# Study reveals common methods of rat control often fail to consider animal welfare impacts

*Experts in pest control, animal welfare, and veterinary medicine explored the impact that different methods of rodent control have on rat welfare to better aid decision-making*

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A study led by the University of Oxford, has found that glue traps and anticoagulant poisoning are amongst the worst methods of rodent management when it comes to their impact on rat welfare.

Many millions of rats - and mice - are estimated to be killed globally as pests every year. Two commonly used methods are glue traps (which are designed to catch rodents in a layer of extremely strong glue) and anticoagulant poisons (which interfere with blood clotting, killing rats through haemorrhaging). Rats are sentient animals (capable of negative and positive experiences) and yet both glue traps and anticoagulants can lead to extreme suffering. The research comes at an important moment as the proposed Glue Traps (Offences) Bill may restrict the use of these devices in England if it passes into law. Similar restrictions are being considered in Scotland and Wales.

Where possible, any suffering should be minimised in rat control, however, until now, very little information has been available on the relative animal welfare impacts of methods currently being used in the UK. This has made it difficult to select the methods which cause the least impact on rat welfare.

In the research, funded by UFAW (the Universities Federation for Animal Welfare), the Animal Welfare Foundation, and the Elinor Patterson Baker Foundation, Dr Sandra Baker, a Research Fellow at the University of Oxford, alongside a group of experts in wildlife management, rodent management, rodent biology, animal welfare science, and veterinary science and medicine, assessed the relative welfare impacts of six different methods of rodent control.

Using a welfare assessment model, published data and expert knowledge, the control methods were compared and evaluated, to produce a relative welfare impact score for each. Methods included: lethal snap trapping; glue trapping, followed by concussive killing (a concussive blow to the head); live (cage) trapping, followed by concussive killing; two types of rodenticide poisoning (anticoagulant and cholecalciferol); and non-toxic cellulose baiting (which disrupts digestive systems, resulting in lethal dehydration).

The main outcomes of the study showed:

- Glue trapping and the three baiting methods (anticoagulant poisoning, cholecalciferol poisoning and non-toxic cellulose baiting) all produced high welfare impacts and should be considered as last resorts from a welfare perspective.
- In comparison, cage trapping, followed by concussive killing, scored lower welfare impacts.
- The impact of snap trapping was highly variable, depending on the traps used, but high-quality snap traps could help produce the lowest impact, and therefore, the best welfare outcome, if used appropriately.

It is hoped these findings will help pest management professionals and the general public better understand and consider the welfare of these animals when selecting control methods.

**Dr Sandra Baker, lead author of the paper and Research Fellow at the University of Oxford, said:**

> "*Rat management may represent the greatest source of anthropogenic impact on wild animal welfare. Our findings will help professional pest controllers and members of the public to reduce this impact by better incorporating consideration of animal welfare alongside other factors when choosing a rat control method*".

**Dr Huw Golledge, chief executive and scientific director of Universities Federation for Animal Welfare (UFAW), said:**

> *"This work is an important step in understanding the animal welfare impacts of various rat control methods. Its strength lies in the level of agreement reached by the diverse range of experts involved. At UFAW, members of the public often ask us for advice about the most humane way to control rat infestations. These results give us the information we need to provide advice on which methods are likely to have the least damaging effects on rat welfare. On the back of this research, we have comprehensively updated our webpage resource, which offers advice to the public on how to deal with rodent problems in the most humane way."*

**Julian Kupfer, Chair of Trustees for the Animal Welfare Foundation (AWF), said:**

> *"Given the current parliamentary discussions on rodent control measures we feel that this is a really important and timely scientific contribution. Rats have an enormous and varied impact upon our society. The resultant damage, combined with cost of their control, is a heavy financial burden for those sectors involved. However, rats are sentient beings and the welfare consequences of the various commonly used control methods have always presented a truly uncomfortable ethical dilemma. This authoritative paper provides a much needed objective look at the welfare impacts on rats of those control methods by experts from various disciplines and various countries. The results present a real advance in the understanding of those welfare impacts which will help shape present and future approaches, attitudes and research into rodent control. This should lead to effective management measures that at the same time pay due regard to animal welfare."*

This study was also supported by UKRI ERA-NET RodentGate project, the UKRI MRC GCRF rodent zoonosis control project and the African Union EcoRodMan project.

For general advice and guidance on preventative actions as well as humane management of rat or mouse infestations, visit UFAW's webpage: www.ufaw.org.uk/rodentcontrol

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**Notes to editors**

**Reference:** S.E. Baker, M. Ayers, N.J. Beausoleil, S.R. Belmain, M. Berdoy, A.P. Buckle, C. Cagienard, D. Cowan, J. Fearn-Daglish, P. Goddard, H.D.R. Golledge, E. Mullineaux, T. Sharp, A. Simmons, and E. Schmolz. 2022. An assessment of animal welfare impacts in wild Norway rat (*Rattus norvegicus*) management, *Animal Welfare*, 31: 51-68. The full paper is available from Animal Welfare and can be

accessed here:
https://www.ingentaconnect.com/contentone/ufaw/aw/2022/00000031/00000001/art00005

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