

## Evaluating camera trap-based abundance estimators for unmarked populations

Obtaining reliable population abundance or density estimates is crucial to wildlife conservation and management, yet is challenging and costly to attain. Camera traps have emerged as a popular tool to monitor multiple animal species at relatively low cost, for which several methods have been developed to estimate abundance when animals are not individually identifiable (i.e., unmarked populations). However, it remains unclear which method can be trusted to provide accurate abundance estimates and under what conditions. Here, we evaluate and compare the performance of three methods applicable to camera trap data under a common simulation: Random Encounter Model (REM), Random Encounter and Staying Time (REST) and Spatial Count (SC). We test the abundance estimator performance under scenarios spanning a wide range of population densities and home-range sizes, varying camera trap effort and habitat-driven movement. Results will be used to guide the application of these estimators on wild populations.