Using Harvard Forest Signature Datasets to Teach 'Big-Data' Organization, Summary, and Analysis in Undergraduate Ecology

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Due to initiatives such as the National Science Funded Long-Term Ecological Research program and the National Ecological Observatory Network and other long-standing research stations (e.g., Harvard Forest), long-term and spatially broad datasets are increasingly available for use in basic ecological research, assessment, and biomonitoring. A need exists to train undergraduates to understand the source and composition of large datasets as well as how to organize, summarize, and perform basic analysis of this unique type of data. I am developing a lab for an undergraduate general ecology course to use Harvard Forest's signature datasets that requires students to generate an original hypothesis and test it through an open-ended process or data exploration and simple (often descriptive) statistical analyses. Students increase their proficiency in Microsoft Excel and learn about the scientific method. The project includes a trip to Harvard Forest to help students develop a more concrete understanding of the data. Only anecdotal educational outcomes were collected during the first two iterations of this course, but formal learning outcomes assessments are planned for future classes.

Mission, Review Process & Disclaimer

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