

INSECT ARCHITECTURE

CADDISFLIES



CADDISFLIES

Many (but not all) kinds of caddisfly larvae (order Trichoptera) make cases.

To construct the case, the caddisfly larva secretes a sticky silk from a tiny opening on its lower lip. First it uses silk to glue together bits of twigs, leaves, sand, or stones, and shapes the combination into a tubular protective covering. Then it lines the tubular case with silk. Like most larvae, this one has a soft body. So it benefits from the added protection of an outer case. The case also helps to camouflage the larva because it blends in well with its surroundings.

Caddisfly larvae are aquatic. They live ponds, streams, and lakes. The case may give the larva the extra weight it needs to stay anchored to the stream bottom where it feeds on plant material. It is interesting that some species of caddisfly larvae that do not build cases (and can therefore move more freely) are predators.

As the larva grows, it increases the length and width of its case by adding more and more material. Then, when it is ready to pupate, it attaches its case to an underwater rock or plant and seals both ends of the case with silk. Inside, it transforms into the next stage of its life cycle. It becomes a pupa.

Later, when the adult is ready to emerge, the pupa uses its strong jaws to cut its way out of the case. The pupa swims to the surface of the water or to the shore. The skin of the pupa splits open behind the head, and the winged adult caddisfly emerges into the air. Adults mate soon after they emerge. Then the female lays bunches of jelly-covered eggs and attaches them to objects near the water's surface.



Larvae eat algae and plant matter.



A caddisfly emerges from its pupa.



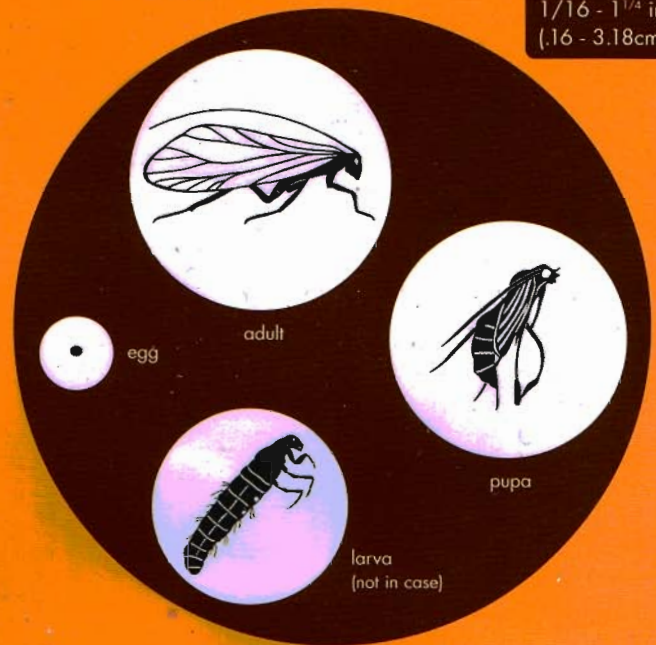
This case is made of leaves.



Some species of caddisflies have very long antennae.

LIFECYCLE

ADULT SIZE:
1/16 - 1 1/2 in.
(.16 - 3.18cm)



CADDISFLY CASES

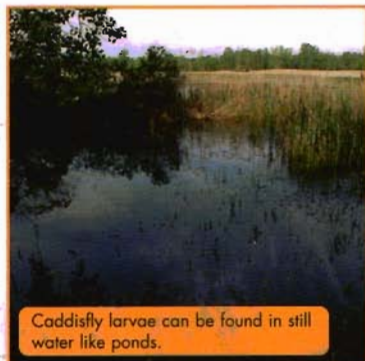


There are almost 12,000 different species of caddisflies around the world and many of these make cases. Some caddisfly cases are round and tube-shaped. Some are flat and spiral-shaped. Some are straight and some are curved. In fact, you can tell different families or genera of caddisflies from one another by the design of their cases.

