



Reptiles in your garden

Your questions answered



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Your questions answered

Reptiles and gardens

England is home to three species of snake (grass snake, adder and smooth snake) and three species of lizard (common lizard, slow-worm and sand lizard). They are fascinating animals, but due to their secretive behaviour they are often overlooked or misunderstood. Snakes, in particular, have suffered from a poor public image. Reptiles should be appreciated and conserved because they are a natural part of our wildlife heritage, and play a role in natural ecosystems; reptiles also have particular

cultural, historical, aesthetic and educational values. Furthermore, all English reptiles have declined in numbers over the last few decades, mainly because their habitats have been lost, fragmented, neglected or unsympathetically managed.

Reptiles sometimes live in gardens, or visit gardens during the course of their movements. This may prove to be a positive experience for the householder, but sometimes the discovery of a reptile causes uncertainty or even fear. In many cases the reptiles will go entirely unnoticed. With a little planning, gardens can provide extra refuges for reptiles, to help compensate for the habitats lost in the surrounding countryside - and provide a rewarding experience for householders. This leaflet provides the answers to the most common queries, hopefully reassuring the reader over any worries they may have.

Grass snakes are adept swimmers, and hunt in garden ponds for amphibians. Paul Sterry/Nature Photographers Ltd

If you see a snake...

Keep calm!

- Take a good look, but don't touch, catch or trap it
- Use the chart and photos to identify it (starts on page four)
- Snakes are timid and usually flee from people and pets
- Grass snakes and slow-worms, which are harmless, often visit gardens
- Adders, which are venomous but normally pose little threat, rarely occur in gardens
- It is illegal to kill or injure native snakes

Which reptiles live in my garden?

Which snake?

Try to take note of the snake's markings and colouration. The chart (page 10) and accompanying pictures should help you to identify the snake. The grass snake is by far the most commonly encountered species. Adders rarely turn up in gardens, except if you live close to particular habitats, especially in certain areas of the country (see chart). Note that slow-worms (which are in fact legless lizards) are often mistaken for snakes, and regularly inhabit gardens. In addition to our native English reptiles, escaped or abandoned pet snakes are sometimes found in gardens – most commonly in urban or suburban areas. There is a wide range of colours and sizes among these species.

Which lizard?

Slow-worms are by far the most frequently reported lizards in English gardens. Common lizards (despite their name) are more restricted in habitat, and only tend to turn up if you live close to particular habitats. Sand lizards are very rare in Britain and it is extremely unlikely you will see one unless you are in certain parts of the country (see chart). Many reports of lizards in gardens actually turn out to be newts, which is not surprising as they are superficially very similar. Newts are often found when turning over objects. The photos on page 17 show you how to tell the difference. If you find a lizard that does not match the descriptions here it may be an escaped pet, but this is rare.

Identification photos - not to scale. See chart on page 10 for actual sizes.

Common lizard *Lacerta vivipara*

Right:
Female with newborn young. Some common lizards, as here, have obvious stripes. Young are always dark brown, with few obvious markings.
Laurie Campbell/NHPA

Below:
Basking adult male, showing how this species is able to flatten its body to better absorb the sun's heat.
Jim Foster/English Nature



Sand lizard *Lacerta agilis*

Left:
Juvenile sand lizards are mainly dark brown, with white-centred dark blotches (especially noticeable on their sides).
Derek Middleton/FLPA.

Below:
Adult female (left) showing two light bands on back, and white-centred dark blotches. Adult male (right) showing bright green sides, most obvious in spring. Much larger than common lizard.
Hugh Clark/Nature Photographers Ltd.



Slow-worm *Anguis fragilis*

Left: Adult females have dark brown sides, and often a thin stripe along the top of the body ending in a blotch on the head. Sometimes the stripe can appear as a very fine zig zag examined closely (do not confuse this with the thicker markings on the adder). A. R. Hamblin/FLPA

Right: Young slow-worms are golden, silver or copper on top. They have black sides and a black stripe down the back, ending in a blotch on the head. Females retain this basic pattern, while males lose it with age.
Laurie Campbell/NHPA.

Far right: Adult males have few obvious markings, often being plain grey or brown. Note the shiny, cylindrical appearance. Slow-worms may have blunt tails. Mike Lane/NHPA.



Identification photos - not to scale. See chart on page 10 for actual sizes.



