

Project/Activity Report

Title: Species Distribution Modelling (SDM) Workshop, 2023

Date: 2023-12-17 to 2023-12-20

Overview:

In response to a strong demand from wildlife biologists, the Nature Conservation and Study Centre (NCSC) held a four-day intensive workshop on Species Distribution Modelling (SDM) from December 17th to 20th, 2023. The workshop aimed to equip participants with the theoretical and practical skills to build and utilize SDM models for wildlife conservation and management.

Activities Undertaken:

Day 1:

- Introduction to SDM: Overview of SDM concepts, applications, and common software packages.
- R Fundamentals: Hands-on session on R programming for data manipulation and analysis.

Day 2:

- Linear Regression: Understanding the relationship between environmental variables and species occurrence using linear regression models.
- Generalized Linear Models (GLMs): Building more complex models with GLMs to accommodate different data types and distributions.

Day 3:

- Data Collection: Using a simulated scenario, participants collected data on snowleopards.
- Occupancy Modelling: Estimating species occurrence and detectability in areas with imperfect detection

Day 4:

- Maxent Modelling: Employing machine learning algorithms (Maxent) to predict suitable habitat for diverse species.
- Model Validation and Evaluation: Assessing model performance and identifying potential limitations.
- Workshop Wrap-up and Q&A: Open discussion to address remaining questions and share future learning plans.

Key Achievements:

1. Improved SDM skills: By the end of the workshop, all participants demonstrated significant improvement in their ability to build and interpret SDM models using R.
2. Increased confidence: Participants expressed greater confidence in applying SDM techniques to their own research and conservation projects.

3. Strong network building: The workshop fostered connections and collaborations between participants working on diverse wildlife conservation initiatives.

Challenges Faced:

1. Varying experience levels: Participants came from diverse backgrounds with varying levels of experience in R and statistics. This required adapting teaching approaches to accommodate different learning needs.
2. Limited time: Covering the breadth of SDM topics within the four-day timeframe was challenging. Some participants requested additional time for in-depth discussions and advanced topics.

Lessons Learned:

1. Tailoring content: Adapting teaching strategies to cater to different experience levels is crucial for maximizing learning outcomes in future workshops.
2. Prior knowledge assessment: Conducting pre-workshop assessments could help tailor the curriculum and address specific needs of participants.
3. Time management: Allocating dedicated time for individual project work and advanced topics would further enhance learning and application of SDM skills.

Upcoming Activities:

1. Basic SDM Workshop: NCSC plans to hold another basic SDM workshop in near future, focusing on R fundamentals and core modelling techniques.
2. Advanced SDM Workshop: An advanced workshop covering advanced topics like Spatially Explicit Capture-Recapture (SECR), data management best practices, and advanced occupancy modelling is being brainstormed.
3. Online Learning Resources: NCSC is developing online tutorials and case studies to complement the workshop content and provide ongoing learning opportunities for participants.

Workshop/Event Highlights:

1. Engaged participants: The workshop buzzed with lively discussions, active participation in exercises, and insightful questions from participants.
2. Collaborative atmosphere: The workshop fostered a collaborative learning environment where participants shared experiences, challenges, and ideas freely.

Financial Overview:

The workshop operated within the budget collected as registration charges from the participants.

Next Steps:

1. Develop and disseminate workshop materials for participants' continued learning.
2. Collect participant feedback to refine and improve future workshops.
3. Explore partnerships with other institutions to expand outreach and offer SDM training on a broader scale.

Conclusion:

The December 2023 SDM Workshop was a success, equipping participants with valuable skills and knowledge to contribute to wildlife conservation through the use of SDM. NCSC is committed to continuing its efforts in providing training and resources in this crucial field, building capacity for effective and informed conservation practices.

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