Tested Studies for Laboratory Teaching
Proceedings of the Association for Biology Laboratory Education
Vol. 34, 473-474, 2013

Enhancing Statistical Skills in Ecology: Quantifying Bird Feeding Behaviors

Kiersten N. Newtoff[1] and Christine J. Small[2]

[1] University of North Carolina -Wilmington, Department of Biology and Marine Biology, Wilmington NC 28403 USA
[2] Radford University, Department of Biology, PO Box 6931, Radford VA 24142 USA
(**knewtoff@radford.edu; cjsmall@radford.edu**)

Success in graduate, medical or other post-undergraduate endeavors in the sciences requires foundations in research and experimental design. However, only recently have undergraduate biology curricula begun to stress quantitative skills needed for higher education and careers. Through a National Science Foundation grant, Radford University's Biology Department is working to enhance quantitative skills and integrate statistics into introductory courses to help students more effectively apply research skills to biological problems. This semester, we modified a traditional ecology lab to emphasize scientific inquiry, experimental design, and hypothesis testing. Students first were introduced to regional bird diversity using museum specimens and field observations. From this, they generated hypotheses about feeding behaviors and seed preferences related to beak size and shape. In following labs, students collected over 7,000 feeding observations on bird seed selection (millet, thistle, sunflower, suet) and feeding location (feeder, ground) at campus bird feeders. Using this extensive data set, student groups selected two species for in-depth investigation by developing research questions, collecting natural history information, and conducting statistical analyses to compare feeding behaviors. This multi-week project not only emphasized use of statistics in exploring and evaluating trends in a biological system, but urged students to explain conclusions in biological context. The experimental design and data gathered may also be reexamined in advanced biology or biological statistics courses, helping to emphasize the importance of quantitative skills in modern biology.

Link to Original Poster: http://www.ableweb.org/volumes/vol-34/poster?art=61

Mission, Review Process & Disclaimer

The Association for Biology Laboratory Education (ABLE) was founded in 1979 to promote information exchange among university and college educators actively concerned with teaching biology in a laboratory setting. The focus of ABLE is to improve the undergraduate biology laboratory experience by promoting the development and dissemination of interesting, innovative, and reliable laboratory exercises. For more information about ABLE, please visit **http://www.ableweb.org/.**

Papers published in *Tested Studies for Laboratory Teaching: Peer-Reviewed Proceedings of the Conference of the Association for Biology Laboratory Education* are evaluated and selected by a committee prior to presentation at the conference, peer-reviewed by participants at the conference, and edited by members of the ABLE Editorial Board.

Citing This Article

Newtoff, K.N. and C.J. Small. 2013. Enhancing Statistical Skills in Ecology: Quantifying Bird Feeding Behaviors. Pages 473-474 in *Tested Studies for Laboratory Teaching,* Volume 34 (K. McMahon, Editor). Proceedings of the 34th Conference of the Association for Biology Laboratory Education (ABLE), 499 pages.
http://www.ableweb.org/volumes/vol-34/?art=61