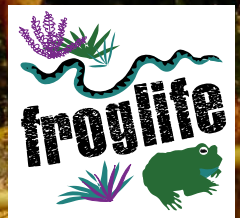


# surveying for amphibians

Tips, techniques and skills to help you survey  
for amphibians



**‘Surveying for Amphibians’** is a handy guide which summarises key ID features of common amphibian species, and provides you with important tips, techniques and skills to help you survey for these amazing creatures.

Cover image: Common Frog /Silviu Petrovan

Froglife is a registered charity in England & Wales (no.1093372) and in Scotland (no. SC041854). Froglife is concerned with the protection and conservation of native amphibians and reptiles and the habitats they depend on.

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Photos: © Froglife unless otherwise stated.

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# Surveying for Froglife

## Why should I survey?

**It's great fun and gets you outdoors among nature!**

On top of that good survey data allows Froglife to:

- verify presence or likely absence;
- monitor distribution and population change;
- inform site management;
- monitor for non-native species;
- monitor for spread of disease and/or evidence of persecution;
- contribute data to local biological recording centres.

## Where should I send my survey data?

- Survey data can be recorded using our paper survey forms or via Froglife's Dragon Finder app (search for 'Dragon Finder' in the App Store or Google Play).
- Alternatively you can send your data directly to Froglife.

We pass all of our data to local biological record centres.

Remember - surveys with 'zero' or likely absence results are still useful data to us!

**This booklet contains two survey forms. If you require more forms please visit:**

**[www.froglife.org/info-advice/wildlife-spotting](http://www.froglife.org/info-advice/wildlife-spotting)**

**Send your forms to:**

**Froglife, 1 Loxley, Werrington, Peterborough, PE1 4BW**



# Species identification

These pages cover the native UK amphibian species in their adult form.

For non-native species, information on eggs and larvae, or further help with identification please visit:

[www.froglife.org/amphibians-and-reptiles](http://www.froglife.org/amphibians-and-reptiles)

or download the new version of our free Dragon Finder app, available on iPhone and Android.



## Newts

### Palmate Newt



- Adults up to 9cm in length.
- Smooth skin that is brown, green or grey.
- Yellow belly, often with dark spots. Unspotted pink or yellow throat (unlike Smooth Newts, which have spotted throats).
- During the breeding season males develop a filament at the tip of their tail and black webbing on their back feet.

## Great-Crested Newt



- Adults up to 15cm in length.
- Skin is black or dark brown and has a rough, 'warty' appearance.
- Underside is bright orange with irregular black blotches.
- Males have a crest along their backs which is more pronounced during the breeding season.
- Males have a white flash along the centre of the tail and

females a yellow/orange one.

- 'Warts' along the side of the body may have white tips.
- Largest newt species in the UK.

## Smooth Newt



- Adults up to 10cm in length.
- Skin is varying shades of grey or brown. Males develop a wavy crest along the back during the breeding season.
- Belly yellow or orange, usually with black spots and/or blotches.
- Throat is spotted.
- Males have a white flash along the bottom of their tail.

# Frogs

## Common Frog



- Adults males grow up to 9cm in length and females up to 13cm in length.
- Usually a shade of olive-green or brown (although can be yellow, pink, red, lime-green, cream or black).
- Dark patches on the back, stripes on the hind legs.
- A dark 'mask' behind the eye.
- Oval, horizontal pupil.
- Call: soft repetitive croak.

## Pool Frog



- Adult females up to 9cm in length. Males significantly smaller.
- Brown or green with dark blotches across the back and a cream or yellow dorsal stripe.
- Pair of ridges run from the eyes down the back.
- Vocal sacs visible either side of the mouth of breeding males.
- Oval, horizontal pupil.
- Call: a loud call, often likened to ducks quacking or rapid laughter 're...re...re'.



# Toads

## Common Toad



- Adults males grow up to 8cm in length, adult females are larger with reports of up to 13cm in length.
- Generally brown or olive-brown but may be darker.
- Belly usually pale with dark speckles. Skin is 'warty' and relatively dry.
- Oval, horizontal pupil.
- Many individuals have a golden iris.
- Tend to crawl rather than hop.
- Call: high-pitched, rough "qwark-qwark-qwark".