Adder *Vipera berus*

Left:
Some female and juvenile adders are reddish-brown, as here. Occasionally adders are all black (melanistic) with just a faint trace of the zig-zag markings apparent. Robin Chittenden/FLPA.

Below:
Adult females (left) have a light brown background with darker brown markings, while males (right) are grey or whitish with black markings. Joe Blossom/NHPA.



Smooth snake *Coronella austriaca*

Above:
The smooth snake is normally grey or brown with darker paired markings down the back. It is very rarely found in gardens. R. Wilmshurst/FLPA.

Non-natives

Right:
Escaped or abandoned pet snakes, such as this corn snake from North America, show a wide range of colours and sizes. Leonard Lee Rue/FLPA.



Grass snake *Natrix natrix*

Left: Grass snakes almost always have an obvious yellow, orange or white marking, bordered by a black marking on the neck. These marks can be crescents, V-marks or can appear as a single band or "collar". Females lay 10-40 leathery eggs in late June to July. A. R. Hamblin/FLPA.

Right: Occasionally grass snakes are very dark all over, and the light neck marks are reduced or missing. However the black marks on the neck and sides are still present. Mike Lane/NHPA.

Far right: Juvenile grass snakes often have very obvious light neck markings. They are around 15 cm (6 in) and very thin at hatching, in late August to September. Jim Foster/English Nature.





Reptiles often thrive on railway embankments, so if you live close by (even in urban areas) you are likely to have snakes or lizards visit your garden. Ray Bird/FLPA.

Anxiety about snakes in your garden

How common is fear of snakes?

Many people who encounter snakes in the garden are surprised, concerned and initially afraid. Normally this is based on unfamiliarity and the information in this leaflet should help to control such fears. However, some people have a genuine snake phobia (i.e. excessive fear, leading to various physical symptoms such as a rapid heart beat and breathing difficulties), which they often acknowledge is irrational because it is disproportionate to the real risks involved. Such people may require particular assistance when dealing with snake encounters; behaviour therapy or hypnotherapy may help in the long term.

What legal protection do reptiles have?

All British reptiles are protected against killing, injury and sale. The smooth snake and sand lizard receive additional protection that prohibits disturbance, capture and damage to parts of their habitat. There is a fine of up to £5,000 and/or up to six months imprisonment for any of these offences.

Why do snakes live in my garden?

Unless you have a very large garden with plenty of wildlife areas, it is unlikely that the snakes are actually resident. It is much more probable that the snakes visit your garden in the course of their normal movements. The more reptile habitat near to your house the more likely it is that you will have a reptilian visitor.

Living near to the following features increases the likelihood of reptiles:

- Nature reserves containing key habitats such as heathland and rough grassland
- Derelict urban areas, such as abandoned factory sites
- Disused quarries
- Allotments
- Unshaded road and rail banks with grass/scrub cover
- Ponds, rivers and other wetlands*
- Muck heaps on farms and stables*

The following features in your garden may attract reptiles:

- Ponds*
- Compost or grass cuttings heap*
- Wildlife areas with long grass and shrubs
- Rockeries
- Wood, rock and rubble piles

* applies mainly to grass snakes



Rockeries, log piles, and debris are attractive to reptiles, which seek refuge in crevices. Jurgen & Christine Sohns/FLPA.

What if I don't want snakes in my garden?

Step 1.

Check carefully which species you have seen. Many people initially believe they have seen adders, but studies reveal that over 95% of adder reports from gardens turn out to be grass snakes or slow-worms. This is not surprising because often we get only a fleeting glimpse of the snake. Adders are only likely to occur in gardens if you live close to their preferred habitats (see chart, page 10); in most of England, it is unusual to find adders in gardens. Escaped pet snakes should be removed for re-homing (call the RSPCA on 0870 55 55 999).

Step 2.

Think about why the snake was in your garden:

a) Your garden backs on to a nature reserve, railway embankment, or other preferred habitat. In this situation, there is little point in trying to physically remove it, as snakes may visit your garden regularly. It is better to accept this (see Learning to live with reptiles, page 12). If you have a serious phobia of snakes, or you have concerns about adders, follow the advice on "snake-proofing" your garden (see page 13).

b) Good habitat is generally dispersed through your area. In such cases, the snake is likely to move on of its own accord soon.

c) There is poor habitat (roads, buildings) between you and the nearest good habitat. Often the snake will move on, but if it is disoriented and cannot get back to its normal habitat, then finding someone to remove it is advisable (see page 13).

