

# The Breeding Frog Survey

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Back in February I decided to try and get an idea of how many common frogs (*Rana temporaria*) we had in the zoo. Obviously I wasn't going to be able to count each and every last frog and so I decided to focus my survey effort on their mating effort, by estimating the number of breeding females on the site. A common way to do this is to count the clumps of frogspawn, as breeding females generally produce one clump of frogspawn each.

Along with the method, the timing of the survey was also important and to get the best results I needed to predict when and where they were likely to be breeding. The 'Herpetofauna Worker's Manual' describes common frogs as 'explosive breeders'... sounds painful! This basically means that they have a specific breeding period during which time they will congregate in ponds, find mates and lay spawn. Frogs typically come out of hibernation towards the end of February and spawn around the middle of March, however, if conditions are suitable they may emerge earlier. I originally planned to carry out the spawn survey sometime in March but this was brought forward when it became apparent that the frogs were already well into the swing of things in the middle of February (members of the Bristol Naturalist Society reported frogs spawning as early as the 21st of January for this year). To get the best estimate of the number of female frogs breeding around the site I waited until the 27th of February, this enabled me to count the spawn of the earlier emerging females before it hatched and allowed time for the slower emerging females to spawn as well.

To increase the chances of their offspring's survival, frogs tend to lay their eggs in warm places where they will hatch quickly thus reducing the chances of their spawn being eaten by predators. Favourable breeding sites selected by frogs are therefore often shallow and receive a lot of sunlight (southerly facing). Due to their tendency to emerge from hibernation at similar times and the specific temperature requirements of their spawning sites, frogs tend to lay their spawn in great big mats which makes counting each individual clump impossible. To get around this I



measured the surface area of the clumps from photos I had taken and then compared it with a chart in the 'Herpetofauna Worker's Manual'.

The largest accumulation of frog spawn was found amongst the reeds of the main lakes by the submerged foot bridge leading to the squirrel monkey island as this area is both shallow and inaccessible for carp in the lake. The second largest accumulation of frog spawn was found in the Wallace aviary where frogs were also seen to be actively breeding. Additional clumps were found in the pond outside the learning department, in one of the ponds in the rockery outside the pelican restaurant and even in the water features of the gorilla island and the kea exhibit. My survey efforts suggest that 121 female frogs had spawned on the grounds of the zoo by the 27th of February.



*Part of the spawn mat found in the shallow waters of the lake*

It is encouraging to know we have a large population of common frogs breeding on the site and hopefully our ponds can be improved in the future to enhance their biodiversity potential. The governments 'Pond' Habitat Action Plan (HAP) is due to be completed in the next few months. One of the targets of this HAP will be to restore existing pond sites to a high quality status in turn helping to deliver other species action plans. In order to achieve this, Pond Conservation have launched the 'Million Ponds Project' which will aim to create 600,000 high quality ponds whilst improving the status of existing ponds which are home to UK Biodiversity Action Plan (UKBAP) listed species. In a single evening in October last year I recorded soprano pipistrelle bats around the main lake along with common pipistrelle bats and what I believe to be Leisler's bats. As the soprano pipistrelle is a UKBAP listed species it may be that in the future the zoo could get some assistance from Pond Conservation to contribute towards the Pond HAP.

Check the Pond Conservation website for more information:-

<http://www.pondconservation.org.uk/>