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Significance of biogeography in the ecological studies

Richard J. Ladle*

Biodiversity Research Group, Oxford University Centre for the Environment, South Parks Road, Oxford OX1 3QY, UK.

Description

Biogeography is one of the Life sciences which deal with the study of distribution of species and ecosystems in geographic area and through geological time. Organisms and biological groups regularly differ in a common fashion along geographic gradients of latitude, elevation, isolation and habitat region. Phytogeography is the department of biogeography that studies the distribution of plants. Zoogeography is the department that studies the distribution of animals. Mycogeography is the department that studies the fungi distribution like mushrooms.

Biogeography is an integrative subject of inquiry that unites ideas and facts from ecology, evolutionary biology, taxonomy, geology, physical geography, paleontology, and climatology.

Modern biogeographic studies combine ideas and information from many fields, from the physiological and ecological constraints on organismal dispersal to geological and climatological phenomena running at worldwide spatial scales and evolutionary time frames.

The short-period interactions within a habitat and species of organisms describe the ecological application of biogeography. Historical biogeography describes the long-time period, evolutionary durations of time for broader classifications of organisms. Early scientists, starting with Carl Linnaeus, contributed to the development of biogeography as a life science.

The scientific principle of biogeography grown out of the work of Alexander von Humboldt (1769–1859), Francisco Jose de Caldas (1768-1816), Hewett Cottrell Watson (1804–1881), Alphonse de Candolle (1806–1893), Alfred Russel Wallace (1823–1913), Philip Lutley Sclater (1829–1913) and other biologists and explorers.

The patterns of species distribution throughout geographical regions can generally be defined through a mixture of historical elements like: speciation, extinction, continental drift, and glaciation. Through observing the geographic distribution of species, we can see related versions in sea level, river routes, habitat, and river capture. Additionally, this science considers the geographic constraints of landmass regions and isolation, as well as the available ecosystems energy supplies.

Modern biogeography regularly employs the usage of Geographic Information Systems (GIS), to recognize the elements affecting organism distribution, and to predict future trends in organism distribution. Often mathematical models and GIS are employed to clear ecological troubles which have a spatial aspect to them.

Biogeography is most keenly observed on the world's islands. Islands are best places due to the fact that they enable scientists to observe and study the habitats which are new invasive species that are currently colonized and can be examined how they disperse through the island and modify it. Islands are very diverse in their biomes, starting from the tropical to arctic climates. This diversity in habitat enables for a wide variety of species study in various parts of the world.

Biogeography includes many different fields but not only limited to physical geography, geology, botany and plant biology, zoology, general biology, and modeling. Biogeography is being implemented in biodiversity conservation and planning, projecting global environmental modifications on species and biomes, projecting the spread of infectious diseases, invasive species, and for supporting planning for the establishment of crops. Technological evolving and advances have allowed for producing an entire suit of predictor variables for biogeographic analysis,