
**MONITORING RESPONSES OF BEAR FOODS TO CLIMATE CHANGE
EVALUATING ADAPTIVE MONITORING DESIGNS FOR
OCCUPANCY STUDIES**

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Methods for assessing site occupancy while accounting for imperfect detection have quickly become important for ecologists wishing to study the distribution and prevalence of species across landscapes. Occupancy data are convenient to collect because, while they do require repeated sampling efforts, they do not require the marking of individual organisms. Some guidance on monitoring for occupancy studies has been provided for conventional settings. However, coupling the data collection and analysis components via an optimal adaptive sampling design may improve precision of estimates and save money. Optimal adaptive sampling designs have not been applied to occupancy models previously. We present a design criterion that facilitates adaptive monitoring for occupancy studies and illustrate its advantages and disadvantages through the use of simulations and real-data scenarios. Our findings indicate that, depending on the focus of the study in question, monitoring designs can be improved substantially by considering adaptive sampling schemes.