

Dragonflies and Damselflies in your garden





working towards *Natural England* for people, places and nature

Dragonflies

Dragonflies are amazing insects with fascinating behaviour and majestic powers of flight. The species around today are closely related to the huge insects that flew over the forests 300 million years ago. One of these giants, staggeringly, had a wingspan of 70cm. Modern dragonflies are tiny by comparison, but still large and spectacular enough to capture the attention of anyone walking along a river bank or just enjoying a sunny afternoon by the garden pond.





TOP: Male brown hawker © BDS/I.Hulme. BOTTOM: Male migrant hawker in flight © BDS/J.Stevens.



Male blue-tailed damselfly © Tim Beynon.

The stunning and distinctive colours of the adults, often with a metallic shine, make it relatively easy to distinguish one species from another and they are quite riveting to watch. Of all insects, they are among the fastest-flying and the most aerobatic. As well as forwards, they can fly backwards and even sideways! They can also hover, glide and change both their direction and speed very rapidly.

Most of a dragonfly's life perhaps as much as 95% of it - is



Male common darter © David Goddard.



Close-up of a male emperor dragonfly's head, thorax and first five abdominal segments. The dragonfly's four wings and six legs are attached to the thorax. Each wing can be moved independently, thanks to powerful muscles. © BDS.

spent in the water, first as an egg and then as a larva, or nymph. The second, larval, stage can last for two or more years. In contrast, the last stage is very brief as adults are generally short-lived. Dragonflies are very much creatures of the sun. In England, they may be seen on any warm day between April and October but most commonly at the height of the summer.

Despite their name - and some legends - they are quite incapable of hurting humans.

Dragonflies or damselflies?

Dragonflies and damselflies belong to the insect order known as Odonata, meaning "toothed jaws". They are often referred to collectively as "Dragonflies" but there are two different and distinct groups.



Male common blue damselfly. The wings are folded along the body and cover the first six abdominal segments © BDS.

Damselflies are small, delicatelooking insects with a weak flight. They often stay close to water margins or the surface of water. When at rest, most species hold their wings closed along their abdomen. All four wings have the same size and shape. The eyes are always separated, never touching, and positioned on either side of the head.

True **dragonflies** are usually larger, stronger-flying insects that can often be found well away from water. When at rest, they hold their wings open, keeping them out rather like an aeroplane. The hindwings are usually



As a true dragonfly, the four-spotted chaser keeps its wings open when at rest. © BDS/I.Hulme.

shorter and broader than the forewings. They have very large eyes, which occupy most of the head and are much closer to one another, often touching.

Identification photos - Please note that these are not to scale. See the chart on page 10 for actual sizes.



Male (TOP) and female (ABOVE) banded demoiselles: note the characteristic dark patch on the male's wings, and the metallic shine of both sexes © Steve Cham (both photographs).



ABOVE: Male large red damselfly © Steve Cham. BOTTOM: Female of the same species © BDS/J.Stevens.





TOP: Male emerald damselfly: exceptionally for a damselfly, this species holds its wings half open © Steve Cham. BOTTOM: Female emerald damselfly © John Mason.



LEFT: Male azure damselfly © BDS/J.Stevens. RIGHT: Mating pair of blue-tailed damselflies ©BDS/I.Hulme.





TOP: Male red-eyed damselfly: this species is most likely to be seen on lily pads and other floating vegetation on larger ponds © Steve Cham. BOTTOM: Male emperor dragonfly © BDS/J.Stevens.



LEFT: Mature male broad-bodied chaser with powdery blue colouration on the abdomen $^{\odot}$ BDS/J.Stevens. RIGHT: Female of the same species with a yellow-brown abdomen $^{\odot}$ BDS/I.Hulme.



MAIN PICTURE: Female ruddy darter © David Goddard. INSET: Male ruddy darter (note the "waist" on the deep red abdomen) © Bill Furse.

