

15 | Pteronarcyidae

Throughout most of this century, two well-defined pteronarcyid genera have been recognized in the Nearctic fauna. *Pteronarcella* was proposed by Banks (1900), but the distinctive nymphs were not described until Smith (1917) obtained associated adults and exuviae of several specimens from New Mexico. She was apparently the first to note in *Pteronarcella* the additional pair of gills which permits separation of this genus from the previously recognized *Pteronarcys*. This character remains the most reliable method for recognition of pteronarcyid genera.

Needham & Claassen (1925) proposed *Allonarcys* as a subgenus of *Pteronarcys* for the eastern Nearctic species whose nymphs have lateral abdominal spines. This group was later given generic status (Illies 1966), but Stark & Szczytko (1982) have shown that *Pteronarcys*, as defined in Illies' classification scheme, is polyphyletic, and *Allonarcys* was returned to the synonymy of *Pteronarcys*. Nelson & Hanson (1971) had formerly suggested that *Allonarcys* was a paraphyletic grouping, but this was not supported by egg data (Stark & Szczytko 1982).

Smith (1917) and Claassen (1931) have provided the most complete nymphal descriptions available for pteronarcyid species, and each writer included keys which are still reliable for the species of *Pteronarcys*. Ricker (1952) added a nymphal key to the "*Allonarcys*" species complex, and Nelson et al. (1977) confirmed Frison's (1942) and Ricker's (1952) tentative association of a distinctive nymph with the name *Pteronarcys comstocki* Smith.

Present nymphal data do not permit separation of *Pteronarcys dorsata* from *P. pictetii* Hagen or of *Pteronarcella badia* from *P. regularis* (Hagen). The former pair had been separated on the basis of size or shape of male sternum 9 by Harden & Mickel (1952), and the latter pair was separated on the basis of gill filament differences by Claassen (1931), Jewett (1959), and Baumann et al. (1977). Unfortunately, these characters are not reliable, and in the case of *Pteronarcella*, Claassen's (1931) study actually included separate populations of *P. badia* rather than populations of *P. badia* and *P. regularis*.

KEY TO NYMPHS OF PTERONARCYIDAE GENERA

1. Ab 3 with posteroventral gills similar to those on segments 1 and 2 (Fig. 15.2C,E); lateral pronotal margins convex (Fig. 15.1) *Pteronarcella* Banks
- Ab 3 without gills (Fig. 15.4C,D); lateral pronotal margins straight or angles acute and upturned (Fig. 15.3) *Pteronarcys* Newman

Pteronarcella Banks

Type Species. *Pteronarcella regularis* (Hagen).

Distribution. Western Nearctic.