

# Irish mammals under serious threat from 'invasional meltdown'

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Some of Ireland's oldest inhabitants are facing serious threat and possible extinction because of foreign species, according to researchers at Queen's University.

The red squirrel, Irish hare and [red deer](#) are just some of Ireland's [indigenous species](#) which are under threat as a result of the introduction of foreign [species](#). A new study which took place over the last two years looked at the impact of two introduced species – the bank vole and greater white toothed shrew – on two native [small mammals](#), the wood mouse and the pygmy shrew. If the rate of invasion continues as at present throughout the island of Ireland, its native small mammals will die out in at least 80 per cent of their available habitat.

The study, published in the international journal *Biological Invasions*, found that in the recent past the pygmy shrew has completely vanished in parts of Ireland where both invasive small mammals are found. Wood mouse numbers have decreased by more than 50 per cent in areas where the bank vole is longest established.

Small mammals occupy central positions in food webs, so major changes in species composition which are already occurring, will have both top-down and bottom-up effects in the ecosystem affecting bird and mammal predators as well as the invertebrates, seeds and seedling that small rodents and insectivores feed on.

Professor Ian Montgomery, lead researcher from the School of

Biological Sciences at Queen's University, said: "The introduction of alien mammals to Ireland over the last 100 years has had major detrimental effects, threatening our indigenous habitats and species. The American grey squirrel, for example, passes a deadly virus to native red squirrels, whilst European hares threaten the ecological and genetic integrity of the native Irish hare through competition and interbreeding.

"Governments, both north and south of the border, are urged to work together to address the overall problem of invasive mammals throughout [Ireland](#), and ensure that we understand both the mechanisms of invasion and the impacts of these aliens. It is no longer tenable to treat each invasive species as an isolated case. We should establish a realistic plan identifying the mammal species that are key to maintaining our unique biodiversity and ecology and those that we should eliminate or control."

The new study is the first of its kind to systematically analyse the cumulative effects of invasive mammal species on indigenous species. Such a process is known as 'invasional meltdown'.

**More information:** Montgomery, WI, Lundy, MG and Reid N 2011 'Invasional meltdown': evidence for unexpected consequences and cumulative impacts of multispecies invasions. *Biological Invasions*, [DOI:10.1007/s10530-011-0142-4](https://doi.org/10.1007/s10530-011-0142-4)

Provided by Queen's University Belfast

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