

**HYDROPSYCHE FRANCLEMONTI, A NEW SPECIES OF
THE SCALARIS GROUP FROM EASTERN NORTH AMERICA
(TRICHOPTERA: HYDROPSYCHIDAE)**

OLIVER S. FLINT, JR.

Department of Entomology, Smithsonian Institution, Washington, D.C. 20560

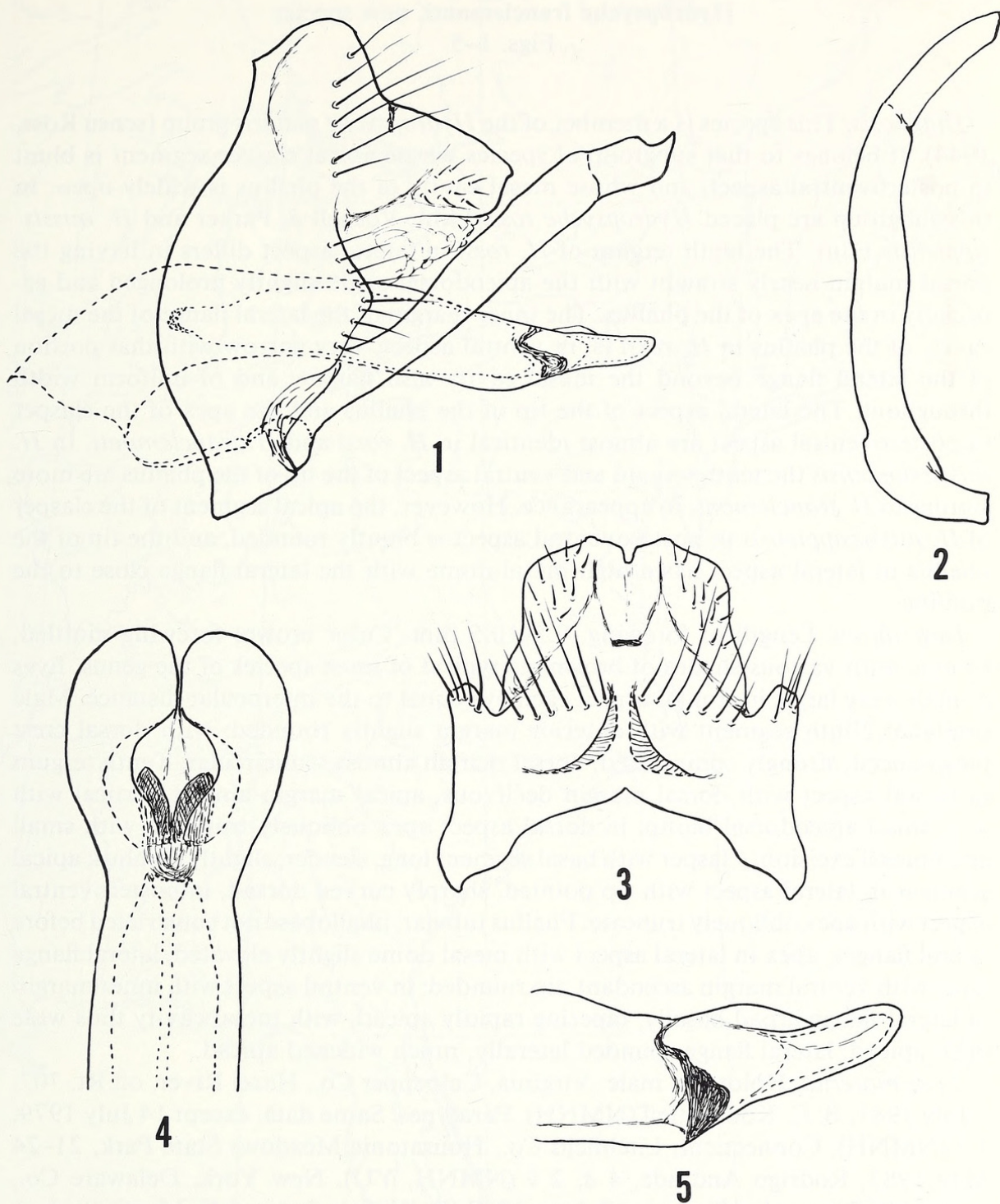
Abstract.—The new hydropsychid caddisfly, *Hydropsyche franclemonti*, is described, illustrated and its distribution plotted (Connecticut, New York, North and South Carolina, Virginia and Quebec). It is differentiated from its closest relatives in the *scalaris* group, *H. rossi* and *H. mississippiensis*, and their distributional patterns are discussed.