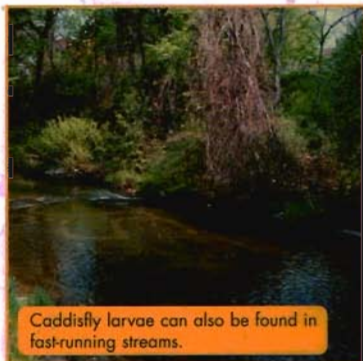
Caddisfly larvae use available materials to construct their cases so each one is unique. Cases can be built using grains of sand, pebbles, twigs, leaves, shells, and other small particles. The case camouflages the larva and provides some protection from predators, especially when the larva seals the opening with silk and pupates inside.



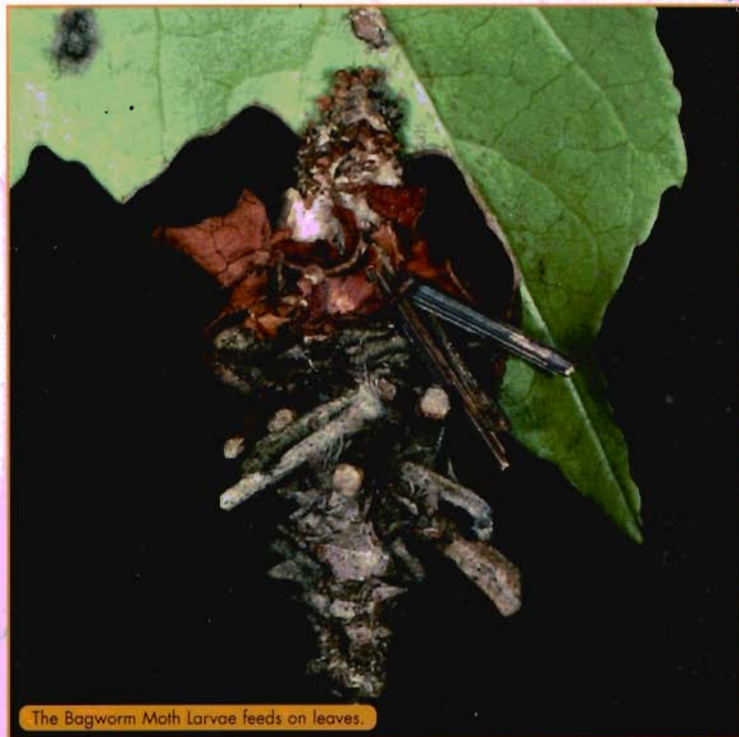
Can you find the well-camouflaged caddisfly case above?



Caddisfly larvae can be found in still water like ponds.



Caddisfly larvae can also be found in fast-running streams.



The Bagworm Moth Larvae feeds on leaves.

WHERE TO FIND THEM

Look for the larval cases of caddisflies in freshwater ponds, streams, rivers, and lakes in the spring and early summer. They can be quite numerous.

If possible, collect some caddisfly larvae. Observe them in a container filled with water taken from their habitat. Watch a larva move about, stretching in and out of its case as it forages for plant food or adds more material to extend its case.

PHOTOGRAPHY / ILLUSTRATION CREDITS

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OTHER CASE MAKERS

Another insect that uses a similar strategy to build its shelter is the bagworm moth (order Lepidoptera, family Psychidae). Bagworm larvae hatch from eggs in the spring, and immediately start eating the foliage of trees. At the same time, they begin to construct a protective case. The larvae produce silk, and use it to attach bits of leaves and needles to the case. As they grow, they continue to add to the case, always leaving the head and legs free so that they can move about and feed. The case provides excellent camouflage, and helps protect the bagworm from predators such as birds.

The bagworm then pupates inside its case. The male emerges from the case as a winged adult. But the maggot-like adult female remains in the case, and has no wings, no eyes, no working legs or mouthparts. The male finds the female and mates with her while she is still enclosed in the case. After mating, the female lays eggs and seals them into the bag to protect them for the winter months.