

National Amphibian and Reptile Recording Scheme NARRS Amphibian Survey – 2009 Protocols

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Background

NARRS aims to measure changes in the ‘conservation status’ of amphibians, which is needed to determine conservation strategy and priority. Our rarest amphibians (natterjack toad and the newly reintroduced pool frog) are already subject to coordinated monitoring programmes. The remaining species (great crested, smooth and palmate newt, common frog and common toad) are more widely distributed and require the involvement of many surveyors to gather sufficient data to allow national population trends to be evaluated.

The National Amphibian Survey focuses on ponds, as these are convenient and meaningful sampling sites for amphibians. In consultation with professional surveyors, academics and volunteers, NARRS has adopted pond survey protocols to collect data concerning:

- The surveyor
- Pond location and ownership
- The amphibians themselves
- Variables that might affect the ease of detection of amphibians
- Information about the pond habitat

Information about the pond habitat is necessary, as conservation status is a measure not only of numbers of individuals/populations, but is also concerned with ‘future prospects’. A measure of habitat quality will provide additional information on these prospects. A habitat suitability index developed for the great crested newt (Oldham *et al.*, 2000) has been modified for use in NARRS. Although this was developed for the great crested newt (a European Protected Species, and hence of particular interest to NARRS), it is anticipated it may also provide information of relevance to the other species.

Locating your survey pond and arranging access permission

To assess changes in amphibian status it is important to examine a sample of sites that is representative of the geographic area of interest – in this case the UK. Although it would certainly be logistically easier if volunteer surveyors were to survey their favourite pond, the picture given by this sort of approach would not be representative of ponds in the UK. To avoid such biases sites are selected randomly. For the National Amphibian and Reptile Surveys in 2009, one-km squares have been selected randomly from a five x five km grid centred on the surveyor's home address. For the amphibian survey, only a single pond within the selected one-km square is the target of the survey – the first pond from the south-west (bottom left) corner of the square. A 'pond' is defined as a water body that holds water for at least four months of the year and can be as small as one m² or as large as two hectares in area.

To find the exact location of the survey pond requires a combination of map and field work. Start by locating the pond on a 1:25,000 scale OS map. OS map data are also available on websites such as:

- Get-a-map: www.ordnancesurvey.co.uk/oswebsite/getamap
- Multimap: www.multimap.com
- Google Maps: maps.google.co.uk

Having located the pond on a map, you must then find the landowner, to request permission to carry out the survey. Many volunteer surveyors report that they would like to survey ponds where access has already been arranged. However, in practice, often the easiest way of locating a landowner is through making enquiries locally. Hopefully, your local knowledge will help in tracing the landowner. The land might be in the ownership of a public body (e.g. Forestry Commission), or a private individual. In either case, you will need permission to carry out the survey. For land under private ownership it might be a case of knocking on the door of the nearest home, to ask about pond/site ownership. An access request letter is available to demonstrate that your survey is part of NARRS.

Your meeting with the landowner can be a useful opportunity to generate good relations, to gather information about the pond and to minimize hazards that may arise during the survey. If a landowner is willing for you to survey ponds on his/her land, then ask about:

- Convenient car parking.
- Safety issues at ponds (e.g. steep banks, deep water, butyl-lined reservoirs)
- The pond and its wildlife. (Are fish present? Are ducks kept on the pond? How often does the pond dry out?).

It is essential that you have the permission from the landowner before you visit a pond. If a landowner does not agree to grant permission of access then you should not attempt to visit the site. Either:

- Survey the next pond within the survey square, to which access permission is granted
- Chose a target pond from a neighbouring square (see below)
- Request another survey square from NARRS.

If a pond identified on the map turns out to be no longer in existence, then this information is still important to the survey, so please note and return a form for such a pond (providing information for the sections on **Pond details** and **Your details** (you won't be able to provide **Habitat suitability** information or **Survey** results). Then take the next pond from the south-west corner of the survey square as the survey target.

