

Order Trichoptera

Common names: caddisflies

Simple diagnosis. Trichoptera are diagnosed by having membranous wings covered with dense hair-like setae and held tent-like when at rest; the mouthparts are reduced; antennae filiform. Larvae often build cases from sand particles and other material; they have a well-sclerotised head and pronotum, mandibulate (= biting and chewing) mouthparts, not forming a spinneret; peg-like antennae; legs and, abdomen often with tracheal gills.

Technical diagnosis. Caddisflies are elongate, moth-like insects. They can be recognized by fore- and hindwings different in shape, both covered with dense hair-like setae and held tent-like when at rest, their mouthparts are more or less reduced, adapted for taking liquids, but never forming a proboscis, they have filiform (thread-like) antennae and the thoracic tergites are equal in size. Adult caddisflies usually have large eyes and have no ocelli, the legs are slender with five-segmented tarsi, and the abdomen often has one or three pairs of finger-like processes.

Caddisfly larvae are usually aquatic and they are well known for building cases around the body from sand and other small particles, but sometimes larvae are free-living. The head is well sclerotised, usually hypognathous (= directed vertically), with eyes composed of seven or less stemmata (= ocelli like light gathering structures). The mouthparts are mandibulate (= biting and chewing), the maxillae have a 4- or 5-segmented palp and the labium has a 1 or 2-segmented palp, used to produce silk. The antennae are small, peg-like can be greatly reduced. The thoracic terga are distinct with the pronotum heavily sclerotised. The legs are strongly developed, having a single claw, and the forelegs are usually shortest. The abdomen usually has one pair of hooked prolegs on the last abdominal segment and the thread like abdominal gills are usually present.



Caddisfly (Trichoptera)

What can they be confused with? The order Trichoptera is closely related to Lepidoptera and they share some similarity in overall body shape. However, the latter differ in that the wings are have scales not hairs, and the mouthparts are usually in the shape of a proboscis, which is coiled at rest.

Larvae are distinct among those from other aquatic orders in that they build cases. They can be confused with some aquatic coleopteran larvae, but the latter often have a prognathous (= directed forwards) head and the abdomen has caudal urogomphi.

Biology. Trichoptera is one of the most diverse groups amongst the aquatic orders of insects. Caddisflies are known worldwide, larvae can inhabit lakes or streams. Adults are predominantly nocturnal. Adults take liquid food, and usually eat little. Larvae feed on detritus or plants, they can be scrappers or gatherers, add some of them are carnivorous. Some species are polyphagous (= feeding on multiple food sources).

Diversity in Papua New Guinea. The order Trichoptera occurs worldwide and includes more than 7000 species. The New Guinea fauna is poorly described (Miller 2007).



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Key references for Papua New Guinea.

Neboiss, A. 1989. Additions and corrections to the Atlas of Trichoptera of the SW Pacific- Australian region. *Occasional papers from the Museum of Victoria* 4: 63-67.