Exploring the consequences of reducing survey effort for detecting individual and temporal variability in survival

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Abstract: Long-term monitoring programmes often involve substantial input of skilled staff time. In mark-recapture studies, considerable effort is usually devoted to both marking and recapturing/resighting individuals. Given increasing budgetary constraints, it is essential to streamline field protocols to minimize data redundancy while still achieving targets such as detecting trends or ecological effects. In our study (Lahoz-Monfort *et al.* 2014) we evaluated different levels of field effort investment in marking and resighting individuals by thinning existing mark-recapture-recovery data to construct plausible scenarios of changes in field protocols. We demonstrate the method with 26 years data from a common guillemot *Uria aalge* monitoring programme at a major North Sea colony, the Isle of May. We also assessed the impact of stopping the ringing of chicks on our ability to study population demography using integrated population models, by artificially removing different data sets to explore the ability to compensate for missing data. When effort reduction is necessary, both post-study evaluation approaches provide decision-support tools for adjusting field protocols to collect demographic data in long-term environmental monitoring programmes.

References

Lahoz-Monfort J.J., Harris M.P., Morgan B.J.T., Freeman S.N. & Wanless S. (2014). Exploring the consequences of reducing survey effort for detecting individual and temporal variability in survival. *Journal of Applied Ecology*.

[will consider delivering lightning talk]