



What IS IT? Test Your Skills!

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Net Spinner Caddis and Small Head Caddis

Gills

NET SPINNERS HAVE BUSHY GILLS on the underside of their body.

SMALL HEAD CADDIS HAVE NO GILLS underneath their bodies.

On larger specimens it is very clear whether the caddisfly has gills or not.

On smaller organisms it can be very difficult to distinguish. If you look at a free living caddisfly and the underside appears to have some fuzz or is not completely smooth, then it is probably a Net Spinner.



Net Spinner



Small Head Caddis

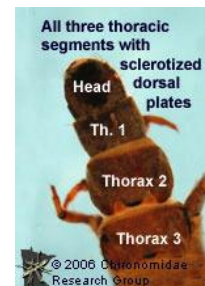


Plates Behind Head

Caddisflies have fleshy bodies, but the thorax has hard plates, that are usually a different color than the body.

NET SPINNER WILL HAVE 3 HARD PLATES behind the head.

SMALL HEAD WILL HAVE 1 HARD PLATE, usually small, hard plate behind the head.



Net Spinner



Small Head Caddis

Round Head Swimmers and Spiny Crawlers

Body Shape

ROUND HEAD SWIMMERS HAVE A ROUND HEAD AND BODY.

Round Head Swimmers have wing pad not much wider than the rest of the insect. This makes them look long and thin.

Spiny Crawlers have a large wing pad.

The abdomen (segments below the wing pad) appear flattened, making them look wider. Some Spiny Crawlers that have plate gills behind the wing pad look fairly short and tapered.

Once you become familiar with the body shape, you won't have to look at other features to distinguish these two.



Round Head Swimmers



Spiny Crawlers (Flattened & Small Abdomen)

Gills

Round Head Swimmers (Round & Forked Gills)

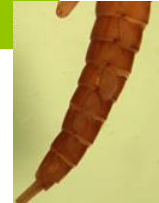
Both groups have a variety of gills shapes, but you can distinguish the groups by where the gills are located on the sides of the abdomen (the lower segments).

ROUND HEAD SWIMMER GILLS ARE ON THE SIDES OF THE ABDOMEN and are usually round, but may be pronged or forked.

SPINY CRAWLERS GILLS ARE LOCATED ON TOP OF THE ABDOMEN. The gills are either small and round laying on the edges of the abdomen or they are two large plates directly below the wing pad.

The pictures display gills, but also notice the spines on the abdominal segments of the Spiny Crawler

Spiny Crawler (Round & Plate Gills)



Quick Crawling Predator and Fragile Detritivores

Coloring & Pattern

QUICK CRAWLING PREDATORS ARE PATTERNED IN YELLOW AND BLACK/BROWN. In larger specimens the pattern is very defined and the colors are bold.

In younger quick Crawling Predators the colors are duller and the pattern much less defined.

FRAGILE DETRITIVORES DO NOT HAVE THE YELLOW AND BLACK PATTERN. They may be dull in color, all one color or the patterned colors are darker.

Body Shape

FRAGILE DETRITIVORES ARE LONG AND THIN. If the wing pads are well developed with wide lobes then the insect may not appear as thin as it actually is.

QUICK CRAWLING PREDATORS TEND TO BE SOMEWHAT THICKER. There is one family of Quick Crawling Predator that are quite thin and long, but they tend to be larger than the Fragile Detritivores.

Wing Pads

The wing pads are the second and third plates on the Stonefly's upper body.

QUICK CRAWLING PREDATORS WING PADS ARE USUALLY NOT VERY DEVELOPED; usually looking like a trapezoid with round edges. The wing pads of some Quick Crawling Predators may be more developed with lobed edges on the bottom ends of wing pad.

FRAGILE DETRITIVORES EITHER HAVE VERY SMALL WING PADS OR VERY DEVELOPED WING PADS. For Fragile Detritivores with small wing pads, you have to look at other characteristics to define them as Fragile Detritivores



Quick Crawling Predators



Fragile Detritivores

Small Head Caddisflies & Chironomids

Legs

The Small Head Caddisfly have six legs.
Chironomid has a proleg (not real legs)
near the head and near the end.

Size & Shape

Chironomids tend to be smaller overall with a
proportionally thinner body and TINY HEAD.

Movement

In the water chironomids will curl their ends or fold
themselves in half and back repeatedly to move.
This video shows red midges (which are the same as
chironomids just red) in a Petri dish so you can see
how they move:

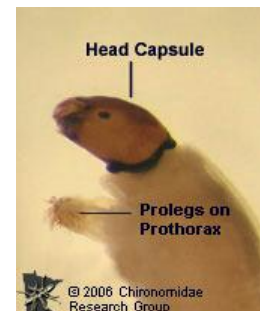
<http://www.youtube.com/watch?v=N0DFXQDPNRU>



Small
Head
Caddisfly



Chironomid

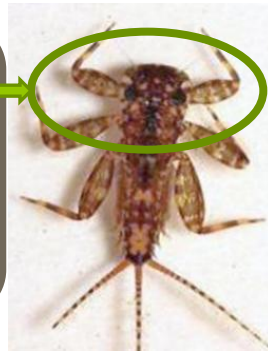


Close up single proleg

Flattened Scrapers, various Mayflies and Stonefly Groups

Head & Eyes

The Flattened Scraper head is proportionally larger than any other Mayfly or Stonefly Group. The head is flat and large, it is often the widest part of the body. The head always has very large eye spots that can be seen on even the smallest Flattened Scrapers



Gills

Flattened Scraper gills are usually round. They are always on the side of the abdomen (lower segments). STONEFLIES HAVE GILLS UNDERNEATH THEIR BODY, which may or may not be visible. On Flattened Scrapers you can often see the gills moving back and forth.

