

Not all animal traps are equal

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Credit: AI-generated image ([disclaimer](#))

(Phys.org) -- Large differences in the performance of spring traps used to kill mice, rats and moles, indicate considerable scope for improving the humaneness of such traps, and suggest that incentives are needed for manufacturers to 'build a better mousetrap'.

A new Oxford University study, funded by the RSPCA, that tested the mechanical performance of break-back [traps](#) for mice and rats, and mole

traps, has found that some traps 'snap' with an impact momentum eight times weaker than others designed for the same species, and grip with a clamping force over five times weaker than the strongest.

Tests also found that more expensive traps did not necessarily perform any better than cheaper designs.

A report of the research appears this week in the journal *PLoS ONE*.

People looking to buy a trap are faced with a dizzying array of designs. Mouse and rat break-back traps range from the traditional 'Tom & Jerry'-style wooden trap, to newer, plastic alternatives with a variety of different mechanisms and spring types, whilst mole traps have scissor-like blades or wire nooses for trapping the animals in their burrows and are available from a range of manufacturers.

Break-back traps for mice and rats, and mole traps, are exempt from government regulation in the UK. This means that there are no rules, as there are with all other kinds of spring trap, regarding welfare standards; in England and Wales, for example, spring traps must cause irreversible unconsciousness in an animal within five minutes, 80% of the time.

Surprisingly, there was an overlap in the performance of the 23 mouse and 18 rat break-back trap designs tested, with some rat traps rated 'weaker' than the strongest mouse traps, even though rats are more than 20 times heavier than mice. In general, mouse and rat traps with a particular type of spring were found to be more powerful. In mole traps, mechanical performance differed significantly between 3 trap designs, as well as among the 4-5 manufacturers that made each design of trap.

'Whilst we were looking purely at the mechanical performance of these traps, and there were no animals involved in our tests, some of the rat traps are weak enough not to damage accidentally-caught fingers whilst

others, intended to kill the same species, would most likely break them,' said Dr Sandra Baker of Oxford University's Wildlife Conservation Research Unit (WildCRU) who, together with Dr Stephen Ellwood, led the research.

'Most people would probably assume that traps on sale in this country had to meet certain welfare standards,' said Dr Baker. 'However, without government regulation, there are no rules to make sure that any of these traps are up to the job of humanely killing the species they are intended for.

'If rats or mice are a nuisance, eating your food, chewing wires or making a mess in your home, or moles are digging up your lawn, you might think that these animals are pests and that it doesn't matter how we kill them, but we are talking about vast numbers of animals being trapped every year and, if this isn't being done humanely, this amounts to an awful lot of unnecessary suffering.

'Even if all these traps did meet the standard of killing within five minutes, which seems unlikely, five minutes is still a long time; we would like to see incentives for manufacturers to make better traps that kill more quickly and ensure that, whatever they spend, buyers get an efficient and humane trap.'

Dr Andrew Kelly, Head of the RSPCA's Wildlife Department, which funded the study, said: 'This important research clearly suggests a wide variation in the effectiveness of rodent and mole traps. Many traps currently used may cause unnecessary suffering and may not be humane if animals do not die quickly. We hope that this research will lead to regulation of the manufacture and use of break-back rodent traps and mole traps used for controlling these species in the future. This work is an excellent example of the collaborative working relationship between WildCRU and the RSPCA.'

'Concern for animal welfare and wildlife conservation complement each other,' said Professor David Macdonald, Director of WildCRU and an author of the paper, adding 'our findings are a powerful example of how science can inform practical wildlife management, with important ethical benefits'.

Recent research by the UK's Food and Environment Research Agency (independent of the new Oxford research) has suggested that a system might be introduced where the requirement for a trap to kill within five minutes was the minimum standard and that, if traps that killed significantly more quickly were available, less effective traps would be banned – giving an incentive for manufacturers to work towards traps that killed in seconds.

'The exemption of break-back traps for rats and mice, and of mole traps, from the UK approval process has probably hindered improvements in welfare standards in these traps,' said Dr Baker. An example of just such a situation was illustrated by a study in New Zealand in 2008, led by Landcare Research scientists, where traps commonly used to kill stoats failed new welfare regulations so dramatically that the study was abandoned. New, more efficient and humane traps for killing stoats have since been developed to replace the old traps in New Zealand.

More information: A report of the research, entitled 'Mechanical performance of rat, mouse and mole spring traps, and possible implications for welfare performance', is published this week in *PLoS ONE*. The research was carried out by Dr Sandra Baker, Dr Stephen Ellwood, and Professor David Macdonald of Oxford University's WildCRU (part of the Department of Zoology), and Dr Vito Tagarielli, then of Oxford University's Department of Engineering Science and now at the Department of Aeronautics, Imperial College.

Provided by Oxford University

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