



Stonefly Identification

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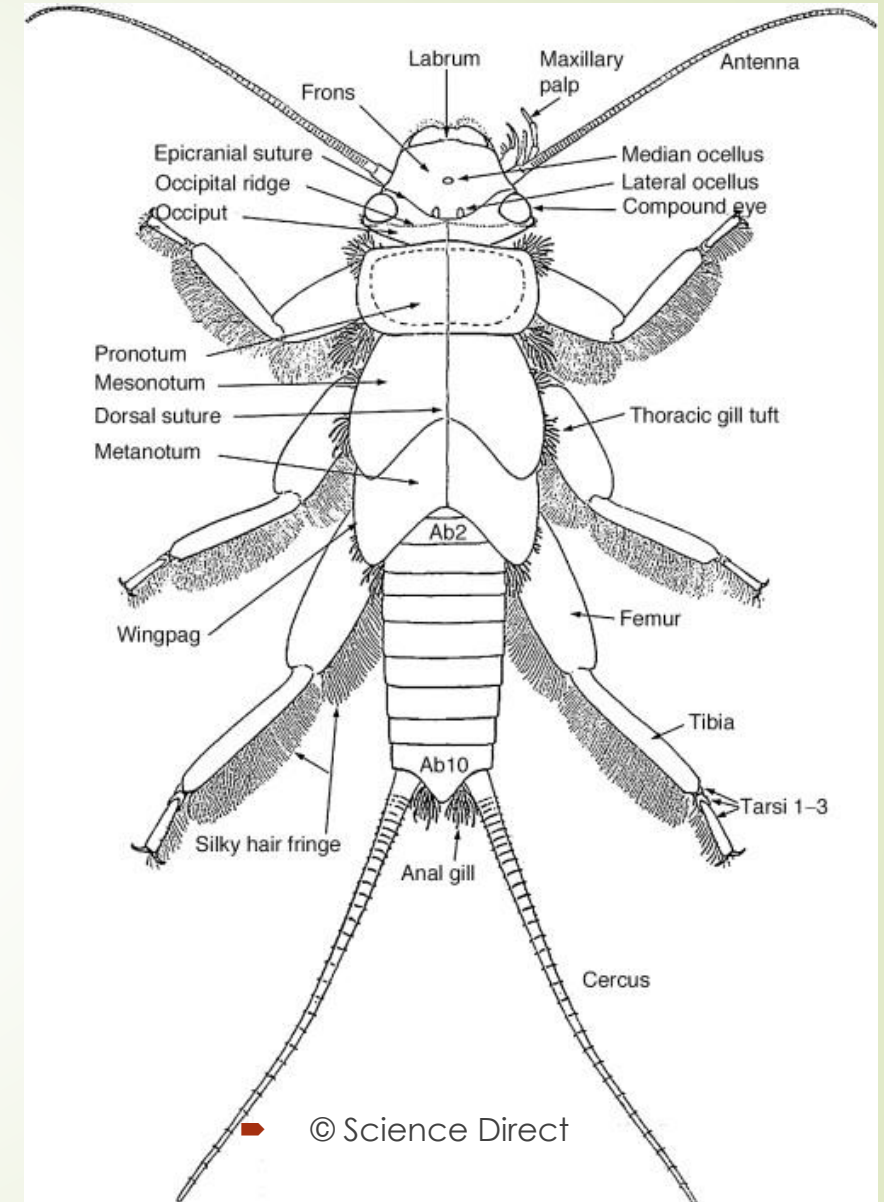


Stonefly Basics

- ▶ Stoneflies are insects of the Order Plecoptera. They look like underwater earwigs without the pincers but with 2 tails (cerci).
- ▶ Eggs laid become NYMPHS. The developmental cycle lasts 1 year, but two large stoneflies take up to 3 years to reach maturity.
- ▶ Nymphs are similar to adults, but without wings and sexually immature.
- ▶ The flight season varies by Family across the year from mid February to early November.
- ▶ Most stoneflies prefer flowing water. Only 8/34 also live in still water. They tend to prefer upland streams (cloughs, dikes, brook and becks).

Identification to Family Level

- The tarsus is a 3-segmented foot; T1, T2, T3 is outermost. The segment sizes help to determine families.
- Gills are sausage-shaped occurring on the prosternum, pleurae (thoracic sides) or coxae (top of leg). Many British stoneflies have no gills.
- Abdominal segments are whole rings or may be split into halves; tergum (back) or sternum (front).
- Useful words...
 - Sections: head, thorax & abdomen
 - Legs: coxa, femur, tibia, tarsus, claw (double)
 - Position: dorsal(back) & ventral(under); also pro- (1st), meso- (2nd) & meta- (3rd)
- Great photos at <http://lifeinfreshwater.net/aquatic-insect-larvae/#more-2378>



Family: Taeniopterygidae

Identification

- Each segment of tarsus longer than preceding one: $T3 > T2 > T1$. Requires a hand lens.



Family: Nemouridae

Identification

- Check tarsi: $T3 \gg T1 > T2$
- Stout nymphs with hind legs extending beyond abdomen. Wing pads set obliquely to body.
- Easy hits...
 - Prothorax has 3 sausage-shaped gills, genus *Protonemoura*.
 - Prothorax has 5-8 filamentous gills, genus *Amphinemoura*.
 - No visible gills & $T1 = \frac{1}{2} T3$, genus *Nemoura*, OR
 - $T1=T3$, species *Nemurella picteti*. Also particularly long femur & tibia.



Family: Leuctridae

Identification

- Check hind tarsi: T3 >> T1 > T2
- Short legs, long thin abdomen, hence name of Needle Flies. Wing pads slim parallel to body.
- Abdominal segments; 1-4 with upper & lower halves, 5-9 form complete rings.
- Easy hits...
 - Only one genus: *Leuctra*



Family: Capniidae

Identification

- Check hind tarsi: T3 >> T1 > T2
- Short legs, long abdomen.
Wing pads slim.
- All abdominal segments with upper & lower halves.
- Two genera: *Capnia* 2 spp. & *Zwicknia* 1 sp. pictured.
- Requires full key to ID.



Zwicknia bifrons © Mogens Holmen - Fugle og Natur

Family: Perlidae

Identification

- Check hind tarsi: $T3 \gg T2 + T1$.
- Gills found at base of legs, “hairy armpits”.
- Large stonefly to 33mm.
- Two species...
 - Pronotum: $W > 2 \times L$; red-brown with yellow/grey pattern, last abdominal tergum black → *Dinocras cephalotes*.
 - Pronotum: $W < 2 \times L$; black with yellow pattern, last abdominal tergum yellow → *Perla bipunctata*.



Family: Perlodidae

Identification

- Check hind tarsi: T3 >> T2 + T1.
- No “hairy armpits”.
- Large stonefly to 28mm.
- 4 genera: requires key and microscope.
 - Abdominal segments 1-4 divided into tergum (dorsal) & sternum (ventral) plates → *Perlodes mortoni*.



Family: Choroperlidae

Identification

- Check hind tarsi: $T3 \gg T2 + T1$.
- No 'hairy armpits'. Wing buds 'Pac-Man' shaped.
- Last segment of maxillary palp $\approx \frac{1}{4}$ width of preceding segment. Probably needs microscope.
- Two species...
 - *Chloroperla tripunctata*.
 - *Siphonoperla torrentium*.