## Natterjack Toad



- Adults up to 8cm in length.
- Green, brown or cream.
- Dark 'warts' on their backs often with yellow or red tips.
- Obvious pale cream/ yellow stripe along back.
- Green iris with oval, horizontal pupil.
- Short legs.
- Run rather than walk or hop.
- Poor swimmers.
- Call: a loud rasping rolling croak 'errr...errr...errr'. Can be heard from up to 2km away on quiet nights.

# When to look for amphibians

UK amphibians are most active during the breeding season (generally March - May), and will be spotted in and around standing water. Over the summer and into early autumn most amphibians will take shelter on land during the day, coming out to feed at night. Some may occasionally revisit ponds: 'Green' frogs especially will stay close to water. In winter amphibians will find deeper frost-free shelter to hibernate in until the following spring.



**Common Frog**  
Mid Feb - March



**Common Toad**  
Mid March - April



# Where to look for amphibians

UK amphibians require standing water for breeding. Therefore any suitable pond or ditch is a good place to start looking. They will also shelter beneath, rocks, logs, and in crevices which provide protection from predators, and from exposure during colder months.



**Newt species**  
Mid April - June



**Green/ water frogs**  
May - June

# How to look for amphibians

**You can use three main techniques for surveying amphibians:**

- 1. Visual search of pond and surrounding area**
- 2. Netting in pond**
- 3. Torching in pond**

## Visual search

During the daytime, simply walk around the pond edge and surrounding terrestrial habitat looking for:

- Amphibians in the water – including tadpoles and newt efts.
- Amphibians under refugia such as logs and large stones.  
Remember amphibians can travel several hundred metres away from pond, so look further afield too.
- Eggs laid by newts on submerged plants during April – May.  
Inspect artificial egg laying strips if in use (page 12).
- Look for spawn (clumps for frogs and strings for toads) during March – April.
- Amphibian poo and prints are too difficult to spot so aren't useful for surveying purposes.



# Netting

You will need a net with a rigid frame and a mesh of approximately 2mm.

## How to net:

- Net from the bank of the pond - do not overreach!
- Stop every two metres and sweep the net in a strong agitating motion through vegetation at the pond edge.
- Inspect your catch in the net.
- Avoid handling animals and return them to the water quickly. Alternatively, put the material from the net into a white 'dipping' tray containing pond water for closer inspection.
- Move to the next two-metre stretch and repeat.
- Froglife recommends 15 minutes of netting per 50 m of bank

## Netting can be useful for detecting:

- Adult newts (especially palmate and smooth newts), frog and toad tadpoles. Common from March to May.
- Newt larvae. Common from August to September.
- Fish and other invertebrates year round.

**Warning: Excessive netting can be damaging to vegetation and will stir up silt which might reduce visibility for torching later that same day. You should stop once all species have been identified to reduce the impact on the pond.**





# Searching for newt eggs

- Newt egg searches should be conducted April to May.
- Inspect submerged aquatic plants or artificial egg laying strips carefully. Look for folded leaves/strips where newts have laid their eggs.
- Carefully unfold a leaf/strip to see if it contains a white/yellowish egg (Picture 1: great-crested newt) or grey/brownish egg (Picture 2: smooth or palmate newt).
- Unfold the minimum number of leaves/strips necessary.
- Stop immediately if you discover great crested newts eggs (these are a protected species and require a license to survey for).



## Artificial egg strips

If your pond has little suitable vegetation for egg laying or has limited visibility for torching (eg: lots of duckweed) then you might consider using artificial egg laying strips. Newts will lay their eggs on these just as they would submerged plants. We recommend installing them in groups of 5, approximately 1-2m apart for every 25m of pond edge. Make sure they are fully submerged or just breaking the surface in 'duckweedy' ponds. Seek permission from the landowner before putting out artificial egg strips. When you check them for eggs remember to place them back in the water to allow the eggs to hatch. Remove the strips in August/September.

# How to make an egg strip

Cut a black or green bin bag across the joined sides to create strips that are about 30mm deep. Cut off one of the joined sides. Then cut lengthways into 1-2cm wide strips up to about 50mm from the remaining joined side. You should end up with a strip with a fringe of long tassles. Wrap this around the end of a stick (length depending on pond depth) and secure with a staple.



# Torching

Newts are most active after dark, and a powerful torch is an effective way to spot them in open water.

