Providing Decision Support for Managed Relocation to Mitigate Climate Change

Contact

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Project Description

OVERVIEW

Species distribution model forecasts play a critical role in informing management and conservation strategies aimed at mitigating climate change impacts on biota. Unfortunately, these models are rife with assumptions and our understanding of their skill for projecting climate change impacts is lacking. In particular, uncertainty in these forecasts has marked consequences on the use of managed relocation (also known as "assisted migration" or "assisted colonization"). Managed relocation involves moving a species outside of its current range into areas that are predicted to become suitable under climate change. Given the potential economic and ecological consequences, managers require tools with which to gauge whether managed relocation can be implemented appropriately. The objective of this project is to determine the credibility of SDM forecasts and quantify how uncertainty in model predictions will affect decisions on the use of assisted migration.

APPROACH

1. Acquire historic and contemporary data on the distributions of multiple taxa.
2. Develop models with historic data and compare their projections to contemporary data.
3. Conduct a formal uncertainty analysis that characterizes uncertainty in observational records, model inputs, and model specification.
4. Assess how uncertainty in model forecasts should be incorporated into a decision support framework on the use of managed relocation.

We will focus our study on mammals, birds, fish, insects, and amphibians represented in historical and modern datasets.

DATA NEEDS

- Historical species surveys
- Modern species surveys
- Historical species range extents
- Modern species range extents

DATA USE

We will limit our use and distribution of data provided to this project in the following ways:

- Data will be stored on a secure university server
- Data will be shared only among project collaborators and graduate students working on research directly related to this project
- Distribution and use of data will comply with data use guidelines or permissions required by individual data providers
- Publications will focus on results from the analysis of multiple datasets
- Publications will not be based on the analysis and interpretation of a single dataset unless explicitly permitted by the data provider
- Data providers will be acknowledged in any publication based on their data

Principal Investigators

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