The chart on the following pages lists those species most likely to be seen in gardens in England. It needs to be treated with a degree of caution, however, since many species have either a northern or a southern bias in their distribution, while others not typical of most gardens may yet occur if a garden is near enough to a key dragonfly habitat like an acid bog. Also, unusual weather patterns may bring in some unexpected exotic species.

Damselflies	Colours, markings and key identification features of flying adults (M: males; F: females). Wings are transparent unless otherwise stated	Size (adult length)	Flying season	UK distribution	Preferred habitats	Garden likelihood 1-rare 2-uncommon 3-possible 4-likely
Banded demoiselle Calopteryx splendens	M: metallic blue-green body with distinctive large blue patch on wings; F: metallic green body, green tinge to wings	41 - 45 mm	Mid-May to early September	Lowlands of England, Wales and Ireland	Slow-flowing rivers and canals	2 (if garden is near a suitable river or canal)
Emerald damselfly Lestes sponsa	Keeps wings half open when at rest; both M and F have metallic green body; M: powdery blue colour at top and tip of abdomen	36 - 38 mm	Late June to end of September	Throughout the British Isles	Ponds, ditches, canals, lake margins and acid bogs, all with plenty of emergent vegetation	2 (often depending on density of plants in and around a garden pond)
Large red damselfly Pyrrhosoma nymphula	Mainly red, with black markings at the end of the abdomen	35 - 36 mm	Mid-April to late August/ early Sept	Widespread throughout the British Isles	Ponds, canals, ditches and bogs	4
Azure damselfly Coenagrion puella	M: blue, with thin black segments, black 'U'-shape on 2nd segment of abdomen; F: black and green, with narrow green stripes on thorax	33 mm	Mid-May to late August or early Sept	Widespread in England, Wales; lowlands of south & central Scotland	Small sheltered pond and lake margins	4
Common blue damselfly Enallagma cyathigerum	M: bright blue, with thin black segments, black oval or mushroom shape on 2nd segment of abdomen; F: black and either blue or dull green, with wide stripes on thorax	32 mm	Mid-May to late September	Widespread throughout the British Isles	Wide variety of habitats including ponds, lakes, gravel pits, slow-flowing rivers and canals	3-4 (may avoid smaller ponds)
Blue-tailed damselfly <i>Ischnura elegans</i>	M: black abdomen with blue "tail" (8th segment); F: black abdomen with blue or brown "tail"	31 - 32 mm	May to September	Widespread throughout the British Isles (except Scottish Highlands)	Wide range of still and flowing waters	4 (may be one of the first species to colonise new ponds)
Red-eyed damselfly Erythromma najas	M: red eyes, dark abdomen with blue tip; F: eyes brown-red and black abdomen with no blue tail	33 - 35 mm	Mid-May to August	Southern England and Welsh border	Usually larger ponds with abundant floating-leaved plants	2 (likelihood is increased if water lilies are present)

