

# Disease threat may change how frogs mate

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Dr Amber Teacher, studying a post-doctorate at Royal Holloway, University of London, has discovered evidence that a disease may be causing a behavioural change in frogs. The research, published in the August edition of *Molecular Ecology*, has unearthed a surprising fact about our long-tongued friends: wild frogs in the UK may be changing their mating behaviour.

Dr Teacher conducted her research with colleagues from the Institute of [Zoology](#) and Queen Mary, University of London. The research followed concerns over the survival of wild frog populations in the UK. Ranavirus, which had its first reported case in England in the early 1980s, is one of many [pathogens](#) ravaging the [amphibian](#) community.

Dr Teacher's pioneering new research looks at the genetic make-up of populations, and indicates that wild frog populations that have been infected with this virus may be choosing mates differently to those in healthy populations.

As Ranavirus is typically associated with heavy death tolls in infected populations, there are often few frogs left alive to mate. This frequently leads to [inbreeding](#), which causes an increase in relatedness in the population. However, Dr Teacher has uncovered startling results; finding that despite inbreeding there has been no subsequent increase in relatedness in these populations.

Dr Teacher's conclusion is that this lack of relatedness has been caused by a change in the frogs' mating strategy. With diseased frogs struggling

to mate, healthy frogs are likely to be mating more often with other healthy frogs, leaving diseased frogs to mate with each other. These frogs could also be selecting mates based on their Major Histocompatibility Complex (MHC) type; a group of genes directly involved with the animal's immune system. As the common frog is generally thought to mate randomly, this is a major shift in the frogs' mating behaviour.

Active [mate choice](#) based on MHC type is not uncommon in other species, with research indicating that a number of vertebrates, including humans, may use it to choose prospective mates, and improve their immunity to diseases.

'The situation requires directed behavioural research', says Dr Teacher. This discovery could re-shape the way we look at disease management in animals. If such behavioural effects from diseases are widespread, it is likely they have been overlooked in the past, meaning we may be forced to reconsider how such diseases impact on animals. Whilst Ranavirus has been researched in specific relation to population dynamics, Dr Teacher has exposed previously unknown effects that require further investigation.

Dr Teacher believes the next step is to observe these wild frogs over the coming years. 'The world of wildlife disease research would benefit greatly from such long-term investigations, allowing us to see how the host and the pathogen respond to each other over time', 'It would also shed further light on whether Ranavirus does indeed cause observable behavioural changes', she explains. Further research may also bring us closer to knowing if this new mating strategy could lead to wild [frogs](#) in the UK developing immunity to Ranavirus.

Source: Wiley ([news](#) : [web](#))

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