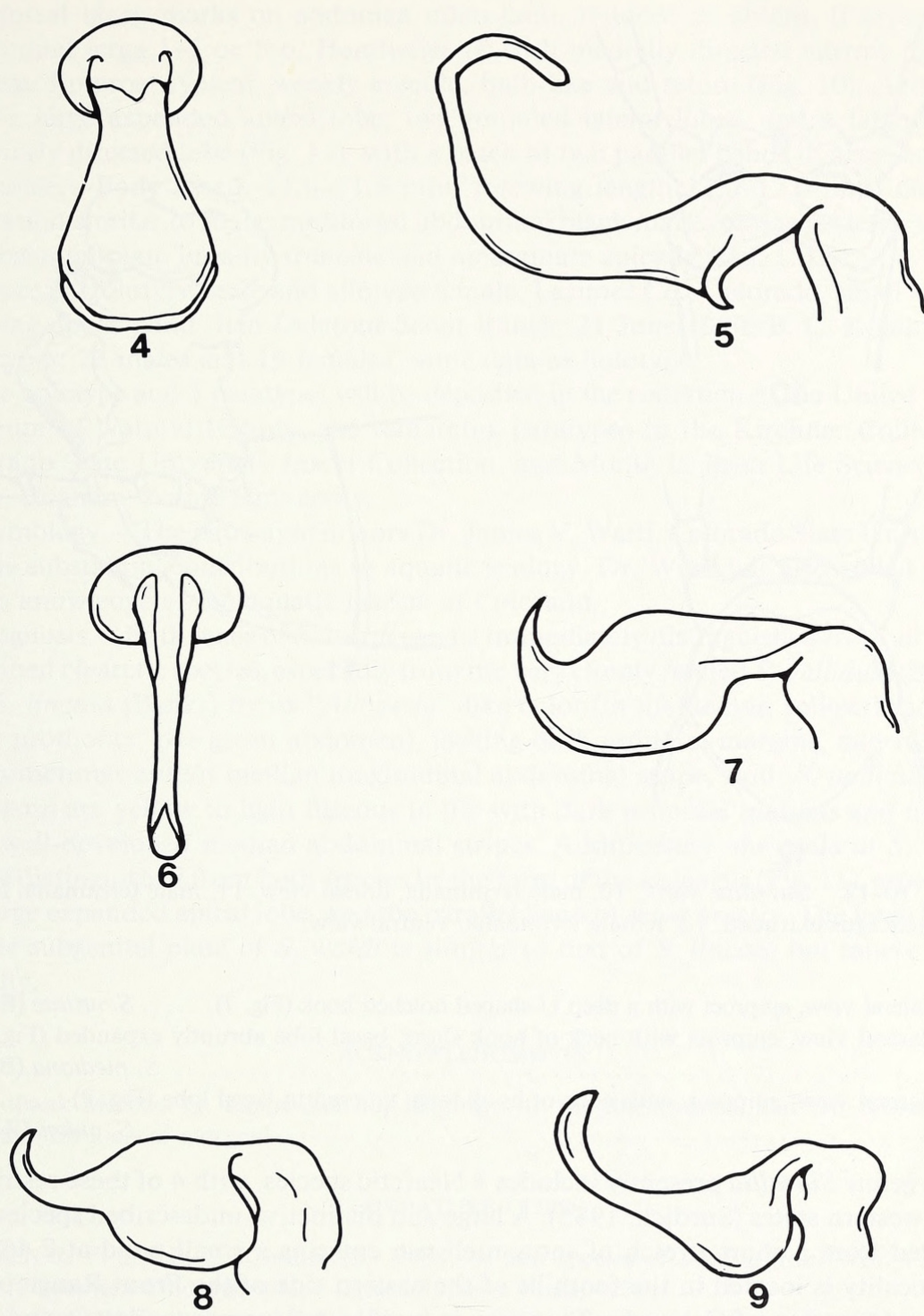
The female of *S. voshelli* can be usually distinguished from all other eastern species by the combination of the prothorax lacking a brown or black center stripe and the rounded subgenital plate. However, the subgenital plate is similar to *S. pocahontas* and *S. urticae*.

Other stoneflies collected with *S. voshelli* were *S. lateralis* (Banks), *Alloperla usa* Ricker, *Peltoperla tarteri* Stark and Kondratieff, *Ostrocerca truncata* (Claassen), *Amphinemura nigritta* (Provancher), and *Isoperla* sp.

