

# Amphibian surveys



## Survey options

- **Toad surveys:** the aim is to visit each survey pond in the 1km square in March or April, and see if frogs, toads or their spawn is present
- **Great Crested Newt eDNA survey:** collect a water sample from each survey pond in your 1km square in May, using the eDNA kit and complete an environmental form.
- **Great Crested Newt full survey:** You need experience, time and a license to do this survey, which uses traditional methods to survey Great Crested Newts, and includes four night-time torching visits between April and June.

Although we have divided the survey into these three survey types – you can record any amphibians you see whilst undertaking any of the surveys.



# Survey for Toad and Frog

When: During March or April

During the day - walk around the edge of the pond, searching for signs of amphibians .

- Record any sighting of an amphibian at the pond.
- Count the number of frog spawn clumps and the presence of toad spawn.
- If you undertake the survey slightly after the main spawning period, you can also search for tadpoles or newt larvae.

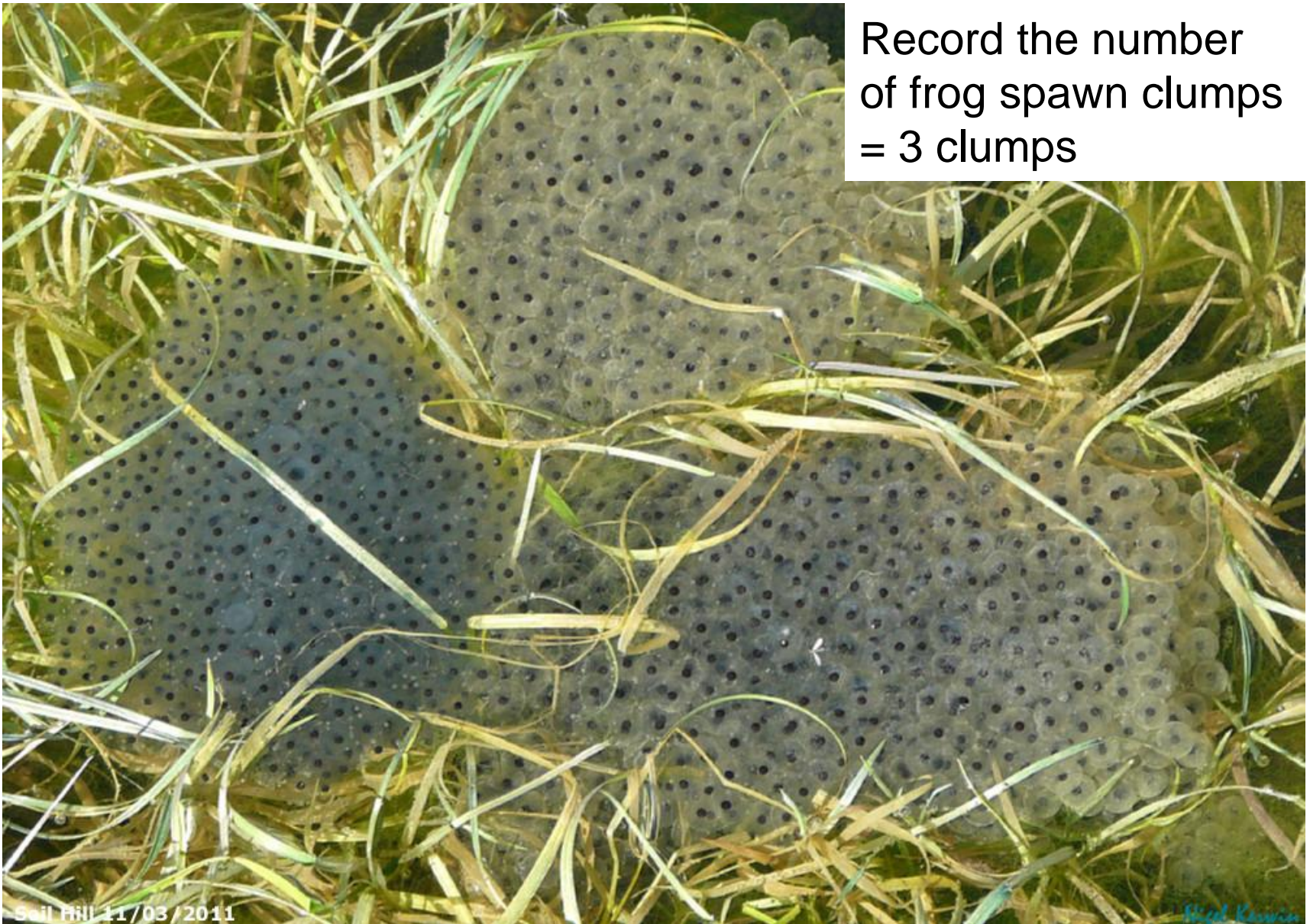


# Survey for Toad and Frog





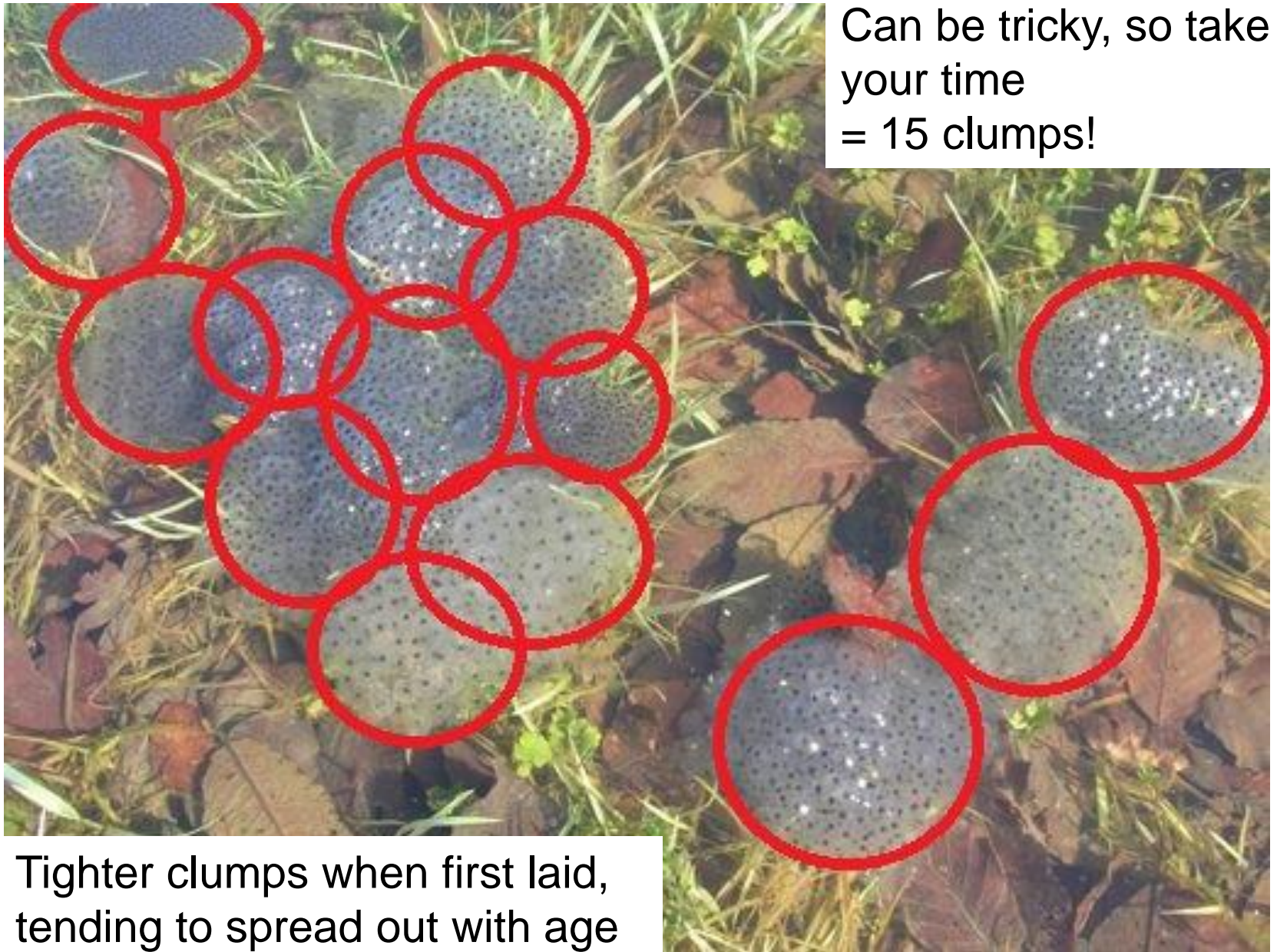
Record the number  
of frog spawn clumps  
= 3 clumps



Soil Hill 11/03/2011

Steve Kewin





Can be tricky, so take  
your time  
= 15 clumps!

