



Amphibians in your garden: your questions answered

www.naturalengland.org.uk



Amphibians in your garden

Why are garden ponds important for amphibians?

Many more people are digging a pond to create a feature for their garden. As well as being a great way to make your garden more attractive, a pond can also play an important role in conservation. Many of our wetlands have been drained for farming or development with the consequent loss of thousands of natural pools and ponds. Garden ponds alone can't compensate for this but they can be very useful to wetland wildlife species – frogs, in particular. They are also a

wonderful educational resource. Given their handy location – just outside the back door – garden ponds are an ideal introduction to wildlife for children. More good news is that, once constructed, garden wildlife ponds require little maintenance.

The advice in this leaflet will help you maximize the value of your pond for amphibians (frogs, toads and newts). In turn, this will help other wildlife that lives in, or visits, your garden.

Common toads often choose damp hiding places in gardens. Laurie Campbell/NHPA



Why should I encourage amphibians to live in my garden?

Toads, frogs and newts are fascinating creatures, and studying them can give you hours of pleasure. However, they are also very useful, as they eat many garden creatures that we regard as pests, such as slugs.

A healthy population of amphibians in your garden will help you control these pest species without the use of chemicals.



Male common frog – note the bluish-white throat.
Jim Foster/Natural England

Which amphibians live in my pond?

Have I got frogs or toads? How to tell the difference:

- Common frogs have smooth skins; common toads have a granular or warty appearance.
- Frogs have longer legs than toads – they leap rather than hop, as toads tend to do.
- Toads are usually a mottled mid-brown; frogs are much more variable in their colour and markings.
- Frogs make a quiet, low-pitched call during the breeding season; toads make a louder, higher croak.
- Frogspawn is laid in clumps; toads lay their eggs in long, gelatinous 'strings'.
- A few weeks after hatching, frog tadpoles are mottled brownish-grey to olive with gold speckles; toad tadpoles remain jet black.



Some amphibians, like this North American bullfrog, have been introduced from abroad and may pose threats to native wildlife. Jim Foster/Natural England

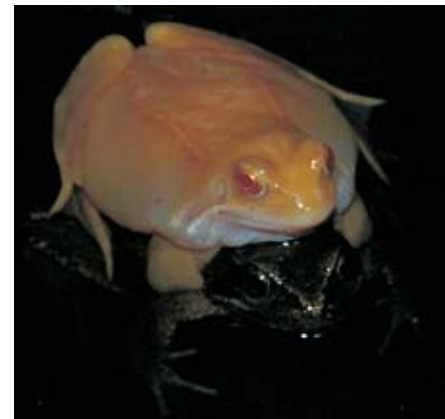


Albino frogs arise when a genetic mutation means they cannot produce dark pigments. Jim Foster/Natural England

Frogs often lay their spawn close together in the shallows. Here, a single clump of albino spawn is obvious. Jim Foster/Natural England



Reddish common frogs, like this female, are not unusual. Jim Foster/Natural England



This male albino frog has paired with a typically-coloured female. Jim Foster/Natural England

I've seen an orange frog – what species is it?

Probably a common frog. They are variable in their coloration and some can be reddish, orange or even yellow. More unusual are common frogs with pigment abnormalities. These can be white, yellow, pink or orange, with pink or sometimes black eyes. These albino, partial albino or 'leucistic' frogs (those with reduced pigmentation) lack dark markings because of a genetic mutation. These mutations arise naturally by chance – the same happens with many animal species, including humans. There is no need to be worried if you find one.

Female smooth newts (shown here) and palmate newts both have sandy brown coloration and are hard to tell apart. Jim Foster/Natural England



Male palmate newts have a thin 'thread' at the tail tip, a tiny crest, webbed hind feet and intricate coloration. Jim Foster/Natural England



Male smooth newts can reach around 10 cm, and have a distinctive wavy crest and fringed hind feet. Jim Foster/Natural England



Which type of newts do I have in my pond?