The following key will separate males of the seven eastern species of *Sweltsa*.

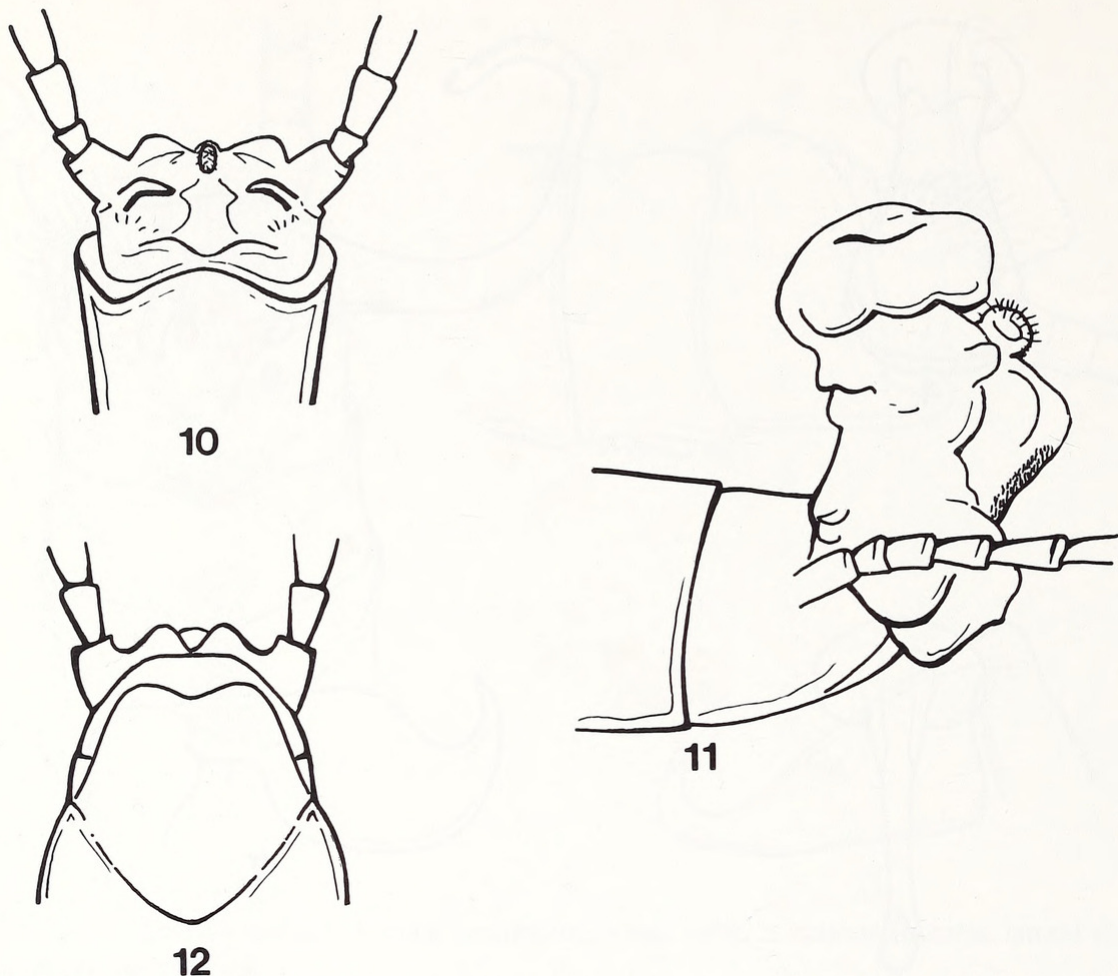
KEY TO THE MALES OF EASTERN NEARCTIC SPECIES OF *SWELTSA*

1. Epiproct spatulate, flattened dorsoventrally (Fig. 4); head with dark pattern *S. naica* (Provancher)
- Epiproct laterally compressed or inflated, terminating in a hook process (Figs. 2, 3, 5–9); head pale, at most with dark ocellar rings 2
2. Prothorax margined with dark brown or black 3
- Prothorax not margined brown or black 6



Figs. 4–9. 4. *Sweltsa naica*, epiproct dorsal. 5. *Sweltsa lateralis*, epiproct lateral. 6. *Sweltsa pocahontas*, epiproct dorsal. 7. *Sweltsa urticae*, epiproct lateral. 8. *Sweltsa mediana*, epiproct lateral. 9. *Sweltsa onkos*, epiproct lateral.