Tighter clumps when first laid,  
tending to spread out with age



Common Toad spawn  
Record presence only, as it's not  
easy to count spawn strings!!

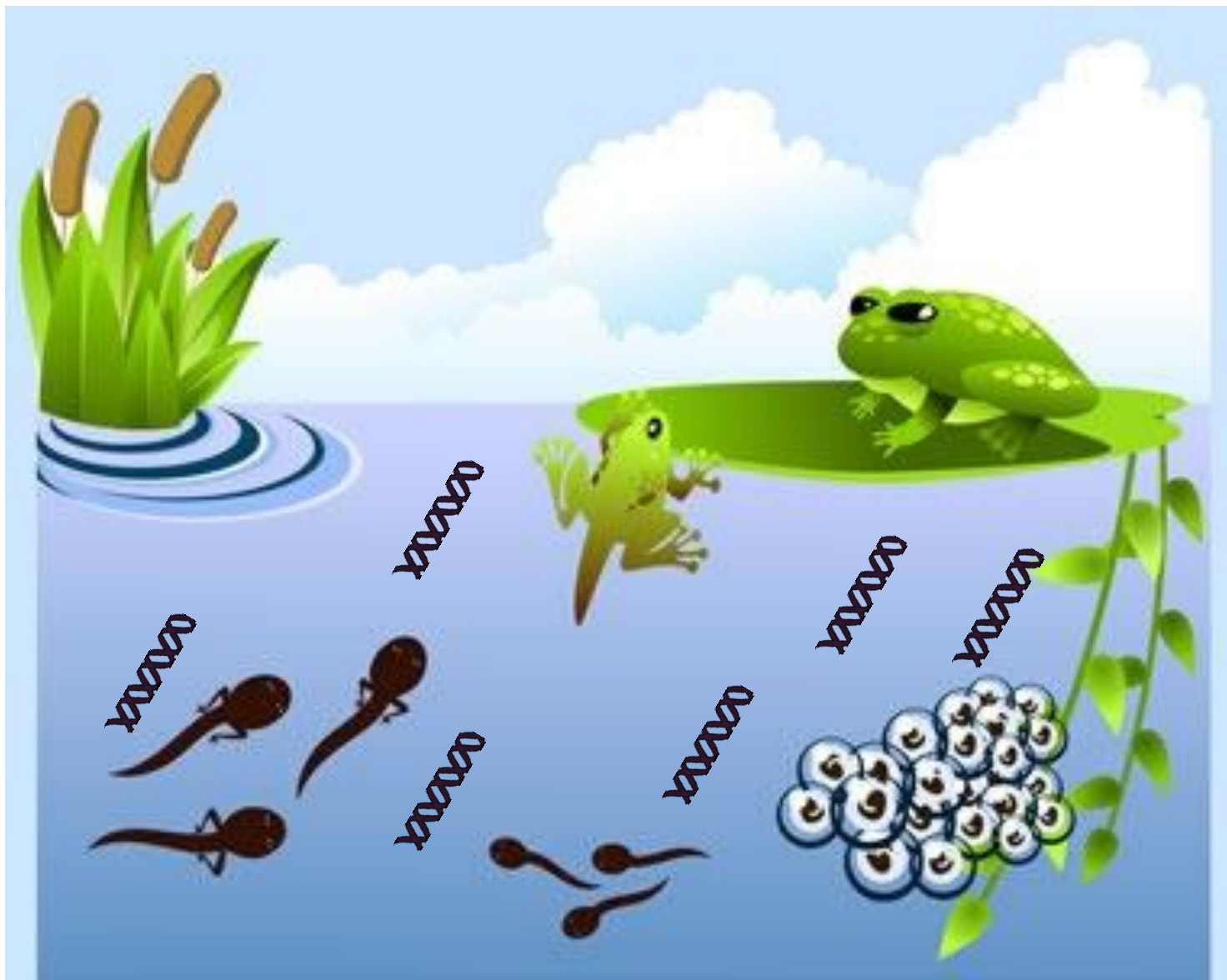


## eDNA survey

When: During May

eDNA stands for environmental DNA.

- It detects the presence/abundance of Great Crested Newt on the basis of a water sample.
- It is a simple technique but has a strict protocol to prevent contamination between sites.
- Based on a single day time visit.
- Only need to take the water sample once in May.
- Has been shown to be more than 99% effective at detecting Great Crested Newts if they are present.