They are most likely to be smooth newts but, depending on where you live and what type of pond you have, you could also see palmate or great crested newts. Palmate newts are more common in the west and north of Britain, particularly on poor, acid soils.

Great crested newts prefer larger ponds than other species and are rarely found in garden ponds. **Note:** when on land, newts' colours become duller and their crests shrink, which can make identification more difficult.



Female great crested newts grow to 16 cm and are usually dark brown, with an orange stripe on the bottom of the tail. Jim Foster/Natural England

Male great crested newt – note the spiky crest and white tail stripe. Jim Foster/Natural England



All photographs on this page are approximately two-thirds life size.

Great crested newts live in my pond, but I've heard they are protected. What does this mean?

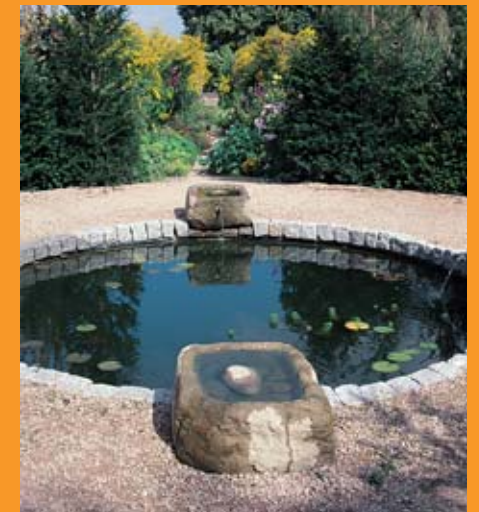
Great crested newt populations have decreased severely in recent years and they are strictly protected by law. In practice, most gardeners should not be overly concerned by the danger of prosecution as normal gardening activities present no major dangers for newts. However, it is an

offence to fill in a pond used by great crested newts, or to damage the places these newts use for shelter. Also, fish should not be stocked in a pond used by great crested newts. Natural England can provide further advice, and there are more detailed guides available to help you enhance your garden for this declining species (see Further information, page 26).

Creating ponds and managing your garden

What makes a good amphibian pond?

Frogs are the least choosy of our amphibians, and will breed in almost any type and size of garden pond. With a bit of care, however, you can create a pond that will support decent populations of at least two amphibian species, and maybe more, depending on where you live. Ponds should be sited in a sunny location, away from overhanging trees. If you have the space, dig a pond that is at least 2 x 3 m in surface area; the larger it is, the wider the variety of habitats it will contain. Make sure there are some shallow margins (up to 20 cm deep), together with a section that is at least 60 cm deep. The shallow areas are particularly important for frog spawning. For toads, you may need to build a much bigger and deeper pond. For detailed advice on building ponds, consult the



Ornamental ponds with steep sides and no surrounding vegetation present limited opportunities for amphibians. Joan Hutchings/FLPA

Natural England publication *Garden ponds and boggy areas* (see Contacts, page 26). For other detailed references on how to construct ponds see Further information, page 26.



Amphibians prefer ponds with a varied depth profile, a good mix of aquatic plants, long grass around the edge, and a sunny location. Chris Mattison/FLPA

Does it matter if the pond is artificially lined?

No. Amphibians do very well in lined ponds. Flexible liners (such as butyl) are ideal for wildlife ponds. They vary in price, with the more expensive types generally being more flexible and having greater resistance to sunlight and to

root and animal damage. You will also need an underlay to protect the liner.

What about pond plants?

The best wildlife ponds have a good mix of aquatic plants. Frogs and toads will take cover in vegetation and their tadpoles will feed on decomposing plant matter. Newts need plants with flexible leaves for egg laying. Good choices are common water starwort *Callitriche stagnalis*, watercress *Rorippa nasturtium-aquaticum* and water mint *Mentha aquatica*. For detailed

Tadpoles rasp algae from the pond edge or from plant leaves using special mouthparts. Jim Foster/Natural England



Like other invasive exotic plants, Australian swamp stonecrop *Crassula helmsii* can smother pond wildlife. Roger Wilmhurst/FLPA

help on pond plants refer to publications listed in Further information, page 26. In general, you should aim for an assortment of marginal plants, floating leaved plants and submerged species. Only use native species that are suited to your area.