The torchlight surveys are optional. Please consider the safety aspects associated with this method (page 17).

You will need a powerful torch in the range of 500,000 to 1 million candlepower. Torches made by Cluson Engineering are popular, but any sufficiently powerful torch may be useful.

## How to torch

- The pond should be searched by torchlight from the banks – you should not go into or disturb the water surface.
- Move slowly and torch approximately every two metres.
- Shine the torch in the water, moving out from the bank and back again slowly – take time to get your ‘eye in’.
- Keep a tally of the number of amphibians seen in the whole pond (peak counts can be used to estimate population size).



**Warning: Never undertake a torching survey on your own**



# How often to survey

## Daytime:

- March-April: Spawn count for common frogs and toads
- April-June: Egg searches for newts
- May-June: Visual/call search for introduced water/green frogs
- March-September:Refugia searching

## Night-time:

- March-June: Torching for all amphibians particularly newts which are more active at night
  - July-September: Torching for newt larvae hatched that year
- N.B. These timings are general and amphibian activity will vary with geographic location and weather conditions.*

## Ideal surveying conditions for torching:

- Air temperature 5°C or warmer (warmer evenings are optimal).
- Avoid surveying at night directly after a cold spell.
- Little or no wind.
- Dry (although very light rain is tolerable).
- Water temperature ideally 10°C or more (this can be hard to measure without special equipment)



Photo: Glenn Upton-Fletcher

Four surveys is optimum number for a presence/absence survey. For ponds that are difficult to survey, for example those with dense aquatic vegetation and/or poor water quality, then six is preferable. If only one survey is possible then do this during May and use as many techniques as possible.

**VISIT 1**  
March - early  
April

**VISIT 2**  
Mid April -mid  
May

**VISIT 3**  
Late May -  
end June

**VISIT 4**  
Aug -Sept



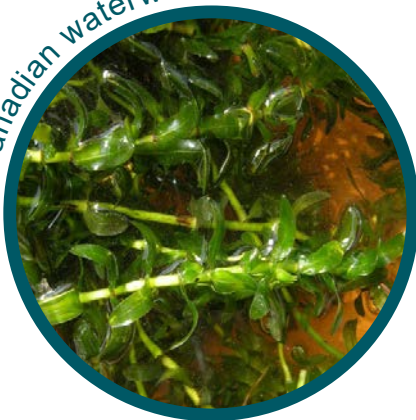


# Biosecurity

New Zealand Pygmyweed



Canadian waterweed



Parrot's Feather



## The invasive plant problem

There are a number of highly invasive non native aquatic plants established in the UK. These can be easily spread through fragments of the plant which will then grow and establish quickly. Plants that fall under this category are:

- Nuttall's pondweed (*Elodea nuttallii*)
- Canadian waterweed (*Elodea canadensis*)
- Curly waterweed (*Lagarosiphon major*)
- Water Fern (*Azolla filiculoides*)
- New Zealand Pygmyweed (*Crassula helmsii*)
- Flowering Water Primrose (*Ludwigia grandiflora*)
- Floating Pennywort (*Hydrocotyle ranunculoides*)
- Parrot's Feather (*Myriophyllum aquaticum*)



# The disease problem

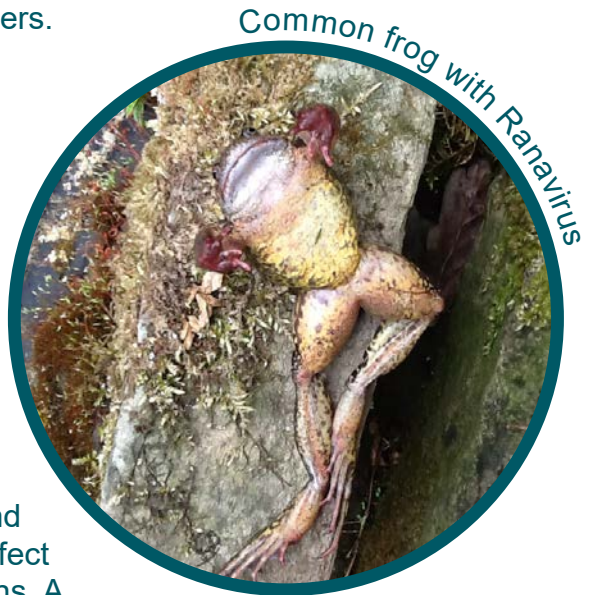
In the UK there are two significant amphibian diseases, Ranavirus and Chytridiomycosis. These can cause mass mortality events in amphibian populations.

