

## Population Modeling for Wildlife Conservation and Management Workshop

**Dates:** 2 - 6 May, 2022

**Venue:** Room 706, The Sir Duncan Rice Library (<https://www.abdn.ac.uk/library/using-libraries/the-sir-duncan-rice-library-123.php>), Bedford Road, University of Aberdeen, Aberdeen, AB24 3AA

**Cost:** FREE OF CHARGE

**Instructors:** Jean-Dominique Lebreton, CEFE/CNRS, Montpellier  
Jim Hines, U. S. Geological Survey, Eastern Ecological Science Center (EESC)  
Chris Sutherland, University of St Andrews  
Xavier Lambin, University of Aberdeen  
Madan Oli, University of Aberdeen & University of Florida

**Application deadline:** 15<sup>th</sup> April, 2022 (or until available seats are filled).

Studies of population dynamics aim to understand, explain, and predict the dynamics and persistence of biological populations. What factors influence demographic parameters, population structure, and abundance? How would environmental variation and global climate change influence population dynamics and persistence? Which demographic parameters should be targeted for ensuring persistence of an endangered or a declining population? How can we use lessons from management actions or experiments to make informed management decisions? Addressing these questions requires the development of models for population dynamics and *matrix population models* have emerged as the preferred suite of tools to achieve these goals and to guide conservation and management strategies.

This workshop will review simple models of population dynamics, but the primary focus will be on the construction and analysis of discrete-time stage-structured matrix population models (based on age classes, size, location, or life history stage). We will discuss deterministic models and their generalization to include environmental stochasticity, demographic stochasticity, uncertainty, density-dependence, and spatial structure. We will cover the application of matrix models using parameter estimates obtained from field data. We will emphasize a “bottom-up” approach that views models as tools to answer questions and modeling as an “art of simplification” motivated by real-world challenges that arise in the conservation and management of plant and animal populations.

The format of the workshop will be a combination of lectures and hands-on exercises, both using real-world examples and data sets. There will also be time set aside for discussion and analysis of participant’s data, so participants are encouraged to bring their own data (or data from online sources such as [COMADRE](#) or [COMPADRE](#)). *The workshop will make extensive use of program R. Participants are expected to arrive with a basic familiarity working in the R*

*computing environment, and bring their own laptop.* The workshop is intended to be both an introduction to matrix population models and a gateway to advanced applications. It is ideal for researchers that have a general interest in quantitative methods and will gain the most if familiar with basic concepts in population ecology, calculus, and algebra.

**Registration:** To register, please [complete the registration form](#).

**General inquiries:** Madan Oli ([madan.oli@abdn.ac.uk](mailto:madan.oli@abdn.ac.uk)); Xavier Lambin ([x.lambin@abdn.ac.uk](mailto:x.lambin@abdn.ac.uk)).