

Appendix 5

Evaluating trade-offs in spatial versus temporal replication when estimating avian community composition and predicting species distributions

We conducted this analyses on a subset of 80 PSUs sampled using only ARUs (see main text). Prior to analysis, we limited the species to a subset of 104 species comprised of passerines, shorebirds and woodpeckers (Table S3A), for which point count and acoustic recording methods are appropriate survey techniques. We excluded gulls, raptors, waterfowl, rails, and passerines commonly detected as flyovers. For each sub-sampled data set we estimated the proportion of species observed in the sample divided by the total species observed for all 9 secondary sample units during 6 temporal replicates for the single cluster that were observed. We took 500 bootstrap samples of the data within each iteration to calculate the proportion of the species richness within all 9 SSU detected within the subset of SSUs sampled iterating through combinations of 1, 2, 3, 4, 6 and 9 SSUs sampled.

Prior to analysis, we also estimated landcover richness (the total number of land cover classes) within the PSU from the 2010 landcover product of the North American Land Change Monitoring System (Latifovic et al. 2012) and spatially assigned PSUs to the ecozone in which they were located. Post-hoc, we summarized mean proportion (\pm 95% Confidence Interval) of the species pool observed by low (≤ 5) versus high (≥ 6) landcover richness and by ecozone for 1, 2, 3, 4, 6 and 9 SSUs sampled within the PSU respectively. Results are present in Fig S10 below.

Literature Cited

Latifovic, R., C. Homer, R. Ressler, D. Pouliot, S. N. Hossain, R. R. Colditz, I. Olthof, C. Giri, and A. Victoria. 2012. North American land-change monitoring system. In Giri CP, editor. Remote Sensing of land use and land cover: principles and applications. Boca Raton: CRC/Taylor & Francis; pp 303–343.

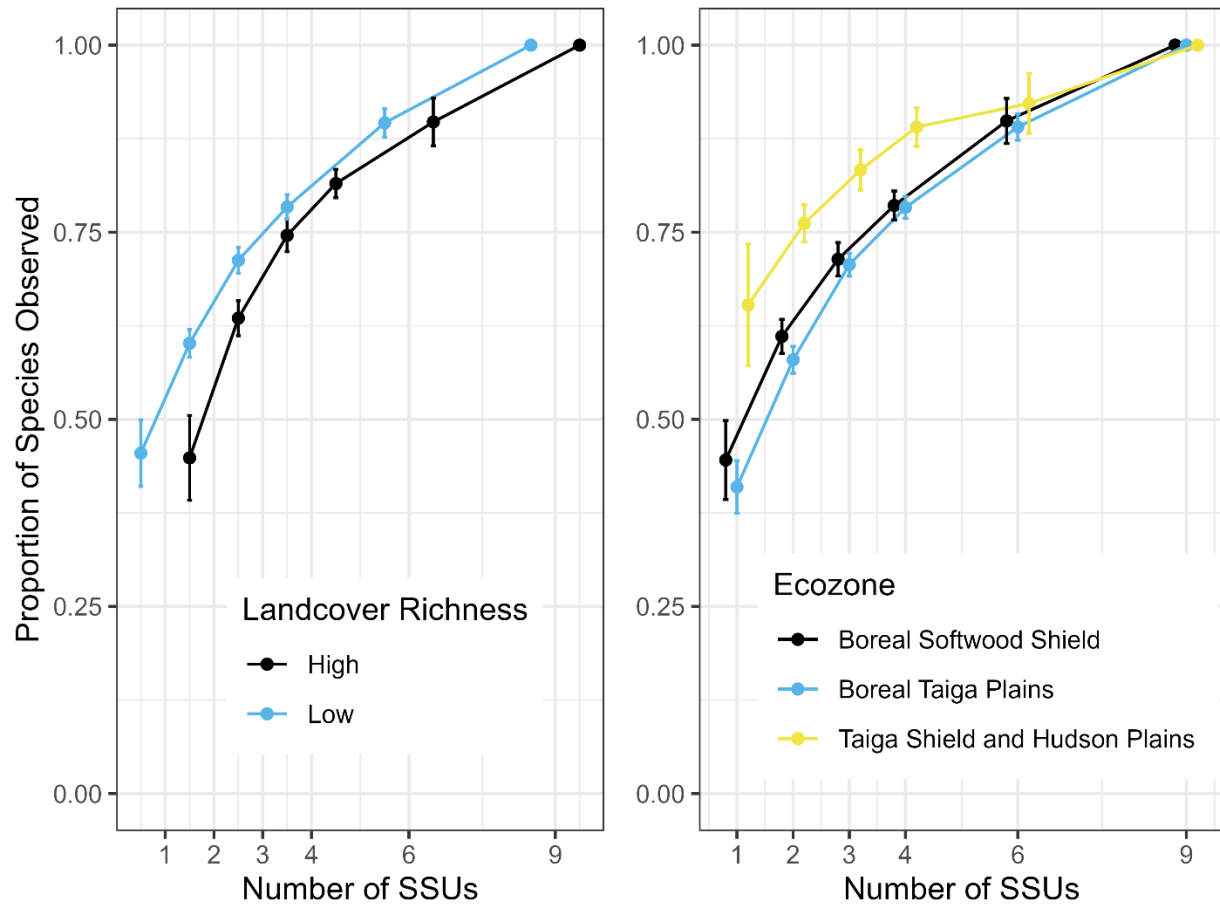


Fig A5.1. Species accumulation curves showing the estimated proportion of the community detected (\pm CI) relative to the community detected for all secondary units and temporal replicates. We estimated the relationship between number of secondary sample units and the amount of landscape heterogeneity (left panel; low ≤ 5 landcover classes, high ≥ 6 landcover classes) and the bird conservation region in which sampling occurred (right panel).