Estimating Population Growth Rate From Capture–Recapture Data in Presence of Capture Heterogeneity

Abstract

The direct estimation and modeling of population growth rate from capture–recapture data has now seen a number of applications. However, the original model cannot accommodate heterogeneous capture probabilities. While studying a population of small mammals Peromyscus maniculatus, we became concerned that the peak of population size may be estimated too late in the year because of heterogeneous catchability. Hence, we developed a variation of the original model with a finite number of catchability classes. The results obtained with the new model are more in agreement with the known biology of this population. A bibliographic appendix and computer code are available online.

Keywords