

## Raising awareness of the plight of the critically endangered European mink in Spain is not miscommunication: a response to Melero

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To the Editor,

We (TM, MP) estimate that fewer than 5000 European mink persist, in less than 3% of their former range. The only remaining ‘large’ European populations are in the Danube Delta and northern Spain (Maran et al. 2016), and almost all populations are threatened by invasive American mink (Macdonald and Harrington 2003), established across Europe and Russia (Bouros et al. 2016). Effective control of American mink in Europe (and especially Spain) is crucial for European mink conservation and restoration. Whilst we applaud Melero’s (2017) attempt to address the success of American mink control in Spain, her suggestion that using the European mink as a native flagship species to raise awareness risks ‘miscommunication with the public’ is seriously misguided and potentially hugely damaging (in terms of public and political support) for on-going European mink conservation efforts.

Melero refers to speculation by Clavero (2014) that European mink in France and Spain may not be native (and thus not warrant conservation), based on their appearance in Spain

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in 1951, and France in 1839, and an incomplete interpretation of genetic analyses by Michaux et al. (2005)—an idea opposed by Díez-León et al. (2015) and Zuberogoitia et al. (2016). French and Spanish European mink lack genetic variation, and likely arose from a small number of founders (Cabria et al. 2015). However, anthropogenic introduction is only one explanation—others (equally likely) are natural migration from Central Europe, and/or recent bottleneck events (Cabria et al. 2015). Additional information supports natural migration (Zuberogoitia et al. 2016), and low genetic diversity at range margins is consistent with range expansion in other species (Excoffier et al. 2009).

Melero's paper fuels a 'controversy' that does not exist, and lends weight to an idea that lacks scientific evidence, and her suggestion that the 'details' (of the supposed controversy) be explained to the general public would only create confusion, and provide excuse for inaction.

The relatively recent appearance of European mink in France/Spain is not fully understood but shifting distributional ranges are neither a unique, nor a new, phenomenon. The EU Habitats Directive protects listed species (including European mink) across their 'natural range', defined only as that to which the species could have 'spread on its own...' (Trouwborst et al. 2015). Where the mechanism of 'arrival' (human-assisted or not) is ambiguous, Trouwborst suggests that 'member states must opt for the course of action that is most likely to [ensure favourable conservation status]'. Indeed, Melero suggests that 'any' European mink population should be conserved for the 'global benefit of the species'.

Melero draws comparisons with the Scottish mink removal project (Bryce et al. 2011), specifically the role of voluntary public participation, the success of which she attributes to the symbolism of water voles as Ratty in Kenneth Graham's (1908) children's classic, *The Wind in the Willows*. She fails to mention the earlier removal of American mink from the Scottish Hebridean Islands ([www.snh.gov.uk](http://www.snh.gov.uk)), driven by popular desire to protect ground-nesting seabirds (e.g. Craik 1997). Both Scottish projects have been hugely successful.

We agree that there is much to learn from Scotland, but the lesson is not in downplaying the importance of the European mink. The lack of a charismatic European mink story character (to encourage participation in its conservation) is a pity, but hardly a basis on which to reject its worthiness as a flagship species. Further, there are other effective conservation models not based on voluntary labour, public participation, and childhood appeal. The Hebridean Mink Project used professional trappers and cost several million GBP (Munro 2014) in EU and government funding. (And in southern England, where *The Wind in the Willows* was written, there is no effective large-scale management of American mink despite the water vole connection). We agree that the urgent need for action against American mink can be strengthened by raising awareness of impacts on other native species. However, there is strong scientific evidence (see Bouros et al. 2016) of the impact of American on European mink, the potential outcome (extinction of European mink) is clear, and awareness of this is crucial.

The success of the Scottish project is based on much more than the goodwill and involvement of water vole-loving volunteers—it is based on a large-scale, strategic, well-planned, well-monitored approach coordinated by a team of scientists, with the backing of national government (Scottish Mink Initiative, [www.rafts.org.uk](http://www.rafts.org.uk)). Whether the workforce is voluntary (and there are potential problems with this approach, Buesching et al. 2015) or paid (e.g. through EU funding), this is what is needed in Spain, not the denigration of a critically endangered species.

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