Dragonflies	Colours, markings and key identification features of flying adults (M: males; F: females). Wings are transparent unless otherwise stated	Size (adult length)	Flying season	UK distribution	Preferred habitats	Garden likelihood 1-rare 2-uncommon 3-possible 4-likely
Common hawker Aeshna juncea	M: dark, with paired yellow & blue dots along abdomen; F: brown with paired yellow dots	71 - 74 mm	Early July to early October	Western and northern Britain	Wide range of standing waters, from small moorland pools to lakes	1
Migrant hawker Aeshna mixta	Small yellow triangle at top of abdomen. M: fairly dark brown, with small, blue, paired dots along abdomen; F: brown, with dull yellowy-green spots	63 - 65 mm (small hawker)	Late July to October	Southern Britain (spreading northwards)	Ponds, lakes, gravel pits, canals and slow-flowing rivers	1-2
Southern hawker Aeshna cyanea	M: blackish, marked bright green, with blue at tip of abdomen; F: chocolate brown with green/yellow markings	70 - 73 mm	July to October	Lowlands of England & Wales	Woodland and garden ponds, lakes, canals. Lays eggs on old logs by the margins of ponds.	3-4 (increased likelihood if shrubs/ hedge in garden)
Brown hawker Aeshna grandis	Large brown species with amber-brown wings. M: blue dots along side of abdomen	73 - 74 mm	Late June to early October	Lowland Britain & Ireland	Large garden and park ponds, lakes, canals, gravel pits, slow-flowing rivers	2-3
Emperor Anax imperator	M: green thorax and bright blue abdomen; F: all green. Both sexes have dark line running along top of abdomen.	76 - 78 mm	Late May to early Sept	Southern England & Wales (spreading northwards)	Well-vegetated ponds, lakes, ditches and canals	3
Four-spotted chaser Libellula quadrimaculata	Medium-size brown species, with black-tipped abdomen; dark spot on middle of front edge of each of the four wings; small dark patch at base of hindwings	43 - 47 mm	Late May to mid August	Widespread around UK (except N-E England)	Wide range of acidic standing waters, also some canals and slow-flowing waters	3-4
Broad-bodied chaser Libellula depressa	M: broad blue abdomen with yellow spots along sides; F: broad yellow to yellow-brown abdomen. Both sexes have dark patches at base of wings.	44 - 46 mm	May to end July	Southern England & Wales	Ponds, small lakes and ditches	3-4
Common darter Sympetrum striolatum	M: orange-red abdomen; immatures and F: yellowish to light brown abdomen	37 - 41 mm	Mid-June to late October	Much of UK, except Scottish Highlands	Wide range of habitats including ponds, lakes, ditches and rivers	4
Ruddy darter Sympetrum sanguineum	M: blood-red abdomen with clear slim "waist"; F: dull yellow-brown, with thin black lines along sides of abdomen	34 mm	Late June to early October	Southern Ireland & Wales; S-E England up to Midlands	Well-vegetated ponds, lakes, canals, ditches; also rivers near woodland	2 (more likely on densely vegetated ponds)

Dragonfly biology and behaviour

Life cycle and reproduction

The life cycle begins with the egg, which is usually laid underwater. This develops into a larva, a freemoving, water-dwelling nymph, from which the flying adult insect eventually emerges.



Larva of emperor dragonfly. Note the short spines at the end of the abdomen which are typical of the larvae of true dragonflies. This larva is in the last stages of its development, as indicated by the well-developed wing sheath on its thorax. © Steve Cham.

The whole process may be completed within six months, but for most species takes one or two years, the larval stage being by far the longest. Small damselflies live only for a couple of weeks as flying adults. The larger dragonflies can fly for three or four weeks but seldom - in Britain for longer than two months. Many die from accidents or predation. Large numbers simply starve, as in poor weather neither they nor their prey can fly.



Small red-eyed damselfly larva, with three leaf-like appendages at the end of the abdomen. These are found in all damselfly larvae and are used as gills and for propulsion © Steve Cham.

The very young dragonflies coming out of the eggs are well-camouflaged and rarely seen. Each larva lives underwater for several months or years, depending on the species, and undergoes a series of moults as it grows. It leaves the water by crawling up some emergent plant and then has its final moult. At this stage, the skin of the larva splits to release the winged adult.

You may find discarded skin casts, called exuviae, on vegetation by the edge of your pond: clear evidence that dragonflies and damselflies have bred in your pond. Watching the transformation from dull, aquatic larva to glistening, resplendent, airborne adult is an extraordinary experience.



This adult common darter emerges from its old larval skin, pumps fluid into its wings and extends its abdomen. The wings will need to harden and spread out before it can take off. © BDS.

Once the young adults have matured and gained their full colours, processes which may take a couple of weeks, male and female are ready to mate. Male damselflies use claspers at the end of the abdomen to grab females at the front of the thorax. Dragonflies grab females just behind the eyes.

