

Common taxonomic errors

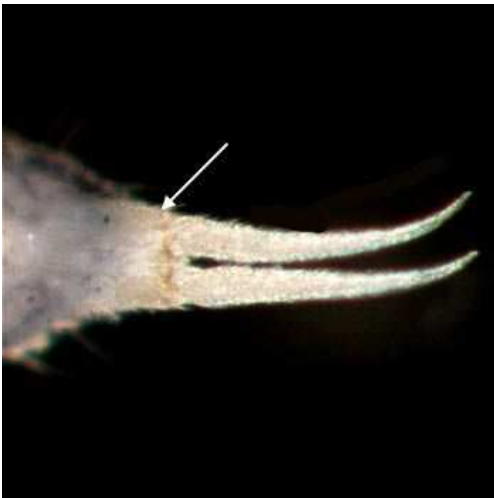
The following examples are mistakes commonly made by novice taxonomers. When animals from opposing couplets are seen together the difference between the features is obvious, but if you have never seen the opposing animal, you may be able to fit either description to your animal.

Experience increases through viewing many animals from different sample types and areas, in particular damaged animals, animals at various stages of maturity but most importantly seeing the animals that fit each side of a couplet.

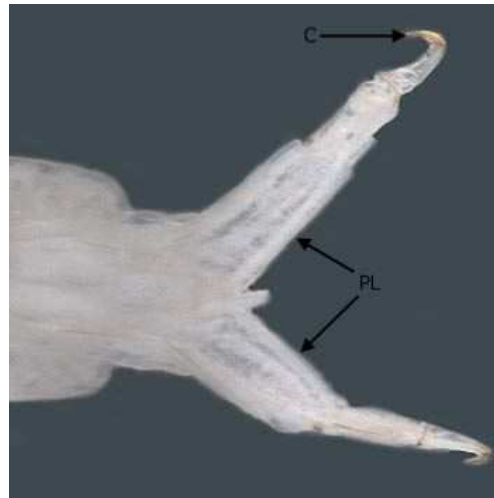
Major Groups key, couplet 4

a) Abdomen not elongate, ending with a forked appendage, often curled under the abdomen

Collembola



b) Abdomen not ending with a forked appendage
BUT INCLUDING animals with an elongated abdomen ending with a pair of prolegs (PL) and small claws (C)
Insecta



Detail - anal prolegs are segmented and with claws; anal prolegs that are reduced or fused appear even less like a forked appendage because they are much shorter.

Major Groups key, couplet 2

a) Animal has paired jointed legs Note: legs may be fully or partially enclosed in a carapace (Crustacea: Ostracoda)



b) Without paired jointed legs

(Bivalvia: Veneroida)



Detail – size matters, Bivalvia are 5mm – 20cm whereas Ostracoda are 410µm -4mm; Ostracoda are more rounded when viewed laterally and Bivalvia are more flattened.

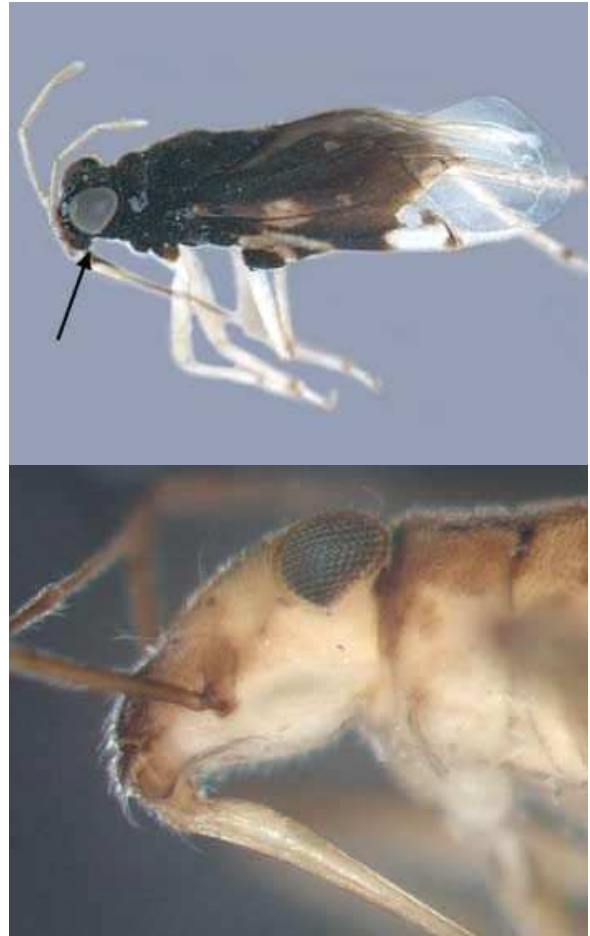
Common taxonomic errors

Insecta key to Orders, couplet 2

a) Mouthparts biting
adult Coleoptera (Curculionidae)



b) Mouthparts piercing;
adult Hemiptera



Detail – Curculionidae has the head produced forward into an elongated rostrum such that the antennae attach to the rostrum. Hemiptera have the mouthparts fused to form a rostrum such that the antennae attach to the head before the rostrum. Check the wings, Curculionidae have forewings modified to hard elytra whereas Hemiptera forewings are not modified to hard elytra (or no wings).

Insecta key to Orders, couplet 7

a) Abdomen with 3 long caudal gills
Odonata (immature)



b) Abdomen with 3 long thin caudal filaments
Ephemeroptera



Detail – Even though the immature odonate gills are undeveloped, appearing as filaments, immature nymphs do have an extendable labium but Ephemeroptera do not, at any stage of development. Ephemeroptera also have lateral abdominal gills but these easily damaged and lost during sampling.

Common taxonomic errors

Insecta key to Orders, couplet 6

a) Abdomen with 2 long and thin, or short and beaded caudal filaments Note: Austroperlidae: *Acruroperla atra* does not have distinct caudal filaments
Plecoptera



Austroperlidae: *Acruroperla atra*

b) Abdomen with 3 long, thin caudal filaments **OR**
3 long caudal gills

(Ephemeroptera **OR** Odonata)



Ephemeroptera (damaged)



Odonata (damaged)

Detail – Odonata has an extendable labium but Plecoptera and Ephemeroptera do not. Look at the anal end of the abdomen, how many filament bases (stumps) can be seen – 2 (Plecoptera) or 3 (Ephemeroptera)? Also look at the end of the caudal filaments, if the ends come to an abrupt stop without tapering then they are broken – not short. If they taper to the end, then that is the normal length.

Common taxonomic errors

Insecta key to Orders, couplet 12

a) Abdomen ending in either a single pair of hooks on prolegs

Megaloptera (Corydalidae)



b) Abdomen ending with pairs of hooks **BUT NOT** on prolegs

Coleoptera (Gyrinidae)



Detail – This is a difficult feature on smaller specimens, however Corydalidae larvae tend to be comparatively large (up to 50mm) compared to Gyrinidae larvae (up to 20mm). The lateral processes of Gyrinidae are finer and fringed with setae but Corydalidae are thicker and not fringed with setae.

Crustacea Key to Minor Groups, couplet 4

a) Animals with leaf-like thoracic appendages

(Anostraca)



b) Thoracic appendages segmented legs with claws, not leaf-like

(Malacostraca)



Detail – The abdominal pleopods of Malacostraca may appear leaf-like but the thoracic pereopods or legs are definitely segmented with claws. It is important to view the correct body area of the animal.