How do I maintain my pond?

It is a good idea to remove up to a third of your water plants, plant debris and silt every few years, but the frequency will depend on the exact conditions in your pond and your personal preference. Clearing

away water plants allows sunlight to penetrate the water; this warms the pond and helps spawn and tadpoles develop. Some vigorous plants may need to be thinned out every year. It is best to do this work in late autumn. If your pond starts to dry up in hot weather you can top it up with a hose with no ill-effects, but it is better to use fresh rainwater. If there is a garden shed or greenhouse nearby, you can fit it with guttering and feed the run-off into the pond. If your pond is affected by shading shrubs or trees, these may have to be pruned back.



You may find the shed skin of a frog if you inspect your pond closely. Jim Foster/Natural England

Do I need to feed tadpoles?

No. They will find enough food from the algae and decomposing material in your pond. If it is a very new pond you may wish to add some rabbit food pellets for them to feed on (it can be interesting to watch) but it is not absolutely necessary.

Should I introduce fish?

Toads do not seem to be directly affected by fish. But don't stock fish if you want to encourage frogs and newts. Fish eat eggs and tadpoles, and their waste adds nutrients that can cause pond water to become cloudy with algae. Garden ponds are normally too small to replicate natural fish habitats, so adding fish may upset the natural balance in your pond's ecosystem. Although fish are unlikely to destroy entire amphibian

populations (with the exception of the great crested newt, which seems especially vulnerable) a wildlife pond will always do better without them. For fish lovers, one option is to build a separate pond specifically for fish.

I'm worried about mowing my lawn because of the frogs. What should I do?

This may be a problem in early summer when young frogs leave ponds, often in huge numbers. The best plan is to allocate certain parts of your lawn as 'wild' areas, and mow them infrequently, at a time when frogs are less active. Regularly mow any areas you want to keep as lawn to discourage frogs from hiding in patches of long grass. Mowing in hot, dry weather will also minimise the chances of finding amphibians.



Two 'strings' of toadspawn laid on top of a clump of frogspawn. Jim Foster/Natural England

Walking over a lawn or raking it before mowing may encourage frogs to hop out of the way.

How do I make my pond safer for children?

A sturdy fence around your pond will prevent children from having direct access, and these are fairly simple to build. A post and rail fence backed with chicken wire is sometimes used. Garden centres also stock grates to go over ponds. Whatever you decide, there is no replacement for the close supervision of children near water. If you are concerned about the safety of your children in the garden, please consider securing your pond in some way (as described above)

rather than filling it in. Retaining it for the children's educational benefit later in life will be very worthwhile.

I need to fill in my pond. Where shall I take the frogs/toads/newts?

The most practical course of action is to fill in the pond in autumn, when all or most of the animals will be on land. If you need to fill it in during the spring or summer, slowly drain the pond and catch any amphibians that do not escape on their own. They can be taken to another nearby garden pond – with the owner's agreement – although the adults could be left in nearby overgrown areas. Unfortunately, these animals may return to your garden next spring, expecting to find a pond there!

Sometimes, amphibians will even return to a filled-in pond and lay their eggs where it used to be, though this will happen less and less as they find new ponds. **Please note** that the destruction of great crested newt ponds is an offence without a licence.

What are the limitations of garden ponds?

Although garden ponds provide havens for frogs and some other wetland wildlife, they can never replace the number and variety of countryside ponds that have been lost. Problems with garden ponds include the danger of pollution from chemicals such as weed-killers and fertilisers, the lack of semi-natural habitats near ponds, the short lifespan of some ponds and the presence of exotic species and diseases. Some plant and animal species simply will not survive in garden ponds. However, please don't let this put you off! Any well-planned pond will help wildlife, and give you years of enjoyment.

Too many or too few?

What should I do with 'excess' spawn or frogs?

