NATURE AND SCOPE OF BIOGEOGRAPHY

Biogeography is a branch of geography that studies the past and present distribution of the world's many animal and plant species and is usually considered to be a part of physical geography as it often relates to the examination of the physical environment and how it affected species and shaped their distribution across the world.

Alfred Russel Wallace studied the distribution of flora and fauna in the Amazon Basin and the Malay Archipelago in the mid-19th century. His research was essential to the further development of biogeography, and he is considered the "father of Biogeography".

MEANING AND NATURE OF BIOGEOGRAPHY :

The term **"Biogeography"** comes from the union of two words **Bio+geography**. **'Bio**' means **'biology a science deals with living phenomena'** and **'Geography'** means a science related to both living as well as non-living phenomena'. Geography forms the habitat and living phenomena survive in that. In other words the study of the biosphere is called biogeography, which includes the consideration of the physical environment, soil, animals and plants.

According to Browne, "Biogeography as the branch of physical geography; geography of organic life, the study of spatial distribution of animate nature, including both plants and animals and the processes that produce variations in the patterns of distribution".

According to J. Tivy, "Biogeography, as the term indicates, is both a biological and a geographical science. Its field of study is the biologically inhabited part of the lithosphere, atmosphere and hydrosphere- or, as it has become known-the biosphere".

Margaret Anderson defined "biogeography as the essence of biological relation between man (considered as animal) and the whole of the animate and inanimate environment".

Biogeography as a science is the synthesis of concepts and information from geology, climatology, pedology, geomorphology as well as botany, zoology, physical geography, evolutionary biology, and ecology etc.

SCOPE OF BIOGEOGRAPHY :

However, the primary subject matter of biogeography comprises the analysis and interpretation of different aspects of living organisms including plants and animals of the biospheric ecosystem. Thus**, on the basis of plant and animal**, biogeography is divided into three basic branches and these three also divided in sub-discipline. They are given below :

1. Plant Biogeography or Phytogeography
2. Zoogeography or Animal Geography
3. Pedology or Soil Geography

1. Plant Biogeography or Phytogeography :

The study of plants communities as social groups in terms of their evolution, spatial and temporal changes, dispersal and distribution patterns, processes and causes of their spatial variations and ecological changes through time, their interactions with the environment of their habitats and responses coming there from etc., is called phytogeography (plant geography).

2. Zoogeography or Animal Geography :

The study of animal communities of both land and marine habitats and environment in terms of speciation and evolution, dispersal, extinction and distribution patterns of animals, interactions of animals with environment, responses of animal communities to. Human activities etc. are called animal or zoogeography. Zoogeography also studies the abilities of animals to adapt to varying environmental conditions of their habitats which vary both spatially-and temporally.

3. Pedology or Soil Geography :

Soil geography or pedology is also the subject matter of biogeography . It is the study of soils in their natural environment. It is one of two main branches of soil science, the other being edaphology. Pedology deals with pedogenesis, soil morphology, and soil classification, while edaphology studies the way soils influence plants, fungi, and other living things.

Today, the subject matter of biogeography is also broken on the basis of approaches to the study of plants and animals communities into three main fields of study :

1. Historical Biogeography,
2. Ecological Biogeography, and
3. Conservation Biogeography.

1. Historical Biography :

Historical biogeography is called paleobiogeography and studies the past distributions of species. It looks at their evolutionary history and things like past climate change to determine why a certain species may have developed in a particular area. The branch

of historical biogeography is called paleobiogeography because it often includes paleogeographic ideas—most notably plate tectonics.

2. Ecological Biogeography :

Ecological biogeography looks at the current factors responsible for the distribution of plants and animals, and the most common fields of research within ecological biogeography are climatic equability, primary productivity, and habitat heterogeneity.

3. Conservation Biogeography :

Scientists in the field of conservation biogeography study ways in which humans can help restore the natural order of plant and animal life in a region. In recent years, scientists and nature enthusiasts alike have further expanded the field of biogeography to include conservation biogeography—the protection or restoration of nature and its flora and fauna, whose devastation is often caused by human interference in the natural cycle.

Biogeography is also divided on the basis of habitats into 3 categories as follows :

1. Mainland or Terrestrial Biogeography:

Mainland or terrestrial biogeography is concerned with the study of flora and fauna of the continents and parts thereof adopting both historical (evolutionary) and ecological approaches.

2. Marine Biogeography :

Marine biogeography is the study of marine organisms of plankton, nekton and benthos communities in different marine biozones.

3. Island Biogeography :

Island biogeography is quite different from terrestrial and marine biogeography because each island has a different history of its origin and different patterns of evolution of its flora and fauna.