ARGIA

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Nymph Cove: IDENTIFICATION TO GENUS: Aeshnidae (Part I)

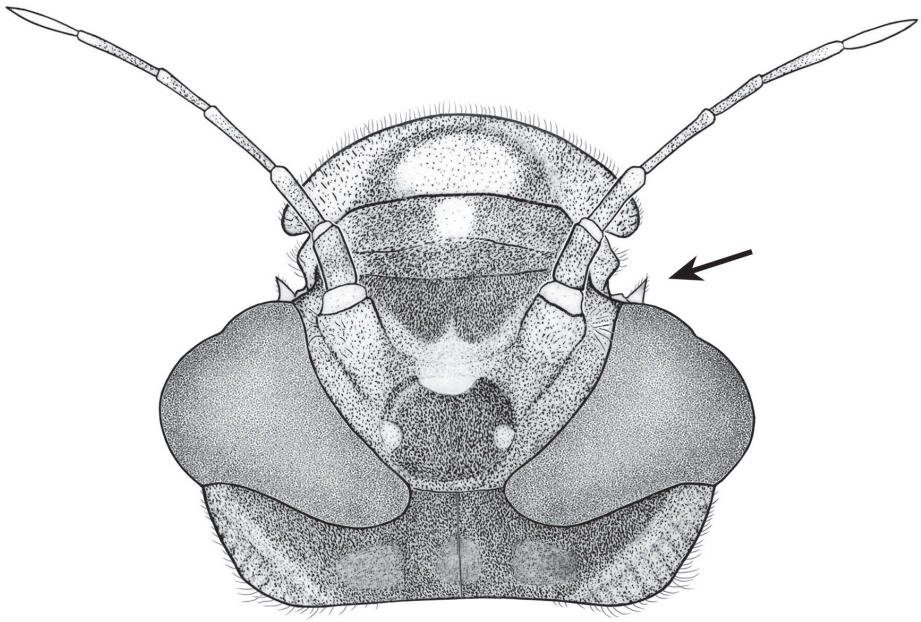

Figure 1. *Gomphaeschna furcillata,* head in dorsal view; arrow indicates genal projection.

By Marla Garrison and Ken J Tennessen

Time to tackle those aeshnids – the King Kongs of the underwater world clinging to their aquatic vegetation like mini Empire State Buildings. With 13 genera in North America, all of similar cylindrical body type, identification of the family Aeshnidae can seem quite a challenge at first. But, with loupe in hand, many can be diagnosed in the field based upon head and palpal blade shape alone. A few are going to require closer microscopic examination.

In addition to the characters mentioned above, the primary distinctive features we will consider in this segment (the first of two on the family Aeshnidae) include premental characteristics, presence of posterolateral spines on the abdominal segments, pattern and structures of the abdominal dorsum, relative lengths of the anal appendages, and epiproct shape.

Let's get started with the six genera that are easiest to distinguish, *Gomphaeschna*, *Coryphaeschna*, *Basiaeschna*, *Boyeria*, *Epiaeschna*, and *Nasiaeschna*.

Gomphaeschna

Gomphaeshna nymphs are unlike any others in having long antennae (longer than their head) and a labrum that is as wide as the widest part of their prementum, extending to or beyond the

