

## 12 | Peltoperlidae

This family was split from Perlidae by Claassen (1931) to include stoneflies with distinctive “roachlike” nymphs. At that time only one genus, *Peltoperla*, was recognized, but Ricker (1952) and Jewett (1954) proposed *Sierraperla*, *Soliperla*, *Viehopera*, and *Yoraperla* as distinctive subgenera which were given generic status by Illies (1966). Stark & Stewart (1981a) split the *Tallaperla maria* complex away from *Peltoperla*. Nymphs of *Tallaperla* and *Peltoperla* have the same general habitus, similar mouthparts, and identical gill formulae, making their separation problematical (Stark & Stewart 1981a).

Ricker (1959b) presented the first diagnosis for nymphs of the recognized Nearctic peltoperlid subgenera, and many of the characters identified in that study have been incorporated in subsequent generic keys (Stark & Stewart 1981a, 1982a; Harper & Stewart 1984). Within genera, nymphs appear to be relatively homogenous and few attempts have been made to recognize species; a notable exception includes Ricker’s (1943) distinction of *Yoraperla* nymphs by the size and shape of the posterior margin of the metasternal plate. Stark (1983a) prepared a preliminary key to nymphs of four of the six *Soliperla* species, but Stark (1983b) and Stark & Kondratieff (1987) found no species-specific characters for *Tallaperla* and *Peltoperla* nymphs, respectively.

The six currently recognized Nearctic genera are all endemic (except *Yoraperla*, which has at least one Oriental representative in *Nogiperla uenoi* (Kohno) *sensu* Chino [1978]), but several of them are apparently more closely related to oriental genera than to other members of the Nearctic fauna. In Stark & Stewart’s (1981a) phylogeny the eastern Nearctic genera *Tallaperla*, *Peltoperla*, and *Viehopera* formed one cluster, while the western genera, *Soliperla*, *Yoraperla*, and *Sierraperla* were placed in a separate cluster. This analysis incorporated several nymphal characters, but additional data, particularly from oriental representatives, are needed to refine the model.

### KEY TO NYMPHS OF PELTOPERLIDAE GENERA

1. Posterior metasternal margin truncate or slightly emarginate (Fig. 12.4F, 12.6F); ..... 2
- Posterior metasternal margin deeply emarginate with prominent lateral wings (Fig. 12.2F); ..... 4
2. Abdominal apex rounded and fringed with stout bristles (Fig. 12.6G,H) ..... 3
- Abdominal apex with spinelike point fringed with short scalelike setae (Fig. 12.4G,H); WNA ..... *Sierraperla* Jewett
3. Anterodorsal surface of femora with transverse rows of stout bristles (Fig. 12.12E); supracoxal gills double (Fig. 12.12D,F); abdominal terga without pale pigment spots (Fig. 12.11); WNA ..... *Yoraperla* Ricker