
Strong increase in Red kite adult mortality resulting from a vole poisoning campaign using anticoagulant rodenticide

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Abstract

A recent upsurge of wildlife poisoning has been described worldwide, threatening many species of conservation concern. Poisoning can be used as an illegal mean to eliminate predators. Evidence for secondary poisoning, i.e. when the poisoned target species is consumed by another non-target species, is growing and scavenger species (obligatory or not) are particularly affected. The use of anticoagulant to fight against rodent farmland pests, such as voles, has led to the recording of secondary poisoning for many non-target species. However, estimating the genuine impact of poisoning on non-target population dynamics from the partial recovery of dead animals is difficult. Failure to make strong inferences regarding poisoning impact hampers the set-up of effective management responses. An intensive poisoning campaign, using Bromadiolone rodenticide, occurred in 2011-2012 in response to a water vole outbreak in ‘La Chaîne des Puys’ (Massif Central, France), and resulted in the discovery of an unusually high number of dead red kites ($N = 25$), a Nearly-Threatened IUCN-list species. We analysed capture-recapture data from a wing-tagging program conducted on this species since 2006, and found a severe reduction in adult survival (-19%) over the two years of the poisoning campaign. First-year survival was not affected, young birds being less exposed than adults to Bromadiolone, the latter being mostly spread in early spring (before birth) and late autumn (after their departure for migration). Adult survival in two ‘control’ study areas from Massif Central, lacking poisoning campaign, was not reduced over the same period, reinforcing the putative link between additive mortality and poisoning campaign. We further explored the impact of repeated, large-scale water vole poisoning campaigns on red kite population growth rate at the regional level using projection matrices.

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