EPIDEMIOLOGIC STUDY OF ANIMAL POPULATIONS BY CAPTURE-RECAPTURE : FIV IN DOMESTIC CATS

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Multi-states capture-recapture models are the equivalent of epidemiology models for animal populations where detection is uncertain. They may be used to study the rate of acquisition of the disease, the transition between the successive stages of a disease, as well as the stage-specific survival rates. In their most recent versions based on hidden Markov chains (multi-events models), they allow the treatment of uncertainty in stage assignment (false-negatives or false-positives, lack of information). As an example, we present a study of the Feline Immunodeficiency Virus (FIV), closely related to HIV, in an urban population of domestic cats (*Felis catus L.*). In this study, it was not always possible to physically capture the cats and when this was possible, blood tests could not always be carried out (e.g. for kittens). The main result is that the rate of infection depends on age and gender. This is consistent with the known degree of agonistic interactions between and among these categories and the mode of transmission of the virus. These models may prove useful in the description of the evolution of progressive diseases (e.g. cancer, AIDS) in human populations, when information is uncertain.