During spring, people may become concerned when they see their pond filling up with frogspawn, thinking that it is too much for the pond to cope with, or that they will be 'overrun' with frogs. In fact, most spawn and tadpoles die, so only a

tiny fraction of the eggs you see will survive to become adult frogs. Taking spawn away will not have any significant effect on overall frog numbers, so it is best to leave it alone.

I don't have a pond and yet there are many frogs in my garden. How do they get there?

Amphibians will travel several hundred metres from ponds, and it is not unusual to find them in gardens that lack a pond, especially in summer.

How do I attract amphibians to my garden?

The best thing to do is build a pond, but keeping parts of your garden a little 'wild' and unkempt is also useful. Frogs, toads and newts all like to take shelter beneath piles of rocks and logs, so creating these features will help. Amphibians will also appreciate rockeries, compost heaps, loose patio slabs, gaps under sheds, open tree roots, hedge bases and flower beds.

A female frog is grasped by two males. Such frenzied mating activity sometimes kills females. Jim Foster/Natural England



Creating a pond will attract all sorts of colourful wildlife like this emperor dragonfly. Martin Garwood/NHPA

You do not need to leave food out for them, but anything that encourages insects and other minibeasts will help. Avoid using garden netting close to the ground, as frogs and grass snakes get caught up in it.

Should I introduce amphibians to my garden?

Normally you won't need to, as they are very good at colonising naturally. Try to provide the best garden pond and surrounding habitat that you can, and then sit back and wait for the amphibians to turn up. In this way you can be sure that the conditions you have created are suitable. However, sometimes amphibians will not colonise a garden. This may be for a number of reasons. The habitats you have provided may not be quite right

or there may be some barriers (busy roads, buildings, rivers, etc) that make it difficult for them to reach your pond.

Alternatively, there may not be any amphibians in your area, perhaps because the land surrounding your house does not have any suitable habitats. If this is the case – and you're sure that you have provided the right conditions for amphibians – then introducing some can be a good idea (but see next page). This is best done by collecting a few clumps or strings of spawn (for frogs or toads), or vegetation that has some newt eggs attached to it (for smooth and palmate newts) and placing it in your pond. This should be done for two or three seasons.

You should **never** take adults or eggs from wild ponds. You can take spawn or eggs from another garden, but only if it is close to your pond and you have the owner's permission. Ideally the 'donor' pond will be in a neighbouring garden. You should not transport spawn or eggs for distances over 2 km, to avoid spreading diseases or interfering with the normal genetic exchanges that occur between populations. Avoid taking spawn from ponds where there is evidence of amphibian or fish disease. Be very careful also not to transport any unwanted exotic plant species. Some of these species can grow from tiny fragments of leaf or stem and become a real problem in a garden pond, so you need to check carefully. You also need to dispose of any unwanted plant material with equal care, ideally by incinerating it.

Predators, diseases, disappearances and related concerns

Why does my frogspawn die, sink or change colour?

Frogs' eggs can be killed by fungi, predators or frost (though this will often harm only the top few layers of eggs). Newts will feed on eggs, as will some invertebrates, such as flatworms. Spawn sometimes sinks to the bottom of the pond but this is nothing to worry about. Some eggs may not have been fertilised and these will die shortly after

Please note that the eggs of great crested newts are protected by law and should never be disturbed.

I want to distribute my frogs, toads or newts for conservation purposes. Where shall I take them?

