THE COMBINED ANALYSIS OF MULTISITE MARK-RECAPTURE-RECOVERY AND CENSUS DATA

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The statistical analysis of mark-recapture-recovery data (MRR data) dates back to important papers in the 1960s, when the foundation was laid for stochastic models, fitted to data by the method of maximum likelihood. There have been a small number of developments which are proving to be extremely influential. Two of these are: the extension of MRR data and modelling to the case of more than one site, and the integrated modelling of unisite MRR and census data. The aim of this work is to unite these two independent research programs, in order to produce procedures which will effectively provide an integrated analysis of multisite MRR data and multisite census data. The census data can be described by a state-space model and the likelihood is formed using the Kalman filter. By making use of strong information of movement provided by the MRR data it is possible to avoid flat likelihood surfaces, thus providing the means to estimate site dependent parameters. This methodology will be demonstrated on both simulated and real data sets.