Dear Biometrics

Please find attached a manuscript that I and my co-authors would like to be considered for publication in the Biometric Methodology section of the journal.

Our manuscript describes a new method for estimating wildlife abundance from aerial surveys using digital video or stills photography, in situations where individuals of the target species that are within view of the aircraft may be missed. It involves simultaneous use of two cameras and is closely related to mark-recapture distance sampling methods, but distinguished from most such methods by the fact that it does not require identification of “recaptures” (detections of the same individual by both cameras). It shares this feature with the method of Stevenson et al. (2019), recently published in Biometrics.

We have designed the method in anticipation of use of aerial surveys by unmanned aerial vehicles (UAVs) and we illustrate our method by applying it to the same dataset that was analysed by Stevenson et al. (2019). This is a semi-synthetic dataset, based on a real survey, as we do not currently have real two-camera UAV data. We anticipate that UAVs with digital cameras will be common in future and our method provides a statistical tool for inference from such surveys. Unlike the method of Stevenson et al. (2019), our method is a maximum likelihood method. We compare it to the method of Stevenson et al. (2019) by simulation.

Regards

David Borchers

Refrence:

Stevenson, B. C., Borchers, D. L., and Fewster, R. M. (2019). Cluster capture-recapture to account for identification uncertainty on aerial surveys of animal populations. Biometrics

75, 326-336.