Reptiles are attracted to gardens with sunny areas, plenty of vegetation cover, and places to take shelter. They will often use abandoned properties which become overgrown. Paul Sterry/Nature Photographers Ltd.



Garden reptile identification chart - use alongside the photos on pages 4 to 7

	Colours, markings, key identification features	Typical adult length	Distribution	Preferred habitats (excluding gardens)	Occurrence in gardens
Common lizard	Light and dark spots, flecks and stripes on brown/grey background. Very variable. Young may be all brown or black. Often basks on rocks, wood piles, etc.	14 cm (5.5 in)	Widespread across England but normally occurs in small areas where preferred habitats occur. Absent from intensive agricultural areas.	Heathland, bogs, moorland, woodland edge, rough grassland; often found in derelict urban areas and on railway banks.	Rare, except where good habitats adjoin garden.
Slow-worm	Brown, copper, golden or grey; may have black/dark brown sides and thin stripe on back. Small head, often with dark spot. Very shiny. Tail often blunt. Normally discovered underneath objects lying on ground.	35 cm (14 in) (NB: many slow-worms lose their tails, so can be shorter).	Widespread across England. Common in some localities, but absent from intensive agricultural areas.	Heathland, bogs, moorland, woodland edge, rough grassland; often found in derelict urban areas and on railway banks.	Frequent if slow-worms present in general area, and garden has long grass and refuges such as wood piles. May be found in city gardens.
Sand lizard	Light and dark spots/blotches on brown or green background. Two light bands on either side of back. Normally seen basking.	18 cm (7 in)	Highly restricted. Mostly in Dorset, a few populations in Merseyside (Sefton Coast), Hampshire, Surrey, West Sussex, Berkshire, Devon, Cornwall.	Predominantly on dry heathland (south) or sand dunes (Merseyside). May also occur on adjacent grassland, derelict urban areas, railway banks.	Very rare – only likely near heathland in Dorset or sandy areas on Sefton Coast.
Grass snake	Background: olive-green, brown or grey. Neck: yellow or white mark, next to black mark. Black bars down sides, some black spots on top. Markings are occasionally faint. Normally seen in or near pond, or basking in sunny spot. Very fast-moving.	75 cm (2.5 ft)	Widespread across central and southern England, but much rarer north of the Midlands.	Normally associated with ponds, lakes, streams, rivers, canals, marshes. Travels widely in surrounding habitats: woodland, grassland, low intensity farmland, heathland, derelict urban areas.	Frequent, especially close to ponds, farms or stables with muck heaps. Can travel long distances. Compost heaps and ponds may attract grass snakes.
Adder	Background: grey or brown; may be reddish. Dark brown, reddish or black zig-zag from head to tail. Spots on sides. Entirely black adders sometimes occur. Normally seen basking in sunny spots.	55 cm (2 ft)	Found in most counties of England, but restricted to distinct patches of suitable habitat (sometimes very small areas). Largely absent or rare in the North-west and the Midlands.	Heathland, bogs, moorland, woodland edge, rough grassland; sometimes on derelict urban areas and railway banks. Prefers sandy or chalky soils; rare on clay soils.	Rare, except when near to favoured habitats - more likely in sand or chalk areas in Dorset, Cornwall, Hampshire, Surrey, Sussex.
Smooth snake	Background: grey or brown. Dark blotches on back, normally in pairs. Dark blotch on head. Secretive, normally found underneath objects.	55 cm (2 ft)	Highly restricted. Mostly in Dorset, some populations in Hampshire and Surrey.	Predominantly on heathland. May also occur on adjacent grassland, derelict urban areas, railway banks.	Very rare – only close to heathland sites in Dorset, Hampshire, Surrey.
Escaped pet (various species)	Various.	Various.	Can be anywhere close to population centres.	Normally in urban or suburban areas.	Snakes: occasional. Lizards: rare.

Learning to live with reptiles

Living near to good reptile habitat means that snakes or lizards can become regular visitors. At first, this can cause concern, but a few facts can help reassure you. Remember that reptiles are declining, are protected by law, and removing them is often difficult without reducing the general appeal of your garden.