3. Epiproct in lateral view, long, slender, with hook recurved (Fig. 5) . . . *S. lateralis* (Banks)
- Epiproct in lateral view, short, expanded basally; hook not recurved (Figs. 2, 3, 6–9) 4
4. In dorsal view, epiproct inflated basally, flanged dorsally before hook (Fig. 1) 5
- In dorsal view, epiproct not inflated basally, subparallel before hook (Fig. 6)
- *S. pocahontas* Kirchner and Kondratieff
5. In lateral view, epiproct evenly tapering to hook (Fig. 1)
- *S. voshelli* Kondratieff and Kirchner



Figs. 10–12. *Suwallia wardi*. 10. male terminalia, dorsal view. 11. male terminalia, lateral view, aedeagus extruded. 12. female terminalia, ventral view.

- In lateral view, epiproct with a deep U-shaped notched hook (Fig. 7) *S. urticae* (Ricker)
- 6. In lateral view, epiproct with neck of hook short, basal lobe abruptly expanded (Fig. 8) *S. mediana* (Banks)
- In lateral view, epiproct, with neck of hook long, tapered to basal lobe (Fig. 9) *S. onkos* (Ricker)

The genus *Suwallia* presently includes 5 Nearctic species, with 4 of these restricted to the western states (Surdick, 1985). A large and distinctive undescribed species was collected from a short stretch of snow-melt run entering a small pond at 2,460 m. This locality is located in the foothills of the eastern side of the Front Range of the Rocky Mountains of Colorado. This area is typified by sparse stands of ponderosa pine and small patches of quaking aspen in wetter soils. This species was not collected from nearby Elkhorn Creek and its small tributaries, however two chloroperlids, *Triznaka pintada* (Ricker) and *Sweltsa lamba* (Needham and Claassen) were abundant in these streams. No other Plecoptera were collected in association with the new species.

***Suwallia wardi* Kondratieff and Kirchner,
new species**

Male.—Body length 9.5–10.5 mm; length of forewings 9.0–9.5 mm. In life, head lemon yellow, prothorax bright pea green, abdomen green (yellow-white in alcohol).

Middorsal black marks on abdomen often faint, reduced or absent, if present on abdominal terga 1–5 or 1–6. Hemiterga 10 with medially directed narrow digitate process. Epiproct typical, weakly erectile, bulb-like and setose (Fig. 10). Aedeagus with a large expanded apical lobe, two rounded lateral lobes, and a large broad anteriorly directed lobe (Fig. 11); with a patch of two parallel bands of setae basally.

Female.—Body length 11.0–11.5 mm; forewing length 11.0–12.0 mm. General coloration similar to male; middorsal abdominal black marks or dashes terga 1–6 or 7; subgenital plate broadly truncate and emarginate apically (Fig. 12).

Types.—Holotype male and allotype female, Larimer Co., Colorado, small stream entering upper pond, Ben Delatour Scout Ranch, 21 June 1990, B. C. Kondratieff. Paratypes: 23 males and 19 females, same data as holotype.

The holotype and 3 paratypes will be deposited in the collection of the United States Museum of Natural History, the remaining paratypes in the Kirchner Collection, Colorado State University Insect Collection, and Monte L. Bean Life Science Museum, Brigham Young University.

Etymology.—The patronym honors Dr. James V. Ward, Colorado State University for his substantial contributions to aquatic ecology. Dr. Ward has also added much to the knowledge of the aquatic insects of Colorado.

Diagnosis.—Both sexes of *S. wardi* can be immediately distinguished from all other described Nearctic species, especially from the very closely related *S. pallidula* (Banks) and *S. lineosa* (Banks) by its "*Alloperla*"-like color (in life: lemon yellow head, pea green prothorax, pea green abdomen), lacking dark pronotal margins, and reduced and sometimes absent median longitudinal abdominal stripe. Both *S. pallidula* and *S. lineosa* are yellow to light fuscous in life with dark pronotal margins and usually with well-developed median abdominal stripes. Additionally, the male of *S. wardi* can be distinguished from both species by the form of the aedeagus (Fig. 11), especially the large expanded apical lobe, and the parallel band of setae basally. The large broad female subgenital plate of *S. wardi* is similar to that of *S. lineosa* but tapers more apically.

ACKNOWLEDGMENTS

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