
Stonefly Nymphs (*Plecoptera*)

Stonefly families do not have widely used common names.

- a. All thoracic segments have conspicuous, branched clusters of gills
..... 2
 - 1** b. Gills on thorax are either absent, unbranched, or only on the prosternum (chest plate closest to the head)
..... 3
-

- a. Gills on the 1st, 2nd, and sometimes 3rd segment of the abdomen
..... **Pteronarcyidae**

These large stoneflies require 1-4 years to mature, emerging in the spring or early summer. They feed mostly on coarse particulate (organic) matter and inhabit debris in small to medium sized streams. [L/1/1/R]

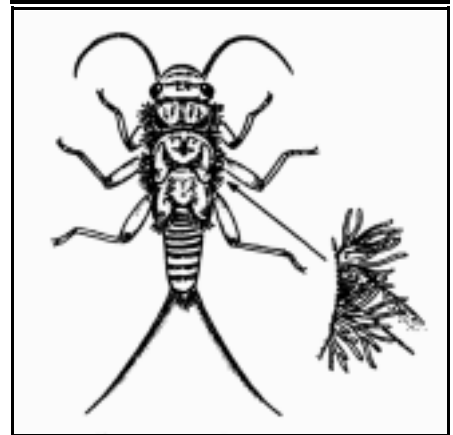
- 2** b. Gills absent on the visible segments of the abdomen
..... **Perlidae**

Perlidae are relatively large predators, common in streams of all sizes and living within the debris in cool fast riffles. They require 1-3 years for development and emerge in the summer. [L/6/10/C]

Pteronarcyidae (2a)



Perlidae (2b)



3

- a. Thoracic sterna (breastplates) extend back to overlap each following segment; gills at the base of the middle and hind legs are single, double or forked; body form is roach-like

..... **Peltoperlidae**

These distinctively shaped nymphs live in small mountain streams where they feed on decaying leaves, detritus and microorganisms. Most develop in 1-2 years and emerge in late spring or early summer. [L/2/2/R]

- b. Thoracic sterna are not overlapping; if gills are present at the base of the legs they are not pointed; body form is not roach-like

..... 4

4

- a. The paraglossae (outer lobes of the labium [lower lip]) extend further forward than the glossae (inner lobes), adapted for predation

..... 5

- b. The paraglossae and glossae are approximately equal in length, adapted for herbivory, scraping or collecting detritus

..... 6

5

- a. The cerci (tail filaments) are as long or longer than the abdomen; the hind wing pads diverge from the axis of the body; the head and thorax of mature nymphs are usually patterned

..... **Perlodidae**

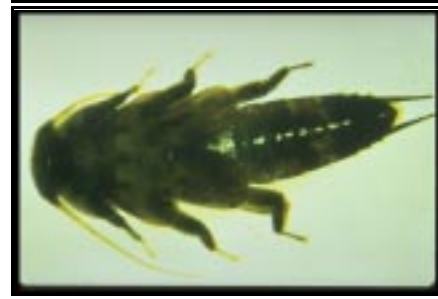
Small to medium sized, the Perlodidae live in all sizes and types of streams. Most are predators at least in later stages of their one year development. They emerge in the spring. [L/5/11/C]

- b. The cerci are shorter than the abdomen; the hind wing pads are parallel to the body axis; the head and thorax usually have no patterning

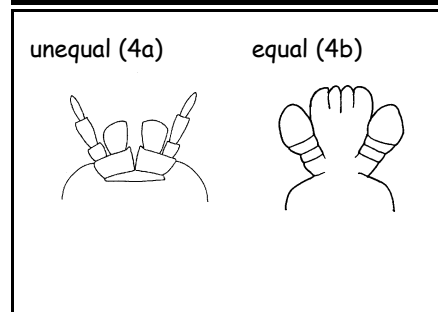
..... **Chloroperlidae**

The Chloroperlidae are small and predatory in later stages of a one year development. Emerging in late spring and early summer, they inhabit gravel bottoms of cold, small to medium sized streams. [M/4/6/C]

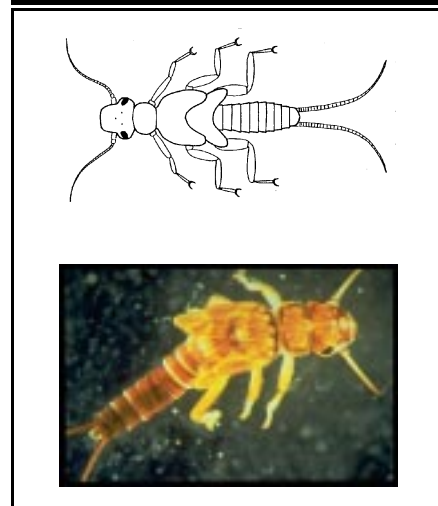
Peltoperlidae (3a)



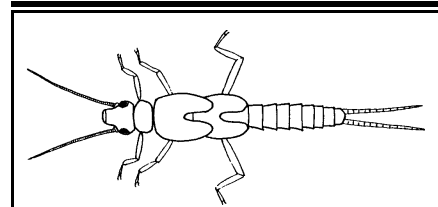
Two different types of stonefly labium structure (4a/4b)