Tails

While Flattened Scrapers may have two or three tails, the tails are often long and spread far apart from each other, which is different from other Mayfly and Stonefly Groups.



Flattened Scraper



Spiny Crawler



Round Head Swimmer



Quick Crawling Predator



Legs

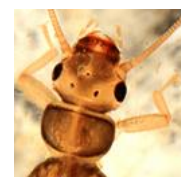
The legs of older specimens are often thick and set in a wide stance that looks like they have a lot of muscles. The only other group that has a stance like that are Quick Crawling Predators.



Flattened Scraper



Spiny Crawler



Quick Crawling Predator



Round Head Swimmer

Fishflies and Predator Beetle Larvae

Color

Fishflies tend to be colored in solid dark browns.



Fishfly

Predator Beetle Larvae have some patterning with yellow, orange, brown and black.



Predator Beetle Larvae

Shape & Size

Fishflies tend to be proportionally wider with a significantly larger head than Predator Beetle Larvae.

If the Predator Beetle Larvae is also wide then the leg-like appendages are shorter.

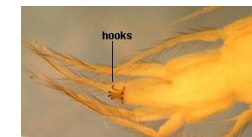
End of Body

FISHFLIES HAVE TWO TAILS WITH HOOKS

PREDATOR BEETLE LARVAE MAY HAVE BRUSH-LIKE APPENDAGES but not two tails.

Fishfly Larvae

Predator Beetle Larvae



Giant Shredder

- 1"-2", stout, cylindrical bodied dark colored stonefly
- Slow crawler
- Found in leaf packs
- Bushy gills along thorax and under body near legs and abdomen

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Roach Shredder

- 1/2"-1"
- Brown or black
- Moves quickly
- Resembles a cockroach (body somewhat rounded or teardrop shaped)
- Abundant in leaf packs

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Quick Crawling Predator

- 1/2"- 2",
- Brown, black or gold colored, fast crawlers, stout bodied
- Some may be slightly flattened, others more rounded
- Many boldly patterned and/or have obvious gills around legs (thorax)

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Fragile Detritivore

- 1/4"-1"
- Long and thin abdominal segments
- Dully colored with little or no patterning
- Fragile

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Flattened Scrapers

- 1/4" to 1"
- Light brown to black, patterned
- Body compressed (flattened)
- Broadened forelegs
- Large eye spots
- Very broad and flat heads
- Two or three tails

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Spiny Crawlers

- Generally stouter bodied than flattened scrapers, with spines or sharp points along bodies and legs, sometimes brushes of hairs (setae) mark the tails.
- If body is flattened, then insect has 'hammer head' and broad, spiny fore legs.
- Insect may arch body scorpion- like when provoked.
- Undulating swimming motion (Rocking Horse)but not as fast as the Round Headed Swimmers.

Round Headed Swimmers

- 1/2"
- Fragile
- Long thin legs
- Round head (not circular)
- Two or three tails
- Drably colored but a few may have markings or patterns.
- Swimming behavior resembles a dolphin or porpoise, and is accomplished by undulating the body segments in short bursts.

Burrowing Mayflies

- 1/2" -1 1/2"
- Large and stout bodied
- Prominent gills arranged along the back in bushy tufts (not on sides)
- Forelegs adapted for digging in sandy sediments
- Mandibular tusks sometimes observable on the head

Spiny Turtle Mayflies

- up to 1/2"
- Enlarged spiny shell covering the majority of the middle of the animal
- Resembling a turtle shell that may cover gills

Filter Mayfly

- 1/2" -1"
- Darkly colored very active insect.
- Most commonly found in summer.
- Brushes on fore legs
- Fast swimmer
- Prominent circular gills on sides of abdomen
- Similar to Round Headed Swimmers but reach larger size and have a more pronounced 'humpback'.

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Net Spinning Caddisflies

- 'C' shaped in the pan
- Bushy gills underneath body and at tail
- Builds a retreat to hide in (commonly silken nets with wood or gravel anchors).
- Net spinners have a head as wide as the thorax of the body.

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Small Head Caddisflies

- These insects resemble net spinners, but have no gills under the body and a much narrower head.
- They may be white, green or brown, with a fat body and rapid 'inch-worm' movement.

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Stick Bait Caddisflies

- 1" – 3" including case
- Dark brown spots on their yellowish heads.
- These caddis may be distinguished from other wood and stick cased caddis by the prominent 'ballast' pieces of sticks that are attached to the sides of the case.

