

# Pond safari - pond dipping and pond life



## Summary

This factfile describes the characteristics of some of the major animal groups that live in UK pond habitats, and often turn up in pond dipping catches.

## Catch of the day

Here are some of the commoner species you may encounter when dipping in a UK pond.

## Arthropods

A phylum of invertebrates (animals without backbones) that includes insects, crustaceans, and arachnids. Arthropods are arguably the most successful animals ever (think of insects) and easily outnumber all other animal groups.

The name 'arthropod' means 'jointed limb'. Arthropods have segmented bodies with jointed limbs and a hard cuticle or exoskeleton which you will know about if you've tried to eat a crab, prawn or lobster.

## Arthropods - insects

Most insects live on land although many have aquatic larvae found in ponds. The body is divided into three parts - head, thorax and abdomen, there are one or two pairs of wings, and three pairs of legs. Young are hatched from eggs or born live. Look out for:

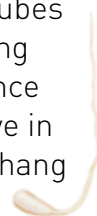
**Alderfly** - Larva is an aquatic carnivore. Look out for a single tail and seven pairs of feathery gills (not legs) that stick out from body segment. Undulates body to move water over gills and can tolerate quite low oxygen levels.



•**Springtail** - small, wingless insects that live on surface of stagnant waters. The tail fits into a hook beneath the body and can be released allowing the insect to spring through the air.



•**Midge, fly and mosquito larvae** - most look like maggots or worms with less than 15 body segments. Rat-tailed Maggots (actually hoverfly larvae) have breathing tubes extending from their rear ends. Midge larvae may be biting or non-biting. Biting larvae hang suspended like submarines, but dart off if danger threatens - hence the name 'phantom'. Non-biting larvae include bright red bloodworms that live in mud and are favourite food items of many fish and birds etc. Mosquito larvae hang down from the surface film, darting downwards if disturbed.



•**Stonefly** - Larva has two tails called cerci. Nymphs of smaller stonefly species are herbivores; larger ones have carnivorous nymphs. Found in fast flowing, well oxygenated water.



•**Caddisfly** - Nearly 200 UK species. Caddisflies are most famous for the protective cases the larvae build around their soft bodies. Each species builds a distinctive home from gravel, grit, and plant parts.



Caseless caddisfly larvae have short tails that end in hooks. Most caddisfly larvae are vegetarian, but some hunt other animals.

•**Mayfly** - Larvae have three tails like damselflies, but unlike damselflies (although like alderflies), they have several pairs of gills running down the body.



•**Damsel and dragonflies** - Damselfly larvae have three tails (see mayfly for comparison). And are more delicate than dragonfly larvae. The latter correspond to their respective adults. Longer hawkers have long larvae; and shorter, fatter darters have similarly shaped larvae etc. All are aggressive predators who drive off members of the same species, thus ensuring they are well spread throughout a pond, and there's enough food to go around.



•**Water Scorpion** - an insect rather than a true scorpion (which is an arachnid). Long front limbs for grabbing prey like tadpoles, aquatic invertebrates and fish. Adult has longer tail than nymph.



•**Greater Water Boatman** - or Backswimmer. Swims upside down. A predator attacking insects, fish and tadpoles.



•**Lesser Water Boatman** - swims right side up and scavenges for organic waste and algae on the pond floor using its Hoover-like mouth.



•**Pondskater** - has pads of 'hair' beneath body and on some legs. These trap air, allowing the insect to skate over pond surface film in search of dead and dying animals that have fallen in the water.



•**Great Diving Beetle** - One of the largest of 100-ish UK beetle species. The largest is the Silver Diving Beetle that carries a large silver air bubble trapped beneath it. This is replenished when the beetle comes up for air. Great Diving Beetles and their larvae (the aptly named water tiger) are fierce carnivores.

•**Whirligig Beetle** - gyrate like mini dodgem cars on pond surfaces. Often congregate in groups.

### Arthropods - crustaceans

Most crustaceans are aquatic and breathe through gills (exceptions include woodlice). Crustaceans have segmented bodies with jointed limbs. Young are produced from eggs shed freely into water or carried by the female. Examples include barnacles, crabs, lobsters and prawns. Look out for:

•**Water fleas or Daphnia** - vast herds of Daphnia graze on algae and provide food for many wetland fish, birds and invertebrates. Under the microscope you may see Daphnia hearts beating or eggs inside the female. Under certain conditions, Daphnia produce special eggs that withstand drought and hatch when the water returns.