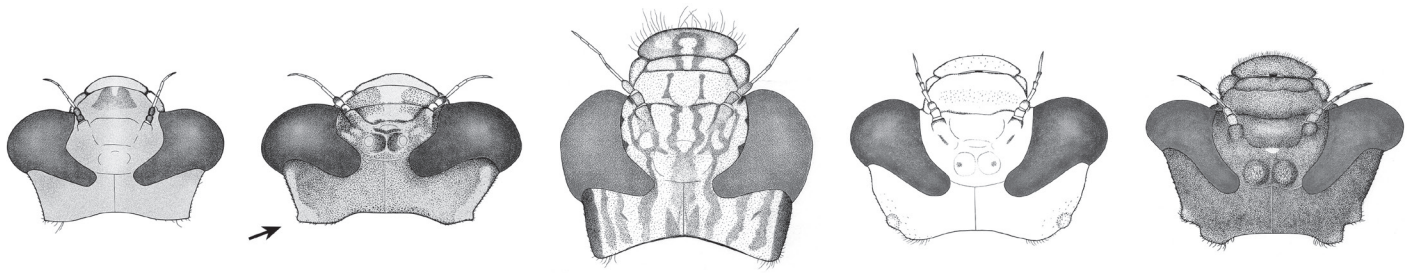

Figure 2. Head in dorsal view of five North American genera of Aeshnidae.

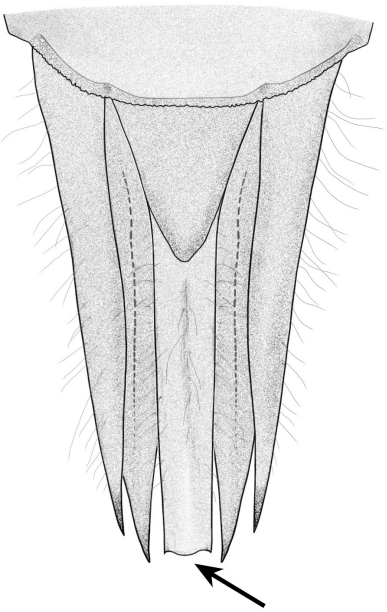

Figure 3. *Coryphaeschna* anal appendages in dorsal view; arrow indicates tip of epiproct.

dorsolateral border of their mandibles (Fig. 1). Another unique feature shared only with the Old World genus *Oligoaeschna* is the triangular projection on the ventral part of the head called the gena, one projection on each side of the head (see arrow in Fig. 1).

The other five genera treated here are distinguished from the remaining North American aeshnid genera by the posterolateral border of their head (postocular region) being angulate or tuberculate rather than rounded (Fig. 2).

