

Nymph Cove: Identification to Genus: Petaluridae

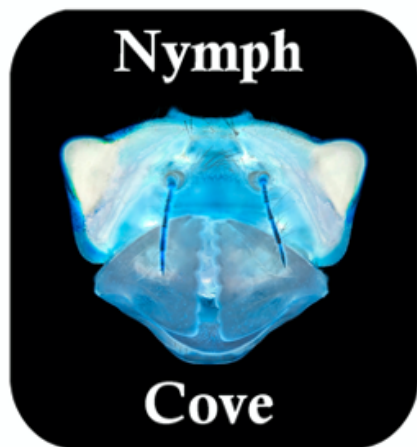


Figure 1. Petaluridae: fore tibia showing apical burrowing hooks (left); head (right, arrow indicates labrum).

By Marla Garrison and Ken J Tennesen

Petaluridae

We've made it through Gomphidae, Aeshnidae, Corduliidae, Macromiidae, and Cordulegastridae. It's time for the unique petalurids, a family of relic species with limited distribution in marginal habitats believed to have arisen in the middle Jurassic period at least 160 mya. This primitive family is unique enough that we are devoting a Nymph Cove installment just for it even though it has just two extant species in North America.

Our two petalurids are *Tachopteryx* in the east and *Tanypteryx* in the west. Petalurid nymphs are unique in their choice of habitat, living in or at the edge of shallow waters rather than deeply submerged. *Tachopteryx* nymphs are found alongside permanent seeps or mucky edges of small woodland streams wallowing under moist vegetation such as sphagnum clumps or wet decaying leaves. *Tachopteryx* is a monotypic genus containing the species *Tachopteryx thoreyi* which is endemic to the eastern United States. Nymphs of the genus *Tanypteryx*, on the other hand, dig

cylindrical burrows in seeps and fens on hillsides and valley floors. *Tanypteryx hageni* is the only species of *Tanypteryx* occurring in North America and is found in the Pacific coastal states and British Columbia.

Petalurid nymphs have relatively large, substantial bodies with rows of grouped setal tufts on either side of the middorsal abdominal line. Antennae have 6 or 7 thick antennal segments. Tibiae all have apical burrowing hooks (Fig. 1). The prementum

is concave with palps moderately scoop- or spoon-shaped (i.e., intermediate to the flat and cup-shaped labia of the other families), only partly covering the labrum when closed (Fig. 1). The shape of the prementum is quadrate (Fig. 2).

Distinguishing between the two genera is quick and easy, although unnecessary in the field given that the two are geographically widely separated. Still, the two genera differ morphologically

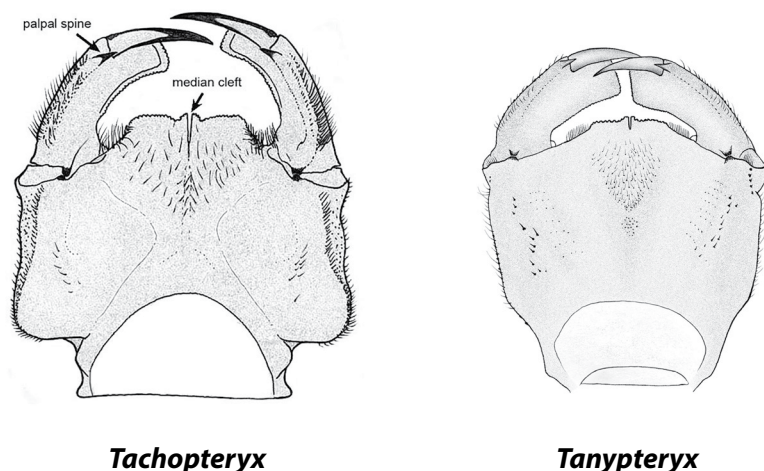
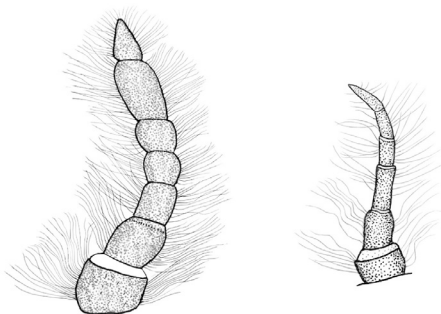


Figure 2. Petaluridae: prementum, ental view.

North American Petaluridae

Habitus Images of the Two Genera

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Tachopteryx

Tanypteryx

Figure 3. Petaluridae: antennae, dorsal view.

in interesting ways. The antennae of *Tachopteryx* are 7-segmented and appear almost beaded with segment 6 the longest. *Tanypteryx* has 6-segmented antennae with segment 3 the longest (Fig. 3). *Tachopteryx* has flange-like posterolateral spines on abdominal segments 3–9 (appearing as wider, flatter extensions than those of other Anisoptera families). By contrast, *Tanypteryx* has bluntly rounded abdominal segments. Also, the abdomen of *Tachopteryx* is wider than the head versus about the same width as the head in *Tanypteryx* (see habitus images).



Tachopteryx

We now have six out of the seven families of Anisoptera completed. We have yet to tackle the largest family, those frustrating libellulids—so often when you hold one of these hornswogglers in your hand in the field you gotta just shake your head and exclaim, “*what the heck is this?!*” But we must cover them as they are common in nearly all still-water habitats and even some flowing ones. And it will take the next four installments, as they outnumber all the other families!

Marla Garrison is Director of the Liebman Institute for Science Innovation at McHenry County College, Crystal Lake, Illinois.

Ken Tennessen has published over 80 technical papers on Odonata. His recent book, Dragonfly Nymphs of North America, was published by Springer in 2019.



Tanypteryx

Nymph Cove



Tachopteryx thoreyi



Tanypteryx hageni