

# Conservation policies 'impaired by over-confident predictions'

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Inappropriate conservation policies may be implemented as a result of scientists failing to sufficiently acknowledge the uncertainty of their models, according to Dr. Colin Beale, of the University of York.

Speaking at a Discussion Meeting on Predictive [Ecology](#) at the Royal Society, the UK's national academy of science, this week, Dr. Beale will discuss how species distribution models, which are often used as the basis for conservation planning, make predictions which are subject to significant uncertainty, the degree and source of which is often unrecognized.

Dr. Beale said: "We need to reassess the way that we make conservation choices. Using species distribution models whose uncertainty is unrepresented or underestimated, we may adopt an expensive, precautionary approach which is neither efficient nor effective.

"Painful as it may be, we have finite conservation resources and, if we are to be confident of cost-effective outcomes, we should sometimes choose to allocate them to species and scenarios where we have a high level of certainty in our knowledge, rather than investing in rare species that we know little about."

Species distribution models (SDMs) describe the spatial and temporal distribution of particular species, which is useful when devising conservation plans, particularly when considering factors such as disease distribution, climate change, invasive species and habitat fragmentation.

However, uncertainties in observed distributions, alongside uncertainty in the environmental factors that may affect them and uncertainty in models used to predict the future environment (such as climate change models), can all make these SDMs less certain and often these uncertainties are overlooked or unacknowledged. Dr. Beale's presentation will discuss in further depth these uncertainties and how they could be better estimated and, in some cases, reduced.

“When one considers a species such as the Scottish crossbill, the only bird species unique to the UK, one can see the results of a failing to recognise the issue of uncertainty in our conservation planning,” said Dr. Beale.

“This is a species so rare and difficult to identify in the field that our prediction of its future distribution as the climate changes is highly uncertain, yet applying a traditional precautionary approach would suggest an extremely costly and complex conservation plan that, for in reality, may have little or no impact on its chances of survival. Perhaps these [conservation](#) funds could be more effectively spent on plans for [species](#) and systems that we understand better, such as implementing well understood countryside management strategies.”

**More information:** The full discussion meeting program can be downloaded here: [royalsociety.org/events/predictive-ecology/](https://royalsociety.org/events/predictive-ecology/)

Provided by University of York

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