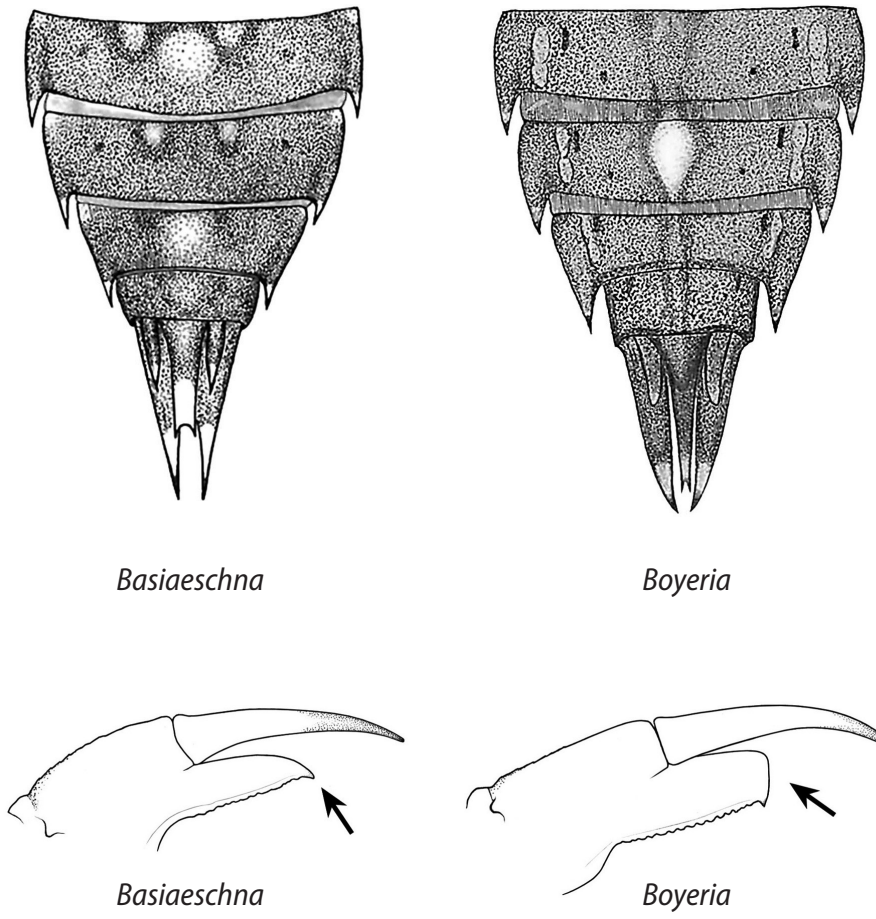

Figure 4. *Basiaeschna* and *Boyeria* dorsal posterior abdominal segments (above) and palpal blade shape (below).

Coryphaeschna

Coryphaeschna immediately falls out of this group of five by virtue of its long cerci (as long as the epiproct), and the epiproct having a truncate tip with weak lateral points (Fig. 3).

In addition, *Coryphaeschna* nymphs have posterolateral spines on S6–9 only whilst the others have them on S5 as well. Note: one species of *Coryphaeschna* does not have obviously angular posterolateral corners on the

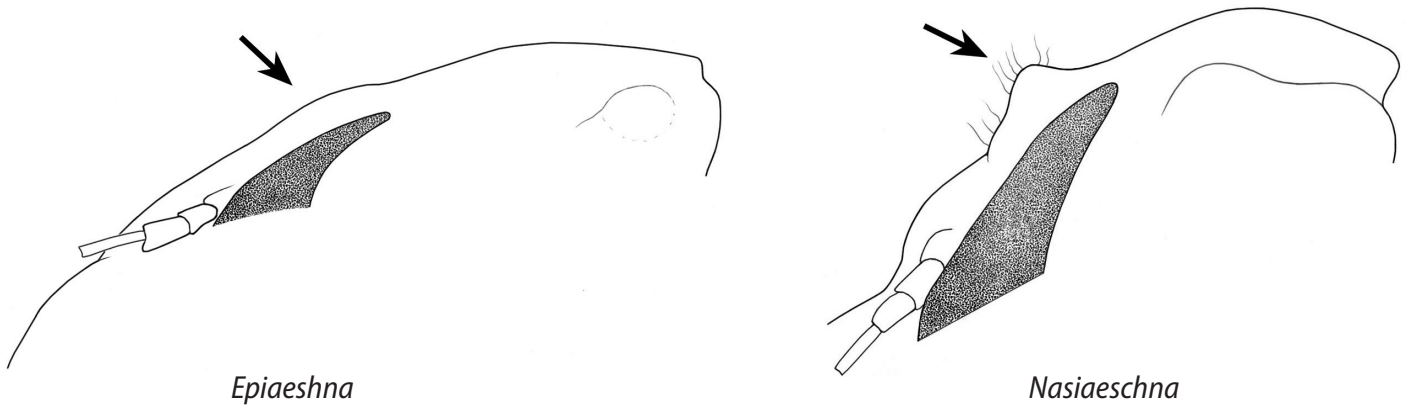

Figure 5. Head in profile of *Epiaeschna* and *Nasiaeschna*; compound eye shaded.