DNA in the environment comes from reproductive activity, shed skin and excreta.





- Samples are taken from 20 different locations around the pond and after mixing in a bag, 15ml is syringed into a preservative in x6 50ml sterile tubes.
- These are then posted to the lab for analysis.
- The results are available in approx 3 weeks.



# Traditional amphibian survey

When: Four visits between April and June

- Torching is the most effective volunteer monitoring tool.
- Egg searching can also prove very useful.
- The survey statistics only need a record of Great Crested Newt presence or absence – not numbers - so as soon as GCN are recorded; there is no further need to return to that pond.
- If, no GCN are seen, you must complete all 4 visits.



# Torching

When: Four visits between April and June

- You will need a powerful torch (ideally 500,000 to 1 million candlepower)
- Torches made by Cluson Engineering (e.g. CB 1 and CB 2) are popular, but any sufficiently powerful torch can be used.
- Cheaper torches can be bright enough but may not last very long, or may produce light too diffuse to see through the water.
- Or borrow one . . . .

# Torching

When: Four visits between April and June

- Never undertake a torching survey on your own.
- The pond should be searched by torchlight from the banks – you should not go into or disturb the water surface.
- Divide the pond perimeter into two-metre segments (or keep a steady pace around the pond). At each point, shine the torch in the water, moving out from the bank and back again.
- Record presence, or for added value, tally the number of amphibians seen in the whole pond.





Newts can look very different by torch light – with practice you can tell the species apart.

Smooth newts



Newts can look very different by torch light – with practice you can tell the species apart.

Palmate newts



Newts can look very different by torch light – with practice you can tell the species apart.

A female of either smooth or palmate newt





For PondNet it's important to recognise [Great Crested Newts](#)  
([this is a male – see the tail flash](#))

Once you confirm presence of GCN the survey is complete



For PondNet it's important to recognise **Great Crested Newts** (this is a male – often it's easier to see the tail flash as he swims away)

# Egg searching

When: During the torch surveys

- Look for the folded leaves which indicate newt egg laying
- We are only interested in recording presence – one female may lay 200 eggs, or it may be 2 females laying 100 eggs each
- If you confirm one as a GCN don't need to look at any more – remember that once unfolded you expose the egg to predation, disease and uv
- If it's not a GCN then I'd say look at 10 more and if these are all palmate/smooth then stop searching after that point..





Nice broad folded leaves like these could potentially be  
**Great Crested Newts**



But, they also lay on other species (see the folded leaves?) and may even lay eggs on dead leaves on the pond bottom or vegetation hanging in the water.

## Other techniques

### Netting

- Netting can obviously cause quite a disturbance at the pond.
- As this survey is primarily about presence/absence - I'd only use this technique in a limited area of the pond and to confirm identification.
- Avoid areas where you can clearly see frog/ toad spawn or newt eggs.

### Trapping

- Only if you have an existing licence to use this technique – the PondNet licence does not cover bottle trapping.



# Protect yourself - protect your pond

- We have visited your square and identified the major hazards for you – look at the risk assessment in your survey pack.
- When you first visit a pond, take care – bearing in mind that the survey is to be carried out at night.
- Identify hazards on your route to and from the pond, and associated with the pond itself.
- Do not carry out a survey if you feel unsafe to do so (there are plenty of other squares and it's not worth risking injury).

# Protect yourself - protect your pond

Regard all pond water as a potential source of disease. There are several pathogens that can be contracted from pond water.

- Do not immerse open cuts in water
- Do not ingest pond water
- Do not consume food or drink or smoke cigarettes during pond survey work
- Wash hands thoroughly after a pond survey.

# Protect yourself - protect your pond

Prevent the spread of non-native plants, animals, fungi and diseases, e.g. Chytrid, Ranavirus , etc.

- Check all equipment to remove fragments, seeds and live organisms
- Clean and wash all equipment thoroughly after every pond visit in a bleach solution
- Dry all equipment as some species and pathogens can survive for several months in damp conditions

**INVASIVE SPECIES AND DISEASE ARE A  
SERIOUS THREAT TO ALL PONDS**



# Acknowledgements

- Pond Conservation is grateful to ARC for the use of these slides as training material.
- We are also grateful to Surrey Amphibian and Reptile Group, New Forest Ecological Consultants, Fred Holmes and Phil King for the use of their photographs in this presentation.
- Copyright of all photographs within this presentation remains with the photographers and ARC.