## Ranavirus:

A viral infection, primarily affects common frogs (but has been identified in common toads and smooth newts). Symptoms include emaciation, lethargy and haemorrhaging. Outbreaks are often seen during hot summers.

## Chytridiomycosis:

Also known as chytrid, has been found to affect all native amphibians to varying degrees and is caused by the fungus *Batrachochytrium dendrobatidis* (often referred to as Bd or chytrid fungus). Bd grows on the amphibian's skin causing problems with respiration and water uptake. It can often affect emerging juvenile amphibians. A new chytrid fungus affecting salamander species (*B. salamandrivorans*) has recently been found in continental Europe and captive UK populations.



You can report amphibian health incidents and get more information from the Garden Wildlife Health project: [www.gardenwildlifehealth.org](http://www.gardenwildlifehealth.org)

## **Safeguard the environment - CHECK, CLEAN and DRY:**

Precautions should be taken to avoid the potential spread of disease between reptile and amphibian populations and the spread of non-native plants and animals.

- **CHECK** all equipment to remove fragments, seeds and live organisms.
- **CLEAN** and wash all equipment thoroughly after every pond visit.
- **DRY** all equipment as some pathogens can survive for several days or even weeks in damp conditions.

Take special care where sites are known to have disease and/or invasive species issues. Check, clean and dry between each site/pond sampled.

- If there is more than 1km between sites then also disinfect all equipment and footwear.
- The recommended disinfectant is Virkon. Soak equipment for one minute in a 1mg/1ml solution, or apply using a spray bottle.
- Alternatively a 1:15 bleach (5% bleach content) solution can be used (soak for 15 minutes).

**In general try to avoid handling amphibians. If you do need to handle amphibians or pond water use a new pair of disposable vinyl gloves for each site sampled. Do not use latex gloves as they are harmful to amphibians.**



# Personal safety

- Carry out a site risk assessment for the site you plan to survey.
- Identify additional specific hazards associated with the site. For example, steep slippery banks.
- Do not carry out a survey if you feel unsafe to do so.
- Always talk to the landowner of the site to gain permission to survey.
- Try to survey with another person and let others know where and when you are surveying. Do not carry out night surveys alone.

# Legality

All native amphibians are protected under the Wildlife and Countryside Act 1981 against sale or trade.

The great-crested newt (GCN) is a fully protected species under UK and European law. This means it is an offence to: capture, kill, disturb or injure great-crested newts (on purpose or through negligence), to damage or destroy a breeding or resting place (even accidentally), to obstruct access to their resting or sheltering places (on purpose or by not taking enough care), and to possess, sell, control or transport live or dead newts, or parts of them. This protection covers the newts as eggs, larvae, juveniles and adults.

All surveys for great-crested newts must be undertaken under licence from Natural England. Without a license (for England these are issued by Natural England and requires training and field experience to qualify for) you will not be able to survey a site that you know to have GCN present. If you identify the presence of GCN at a site and you do not hold a license then you must stop your surveying activity immediately.



# Useful websites

Check, Clean Dry campaign: [www.nonnativespecies.org/checkcleandry/](http://www.nonnativespecies.org/checkcleandry/)

Non-native pond plant species  
[www.nonnativespecies.org/beplantwise](http://www.nonnativespecies.org/beplantwise)



# Using the survey form

## What are we recording?

**Site details:** Site name, address and grid reference if possible.

## Survey conditions:

- Temperature (°C)
- Current weather and weather pattern of previous few days
- Water clarity (if known)

**Setting:** Urban, suburban or rural?

**Other information:** Use this section to make a note of other important features such as nearby rail tracks, presence of livestock (dogs too), evidence of vegetation management (i.e. mowing regime).

## Species records:

- Identify the species and lifecycle stage if possible – this helps to determine if breeding is occurring.
- Tick if present or add numbers where possible – add a question mark if unsure.
- Note where seen – on log, along path, refugia etc.

**Notes:** Use this section to record habitat features of interest. This could include adjacent land use, hibernation/egg laying sites, habitat condition etc.