If there is no pond to survey in your square, then please survey a pond from a neighbouring square. First check the square immediately to the north of your original square then look at the square to the north-east of your original square, and so on, moving clockwise around the original square until you locate a square containing a pond.

Filling in the survey form

Data protection and copyright agreement

Please sign this section to show that:

- You are willing for your survey data to be entered onto a computer database
- You are willing to share any intellectual property rights that may pertain to the information you are providing.

All current biological recording relies on collating information on a computer and using the records appropriately. Your signature is just a means of formally and overtly making it clear that you are happy for information that you provide to be used this way.

Pond details

The grid reference should be in the form SP 123 456, or more detailed. If you are not familiar with grid references, then help can be found on the Ordnance Survey's website, under guidance on using the National Grid: www.ordnancesurvey.co.uk/oswebsite/gi/nationalgrid/nationalgrid.pdf

Pond name/address/reference number (and source) Most ponds do not have a name, but if yours does, then please note. If the pond is associated with a property (e.g. a house or farm), then the property address should be noted. If the pond is being surveyed as part of an existing scheme, then it may have a reference number under this scheme. Please give the number/code and note the relevant scheme.

Your details

Please provide your name and contact details, as your name will be part of any biological records you submit and your contact details are helpful for feedback or follow-up enquiries concerning your data. Your address details will not be passed on to any other organisations.

If you are submitting more than one survey form, then you do not have to put your full contact details on all of the forms. Full details on one form and just your name on the rest should suffice.

Landowner details

Experience has shown that landowners are generally willing to allow access for amphibian surveys but can become suspicious of an overly bureaucratic approach. In most cases it is sufficient for the survey simply to have a record of the site owner and no follow up will be necessary.

However, some landowners will be interested in the results of your findings, and possibly of the survey as a whole. So, for your own feedback purposes, it would be useful to have a postal or email address to which you can send your/the project's results.

Habitat suitability factors

To determine the status of amphibians, we need to know about habitat quality, as well as the animals themselves. The survey form asks you to rate the pond and surrounding habitat by scoring ten components of a habitat suitability index developed for the great crested newt. The original version can be found in: Oldham *et al.* (2000). The original methodology has been modified for NARRS to make it easier to use. Guidance is provided in an accompanying document. Although the guidance looks lengthy, the system is relatively quick and easy to use in practice. Much of the guidance comprises definitions of the categories used in scoring the different factors.

Surveying the pond

Each pond should be surveyed between one and four times, using three different techniques (four if you are trained and licensed for bottle-trapping):

- visual search (especially to look for eggs)
- netting
- night time torchlight survey.
- bottle-trapping (techniques not covered here – you must be specially trained and licensed)

Visual search

A visual survey involves walking once around the pond edge, looking for amphibians, and especially their eggs. For the newt species, the eggs of the great crested newt are the most readily apparent. The eggs of the other two species are harder to find and indistinguishable in the field. In some cases species identification may be possible by inference. For example, if eggs which are identified as either smooth or palmate newt are found in an area outside the range of palmate newts, then the eggs can be recorded as smooth newt eggs. If there is any uncertainty, then indicate on the survey form with a question mark rather than a tick.

Netting

If the pond contains submerged vegetation, then this should be searched by netting. To standardise netting effort, work around the pond perimeter netting vegetation along two-metre lengths of pond shoreline. Standing at the pond edge, agitate the net through aquatic vegetation in an approximately two-metre arc. Inspect the net for captures (which should be returned to the pond) and then move two metres along the shoreline and repeat the process.

Vegetation will not be continuous and some ponds may have little vegetation at all. Netting open water is less effective in detecting amphibians than is running a net through vegetation beds. So, if much of a pond is devoid of vegetation and netting open water is yielding no captures, then netting around the whole edge of the pond is likely to be unproductive. You may choose to confine netting to vegetated areas and note the corresponding percentage perimeter of the pond sampled using this technique.

