
Population monitoring and management

Development of a national recovery strategy for red squirrels in England through structured decision making

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Red squirrels (*Sciurus vulgaris*) are an endangered native species in England that face multiple threats including competition with the invasive grey squirrel (*Sciurus carolinensis*), the squirrelpox virus transmitted by grey squirrels, and habitat loss and degradation. Conservation actions are varied with some, primarily grey squirrel management, being less palatable to regional and national communities. Making decisions about how best to conserve red squirrels is, therefore, a complex task.

In this project, we used structured decision making to help develop a national recovery strategy for red squirrels in England. Structured decision making helps to methodically think through difficult decisions and allows for decisions to be informed by scientific evidence alongside the values and risk attitudes of the people involved. Through a series of workshops, we identified the core objectives that people want to achieve with a recovery plan; persistence of red squirrels in England whilst considering public support, animal welfare, wider ecosystem benefits, socioeconomic benefits, and the cost of any management. We then predicted the outcomes of different management strategies with regards to each objective. This included developing a spatially explicit population model of red squirrels and grey squirrels across England to predict the effects of the potential management actions on red squirrel recovery. This model considered how processes such as interspecific competition, squirrelpox epidemiology, and pine marten (*Martes martes*) predation affect squirrel population dynamics. We also conducted expert elicitation workshops to understand the impacts of each management strategy on squirrel welfare using a modified Sharp & Saunders approach to assessing the welfare implications of controlling pest species. As is common with competing objectives, there was no clear strategy that performed best for each objective. Consequently, we performed a trade-off analysis with the decision-maker. In this presentation, we will outline the structured decision-making process and its outcomes for this project, offering valuable insights for those tackling the complexities of vertebrate management.