The effect of recycled individuals in tag-loss models

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Abstract: Mark-recapture experiments typically assume that individuals do not lose their tags. This assumption was relaxed by Cowen and Schwarz (Biometrics, 2006) with the development of the Jolly-Seber-Tag-Loss model. However, the number of individuals that lose both tags (recycled individuals) and are captured as "new" are assumed negligible. With high tag-loss rates, high capture rates, and high survival rates; recycled individuals can produce overestimates of population size. Through a simulation-based study, we examine the effect of recycled individuals on parameter estimates and standard errors. We also determine under what conditions recycled individuals have the most impact and offer management advice for study designs.

References

Cowen, L. and Schwarz, C.J. (2006) The Jolly-Seber model with tag loss. *Biometrics*, 62:699-705.