Night time torchlight survey

After dusk the pond should be searched again, by torchlight, from the pond banks. The pond perimeter should be treated as two-metre sections of bank. In the first two-metre section the torch should be moved away from the bank and then back towards the surveyor so as to cover the area of pond within a segment determined by the two-metre stretch of bank. Once this has been searched, move on to the next two-metre section and repeat until all of the accessible areas of the pond have been searched. It may not be possible to search the whole pond perimeter. The percentage shoreline searched should be recorded on the survey form.

The torchlight survey may take place on a different day to the visual search and netting, or it can be carried out on the same day, provided that netting does not limit visibility due to stirring up silt. In either case, daytime survey work should always be carried out before a torchlight survey, so that any potential hazards can be identified in daylight.

REMEMBER – your survey results are very valuable to us however many visits or methods you can use!

Survey results

The survey form contains boxes for different life stages of the widespread amphibians (and other species noted).

- In the boxes record the numbers of amphibians (Adu = adults, Imm = immature).
- Clumps of frogspawn should be counted, the presence of other eggs or larvae should be indicated with a tick.
- In the event that smooth/palmate newt eggs or larvae are found but cannot be identified to species, indicate with a question mark.

Survey conditions

The form also contains boxes to record when the survey took place, weather variables and how much of the pond you were able to search. These are factors that may affect your chances of finding amphibians, so we need to record them. To record air and water temperature you will need a thermometer. Other variables can be scored from the scales provided on the recording form.

Data return

Data should be returned on-line, if possible. An on-line survey form will be made available on the NARRS website www.narrs.org.uk. If this is not possible, then please send completed paper forms to The HCT, 655A Christchurch Road, Boscombe, Bournemouth, Dorset BH1 4AP.

Survey equipment

To carry out a full survey you will need:

- Pond net (ideally a rigid frame and mesh of about 2 mm)
- Powerful survey torch (500,000 to 1,000,000 candlepower)
- Safety torch (a smaller torch for use if your survey torch fails)
- Thermometer
- Mobile phone (useful in the event of emergency)

Health and safety

Amphibian survey work is a relatively safe activity. However, it does involve working near water and may involve crossing unfamiliar terrain, both of which entail potential hazards. Surveyors should carry out a risk assessment of any pond to be surveyed. A pond survey risk assessment can be provided on request from the NARRS project. **To carry out an amphibian survey you do not need to enter the pond.** The survey should be carried out from the pond banks.

Legislation

With the exception of the great crested newt, there is no legislation pertaining to issues of amphibian survey. However, the great crested newt is a strictly protected species. This protection requires a licence from Countryside Council for Wales/Natural England/Scottish Natural Heritage to carry out, legally, activities that involve capturing/handling or even disturbance of the animal. All of the survey methods proposed for the current survey involve either capture/handling (e.g. netting) or disturbance (e.g. unwrapping eggs, searching for newts by torchlight). Hence, to participate in NARRS surveys within the range of the great crested newt, a licence from the relevant statutory nature conservation organisation will be required. Some surveyors will already hold such a licence, or be covered by group licences (for example held by Amphibian and Reptile Groups). If this is not the case, surveyors can work under a group licence held by the Herpetological Conservation Trust. However, attending a training course is a necessary requirement for this option.

Amphibian disease

Refer to ARG UK Advice Note 4. *Amphibian disease precautions: A guide for UK fieldworkers* available on the ARG UK website www.arguk.org.

Summary of key points

- Register with NARRS to obtain a one-km square.
- Locate the pond nearest to the south-west corner of square.
- Identify landowner and request access permission.
- If access permission is granted, carry out site risk assessment.
- If safe, survey between one and four times
- Use three methods (visual, netting, torchlight) per survey/visit (four if trained and licensed for bottle-trapping).
- **Return data to NARRS – EVEN IF YOU DON'T RECORD ANY AMPHIBIANS!**

Reference

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

The National Amphibian and Reptile Recording Scheme (NARRS) is a partnership project coordinated by **The Herpetological Conservation Trust**. For local conservation projects concerning amphibians and reptiles contact your nearest Amphibian and Reptile Group www.arguk.org