The genus *Hydropsyche*, as it has been classically recognized, is found on most continents of the world except for South America. However, recent works have established separate genera (or subgenera) for many of the more distinctive groups (Li and Tian, 1989; Neboiss, 1986; Ross and Unzicker, 1977). This has led to a great deal of controversy and confusion in the literature (Scheffer, Wiggins and Unzicker, 1986; Schuster, 1984) with the outcome still undecided pending a world-wide, full-scale, revisionary study of all related species groups including their immature stages.

In America north of Mexico the species of *Hydropsyche* were placed into four species groups by Ross (1944), a procedure followed by Nimmo (1987) who recognized three groups, with one group subdivided into six subgroups. Ross christened one of his groups as the *scalaris* group ("species group one" of Nimmo), and placed 13 species from eastern North America therein (another 5 eastern and 5 western species in his 1944 checklist would also be placed in the group). There are no European species clearly belonging to the group, although the species related to *H. pellucidula* are similar but nevertheless different on the basis of the shape of the tenth tergum and apex of the phallus. Surprisingly, I am unable to find any illustrations of species from Japan and China that would appear to be of species close to this group. Thus, at this moment, the *scalaris* group appears to be restricted to North America with one or two species in northern Mexico, a half dozen species in the western United States and Canada, and another several dozen in the eastern United States. The greatest number of species appears to be found in the Mississippi Valley, the Atlantic Coastal Plain and Piedmont Regions. The number of species declines rapidly north of Mason-Dixon Line, with only nine found north of the Canadian border (Nimmo, 1987).

The identification of the species in this group has been difficult, and misidentifications were (and still are) commonplace until Ross (1944) presented detailed illustrations of most of the eastern species. Even in 1979 in our study (Flint, Voshell and Parker, 1979) of the *scalaris* group in Virginia it was necessary to borrow types of most species to verify identifications which then uncovered a major misidentification by Ross in 1944. More recent studies of problematic material have produced yet another species which was either not present or misidentified in older material.

I take great pleasure in dedicating this new species to Dr. J. G. Franclemont who



Figs. 1–5. *Hydropsyche franclemonti*, male genitalia. 1. Lateral. 2. Clasper, posteroventral. 3. Ninth and tenth terga, dorsal. 4. Apex of phallus, ventral. 5. Same, lateral.

encouraged my studies on the Trichoptera at Cornell. His extensive collecting over much of the range of this species in eastern North America—North Carolina, Virginia, New York—while it never turned up this species, did provide many valuable records and range extensions in the Trichoptera.

***Hydropsyche franclemonti*, new species**

Figs. 1-5

Diagnosis. This species is a member of the *Hydropsyche scalaris* group (sensu Ross, 1944). It belongs to that subgroup of species whose apical clasper segment is blunt in posteroventral aspect, and whose mesal cavity of the phallus is widely open. In this subgroup are placed *Hydropsyche rossi* Flint, Voshell & Parker and *H. mississippiensis* Flint. The tenth tergum of *H. rossi* in lateral aspect differs in having the dorsal margin nearly straight with the apicodorsal angle slightly prolonged and especially in the apex of the phallus. The inner margin of the lateral flange of the mesal cavity of the phallus in *H. rossi* is, in ventral aspect, very narrow with that portion of the lateral flange beyond the mesal cavity also narrow and of uniform width throughout. The lateral aspect of the tip of the phallus and the apex of the clasper in posteroventral aspect are almost identical in *H. rossi* and *H. franclemonti*. In *H. mississippiensis* the tenth tergum and ventral aspect of the tip of the phallus are more similar to *H. franclemonti* in appearance. However, the apical segment of the clasper of *H. mississippiensis* in posteroventral aspect is bluntly rounded, and the tip of the phallus in lateral aspect has a high mesal dome with the lateral flange close to the midline.