Although it can seem appealing to share out your amphibians, in practice this rarely helps with their conservation. It is best to leave them alone, try to enhance their environment and encourage others to follow your example. The main reason amphibians have declined is because of damage to their natural habitats. Trying to re-introduce animals to a damaged habitat does not really help as they will find it hard to survive. One exception would be to introduce fresh animals to small isolated populations that are becoming inbred. Amphibian conservation groups will be able to advise you (see Contacts, page 26).

having been laid. The outer jelly of frogspawn sometimes takes on a green or grey tinge due to algal growth or sediments in the pond. All these events are fairly normal in garden ponds and, so long as some tadpoles survive, there's normally nothing to worry about. Even if all the spawn in a given year dies, frog populations should still hold up. Of more concern is a total failure of spawn with no tadpoles



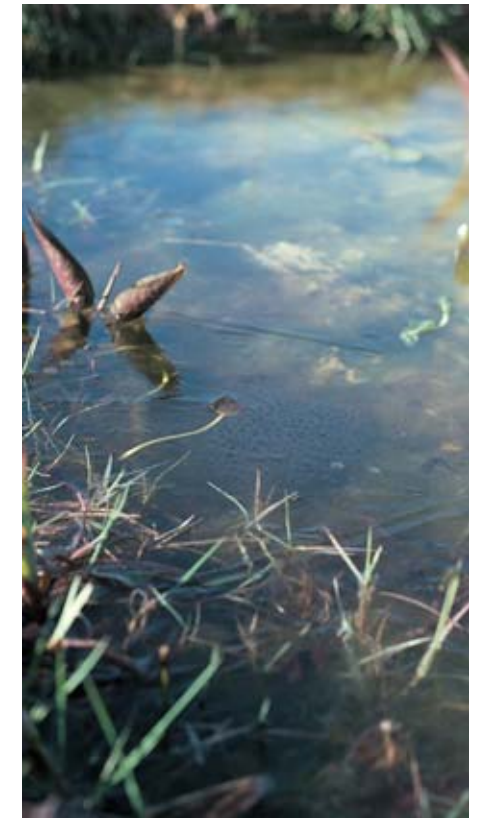
being produced over several years, eventually leading to a major decline in adult numbers. Occasionally this happens and there is no obvious explanation, though chemicals, disease, and intense predation are possibilities.

Why don't my tadpoles develop?

It is quite common for some tadpoles to develop much more slowly than others in the same pond. In small ponds with many tadpoles slow development can be the result of competition, or it can happen when the pond water is cool (because of shading, for instance). Alternatively, if your pond is new, it may not contain enough food, as algae will not have had a chance to grow. Sometimes tadpoles will not develop into adults within the year, but continue to grow over winter and then emerge the following year. It is also usual for some tadpoles to develop normally and leave the pond without you noticing, leaving behind the slow developers.

Frog tadpoles are important prey for a range of predators, including newts, birds and many invertebrates. R Krekels/Foto Natura Stock/FLPA

Frozen ponds are one of nature's hazards for frogs. Jim Foster/Natural England





Disease sometimes causes discoloration to a frog's body due to haemorrhaging and ulceration. Jim Foster/Natural England

Where do all my frogs disappear to after spawning?

Spring is the time when frogs and toads are most obvious, and afterwards they do a disappearing act which often takes us by surprise. They tend to leave the pond and seek out damp, sheltered areas in gardens or further afield – sometimes travelling hundreds of metres. You may see frogs in smaller numbers in and around the pond in summer, especially when it rains heavily or when you turn on the hose.

I've heard that there is a disease affecting frogs. How can I tell?

Over the last decade or so there have been reports of unusual mass mortalities of frogs, mainly in south-east England. This has now been attributed to a virus, likely to have been introduced from overseas. It causes frogs to die in large numbers, typically from June to September, in and around the breeding pond. Symptoms include emaciation, ulceration and haemorrhaging. However, the disease is complex and sometimes there are no external signs. There is no cure for the disease, but FrogLife can provide further advice (see Contacts, page 26). More recently a fungal disease has been found, but it is unclear whether this is a serious threat to amphibians in England. Bear in mind that dead frogs may have perished for reasons other than disease (see next page).

Some invertebrate predators can tackle surprisingly large prey. Here, a water beetle larva overcomes a smooth newt. J. Whitehurst/Cheshire Ecological Services Ltd



The distinctive yellow 'collar' identifies this as a grass snake, a reptile with a taste for amphibians. Jim Foster/Natural England

How else do frogs die?

