



## OCCUPANCY MODELLING IN ECOLOGY SCIENCES

The Ecology, Behaviour and Biodiversity Conservation-ECOCONS SGR research group organizes this workshop addressed to all members of the group and other Phd students or postdoctoral researchers interested on this upcoming new technology of analysis of ecological data, with applications on many different fields. This seminar will not only give the participants to learn from a leading expert on this field, but also to share their experiences and study cases.

**DATES:** 28 October – 30 October 2024

**VENUE:** Centre de Ciència i Tecnologia Forestal de Catalunya. Crta. Sant Llorenç de Morunys, km 2, 25280 Solsona, Lleida · 25280 · SOLSONA (Catalunya, Spain)

**TARGET AUDIENCE:** Researchers and graduate students in ecology or environmental sciences or related topics.

### PROGRAM:

**Day 1:** Maximum likelihood estimation; review of classic GLM's; design considerations and data types, fitting single season models using the unmarked package.

**Day 2:** Simulating data for occupancy models; checking model fit; introduction to Bayesian analysis and diagnostics; fitting single season models using a Bayesian formulation.

**Day 3:** Dynamic occupancy models; multispecies occupancy models; N-mixture models for count data; tips and useful resources

**TEACHER:** [Dr. Marc J. Mazerolle](#), Center for Forest Research, Université Laval, Canada

Marc J. Mazerolle is professor of quantitative conservation biology in the department of wood and forest sciences at Université Laval in Canada. His research aims to quantify the factors that influence animal population dynamics

within forest ecosystems, especially under the influence of various disturbances such as logging activities, road development, and agricultural expansion. His primary research focus is on amphibians, though his studies also include reptiles, birds, mammals, and arthropods. His methodological approach integrates field-based capture-mark-recapture techniques, controlled mesocosm experiments, passive acoustic and visual monitoring, and citizen science. Marc specializes in the estimation of parameters after accounting for presence of the probability of imperfect detection, employing both frequentist and Bayesian frameworks.

#### WORKSHOP STRUCTURE:

Each day will feature presentations of the material, time for questions and interactions with the participants, and hands-on exercises.

#### COURSE PREREQUISITES:

Participants should have a working knowledge of R to import their data and run classic models such as multiple regression and generalized linear models. Participants are encouraged to bring their own laptop. Some statistical consulting time for occupancy models will be reserved for participants wishing to bring their own data during the workshop.

#### IMPORTANT INFORMATION

Maximum number of participants: 20

Priority will be given in the following order: PhD students, post-docs, and researchers of the SGR ECOCONS; followed by PhD students, post-docs, and researchers of the CTFC and the University of Barcelona, who are willing to analyse data using occupancy models.

Dates for registration: 1 September 2024 - 26 September 2024

Cost: Free

Language of the course: English

To register for the workshop, contact Mariano Feldman: [mariano.feldman@ctfc.es](mailto:mariano.feldman@ctfc.es)