- Reptiles are timid and when they detect people or pets they normally seek cover.
- Grass snakes and slow-worms (the most common species in gardens) are harmless to people and pets.
- To make a particular area less attractive to reptiles, clear away reptile-friendly features and keep the grass cut very short.
- You are most likely to see reptiles on warm, sunny days. On hot days they will be more active, and quicker to flee.
- Reptiles hibernate from around October to March, and most garden visits are reported in June to September. Hence, you are only likely to see them during a short period of the year.

- Reptiles occasionally bask on driveways close to the house, so be aware when leaving the house or returning to it in sunny weather.
- When working in the garden, be prepared to find reptiles if lifting up debris, and if you are close to key features such as hedge bases, ponds, compost heaps and long grass.
- It is best not to handle snakes and lizards, as it can harm them.
- Report your sightings to reptile conservation groups, who may be interested to hear and can offer further advice (see Contacts).

Grass snakes often use garden compost heaps and grass cuttings piles as egg-laying sites, because of the ideal heat and moisture conditions. Jim Foster/English Nature.



How can I "snake-proof" my garden?

The following actions will make it much less attractive to reptiles:

- Mow grass regularly to keep it short.
- Remove shrubs and other plants that provide cover at ground level.
- Remove features that provide reptiles with hiding places, such as rockeries, debris, woodpiles, and boards. If you need to retain a wood pile raise it above the ground by 30 cm (1 ft), for instance by placing it on a rack.
- Remove compost heaps and grass cutting piles, or maintain them in sealed bins.
- Putting a wall or close-fitting fence around the pond can help by reducing snake access, but this will cause problems for other wildlife (and people) accessing the pond. Make sure you consider the safety aspects of this fully. In extreme cases you might consider filling in your pond (note: this is only likely to dissuade grass snakes, but it is a drastic solution as other wildlife will suffer; see Further reading).
- Snakes cannot dig, but will use existing holes, so fill in any holes or crevices where reptiles can hide (look at: house footings, under the shed, patios, walls and the ground itself). Only fill in holes when they are not occupied.

You may also need to ask neighbours to take similar action. Experience shows that the above steps really can result in a major reduction in snake visits. However, it is very difficult to entirely prevent snakes or lizards entering your garden. A more thorough solution is to erect a special fence around your garden. It should be at least 60 cm (2 ft) high, dug into the ground, and carefully sealed to leave no gaps. You can do this by attaching hard-wearing, ultra-violet resistant plastic sheeting (from a builders' merchant) to an existing fence. Alternatively a free-standing fence can be constructed by using stakes to support the sheeting. A low brick wall could also work.

Important note: these steps will also reduce the overall value of your garden for wildlife, so deciding on a sensible balance is up to you.

How can I go about removing a snake from my garden?

This is not normally recommended, but can be advisable for disorientated, injured or trapped snakes, or where there is a genuine danger of adder bite. The Contacts section lists organisations who may be able to recommend local reptile experts.

The RSPCA (tel 0870 55 55 999) may be able to help with trapped or injured snakes. Snakes should be removed to the nearest suitable habitat, from where they are likely to have originated.

How can I stop snakes harming other wildlife?

Snakes are an important part of the food web, and they will enter gardens to find prey. This is a natural occurrence and it should not be prevented. Snakes take very low numbers of prey, and will not endanger prey populations in doing so. Declines in your garden frog numbers could be part of natural fluctuations, or are more likely due to fish, disease (in certain areas), or habitat changes.

How can I stop grass snakes eating my goldfish?

Although they usually enter gardens to catch amphibians, grass snakes occasionally eat goldfish. It is worth noting that grass snakes only take very small numbers of prey items. If you have noticed a sudden, substantial loss of fish then it is much more likely to be herons or cats. To reduce snake predation, follow the guidance on snake-proofing your garden (page 13).

A garden with little cover for reptiles. Such gardens will be avoided, or only visited very briefly. F. W. Lane/FLPA.



Lowland heathland is home to all our reptile species, but huge areas have been lost, fragmented or neglected. Sand lizards and smooth snakes have suffered most from this loss, and conservation programmes now restore key areas and in some cases reintroduce reptiles. Jim Foster/English Nature.

How harmful are adders?

The adder is the only British venomous snake, a fact which has earned it a dubious public image. Bites from adders are very rare, and the vast majority occur when a snake is picked up. Most reactions to adder bites are mild, but any bite should be regarded as potentially serious and immediate medical advice should be sought. In the last century, 12 human deaths in Britain have been attributed to adder bites (this compares with several deaths every year due to insect stings).