Perlodidae (5a)



Chloroperlidae (5b)



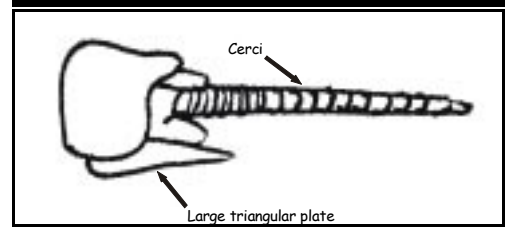
- a. The 2nd tarsal (foot) segment is about as long as the first; gills on the inner coxae (base of the legs) are single and telescoping **or** the last abdominal segment with large ventral triangular plate
 **Taeniopterygidae**

6

Known as a "winter stoneflies", these small to medium sized nymphs emerge in late winter or very early spring. They crawl slowly but swim efficiently, are herbivores-detritivores, and are frequently found among vegetation in streams of all sizes. [M/3/5/C]

- b. The 2nd tarsal segment is much shorter than the first; gills on the inner coxae are absent **and** last abdominal without a large ventral triangular plate
 7

Taeniopterygidae triangular plate(6a)



Taeniopterygidae (6a)



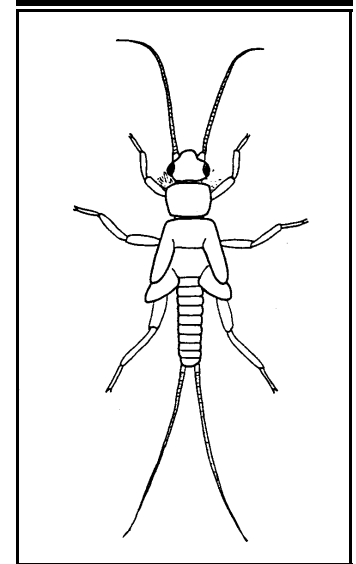
- a. Small, robust body; length < 12 mm; hind legs can extend to or beyond the tip of the abdomen; wing pads are divergent from the body axis; may have cervical gills
 **Nemouridae**

7

These stout, small larvae are detrital feeders that live in debris and soft sediments of small streams and spring seeps. They develop in one year, and emerge from spring to autumn depending on the species. [L/6/9/C]

- b. Elongate body; hind legs can not reach to tip of abdomen; wingpads are parallel to the body axis
 8

Nemouridae (7a)



- a. Abdominal segments 1-9 divided by a membranous fold at the lower sides; hind wing pads, if present, about the same distance apart as the forward wing pads (and often short and broad); abdominal segments widest at terminal end
 **Capniidae**

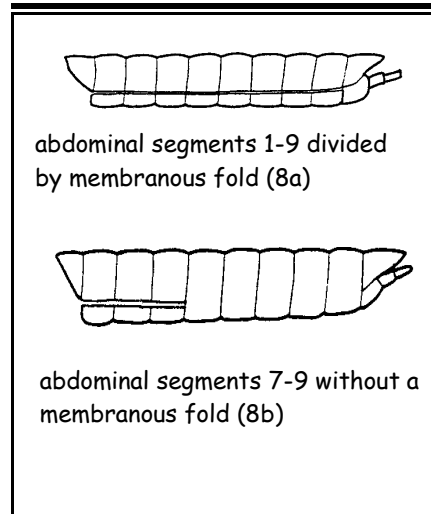
A "winter stonefly", the small, elongate nymphs are especially abundant in small streams and spring seeps. They feed on decaying leaves, develop in one year and emerge in the late winter or early spring. [L/3/5/C]

8

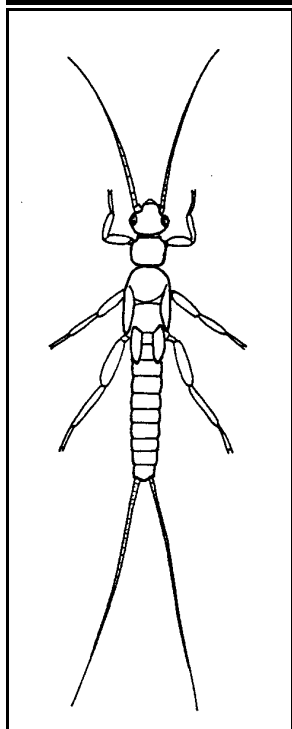
- b. Abdominal segments 7-9 without a membranous fold at the lower sides; hind wing pads similar in shape to the forward wing pads, but closer together; abdominal segments cylindrical
 **Leuctridae**

Found mostly among gravel in cool, small streams, the Leuctridae feed on decaying leaves. They are small and elongate, develop in one year, and emerge from spring to autumn, depending on the species. [L/2/3/C]

Position of membranous folds on abdominal segments of Capniidae and Leuctridae (8a/8b)



Leuctridae (8b)



Leuctridae (8b)



Capniidae (8a)

