Ecological Analysis with R

Location: Harvard Forest, Seminar Room

Instructors:

- Matt Lau (http://people.fas.harvard.edu/~matthewklau)
- Luca Morreale (http://harvardforest.fas.harvard.edu/luca-morreale)

Goal: learn how to use the R programming language for ecological analysis.

Course Outline

- June 2 (8:30-10am): [Why R?] + [Getting setup] + [R as a second language] + [R Community = Packages + help?]
- June 9 (8:30-10am): [Coding basics] + [Analysis overview] + [Data entry] + [Data manipulation] + [Data Visualization]
- June 16 (8:30-10am): [Stats and science] + [Results: organization and reporting] + [Life-long lea**R**ning]
- TBD: Optional Hacker Session 1 and 2 (e.g. GIS and mapping, iterative functions, accessing the Harvard Forest Archives, linear algebra, making Shiny or Leaflet apps)

Pre-requisites: experience with using basic computer software

Required Materials: laptop or access to some computing device

Readings

- Getting started with R is a great, guided introduction to R. We recommend reading through this if you would like to get comfortable with some of the concepts beforehand.
- Noble 2009 PLoS-CB gives a solid overview of how to organize the computer based part of a project.

!DISCLAIMER! *This not be a statistics class!* But, here are several great books and resources for learning statistics:

- Ecological Models and Data in R (pdf)
- A Primer of Ecological Statistics
- The Ecological Detective

Resources

- R Cheat Sheet
- http://cran.r-project.org/doc/contrib/Short-refcard.pdf
- Plots with ggplots
- https://www.rstudio.com/wp-content/uploads/2015/03/ggplot2-cheatsheet.pdf
- Version Control
- https://guides.github.com/activities/hello-world/
- https://help.github.com/articles/good-resources-for-learning-git-and-github
- Code for America
- https://www.codeforamerica.org