Description. Length of forewing, 9.5–10.5 mm. Color brown; forewing mottled, spotted with various shades of brown, as typical of most species of the genus. Eyes of male very large; in frontal aspect each eye equal to the interocular distance. Male genitalia: Ninth segment with anterior margin slightly rounded; with dorsal crest pronounced, strongly compressed, dorsal margin almost semicircular. Tenth tergum in lateral aspect with dorsal margin declivous, apical margin almost vertical with very small apicodorsal bump; in dorsal aspect apex obliquely truncate, with small apicomesal excision. Clasper with basal segment long, slender, slightly sinuous; apical segment in lateral aspect with tip pointed, sharply curved dorsad, in posteroventral aspect with apex obliquely truncate. Phallus tubular, phallobase not constricted before lateral flanges; apex in lateral aspect with mesal dome slightly elevated, lateral flange long, with ventral margin ascendant, tip rounded; in ventral aspect with inner margin of lateral flange broad basally, tapering rapidly apicad, with mesal cavity thus wide open apicad, lateral flange rounded laterally, much widened apicad.

Type material. Holotype, male: Virginia, Culpepper Co., Hazel River, off Rt. 707, 3 July 1981, B. C. Kondratieff (NMNH). Paratypes: Same data, except 14 July 1979, 1 ♂ (NMNH). Connecticut, Litchfield Co., Housatonic Meadows State Park, 21–24 May 1983, Rodrigo Andrade, 4 ♂, 2 ♀ (NMNH, YU). New York, Delaware Co., Beaverkill River near Horton, 13 June 1987, P. W. Scheffer and R. MacCulloch, 1 ♂, 2 ♀ (ROM). N.C. [North Carolina], Collection Morrison, 1 ♂ (NMNH). South Carolina, Oconee Co., Chattooga River at Burrell's Ford near Route 107, 26–27 May 1981, Ent. 412/612 class, 1 ♂ (CUC). Canada, Prov. Quebec, Station de Biologie de l'Universite de Montreal, St. Hippolyte, 20 June 1973, P. P. Harper, 1 ♂, 4 ♀ (UMDB); Lac Monroe, Parc Provincial du Mont Tremblant, 18 July 1959, J. R. Mougeau & R. Ouellet, 1 ♂, 6 ♀ (UMDB).

Distribution. The distributions of the three related species (*H. franclemonti*, *H. mississippiensis* and *H. rossi*), although apparently overlapping to a great part, do



Fig. 6. Known localities for *Hydropsyche franclemonti* (stars); ? placed at Black Mountain, North Carolina, a known site for much of the North Carolina, Morrison, material.

appear to differ in detail. *Hydropsyche rossi* and *H. mississippiensis* are species of the Coastal Plan and lower Piedmont regions. The known range of *H. mississippiensis* extends from Louisiana along the coast north to Virginia, that of *H. rossi* is the same along the eastern coast but extends into Texas along the Gulf and up the Mississippi Valley into Illinois. The range of *H. franclemonti* (Fig. 6), however, appears to follow the eastern margin of the Appalachian Mountains from South Carolina north into Quebec.

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LITERATURE CITED

- Flint, O. S., Jr., J. R. Voshell, Jr. and C. R. Parker. 1979. The *Hydropsyche scalaris* group in Virginia, with the description of two new species (Trichoptera: Hydropsychidae). Proc. Biol. Soc. Wash. 92:837-862.
- Li, Youwen and Lixin Tian. 1989. Notes on a new subgenus and a new species of *Hydropsyche*. J. Nanjing Agr. Univ. 12(4):44-45.
- Neboiss, A. 1986. Atlas of Trichoptera of the SW Pacific—Australian Region. Series Entomologica (Dr. W. Junk Publishers) 37, 286 pages.
- Nimmo, A. P. 1987. The adult Arctopsychidae and Hydropsychidae (Trichoptera) of Canada and adjacent United States. Quaest. Ent. 23:1-189.
- Ross, H. H. 1944. The Caddis Flies, or Trichoptera, of Illinois. Bull. Ill. Nat. Hist. Surv. 23(1):1-326.
- Ross, H. H. and J. D. Unzicker. 1977. The relationships of the genera of American Hydropsychinae as indicated by phallic structures (Trichoptera, Hydropsychidae). J. Georgia Entomol. Soc. 12:298-312.
- Scheffer, P. W., G. B. Wiggins and J. D. Unzicker. 1986. A proposal for assignment of *Ceratopsyche* as a subgenus of *Hydropsyche*, with new synonyms and a new species (Trichoptera: Hydropsychidae). J. N. Am. Benthol. Soc. 5:67-84.
- Schuster, G. A. 1984. *Hydropsyche?*—*Symphitopsyche?*—*Ceratopsyche?*: a taxonomic enigma. Proc. 4th Int. Symp. Trichop. (Series Entomologica 30):339-345.

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