Adult frogs are eaten by predators such as grass snakes, herons, owls, crows, foxes, hedgehogs and cats. As tadpoles, they will be eaten by birds, newts, fish, beetles and dragonfly nymphs. The eggs will also be eaten by some predators. Some frogs die during hibernation on land or in water (see next page) and, during the breeding season, some females will perish in the frenzy of mating after being clasped by males for long periods. All these are natural causes of death and, although they can appear distressing, it is best to let nature take its course.

I'm sure that grass snakes are a menace to my frogs. How do I get rid of them?

It's best not to. Although it can be gruesome to see a grass snake devouring a frog, this is a perfectly natural occurrence. Some people are understandably concerned that this predation will wipe out their frogs but grass snakes actually take very small numbers and do not endanger their populations. In fact, grass snakes are more threatened than frogs (and protected by law) so seeing one in your garden is great news.



After around ten weeks, this tadpole is almost ready to leave the water, but some take much longer. R Krekels/Foto Natura/FLPA

I sometimes find dead frogs in the pond in winter. What can I do?

In some ponds, a proportion of the frogs spend winter underwater. If the water freezes over for more than a few days, oxygen levels will fall and trapped waste gases will accumulate; both can prove fatal. Often, people find dead, bloated frogs floating on the surface of their pond after a thaw – not a pleasant sight! However, these few deaths will not affect the health of the total population as many more frogs will overwinter on land where it may be safer. Normally it is just a few males that stay in the pond in winter in order to be first on the scene for the spring mating. If you are worried about your pond's frogs in winter, try

to keep a hole in the ice by sinking buckets of hot water through the ice, or floating a ball on the surface.

Toads, like other garden amphibians, spend most of their lives on land, so it is important to provide good cover around your pond. M B Withers/FLPA



How can I stop baby frogs dying in the pond in summer?

Froglings drown in some ponds because they cannot easily get out of the water – typically when the pond has steep sides or overhanging slabs. Provide easy exit points by creating ramps that frogs can climb up or, better still, ensure that the sides of the pond slope gently, with plenty of marginal plants for cover. Make sure, also, that in sunny weather amphibians don't have to cross large areas of hot, dry stonework.

Are cats a problem for amphibians?

Cats don't often kill frogs, but they do 'play' with them and, rather unhelpfully, bring them indoors. Cats will also injure and kill slow-worms, grass snakes, birds and small mammals so they are not helpful to any of the wildlife in your garden!

Male frogs develop rough-skinned nuptial pads on their 'thumbs' to help them grasp the slippery females during mating. Jim Foster/Natural England



Are newts a problem for frogs?

Not really, but in some ponds newts thrive particularly well and they may eat so many frogs' eggs and tadpoles that the frog population is considerably reduced. No one is sure what makes some ponds more suitable for newts than for frogs but, as long as there is a range of pond types in the area, both species should do well. Removing newts to try to redress the balance is not recommended and rarely works.

How can I stop frogs attacking my goldfish?

Male frogs or toads sometimes attach themselves to fish in the spring, mistaking them for females of their own species. This rarely harms the fish, and the frog usually notices its mistake and soon hops off. You can carefully prise the frog off if you are especially concerned. Bear in mind that this

Paired frogs often wait a week or so before spawning, perhaps waiting for the right weather conditions. Jim Foster/Natural England



behaviour is only ever going to happen for a few days in early spring.

How can I stop tadpoles eating my goldfish?

Tadpoles feed only on the mucus covering fish scales, or on the dead flesh of a fish affected by ulcers or fungi. No harm is done to the fish and goldfish actually benefit from frogs as they feed on frogspawn and tadpoles.

I've heard that toads are poisonous. Should I be concerned about children or pets?

Common toads and great crested newts both have special chemicals in their skins to dissuade potential predators. Dogs will normally react quickly by spitting out the toad or newt and no serious consequences have been reported. In the course of normal handling it is extremely unlikely that people would be affected by these chemicals.

Amphibian behaviour

Do frogs, toads and newts always return to the same pond?

