

Estimating avian abundance and occupancy with marked and unmarked individuals

Instructors:

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This 3-day workshop will focus on estimating abundance and occupancy, while accounting for detection probabilities, with data from marked and unmarked animals, with a focus on birds. Material during the first 1.5-2 days will address background theory and abundance estimation models that were developed for marked individuals. We will start with the most basic model (i.e., Lincoln-Petersen) and describe extensions to address variation in time, behavior, individual heterogeneity (e.g., Huggins models, Pledger/mixture models) and other topics as time allows. We will have demonstrations using Program MARK. We will end the material on marked animals by introducing the relatively new class of spatially explicit capture-recapture models.

We will then segue into models that can be used when animals cannot be individually identified (e.g., presence-absence data or count data) and spend the next 1-1.5 days focused on occupancy models and count models that use different kinds of count data to estimate abundance. We will provide a conceptual framework and then describe various approaches for dealing with detection probability using counts, including distance sampling, multiple observers, time-of-detection, and repeat counts (N -mixture models). We will demonstrate the use of the R package "UNMARKED". At the end of this workshop, attendees should have a conceptual understanding of a series of abundance and occupancy models that can be used in conjunction with data from marked and unmarked animals. Attendees will also be introduced to some relevant software and, depending on interest, 1-2 evening sessions (1.5 hours) may be organized for attendees wishing to gain some experience in using this software.

Maximum number of participants: 60 (first come, first served; a limited number of places will be reserved for Latin American students).

Course fees: \$50.00 per student, \$100.00 for all others.

Participants should try to bring a laptop computer, and will be contacted later with web-based information about course content, background readings and software download sites.

Refreshments will be served at breaks, but meals are the responsibility of participants.