They are still perfectly capable of flying when linked or "in tandem". When ready, the female curves her body forward, holding on to the abdomen of the male with her legs while copulation takes place.

The female then lays her eggs, either alone or while still in tandem with the male. Some species deposit them



directly into the water, while others insert each individual egg into leaves, stalks or rotting wood which may be floating on the water's surface. Eggs hatch a few weeks or months later depending on the species - to reveal the new dragonfly larvae.

Dragonflies and water

After the transformation from underwater larva to flying adult, but before becoming sexually mature,



Young four-spotted chaser just before its first flight, next to its exuvia. © BDS/I.Hulme.



This male azure damselfly will eat its prey in no time! © Steve Cham.



Female azure damselfly laying eggs while still in tandem with the male. ${\ensuremath{\textcircled{}}}$ BDS/I.Tew.

young adults may spend a week or more away from the water. During this period, the larger dragonfly species can move several miles away to feed on flying insects over heaths, downs, meadows, along woodland rides, or by hedges and bushes anywhere. Even if you don't have a pond, therefore, you may still see dragonflies in your garden.

Dragonflies as predators

Dragonflies are voracious. As adults, they eat other flying insects, particularly flies, midges and mosquitoes - making them very useful creatures to have around the garden! The larger species will also take butterflies, moths and even smaller dragonflies or damselflies. Dragonflies may eat 20% of their bodyweight in food each day.

TOP: Female southern hawker laying eggs in decaying wood. © Steve Cham.

MIDDLE: A pair of common blue damselflies in tandem (male on the right and female on the left) © BDS/I.Tew.

BOTTOM: A pair of common blue damselflies just before copulation: the female (brownish-green) lifts her abdomen towards the male (blue) © BDS/D.Sussex.

The larvae eat almost any living thing which is smaller than they are. Prey may include bloodworms, snails, water fleas, tadpoles and the larvae of mosquitoes or other aquatic insects. The larvae of larger dragonflies may also catch and eat small fish or fry.



Male common blue damselfly with prey. © Steve Cham.

Adults use their impressive eyesight to detect prey. In flight, they hold their bristly legs in a basket shape to scoop up and then firmly grasp their targets before eating their catch, often in mid-air.



This southern hawker larva uses its 'mask' to catch a stickleback. $\ensuremath{\mathbb{G}}$ Steve Cham.

As larvae, they are mostly ambush predators. Their unique extendible lower jaw - called a mask - enables them to catch prey at lightning speed and impale it with sharp, hook-like mandibles.

Dragonflies as prey

Among the species that catch and eat adult dragonflies and damselflies are birds (like wagtails and the hobby - a small falcon); spiders (many are caught in webs); frogs; and larger species of dragonflies. In the larval stage, they are preyed on by fish, frogs, toads and newts, as well as other aquatic invertebrates such as water scorpions, beetle larvae, etc.



This young azure damselfly has flown straight into a spider's web. $^{\odot}$ BDS/A.Welstead.

Their excellent eyesight and flying skills help protect them from capture, while the warning colours of some species - black and yellow or black and red - are effective in deterring some of the bird predators.

Colour changes

When dragonflies and damselflies first emerge from the water, most have very muted colours. It can take several days before they gain their brilliant adult appearance. Common blue damselflies, for example, are often a pale pinkish-brown rather than sky-blue when they first appear as adults.



A young large red damselfly yet to develop its mature adult colours. © BDS/I.Tew.

Some damselflies, like the blue-tailed species, undergo a gradual colour change as they mature. The females of these species have several different colour forms, with some changing from violet to blue or rich brown and others from salmon-pink to yellowish-brown. Some of the larger dragonflies also change colour as they age. Such changes may be



Female common darter with yellowish

from yellow-brown to blue-grey.

to develop the coloration of the

Sometimes, older females may start

abdomen. © BDS/I.Tew.

males.

common darter, which goes from yellowbrown to reddish brown, while the blacktailed skimmer evolves

seen in the



Male common darter with orange-red abdomen © David Goddard.