The pond an amphibian chooses to breed in will often be the one the adult hatched out in. However, some individuals will wander from their original breeding area to find newly created ponds. Frogs seem to be the best at colonising new ponds.



Froglets and toadlets feed on tiny insects like aphids, and seek out moist refuges to escape predators. Stephen Dalton/NHPA

How do amphibians find ponds?

No one knows for sure, but there is some evidence that amphibians use smell to find ponds, as well as finding them from memory. Many amphibians will come across ponds by chance as they disperse from their breeding pond. In spring, female frogs and toads are also attracted to the calls of males who have already found a pond.

How do newts breed?

Newts have an interesting courtship 'dance' in which the male displays to the female and releases special chemicals to attract her. He then deposits a sperm packet on the bottom of the pond, and the female takes this in to fertilise the eggs. She will then lay the eggs individually, a few each day, for several months.

Each egg is laid onto a plant leaf underwater. The leaf may be alive or dead and is folded around the egg to protect it. You may notice the folded leaves if you look carefully at the pond edge in late spring.

What happens to spawn once it has hatched?

After frog eggs hatch out into tiny tadpoles they remain very still and stay close to the spawn jelly for a while. At this stage they are so still they can appear to be dead, but they soon become more active when they start to lose their external gills. The back legs of the tadpoles emerge after a few weeks, followed by the front legs. The tail reduces in size and the body and head shape changes (in particular, the mouth becomes much wider). Frog tadpoles tend to become



Great crested newt eggs revealed by unfolding submerged grasses. Jim Foster/Natural England

more secretive and bottom-dwelling in the later stages of development. Eventually – usually in June or July – they emerge from ponds and come onto land as froglets. Toads follow a

This water mint has leaves folded over where newts have laid their eggs.
Jim Foster/Natural England



very similar pattern, emerging a little later. Newts differ in that they retain external gills all through their aquatic larval stage (that is, the period between egg and land-living juvenile). They also get their front legs first, and feed only on live prey, whereas frog and toad tadpoles feed mainly on algae and detritus. Young newts emerge later in the year, from July through to October.

I think I heard a frog scream. Can this be true?

Yes. When attacked by predators, frogs and toads can let out a surprisingly loud, high-pitched distress call. This happens most often in gardens when cats corner them.

What do adult amphibians eat?

Frogs, toads and newts are not very fussy, eating most kinds of small invertebrate. Slugs, snails, flies, beetles, ants, woodlice, moths, worms and bugs are all eaten, though the proportions vary according to the habitat.

After being laid, frogspawn jelly swells up as it absorbs water. After a couple of days it has more than tripled in volume. W Meinderts/Foto Natura/FLPA





Amphibians fall prey to herons, but such predation is natural. You can help the frogs by providing more cover around the garden. Melvin Grey/NHPA

Newt larvae (here a great crested newt) have feathery gills just behind the head. Jim Foster/Natural England



How long do frogs, toads and newts live?

Most frogs will die very early in life, at the egg or tadpole stage. But for the lucky ones that avoid water predators, early frosts and disease, survival is still risky because they must face a range of new predators when they leave the pond (see page 17). Survival prospects are better when they reach maturity at two or three years, and some frogs may even live to seven years. Toads fare better – probably because the chemicals in their skin put off many predators – and a few toads will eventually reach the early teens. However, the number of animals reaching these grand old ages is tiny – perhaps less than one per cent of the eggs laid. Newts also have a risky larval period, with an increased survival rate once on land. Great crested newts seem to be more

long-lived than smooth and palmate newts, often reaching six and, exceptionally, up to 15 years. Smooth and palmate newts rarely live beyond around five years.

My child wants to study some frogspawn/tadpoles indoors.

How should I go about this?

