Sci-Fi Creatures Found in Your Local Stream

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What has buggy eyes, two antennae, and three tails? No, not an alien! It's a mayfly nymph, a type of baby fly that looks very different from its parents. It even starts off its life living in water before it gets wings.

You may not see this baby bug right away. It's stealthy and hides under the water on aquatic plants. It may live in the stream at your local park, or in a wetland (aka swamp). You would have to roll up your sleeve, reach into the water, and pull out part of a slimy stem. Then, you would have to look closely while pushing apart all of the soggy, **algae**-covered leaves. If you see weird things wiggling in between the leaves, chances are you've spotted some baby insects, also called **nymphs** or **larvae**. Perhaps a mayfly nymph is one of them!

Since you've spotted these creatures with your naked eye, we can refer to them as "**macro-**." (If they were "micro-," you would need a microscope to see them.) None of them have a backbone, so we can say that they are **invertebrates**. Putting the prefix and root word together, we call them **macroinvertebrates**.

What's special about these creatures is that they can tell us whether the water is clean or polluted. A baby bug that can talk? Not quite, but we can tell how healthy the water is based on what macroinvertebrates are living in it. Scientists call this test macroinvertebrate sampling to assess water quality. First they see what types of living creatures are present. From that data they

can infer whether there are **pollutants** in the water. "**Pollution** happens when the environment is contaminated, or dirtied, by waste, chemicals, and other harmful substances," (Encyclopedia Britannica, 2015). By the way, just because some water is clear doesn't mean it's clean, and just because some water is brown, doesn't mean it's dirty. So scientists test it to find out!

This biological test works because certain macroinvertebrates are more sensitive to dirty water than others. If a stream is just a little bit polluted, the mayfly larva cannot survive. You will not find any baby mayflies wiggling in the leaves there. How does water become dirty, and why can't mayflies live there?

Pollution from acid rain, trash, or even farm chemicals, can wash into the water. This may cause too much algae to grow. When it takes over, this tiny green plant can cover the water like a green velvety carpet. Then when it dies, it uses up much of the oxygen in the water. That means the mayfly, other macroinvertebrates, and even the fish, cannot breathe. They would die in very polluted water. Scientists call that **poor water quality**. Some macroinvertebrates actually can survive in poor water. These animals include leeches, mosquito larvae, water striders, and crayfish. (But you can find them living in clean water, too!) Baby mayflies and stoneflies can only live in clean water! If you find these creatures in your stream, then you can say it has **good water quality**.

So what can you do to make sure your local waterways stay clean? Dispose of trash and recyclables properly. Tell adults

to avoid using chemicals on the lawn so they don’t flow into nearby water. Then you can have fun finding and observing little alien-like creatures perhaps no farther away than your backyard. You’ll enjoy living in a clean ecosystem, too! Wait, I wasn’t saying *you’re* alien-like...