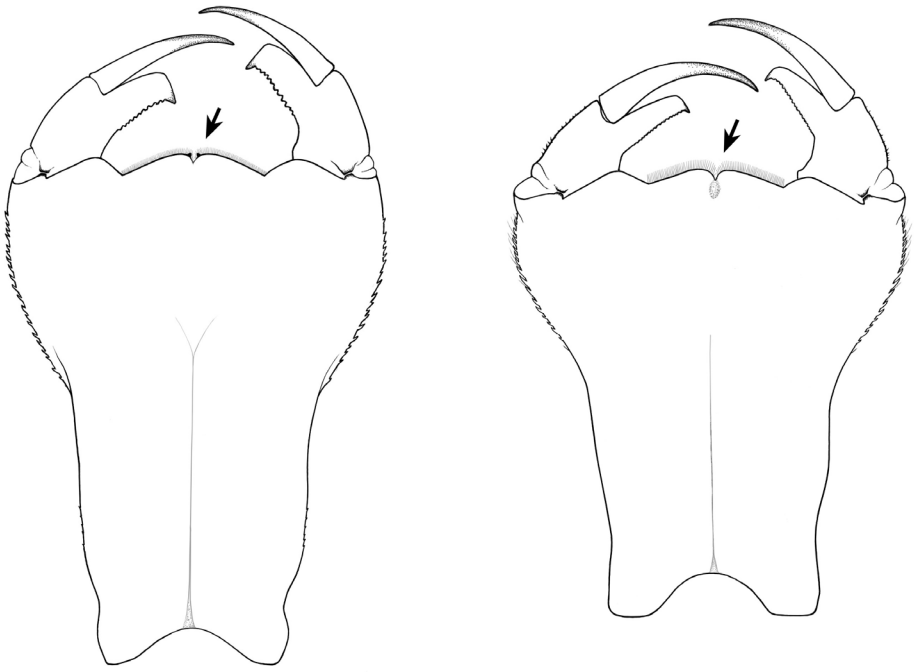

Figure 6. Ligula of *Epiaeschna* and *Nasiaeschna*.

head; this is *C. adnexa* (Blue-faced Darner), which will be diagnosed in the next installment.

Boyeria vs. *Basiaeschna*

Boyeria and *Basiaeschna* share a rounded abdominal dorsum with no distinctive topography, unlike *Epiaeschna* and *Nasiaeschna* which have either a medial abdominal ridge or middorsal hooks on S7–S9.

Boyeria and *Basiaeschna* nymphs both have pale markings on the dorsum of the apical abdominal segments. The two genera, however, are easily distinguished by virtue of *Boyeria* presenting a single pale medial spot on S8 only (Fig. 4). The dorsal abdominal spots in these genera are sometimes obscured by various types of coatings; carefully scraping the dorsum of the abdomen with a needle can reveal the color pattern. The shape of the distal margin of the palpal blade is also distinctive – that of *Boyeria* being truncate compared to tapered to a point in *Basiaeschna* (Fig. 4).

Epiaeschna vs. *Nasiaeschna*

The remaining two genera may be separated first by examining head profile: *Nasiaeschna* has a pair of strong, setose median tubercles whereas the head of *Epiaeschna* is low and only slightly contoured (Fig. 5). Another featural difference is the distinct presence of middorsal hooks on abdominal S7–9 of *Nasiaeschna*. These are either absent or vestigial on *Epiaeschna*. Finally, the ligula of *Epiaeschna* has a small dark tooth on either side of the median cleft whereas there are none in *Nasiaeschna* (Fig 6).

The remaining seven aeshnid genera will be characterized in our next installment. They will present more difficulties in recognition so, bring a good hand lens and a wee bit of courage.

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

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The DSA welcomes proposals for articles on most any topic related to Odonata for our quarterly news journal, *ARGIA*, or our occasional peer-reviewed journal, *Bulletin of American Odonatology* (BAO). Topics should be generally consistent with the DSA mission.

Inquires about *ARGIA* proposals should be directed to its editor, Amanda Whispell, at editor@dragonflysocietyamericas.org. For *BAO* proposals, contact Brenda "Bee" D. Smith at editorbao@dragonflysocietyamericas.org.

Authors preparing articles should consult our Submissions Guidelines and include a completed Submission Form when submitting your articles; both are available on the DSA website: www.dragonflysocietyamericas.org/instructions-to-authors.

Back cover:

Dusky Dancers (*Argia translata*)
August 10, 2021; Ashokan Reservoir, West Shokan, Ulster County, New York.

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