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An Investigation of Island Biogeography using Data from Online Natural History Collections (Version 1.0)

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Module Description:

This resource is a module on coevolution in which students utilize natural history collections. This module guides students through tests of species richness and island rule, two fundamental rules of island biogeography, using specimens collected from the Alexander Archipelago in Southeastern Alaska.

Learning Objectives

Students will be able to:

1. Analyze and explain patterns of species distribution on islands compared to the

mainland.

2. Analyze and explain morphological characteristics of species on islands compared to the mainland.
3. Interpret patterns of species distribution and/or species' characteristics using natural history collections data.
4. Apply the process of science by the development and testing of hypotheses.
5. Use quantitative reasoning to collect, clean, and analyze data from a large, curated, aggregated dataset.

Teaching Setting:

The module was designed for use in an upper level Ecology and Evolution course. These instructions provided in this resource assume that students have already learned how to run a regression analysis and t-test and to use excel. If this module is being used to introduce any of these skills, additional instructions will be required.

QUBES Citation:

Linton, D., Monfils, A., Phillips, M., Ellwood, L., Cook, J. (2019). [An Investigation of Island Biogeography using Data from Online Natural History Collections](#). QUBES Educational Resources. [doi:10.25334/Q4BT2G](https://doi.org/10.25334/Q4BT2G)

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Related Materials and Opportunities:

This resource was created by members of **Biodiversity Literacy in Undergraduate Education (BLUE)** (see <https://www.biodiversityliteracy.com/> and the [BLUE group on QUBES](#)). BLUE is a network of biodiversity, data, and education specialists working collaboratively to identify core biodiversity data competencies for undergraduates, develop strategies for integrating these competencies into the introductory biology curriculum, and build capacity for sustained development and implementation of biodiversity and data literacy education. Materials developed or endorsed by BLUE support the training of diverse, competent, and engaged young biologists who are well prepared for a broad set of career paths generating and utilizing biodiversity data to address scientific issues of critical national and global importance.

Members of BLUE and their collaborating organization, **Integrating Digitized Biocollections (iDigBio)** (see <https://www.idigbio.org/> and the [iDigBio group on QUBES](#)) will be delivering a presentation titled, *The Potential of Natural History Collections in Educating the 21st Century Scientist and Citizen*, at the [5th Life Discovery – Doing Science Biology Education Conference \(LDC\)](#), which is being held March 21-23, 2019 in Gainesville, Florida. This presentation will introduce challenges and emerging opportunities for integrating specimen-based data and natural history collections into the k-12 and undergraduate curricula. [View the presentation abstract and description.](#)

BLUE has partnered with, iDigBio and QUBES to offer a **Natural History Collections Data in the Classroom Faculty Mentoring Network (FMN)** during the Fall 2019 semester (see the [Fall 2019 BLUE FMN Group on QUBES](#)). This FMN will provide a unique networking and professional development opportunity for teaching faculty interested in incorporating real natural history collections data into their lessons and data literacy skills into their curricula. Anticipated involvement runs from August through the fall semester of 2019. Applications are expected to open in June 2019. Please fill out this [Google Form](#) or join the BLUE listserve: BLUE-L@LISTS.UFL.EDU if you are interested in learning more about the BLUE FMN or being notified when the application period is opened this summer. Please [subscribe to the QUBES Newsletter](#) to stay up to date on all of the latest QUBES FMN information. [Learn more about FMNs.](#)

This resource is an adaptation of an original resource titled, [Islands as a Tool for Teaching Ecology and Evolution](#), which was developed by members of **Advancing Integration of Museums into Undergraduate Programs (AIM-UP!)**, an NSF-sponsored Research

Coordination Network in Undergraduate Biological Education that explored the tremendous potential of our vast natural history collections and associated databases to contribute to teaching and research experiences in biology (see <http://aimup.unm.edu/> and the [AIM-UP! group on QUBES](#)).

If you adopt and adapt this module, you are highly encouraged to share your adaptation back with the QUBES community using the QUBES Resources System for sharing Open Education Resources.

QUBES on Social Media



QUBES is a community of math and biology educators who share resources and methods for preparing students to use quantitative approaches to tackle real, complex, biological problems.

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