Occasionally people doing the gardening report being bitten by an adder, but not having seen the snake. These cases are more likely due to spider bites (there are several British species capable of delivering a painful bite) or pricking by thorns. Bites to cats and dogs do occur, but rarely prove fatal; such bites probably occur more often in the countryside than in gardens. Vets and doctors in areas where adders occur are experienced in handling bite cases, and effective treatment is now well understood.

Encouraging reptiles in your garden

How can I attract reptiles to my garden?

Leave areas of your garden to grow wild, but also retain some shorter areas of vegetation to allow basking. Construct log piles in sunny spots, and reduce the height of shading trees, hedges or fences. Ensure there is free entry at ground level around the edge of the garden. Create rockeries, or banks with plenty of crevices, in south-facing areas close to denser vegetation. Maintain a grass cuttings heap or compost heap (see below). Dig a pond to encourage amphibians, which are an important prey source for grass snakes, and leave some rough areas nearby to allow snakes to approach. Leaving out wooden boards, roofing felt or corrugated iron sheets will help you find out if reptiles are using the garden, as they will be used for basking on or taking refuge underneath.

Will grass snakes breed in my garden?

Grass snakes lay their eggs in warm, moist areas to help incubation. Studies show that they will readily use garden compost and grass cuttings heaps. Use these tips to encourage them:

- Make the heap as big as possible
- Put it in a sunny spot, but close to a hedge or ground cover
- Replenish the heap with compost,

kitchen waste, grass cuttings, manure, dead leaves or sawdust

- Ensure there is easy access for the snakes – do not seal the heap completely
- Do not turn the heap between mid-June and late September, as eggs may be inside

What should I avoid in the garden?

Cats often kill or injure reptiles, so it is best not to have one if you want to encourage reptiles. Bells on cat collars will not help much as snakes cannot hear airborne sounds, and lizard hearing is not acute. Netting over ponds and in vegetable patches should be avoided, or use only more rigid netting material with a mesh size of at least 4 cm (1.5 in); snakes often die after getting caught in flexible, narrow-mesh netting. Before mowing the lawn, walk the area to be cut so that reptiles are dispersed into sheltered areas. Cutting on cold days reduces the chances of killing reptiles; pay special attention in long grass areas. Maintain lawns with regular mowing, to discourage reptile occupancy.

Should I introduce reptiles?

If you create good habitats and the reptiles occur nearby naturally, it should not be necessary to introduce them as they will colonise. Bringing in reptiles is not normally advised as they may become disorientated, and the habitats in your garden alone may not be enough to support a population.

Reptile biology

How long do reptiles live?

Many reptiles die within the first year of life, through predation or during hibernation. Once they reach sexual maturity (generally after three to five years) a good proportion may live on up to around 10 years. A smaller number will exceed this, and for some species such as the adder and smooth snake there are reliable records of 18 year old animals.

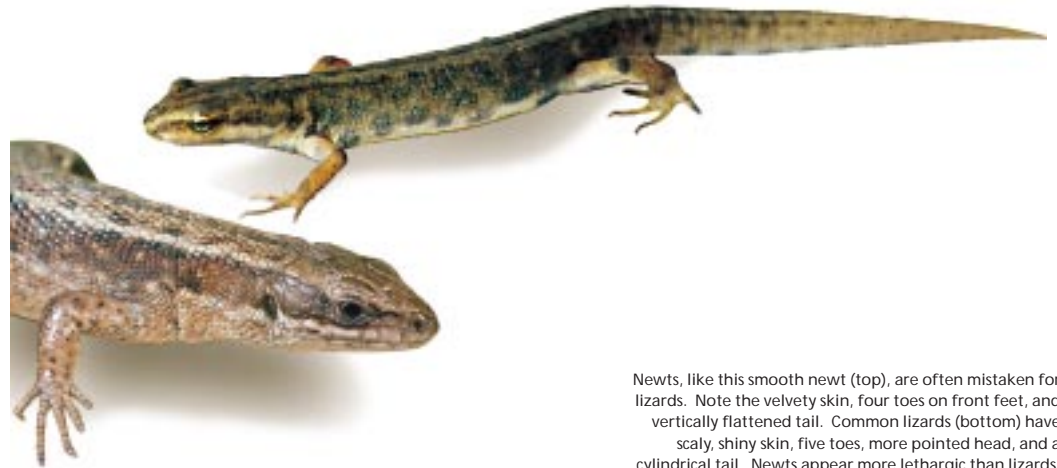
Are reptiles cold-blooded?

