

## The mystery of the Thorney midwife toads (*Alytes obstetricans*)

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The common midwife toad (*Alytes obstetricans*) is an introduced amphibian species, found in a number of small populations throughout Great Britain. Midwife toads are small in size, growing up to 5.5 cm, and get their name from the fact that males carry strings of eggs on their hind legs until the tadpoles are ready to be deposited in ponds. The species is previously confirmed from two populations in Cambridgeshire, one in Cambridge and the other in St Neots (Allain & Goodman, 2017; Allain & Goodman, 2019). The population in Cambridge has been studied since 2015 and has been the subject of both a population study, and disease surveillance. So far, all of the swabbed midwife toads have tested negative for the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*), which has been implicated in the decline of amphibian populations globally (see Allain & Goodman, 2018). Whilst further surveys are needed to estimate the population of midwife toads, it is likely that there are 50-100 individuals in Cambridge. The St Neots population is yet to be intensively studied, with the two known sites being private residential gardens, meaning that cooperation of local residents is needed for such research to take place.

There is an existing record of a third population of midwife toads in Cambridgeshire, from the village of Thorney (13 km east of Peterborough). Following the success of the Cambridge monitoring we decided to investigate the presence of midwife toads in Thorney, in order to help establish where the toads came from and how big the population is. Whilst there is no current evidence that midwife toads are a threat to our native species, this could change, and a precautionary approach is needed. It was therefore our ambition to locate the Thorney toads and assess their abundance and local distribution. Thus, we initially contacted the Cambridgeshire & Peterborough Environmental Records Centre (CPERC) in order to access the records. There is only one record for the area, from a consultancy survey carried out on 12 May 2011, of midwife toad larvae in a ditch. Whilst misidentifications are possible, midwife toad tadpoles (Fig. 1) are quite distinctive due to their large size. Additionally, they often overwinter and so in May, would generally have been the largest tadpoles present, making them easy to identify.

Our first action in trying to locate the toads was to make contact with local residents in Thorney to see if they had heard the toads, as their calls are very conspicuous. Unfortunately, no one we contacted had heard any midwife toads, but there were suspected sightings. These observations turned out to be common toads (*Bufo bufo*) and we therefore wondered why there had not been any other midwife toad records in the intervening decade. The original 2011 record is from an agricultural ditch on the southern limits of Thorney, and whilst the propensity of midwife toads to disperse is limited, this ditch system could act as an effective corridor system for dispersal to surrounding areas. Lack of other records suggested that dispersal had not happened, so we returned to the original record in order to glean any additional information. Perhaps the population had gone extinct, or the grid reference supplied was incorrect.

After contacting the ecologists who conducted the survey, it is clear that they didn't find midwife toad tadpoles in Thorney in 2011 after all. What we think is most likely is that common frog (*Rana temporaria*) tadpoles that had overwintered were misidentified as midwife toad tadpoles, due to their large size. Apart from size, midwife toad tadpoles can also be distinguished from those of our native species by the dark speckles on their tails (Fig. 1). In mid-May, the larvae of common frogs and toads are still present in ponds as they

start to get ready for metamorphosis, whilst the tadpoles of midwife toads are known to overwinter if they haven't experienced the required conditions to metamorphose. This is also more likely in midwife toads as they breed throughout the year and can lay eggs up until September, whereas our native species are explosive breeders in the spring. Common frog tadpoles also have the ability to overwinter, and this is not uncommon: individuals develop at different rates and some wait for the following spring so that when they do metamorphose, they are larger froglets, making them less prone to desiccation (Speybroeck *et al.*, 2016).

With this evidence, we recommend that CPERC invalidates the record of midwife toads in Thorney as there is currently no evidence for their existence. As above, we believe that a case of mistaken identity is the most likely cause of this record, although it may have also originated as a transcription error by CPERC. We were unable to acquire the original ecological report, so we are unable to test this possibility. Further populations of midwife toads may be present within Cambridgeshire and follow-up surveys should be conducted to confirm their presence, where they are reported to occur.

This cautionary tale highlights the pitfalls of assigning a species identity to a specimen (living or dead) seemingly based on only part of the available evidence. In this case, the size of the tadpole in May seemed to be the only identification clue used, whereas experience and consultation of further literature would also provide the information on appearance, which should be used in conjunction with time of year and size. As midwife toads are not native to Great Britain, it is important to monitor populations of the species found within Cambridgeshire (and elsewhere), in order to help assess whether or not they are having an impact on native species. Therefore, given this example, multiple pieces of evidence must be used when identifying the tadpoles of anurans so that cases of mistaken identity like this do not happen in the future, leading to the misreporting of new midwife toad populations.

## References

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**Figure 1:** Two common midwife toad (*Alytes obstetricans*) tadpoles in the hand, showing the size difference between an individual that has overwintered compared to one that hasn't.