

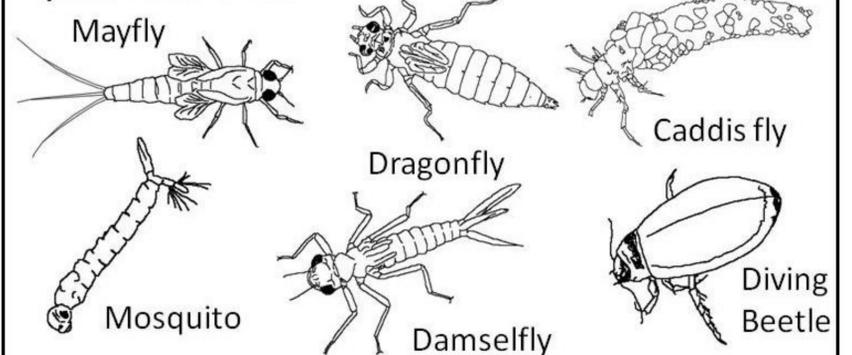


Urban Pond Ecology Research, Education, and Outreach Program

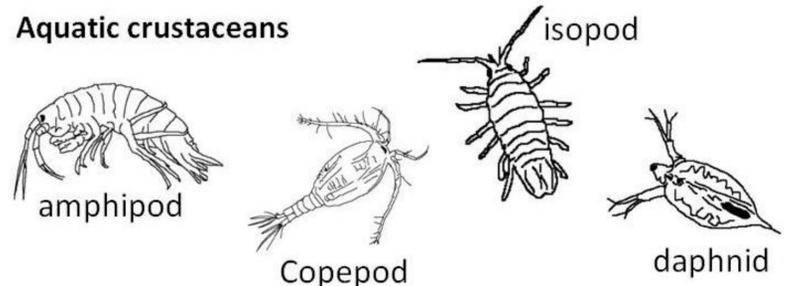
- *What animals live in my neighborhood pond?*
- *What are the greatest threats to the health of my pond?*
- *How can I help protect my pond?*

Identification Guide for Pond Invertebrates

Aquatic insect larvae



Aquatic crustaceans



Illustrations by Helen Poynton

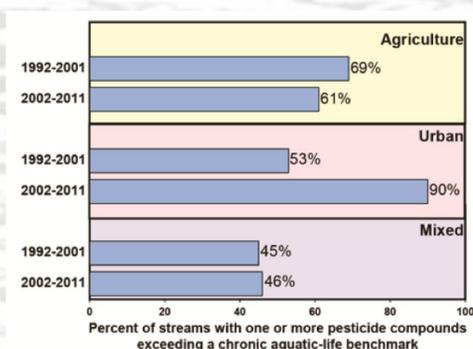
Urban Pond Ecology

Below the surface of your neighborhood pond there is a community of plants and animals living. You probably already know about the fish, tadpoles, frogs, and maybe even turtles, but did you know about the smaller animals to the right? These animals are **invertebrates** and are essential to a healthy pond ecosystem.

Invertebrates are important members of pond food webs. Aquatic crustaceans eat algae in the water, reducing algal blooms. They provide food for fish, frogs, turtles, and even some birds. Aquatic insects spend their juvenile stages in the water and then often develop into flying insects as adults. They provide a link between aquatic and terrestrial ecosystems because they are important food sources for fish, reptiles, birds, and mammals. Aquatic invertebrates are so important to ponds that if they disappear because of pollution, the whole pond's health will suffer.

Threats to Urban Pond Ecosystem Health

Some of the most common threats to the health of urban ponds is **urban stormwater**, **nutrients** from fertilizers, and **pesticides** from agricultural and residential application that can runoff into ponds. In fact, pesticide contamination is now more common in urban areas than agricultural areas due to residential use. According to the U.S. Geological Survey (www.usgs.gov) 90% of urban streams and ponds contain critical levels of pesticides.



What you can do

Don't use lawn care products that contain pesticides or fertilizers, and encourage your neighbors to do the same. If you have a serious pest concern, contact a licensed professional who can apply a minimal amount of pesticides and reduce possible run-off. Making **green** decisions on your lawn can help protect your neighborhood ponds too!

You can make a difference to the health of your local ponds!



Urban Pond Research

The Poynton Lab at UMass Boston is investigating the presence of insecticide resistance in the crustacean *Hyaella azteca*. Similar to "Super bug" insect pests that develop resistance to evade our attempts to control their populations, these essential crustaceans in our ponds have begun to develop resistance.

Why is this bad for our urban pond ecosystems?

- This means concentrations of pesticides in our ponds have reached critically high levels. Resistance only develops when pesticide levels are very high and other species which cannot adapt will die off.
- Resistance may not be good for the health of these populations. Our ongoing research is studying possible "side-effects" of resistance.



Hyaella azteca



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