Often it is best to watch animals in their natural environment, but there are real educational benefits to be had from a close-up view of developing tadpoles. It is not possible

to give a complete guide here, but there are a few key points to be aware of: only keep a small number of tadpoles (around 30 for a typical aquarium); rabbit food pellets make good rations; change the water frequently; provide bark or mossy rocks to allow froglets to emerge; always release them back at the edge of the pond they came from. For more details, see some of the titles listed under Further information, page 26. Rearing newts is much more difficult and is not advised.

Adult toads, frogs and newts are strictly carnivorous. They use smell and movement detection to find prey. Daniel Heuclin/NHPA



Contacts

Natural England

1 East Parade
Sheffield, S1 2ET
Enquiry Service: 0845 600 3078
enquiries@naturalengland.org.uk
www.naturalengland.org.uk

Froglife

9 Swan Court
Cygnet Park, Peterborough, PE7 8GX
Tel: 01733 558960
www.froglife.org

ARG-UK

(the Amphibian and Reptile Groups of the UK)
www.arg-uk.org.uk

The British Herpetological Society

11 Stathmore Place
Montrose, Angus, DD10 8LQ
www.thebhs.org

The Herpetological Conservation Trust

655A Christchurch Road
Boscombe
Bournemouth, Dorset, BH1 4AP.
Tel: 01202 391319
www.herpconstrust.org.uk

Pond Conservation

School of Life Sciences
Oxford Brookes University
Gipsy Lane, Headington
Oxford, OX3 0BP
Tel 01865 483249
www.pondstrust.org.uk

Further information

This is one of a range of wildlife gardening booklets published by Natural England. For more details, contact the Natural England Enquiry Service on 0845 600 3078 or e-mail enquiries@naturalengland.org.uk

Natural England also produces *Gardening with wildlife in mind*, an illustrated wildlife reference. Originally on CD but now also available on-line, *Gardening with wildlife in mind* has detailed information on 800 plants and animal species often found in our gardens, and shows how they are ecologically linked. See www.plantpress.com

Other titles

Planting-up ponds.
Pond Conservation. 2001.

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

Garden ponds as amphibian sanctuaries.
The British Herpetological Society.

R. Orton, A. Bebbington & J. Bebbington.
Guide to commoner water plants.
Field Studies Council. 2000.

P. Wisniewski.
Newts of the British Isles.
Shire Publications. 1989.

R. Griffiths.
How to begin the study of amphibians.
The Richmond Publishing Company. 1987.

R. Oxford & A. Sutton.
A guide to keeping common frog tadpoles.
Field Studies Council. 2002.

Problem pond plants: managing algae, duckweed and other floating plants.
Pond Conservation. 2001.

Amphibian health and disease.
Froglife. 2006.

F. Slater.
The common toad.
Shire Publications. 1992.

T. Langton, C. Beckett and J. Foster.
The great crested newt conservation handbook.
Froglife. 2001.

T. Beebee.
Frogs and toads.
Whittet Books. 1985.

The pond book: a guide to the management and creation of ponds.
Pond Conservation. 2000.

Good wildlife ponds.
Pond Conservation. 2001.

P. Roberts, & D. Ovenden.
Guide to the reptiles and amphibians of Britain and Ireland.

T. Beebee & R. Griffiths.
Field Studies Council. 1999.
Amphibians and reptiles: A natural history of the British herpetofauna.
HarperCollins (The New Naturalist series). 2000.

T. Beebee.
Pond life.
Whittet Books. 1992.

Warning: invasive alien pond plants: advice and information on how to control nuisance aquatic plants.
IACR – Centre for Aquatic Plant Management. 2002.

Foxes, badgers, hedgehogs and many birds will use garden ponds for drinking or bathing.
Laurie Campbell/NHPA



Natural England works for people, places and nature to conserve and enhance biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas. We conserve and enhance the natural environment for its intrinsic value, the wellbeing and enjoyment of people, and the economic prosperity it brings.

www.naturalengland.org.uk

© Natural England 2007

ISBN 978-1-84754-007-2

Catalogue code NE18

Written by Jim Foster. Designed by statusdesign.co.uk

Front cover image: Common frog hiding amongst pond plants.
Laurie Campbell/NHPA