Fill in a new amphibian survey recording form for every survey you complete. Do this *in situ*, or immediately after you survey – you will forget otherwise! Please send us all of your surveys even those where you found nothing.

This booklet contains two survey forms. If you require more survey forms please visit:

[www.froglife/info-advice/wildlife-spotting](http://www.froglife/info-advice/wildlife-spotting)

Send your forms to: Froglife, 1 Loxley, Werrington,  
Peterborough PE4 5BW

# Amphibian Survey form



Recorder details	Site details
Name:	Name:
Address:	Address:
Telephone number:	
Email address:	Grid Reference:

## Survey conditions:

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Air Temperature: \_\_\_\_\_ Weather conditions: \_\_\_\_\_

Water clarity: \_\_\_\_\_

Setting (please tick):					
Urban		Suburban		Rural	
Habitat Types Present (please tick):					
Woodland		Parkland		Scrub	
Grassland		Garden		Arable	
Brownfield		Marsh		Other	
Pond (<0.25 HA)		Pond (Up to 0.25 HA)		Pond (0.26-2.0 HA)	
				Lake (2.0 HA +)	

## Other information:





# Amphibian Survey form



Recorder details	Site details
Name:	Name:
Address:	Address:
Telephone number:	
Email address:	Grid Reference:

## Survey conditions:

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Air Temperature: \_\_\_\_\_ Weather conditions: \_\_\_\_\_

Water clarity: \_\_\_\_\_

Setting (please tick):							
Urban		Suburban		Rural			
Habitat Types Present (please tick):							
Woodland		Parkland		Scrub		Ditch/Stream	
Grassland		Garden		Arable		Heathland	
Brownfield		Marsh		Other			
Pond (<0.25 HA)		Pond (Up to 0.25 HA)		Pond (0.26-2.0 HA)		Lake (2.0 HA +)	

## Other information:

Species	Adults			Larvae/ Juveniles	Eggs	Dead	Diseased	*Survey Methods
	Male	Female	Unknown					
Newts								
Smooth newt								
Palmate newt								
Great crested newt								
Other (please specify)								
Frogs and Toads								
Common frog								
Green/water frog								
Common toad								
Natterjack toad								
Other (please specify)								
Other (please specify)								

*\*Survey methods: Visual search (V), Netting (N), Torching (T), Refugia (R). Refugia type: Natural (N), Tin (T), Onduline (O), Felt (F).*

Notes:

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Froglife is a UK wildlife charity committed to the conservation of amphibians and reptiles - working with people, enhancing lives together for a healthier planet.

**Froglife**

1 Loxley  
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Email: [info@froglife.org](mailto:info@froglife.org)  
[www.froglife.org](http://www.froglife.org)  
01733 602102

This edition of Just Add Water has been supported by



**LOTTERY FUNDED**

If you would like to become a Froglife Friend please fill in this form, detach and post it to: Froglife, 1 Loxley, Werrington, Peterborough, Cambridgeshire, PE4 5BW

Name .....

Address .....

.....

..... Postcode .....

Contact Tel. ....

Email .....

**Level of Froglife Friendship:**

☐ £18 - annual single Friendship

☐ £36 - annual joint or family Friendship

☐ £500 Friend for Life

☐ I am a UK taxpayer. Froglife (registered charity no. 1093372) can benefit from Gift Aid on my donation.

Signed ..... Date .....

I would like to pay by: ☐ Cheque ☐ Card (see below)

Card No. (long number on front) .....

.....

Start Date ..... Expiry Date .....

Issue No. (if present) ..... Security Code .....  
(last three digits on reverse)

Name on card .....

Address (if different from above) .....

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## GET FROG FRIENDLY: BECOME A FROGLIFE FRIEND!

Join Froglife today and help us give a voice to the UK's amphibians and reptiles - saving species, improving habitats and enhancing lives in the process.

For as little as £18 for a year you receive regular newsletter updates, exclusive invites to Froglife events and special offers for Froglogue merchandise.

## THREE WAYS TO JOIN:

**Online:** [www.froglife.org](http://www.froglife.org)

**By post:** add your details to the left, including a cheque or your card details, detach and post it back to us

**Give Froglife Friendship as a gift:**  
visit the online shop [www.froglife.org/shop](http://www.froglife.org/shop)