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Square Log Cabin Caddisfly

- Cases are stouter than other square cases, constructed from wound strips of wood fibers, as opposed to fragments of leaves.
- Insects greenish or cream colored, prominent brushes of seta on the first pair of legs.

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Sand and Stick Case Caddisfly

- Cases constructed from both mineral and organic materials belong in this category and may be a variety of shapes and sizes.

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Vegetated Case Caddisfly

- This category is for all caddisflies with organic cases that do not fit the other categories above.
- These insects have a variety of sizes shapes and habitat preferences.

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Gravel Coffin Case Caddis

- Coffin or saddle shaped case of gravel particles, may be aggregated in large clusters.
- Cases mostly closed, with only a small portion of space free for the insect to feed or be observed (not round hole at end).

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Sand Snail Shell Caddis

- Coiled mineral fragment case strongly resembles a snail shells (which are solid and not made of mineral fragments), shell very small.

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Sand and Mineral Case Caddisfly

- This category includes any caddisflies with cases fabricated from small mineral particles or sand which did not fit above categories.

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Water Penny

- Water pennies stick to rocks and leaves, body very flat and circular, legs and body of insect are visible underneath the penny-like shell.

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Predator Beetle Larvae

- Usually strong biting mouthparts and sometimes feathery gills or appendages.
- These insects are larvae of other types of beetles (not riffle beetles), some are not truly aquatic.

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Adult Riffle Beetles

- Beetles collected from moving water are generally placed into this category (make sure you don't accidentally collect beetles from anywhere but the water!)
- Many patterns, generally dark colors.

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Larval Riffle Beetles

- Larva of riffle beetles do not resemble the adults, but may slightly resemble caddisflies.
- The body of larval riffle beetles has no gills
- Tougher than caddisflies
- Often has a triangular 'keel' along the abdomen

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Hellgrammite

- 3/4" – 3"
- Aggressive predator
- Tufted gills on the underside of the abdomen
- Two tails and two abdominal hooks at the end of the body

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Fishfly

- 1/2" -1 1/2"
- Lighter colored than the giant tufted dobsonfly
- Two tails
- No gill tufts underneath the body

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Alderfly

- 1/2" – 1 1/2"
- One tail instead of two at the end of the body
- No gill tufts at the end of the abdomen
- No hooks at the end of the abdomen

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Oligochaete

- 1/4" – 2"
- Oligochaetes are worms and not insects.
- They resemble thin pink or red earthworms and have no hard parts or legs.

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Leech

- 1/4" -2"
- Relatively uncommon and rarely parasitic to humans in our area.
- These slimy organisms have sucker pads at the ends of the body.

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Watersnipes

- up to 3/4"
- Feathery leg-like appendages and/or 'horns' at the rear of the body
- Cream to greenish colored

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Water-Worm

- 1/2" – 2"
- Found in leaf packs
- Cream to brown colored
- Larger than the Fat Headed Cranefly
- Very worm-like, caterpillar like segmented body with no bulbous tip
- Gills tentacle like at end of body

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Fat Headed Crane fly

- 1/2" – 1"
- Very worm-like
- Smaller than Water-worm with round or swollen segment at the end of the body
- Gills tentacle like at end of body

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Chironomid Midge

- up to 1/2"
- Often C-shaped
- Head visible
- Prolegs (not real legs) visible, one pair at head and one at end of insect
- Resembles Caddisfly or Riffle Beetle Larva, which have six legs.

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Red Midge

- up to 1/2"
- Insect the color of bright blood, due to the presence of a hemoglobin-like molecule in the insect.
- Otherwise resembles Chironomid Midge.

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Blackfly

- up to 1/2"
- Blackfly larvae resemble bowling pins with furry ears (ears may be hard to see)
- Often found in large numbers fastened tightly to rocks, leaves or logs with suction pad.

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Crayfish

- Crayfish are many sizes and colors and resemble lobsters (two large claws).

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Sowbug

- Dark colored
- More than six legs
- Long antenna
- Body 'I' shape (facing insect)
- Resemble wood lice or pillbugs found on land

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Scud

- Light colored
- More than six legs
- Resemble small shrimp
- Body 'A' shape (facing insect)
- Fast swimmers or crawlers

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Coiled Left Face Snails

- These snails breathe atmospheric oxygen and not water.
- When facing the opening of the shell, the shell will open to the left.
- This snail is generally more tolerant of pollution than the right face.

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Coiled Right Face Snail

- Resembles left face snail, but when facing you the shell opens to the right.
- These snails have gills and breath oxygen from the water, and are sensitive to pollution.

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Rounded Right Face Snails

- These snails also breathe oxygen from the air and are pollution tolerant.
- The shell is coiled in a single plane (like a rolled up garden hose).

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Clams and Mussels

- Two hinged shells

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Damselfly

- 1/2" to 1 1/2"
- Six legs
- Two or three blade like appendages at the end of the abdomen
- Often thin bodied and slow moving

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Dragonfly

- 1/2" to 2"
- Stout bodied
- Six legs
- Three points on last body segment
- Body oval, rounded or elongated

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