It is more correct to say they have variable body temperatures. Snakes and lizards cannot generate their own body heat internally, and so depend on external sources. This means basking

in the sun, or being in contact with warm surfaces or warm air. The cooler they are, the less active they become. Reptiles select the right place to warm up or cool down (this is termed thermoregulation). So, whilst a hibernating lizard would have a very low temperature, whilst basking on a sunny day in August it would be warm.

When and where are reptiles active?

Reptiles generally emerge from hibernation in March, and are active until October; some may be active later or earlier if weather permits. Snakes can travel long distances, with grass snakes tracked over 4 km (2.5 mile). Lizards seem to move much less, often occupying very restricted areas.



Newts, like this smooth newt (top), are often mistaken for lizards. Note the velvety skin, four toes on front feet, and vertically flattened tail. Common lizards (bottom) have scaly, shiny skin, five toes, more pointed head, and a cylindrical tail. Newts appear more lethargic than lizards, which move around more in hot weather.

Jim Foster/English Nature.
Nicholas Brown/Nature Photographers Ltd.

How do reptiles reproduce?

Only the sand lizard and grass snake lay eggs (which they do in June and late-June to July respectively). The other species give birth to live young, in some cases inside a transparent membrane. Mating occurs from April to June, and birth or hatching from July to September. The exact timing of reproduction varies between species and depends a great deal on weather conditions.

How many young do they have?

Typical numbers per female are:

Common lizard 4-10;
Slow-worm 6-12;
Sand lizard 6-14 (eggs);
Grass snake 10-40 (eggs);
Adder 6-20;
Smooth snake 4-15.

Which predators feed on reptiles?

Natural predators include crows, magpies, buzzards, kestrels, foxes, badgers, hedgehogs, and other

Derelict urban areas often develop into excellent reptile habitats. Many of these "brownfield" sites are now targeted for development, unfortunately meaning that reptile sites are frequently threatened with destruction. Jim Foster/English Nature



reptiles. Cats will also prey on reptiles, and pheasants eat young snakes.

What do reptiles eat?

Lizards feed on a range of invertebrates, including insects, spiders and molluscs. Grass snakes feed largely on amphibians, while adders and smooth snakes prefer lizards and small mammals. Fish and nestling birds are sometimes taken by snakes.

This pregnant female common lizard has lost her tail, but it will regrow. Lizards may voluntarily shed their tails when threatened or picked up. The tail then twitches around; this may be a defensive mechanism to confuse predators. Slow-worms cannot regrow their tails. Jim Foster/English Nature.



Further reading

Note: "L" indicates a publication that is normally available from the authoring organisation rather than from bookshops or libraries.

Amphibians and reptiles: A natural history of the British herpetofauna, by T Beebee and R Griffiths. HarperCollins (The New Naturalist series), 2000.

Amphibians in your garden: your questions answered. English Nature, 2002, L.

Froglife Advice Sheet 2: Snakes need friends. Froglife, 2002, L.

Froglife Advice Sheet 6: Conserving grass snakes. Froglife, 1995, L.

Contacts

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

Froglife,
Mansion House,
27-28 Market Place,
Halesworth,
Suffolk IP19 8AY.
Tel 01986 873733.
www.froglife.org.

Froglife Advice Sheet 8: Exotic reptiles and amphibians in the wild. Froglife, 1997, L.

Froglife Advice Sheet 10: Reptile survey. Froglife, 1999, L.

Guide to the reptiles and amphibians of Britain and Ireland, by P Roberts, Froglife and D Ovenden. Field Studies Council, 1999.

Lizards of the British Isles, by P Stafford. Shire Publications, 1989.

Snakes and lizards, by T Langton. Whittet Books, 1989.

The adder, by P Stafford. Shire Publications, 1987.

Which snake is it? (poster). Froglife, 2001, L.

Contacts for local reptile conservation groups and experts; provides literature, training and enquiry service during office hours.

The Herpetological Conservation Trust,
655a Christchurch Road,
Boscombe,
Bournemouth,
Dorset BH1 4AP.
Tel 01202 391319.
www.herpconstrust.org.uk.
Focuses on the conservation of the rarer reptile species and implementation of UK Species Action Plans.



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Front cover photograph:
The grass snake is the most commonly
seen snake in English gardens.
Jim Foster/English Nature



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