

## BIOGEOGRAPHY & BIODIVERSITY

Group Contract, Winter 1998

Faculty Sponsor: Peter B. Taylor

The primary subject was biogeography, a field of natural science dedicated to describing, analyzing, and explaining the distributions of plants and animals, drawing from associated fields, including ecology, evolutionary biology, phylogenetic systematics, and earth science.

Conservation biology, a field concerned with the decline and preservation of biodiversity, was also featured as a subject informed by concepts of "island biogeography". The main texts were *Biogeography* (Brown & Gibson), *After the Ice Age: the Return of Life to Glaciated North America* (Pielou), and *The Diversity of Life* (Wilson). The lectures featured topics of biogeography and conservation biology illustrated by the Pacific Northwest (particularly the Olympic Peninsula), phylogeny and evolution of salmonine fishes (focusing on the Pacific salmon and trouts), the Hawaiian Islands, and New Zealand. Videos having biogeographic content were shown about East Africa's Great Rift, Galapagos Islands (Darwin's finches), Hawaiian Islands, New Zealand, Madagascar, and the Woolly Mammoth (causes of extinction). A guest speaker from the Washington Department of Natural Resources talked about Washington's Natural Heritage Program and the biogeography of vegetation in the Puget Trough.

Three field trips were conducted: one, to a Puget Trough prairie preserve (Mima Mounds Natural Area Preserve), hosted by a representative of The Nature Conservancy; the other, to the Nisqually National Wildlife Refuge, hosted by a US Fish & Wildlife Service biologist. Both trips focused on issues of conservation biology related to the management of habitat-preserves.

Weekly seminars were based on assigned reading in three books: *The Song of the Dodo: Island Biogeography in a Time of Extinctions* (Quammen), *Ecological Imperialism: the Biological Expansion of Europe, 900-1900* (Crosby), *The Beak of the Finch: A Story of Evolution in Our Time* (Weiner), and *Naturalist* (Wilson). An article describing a newly discovered bird species in Brazil, featuring topics in phylogenetic systematics, biogeography and conservation, was discussed in one seminar.

A series of five seminars was based on students' presentations (once per student) of scientific-journal articles of their individual choosing about topics of conservation biology.

An early assignment was to compile prescribed biogeographic resumes of two species: one vascular plant and one vertebrate or invertebrate animal. A written midterm exercise was based on an article describing a new species of bird found in Somalia, and featured questions about cladistic systematics and related concepts of evolutionary biology.

A major research assignment for each student was to review literature about a particular taxonomic group, from which to produce a written report synthesizing knowledge about the group's biogeography, evolution, phylogeny, and, if applicable, conservation biology. The findings were shared in poster sessions accompanied by a group-discussion of each poster. This project was a primary means for applying and demonstrating learning in the program.