Broad-bodied chaser: this young male is developing a blue coloration ("pruinescence") on its abdomen. © Steve Cham.



The young male black-tailed skimmer third from the top above (© BDS/I.Hulme) will eventually resemble the mature adult pictured above (© BDS).



Male southern hawker in flight - note the two broad yellow bands on the thorax, characteristic of this species. © Steve Cham.

Quick movers

Dragonflies can out-fly almost all other insects. The maximum speed of large species like the hawkers is about 20 mph. Their average cruising speed is probably about 10 mph. Small species, and especially damselflies, are much slower, but many medium-sized species can probably keep up with the largest ones.

Some species are capable of covering very large distances: migrants sometimes reach Britain, especially the southern counties, from southern Europe and even North Africa. Some individuals among these may turn up in gardens.

Attracting dragonflies to your garden

Most obviously, you need a pond. This should have clean, unpolluted water and shallow margins. It needs to be in a sunny location and



Mature, well-vegetated ponds are ideal for dragonflies, especially those with some cover nearby to provide shelter from strong winds. [©] Dr Steve Head.

sheltered as far as possible from strong winds. If the southern hawker dragonfly is in the vicinity, it may be attracted to rotting logs by the edge of a pond as a place to lay its eggs.

The aquatic vegetation should be varied, including submerged plants like pondweeds and crowfoots and floating-leaved plants like water-lilies and frogbit. Around the margins, species like brooklime and water forget-me-not are useful, as are taller emergent plants like flowering rush and water mint. Ideally, all the plants



You may find empty larval cases such as this hawker exuvia on the emergent vegetation on the edge of your pond. © BDS/J.Silsby.

should be native species. *Our leaflet Garden ponds and boggy areas: havens for wildlife* has more detailed recommendations on water plants. See the information section at the end for details.

Around the pond, it's best to have a mixture of short and long grasses close by, with shrubs and then trees a little further away. These surroundings are very important as dragonflies will feed and mate over the grassy edges of your pond, in nearby scrub or along hedges. In spells of rain and strong winds they may seek temporary shelter among tall grasses or in trees and bushes; there, they can also roost and hide from predators.

Things to avoid

- Water pollution many herbicidal sprays can be very harmful, so take great care to avoid even small quantities reaching the pond from wind drift.
- Water enrichment tap water often contains high levels of nitrates. If possible, use rainwater to top up your pond. Divert it from gutters directly to your pond or to water butts. Take care not to let fertilisers from your lawn run off into the pond.
- Undue shading of both the margins and the pond itself by trees and shrubs

- Removing larvae from the water in the autumn when clearing out water weed or dead leaves from the pond: clear only one section of a pond at any one time to minimise the risk.
- Introductions: dragonflies will find their own way to your pond, if the conditions there are right. Transferring eggs or larvae from elsewhere is not a good idea. The water may be unsuitable for the particular species. You could also bring in tiny fragments of invasive alien plants. There are several species that can rapidly colonise ponds, choking them completely and making them unsuitable for almost any wildlife.
- Fish and waterbirds see below.

Ornamental ponds

Formal ponds, especially those with fish or waterfowl, are not normally very wildlife-friendly.

Fish are the main predators of dragonfly larvae. They pose such a threat that some dragonfly species have adapted to live in the acidic waters found on heathland and peatland bogs, where fish cannot survive. In practice, dragonflies and fish may co-exist, but only in larger ponds with a complex underwater "architecture" of vegetation in which dragonfly larvae and other invertebrates can hide. If you must have fish, then - ideally - have two ponds: one with fish and one without!

Waterfowl tend to damage emergent vegetation, either through trampling, grazing or nesting. This is detrimental to dragonflies. In addition, excessive droppings from aquatic birds can deprive water of oxygen and lead to its nutrient enrichment. Such water is unsuitable not just for dragonflies but for many other invertebrates and plants.



