



[Stoats \(*Mustela erminea*\) provide evidence of natural overland colonization of Ireland.](https://arctichealth.org/en/permalink/ahliterature78175)

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Abstract: The current Irish biota has controversial origins. Ireland was largely covered by ice at the Last Glacial Maximum (LGM) and may not have had land connections to continental Europe and Britain thereafter. Given the potential difficulty for terrestrial species to colonize Ireland except by human introduction, we investigated the stoat (*Mustela erminea*) as a possible cold-tolerant model species for natural colonization of Ireland at the LGM itself. The stoat currently lives in Ireland and Britain and across much of the Holarctic region including the high Arctic. We studied mitochondrial DNA variation (1771 bp) over the whole geographical range of the stoat (186 individuals and 142 localities), but with particular emphasis on the British Isles and continental Europe. Irish stoats showed considerably greater nucleotide and haplotype diversity than those in Britain. Bayesian dating is consistent with an LGM colonization of Ireland and suggests that Britain was colonized later. This later colonization probably reflects a replacement event, which can explain why Irish and British stoats belong to different mitochondrial lineages as well as different morphologically defined subspecies. The molecular data strongly indicate that stoats colonized Ireland naturally and that their genetic variability reflects accumulation of mutations during a population expansion on the island.

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