Week 9, Fall 2017

WLF 504: Applied Population Analysis

Coding Challenge

This week, we will be learning some basics about distance sampling, then putting them into practice using point count data on birds provided by Dr. Tracey Johnson. There are many great resources available for learning about, analyzing and modeling distance sampling data. Some good ones are:

1. Powell book: <http://docs.wixstatic.com/ugd/95e73b_873e8bade7934a8388d5e21bee43a2bf.pdf>
2. [Distance Sampling: Methods and Applications](http://www.springer.com/us/book/9783319192185). S.T. Buckland, E.A. Rexstad, T.A. Marques and C.S. Oedekoven. Springer, 2015. This recently published book focuses upon the topics most relevant to practictioners.
3. The online supplement to the above book at <https://synergy.st-andrews.ac.uk/ds-manda/>, which includes R code and examples.
4. The resources available at <http://distancesampling.org/>
5. Great basic paper on point counts for estimating bird abundance: <https://www.fs.fed.us/psw/publications/documents/psw_gtr191/Asilomar/pdfs/736-743.pdf>
6. Distance sampling in R website: <http://converged.yt/RDistanceBook/distance-abundance.html>

**Coding challenge:**

Your challenge this week is to pick3 species of bird from Tracey’s bird data (available on the course website), which have at least 60 observations (rows), and determine what detection function best describes the data and whether treatment and year affect detection of these species. Produce summary information, including plots of detection function fit and goodness-of-fit and monotoniticy test results.