Emperor dragonfly: the shiny wings indicate that this is a very young adult. @ BDS/R.Perchard.

The importance of garden ponds for dragonflies

Although gardens do not and cannot compensate for the loss of "wild" habitats, they are nonetheless of considerable value for dragonflies, especially for the more common and widely distributed species. There may now be more than one million ponds in British gardens and the number is growing rapidly. Taken as a whole, these areas of water now make a



Even small garden ponds can be visited by several dragonfly species. © Ian Johnson.

significant additional habitat for dragonflies and of course many other species. It is thanks to garden ponds that species like the emperor dragonfly, the southern hawker and the common darter now occur even in the centres of big cities.

Dragonfly conservation

Since 1960, three species of dragonflies in Britain and Ireland have become extinct, although each of them only ever had a restricted population. There are now just 39 breeding species, one of which is confined to Ireland. Although some species are extending their range, at least one third of all our dragonflies and damselflies are rare and localised. We need to do everything possible to prevent any further loss of these magnificent creatures.



Mating pair of common darters: male with orange-red abdomen, female yellowish-light brown. © BDS/A.Radford.

You cannot put a monetary value on beauty or on natural wonder but anyone looking for an economic justification for conserving dragonflies could point to the sensitivity of their aquatic larvae to pollution. This means that the presence (or absence) of key species is an excellent pointer to water quality and to the overall health of the aquatic ecosystem concerned vital, of course, for human life itself.



Male common hawker. © BDS I.Hulme

As a gardener you can help. Besides providing a suitable pond (or two!), you can stop buying peat-based compost. This is one practical step towards halting the loss of peat bogs, which are home to many of the rarer species.



Female migrant hawker. © David Goddard

Threats to dragonflies

- Loss of habitat, from development and changes in land management
- Pollution: including run-off from fertilisers used in agriculture, wind drift from insecticides and

the use of herbicides on marginal vegetation

- Drainage and unnatural fluctuations in water levels
- Overstocking of ponds with fish and/or ducks, geese and other water birds
- Lack of appropriate management: including drastic, over-zealous modifications applied to water bodies themselves or to the surrounding vegetation; and in some cases a total lack of management resulting in shading out or choking of water with silt and plants
- Climate change: this may be affecting some species adversely

Legal protection

The only two species of dragonflies protected in the UK are the Norfolk hawker and the southern damselfly. Under the Wildlife and Countryside Act 1981, as amended, it is illegal to kill either of these species. Neither is very likely to occur in gardens.

Recording dragonflies

The Dragonfly Recording Network (DRN) welcomes all dragonfly records, including those from garden ponds. It is very helpful to record dragonfly occurrences at all water bodies and garden records can be very useful in tracking the arrival of



Male (deep red) and female (yellow-brown) ruddy darter flying "in tandem". © BDS/J.Stevens.

any new species or the spread of established species. Even the absence of species from gardens can be important as it may provide an early signal of changes in their distribution. DRN County and Regional recorders would be delighted to hear from you. Their details are available via the British Dragonfly Society (see page 27).

Folklore

There are legends and myths about dragonflies in most parts of the world.

In eastern countries, dragonflies were commonly believed to carry the spirits of the human dead to heaven. In the west, myths are both more prosaic and less reverential. For example, a possible explanation for the name "horse stinger" is that hawker dragonflies were often seen flying round horses in fields, feeding on flies. Occasionally, a fly would irritate a horse enough to make it skip about. People seeing this assumed that the horse had been stung by a dragonfly, being big and obvious, rather than bitten by something unseen. In reality, even large dragonflies cannot break human skin, let alone that of a horse.

An old name for damselflies was 'Devil's Darning Needles'. It was said that if you went to sleep by a stream on a summer's day, damselflies would use their long, thin bodies to sew your eyelids shut!

