



Climate and Ecology

Guide for Curriculum Unit 94.05.04
by Stephen P. Broker

Ecology is the study of the relationships of organisms among themselves and with their environments. Ecological research is organized into population, community, and ecosystem studies. This unit takes an ecosystem approach to ecology, and it is developed in the context of the climatic factors which shape and have shaped the living and non-living worlds. I discuss the relation between ecology and climate by looking at two well-known and extensively studied regions of North America, the temperate rain forests of the Pacific Northwest—specifically, the Olympic Peninsula of Washington State—and the Florida Everglades. These ecosystems, while widely separated from each other, share a number of ecological characteristics.

The Olympic Peninsula contains the world's best example of old-growth, temperate rain forest. An unusual combination of climatic factors, including year-round mild temperatures, winter wet season and summer dry season, and abundant yearly precipitation produce ideal conditions for dense, old-growth forest. Olympic Mountains have world-record sized trees which grow to 300 feet, attain great diameters, and survive for 300 to 800 years. Plants and animals are well adapted to climatic and ecological conditions. The Florida Everglades are equally unique in their plant associations, with mangroves, tree islands, pinelands, and sawgrass marshes. Everglades plants and animals are adapted to spatial and temporal heterogeneity because of periodic severe weather events such as hurricanes, floods, droughts, freezes, and fires.

Classroom and field activities focus on developing an understanding of Connecticut ecology and climate. Plant collecting and a hawk watch field trip are described. Classroom materials include color slide sets for the Olympics and the Everglades.

(Recommended for Honors Biology, grade 9, College Biology, grade 10, and Biology, grades 7-8)

Keywords

Ecology Environmental Studies Climate Ecosystems

<https://teachersinstitute.yale.edu>

©2019 by the Yale-New Haven Teachers Institute, Yale University

For terms of use visit <https://teachersinstitute.yale.edu/terms>