•**Cyclops** - minute herbivores with a characteristic single eye. Females may be seen with eggs carried in two sacs on the body.

•**Freshwater Shrimp** - looks like a small, grey version of marine shrimps. Swims on its side.

•**Water Hog Louse** - looks like a woodlouse. Lives on pond bottoms and eats organic waste.

●**Freshwater Crayfish** - looks like a small lobster. Found in fast flowing, shallow streams, but increasingly rare due to introductions of alien crayfish and disease.

●**Arthropods - arachnids** - a land living group whose members include spiders, scorpions, mites and ticks. The body is divided into two parts (a fused head/thorax and an abdomen) with four pairs of legs and two pairs of pincer-like appendages. Look out for:

●**Water Spider** - The UK's only truly aquatic spider. Like land spiders but collects air bubbles from the water surface and stores them inside bell-shaped webs attached to submerged plants.

●**Water mites** - tiny carnivores which can absorb oxygen directly from water.

## Molluscs

A phylum of invertebrates who are soft bodied and unsegmented. Land and aquatic forms include snails, slugs, mussels, clams, oysters, squid and octopuses. The body has a well developed head with tentacles; a muscular foot or 'arms' for locomotion; a visceral mass where the body organs are stored, and (in some species) a protective shell. The young usually hatch from eggs. Look out for:

●**Pond snails** - snails eat organic waste, algae, plants and sometimes small animals. Most obtain oxygen by passing water over the gills.

●**Swan Mussel** - the commonest of several UK freshwater mussel species. Found in rivers and larger, richer ponds. Mussels filter small food particles from water.

●**Rotifers** - Members of the phylum Rotifera. Members of the 1,500 plus rotifer species are microscopic with a wheel organ covered in hair-like cilia that rotate to propel food debris towards a simple 'mouth'.

## Cnidarians

Members of the phylum Cnidaria which includes hydra, jellyfish, sea anemones and corals.

**Hydra** - resembles a microscopic celery stalk with lots of tentacles at the end. They may be green (coloured by algae) or brown; move by looping the loop, and feed on small animals like Daphnia which are immobilized by the stinging tentacles.

## 'Worms'

A very unscientific term to describe a lot of animals that are quite unrelated. In ponds, this includes roundworms (phylum Nematoda) and flatworms (phylum Platyhelminthes). Look out also for:

●**Leeches** - related to earthworms (phylum Annelida), about 20 leech species live in the UK. Leeches eat blood and have mouthparts to penetrate their hosts (an extendible tube in fish leeches, toothed jaws in Medicinal Leeches). They are segmented and sometimes brightly patterned. Medicinal Leeches are now rare, although they are farmed commercially and still used for blood letting in modern medicine. One tip on how to catch a leech - don't try - just waggle your hand in the water and the leech will come to you (think about it).

### Three-spined Stickleback

A vertebrate with a backbone. Several stickleback species live in the UK and are our smallest freshwater fish. The Three-spined Stickleback is a common resident of water bodies from ponds to estuaries. Look out for:

- Three heavy spines along the back for protection.

- Bony plates on the sides.

- In spring, males develop red throats and bellies, and blue eyes. They court females by performing a zig zag dance and ward off rival males. Successful males entice females to nests they have made from vegetation on the pond floor. After the female lays eggs, the male sheds sperm over them and guards the nest from hatching onwards. Very few fish exhibit parental care in this way.

Baby sticklebacks grow quickly and breed the year after hatching (most die then too).

You may see schools of many hundreds in your local pond.

Sticklebacks are predators and eat invertebrates like Daphnia as well as tadpoles. In turn they are eaten by everything from water birds to water beetles.

### Further reading

Pond Life. T. Beebee (Whittet, 1992).

Collins Photo Guide - Lakes, Rivers, Streams and Ponds of Britain and NW Europe. R. Fitter and R. Manuel (Collins, 1994).

The Freshwater Name Trail. R. Orton and K. Bebbington. (Field Studies Council, 1995).

The Pond. G. Thompson, J. Coldfrey, G. Bernard (OSF, 1984).

For more books about pond life, check out [www.nhbs.com](http://www.nhbs.com)

For advice about building a school pond, contact WWT; Froglife ([froglife@froglife.org](mailto:froglife@froglife.org)); British Dragonfly Society ([www.dragonflysoc.org.uk](http://www.dragonflysoc.org.uk)); Learning through Landscapes (01962 846258), and the Ponds Conservation Trust ([www.brookes.ac.uk/pondaction](http://www.brookes.ac.uk/pondaction))