Code of Practice

The British Dragonfly Society has produced a code of practice for its members. Two of its main principles are that:

- Dragonflies should never be killed without some justifiable and useful purpose
- Live dragonflies should be held captive only for good reasons

It is hoped that everyone reading this leaflet will follow this code.



Mating pair of brown hawkers. © Tim Beynon.

Further reading

Note: * indicates a publication that is normally available from the organisation which produced it, rather than bookshops or libraries.

BROOKS, S. and ASKEW, R. 1999. A Guide to the Dragonflies and Damselflies of Britain. Field Studies Council. (A pull-out chart). BROOKS, S. and LEWINGTON, R. 2002 (Revised edition). *Field Guide to the Dragonflies and Damselflies of Great Britain*. British Wildlife Publishing.

LUCAS, J. (writer and publisher) 2002. *Spinning Jenny & Devil's Darning Needle*. ISBN 9544035-09

MURRAY, C. *A Dragonfly's World*. 2001. British Dragonfly Society (60 slide pack)*

SMALLSHIRE, D. and SWASH, A. 2004. *Britain's Dragonflies*. WILD*Guides*.

Dig a Pond for Dragonflies. British Dragonfly Society*

Learning about Dragonflies. British Dragonfly Society (Education pack)*

Managing Habitats for Dragonflies. 1993. British Dragonfly Society*

Learning about Dragonflies is an education pack for teachers of 7-11yr olds with worksheets that can be copied. Free from Tim Beynon, 34 Church Lane, Checkley, Stoke-on-Trent, ST10 4NJ. Please enclose an A4 size SAE with 58p postage.

A Dragonfly's World is a 60-slide pack with accompanying notes for those who frequently give lectures. Free from the British Dragonfly Society Conservation Officer (see below).

Contacts

English Nature Northminster House Peterborough PE1 1UA Tel (Enquiry Service) 01733 455100/455101/455102 www.english-nature.org.uk

British Dragonfly Society (BDS) The Haywain Hollywater Road Bordon Hants GU35 0AD www.dragonflysoc.org.uk

Contact details for County and Regional representatives of the **Dragonfly Recording Network** (DRN) can be found at www.dragonflysoc.org.uk

Caroline Daguet BDS Conservation Officer c/o English Nature Attingham Park Shrewsbury SY5 6QL. 01743 282 021

The Dragonfly Project www.dragonflyproject.org.uk

The Dragonfly Project is a separate charity running dragonfly safaris and education courses. It currently operates from Wicken Fen, Cambridgeshire.

Environment Agency hotline for reporting pollution etc 0800 807060 Other English Nature leaflets in this series are: Wildlife-friendly gardening: a general guide; Plants for wildlife-friendly gardens; Amphibians in your garden; Reptiles in your garden; Minibeasts in your garden; Focus on bats; Composting and peat-free gardening; Meadows how to create one in your garden; Garden ponds and boggy areas: havens for wildlife; Mammals in your garden; Wildlife on allotments; Birds and your garden.

In preparation: Living roofs; Another kingdom: fungi in your garden; Green gems: mosses and liverworts in your garden; Bees, ants and wasps in your garden; Not all bad: slugs and snails in the garden; How does your garden grow? Children and wildlife.

All leaflets are freely available from the English Nature Enquiry Service on 01733 455100/101/102 or e-mail enquiries@english-nature.org.uk

English Nature also produces an interactive CD: *Gardening with wildlife in mind*. This has detailed texts and photos of 500 plants and 300 of the more common garden 'creatures', and shows how they are ecologically linked. Details from The Plant Press, 10 Market Street, Lewes, BN7 2NB. Alternatively, call John Stockdale on 01273 476151 or e-mail john@plantpress.com



English Nature, the Rural Development Service and the Countryside Agency. Working in partnership to conserve and enhance our landscapes and natural environment, to promote countryside access and recreation as well as public well-being, now and for future generations.

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Front cover photograph: Male southern hawker - of all large dragonfly species this is the one most commonly found in gardens © Steve Cham.

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