

# Predator and prey

Try this

*This is a good time of year to see predators such as waterboatmen in action and think about the way they deal with their prey.*

**W**aterboatmen feed on a range of invertebrates in ponds, lakes and even water butts. They swim on their backs, using their third pair of oar-like legs. Their other two pairs of legs are much shorter and are used for grabbing prey and manipulating it into the best position for feeding. They have stabbing piercing mouthparts. They use these to inject saliva into their prey before sucking out the contents.

Water boatmen usually hatch in April and May, from eggs laid either on the stems of pondweed or on hard surfaces, depending on the particular species. Water boatmen are about 15 mm long when fully grown, as they are by July. When they first hatch, as miniature adults, waterboatmen are about 3 mm long. They moult to about 6 mm, then 9 mm, then 12 mm, before their final moult.

Their prey depends on their age – a water flea (*Daphnia*) is worth catching if you are only 3 mm long, but larger waterboatmen prey on mosquito larvae and pupae, as well as other freshwater invertebrates.

You can watch waterboatmen in action if you have a pond that is safe enough to lie down by and peer in. But it can be more interesting to take them out of the pond to have a closer look.

## Looking after predator and prey

Waterboatmen can be kept in a glass jar with water and a few sprigs of pondweed.

Water fleas are common in ponds in the spring and summer but can also be bought from aquarists. If you catch mosquito or midge larvae or pupae, remember that any adults which eventually hatch can bite!

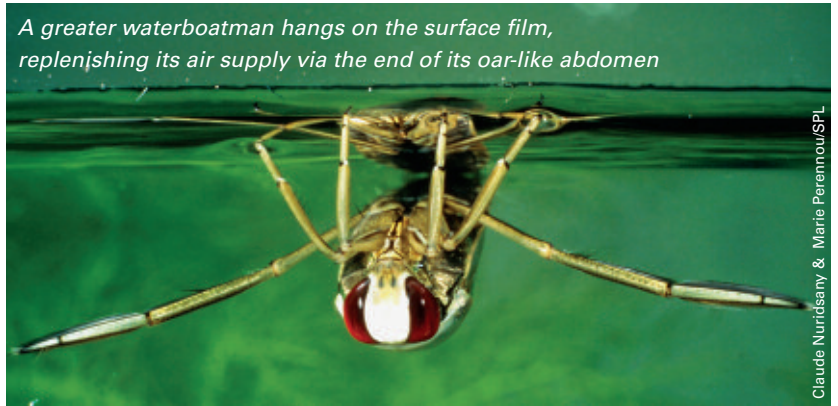
- Keep all animals in pond or rainwater.
- Return the survivors to the pond from which they came.
- Adult waterboatmen have sharp mouthparts, which can pierce skin if you pick the insects up by hand.

## Predation in action

Put a waterboatman in with some prey and watch what happens. What happens if the prey makes contact with the surface? What happens if you touch the surface with a hair?

The waterboatman can also see prey below the water surface. How good is it at locating prey this way?

*A greater waterboatman hangs on the surface film, replenishing its air supply via the end of its oar-like abdomen*



Claude Nuridsany & Marie Perennou/SPL

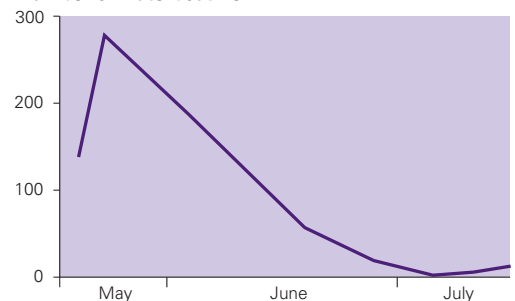
## What you need

- a means of catching predator and prey – if you don't have a net, a plastic kitchen sieve is fine
- some glass jars, or plastic lemonade bottles cut to make beakers, to keep predator and prey
- a glass dish or a plastic tray in which to see predators in action – it helps to have a large surface area
- a magnifying glass helps, although you can see a lot with the naked eye
- plastic or metal spoons to transfer predator and prey
- watch or timer

## Box 1 Warning!

**Be careful near open water.** Do not go near open water on your own and take care when watching or collecting waterboatmen and their prey from ponds or lakes.

Number of waterboatmen



**Figure 1** Changes in waterboatmen population, May to July

Once it has caught something, how does it hold it? Does it move the prey around at all? Can you see when it sticks its piercing mouthparts into its prey? How long does it feed for before discarding its prey?

- What happens if you catch waterboatmen that have fed well, rather than some that have not eaten in a while? You could keep waterboatmen isolated for a day before offering them prey.
- What happens if you offer waterboatmen different sorts of prey in different proportions?
- Is there any difference in the way a waterboatman behaves when it has only one prey item in the tank with it, compared with when there are lots?

**Some overwinter, but many only survive the one season.**

**Waterboatmen are in a group called the Hemiptera – the true bugs.**

*Nigel Collins is an editor of CATALYST. His excitement at watching waterboatmen in action used to bemuse his students.*