

INTRODUCTION TO BIOGEOGRAPHY

* the geography of **flora** (plants) and **fauna** (animals)

** Basic ideas:

Biodiversity or biological diversity: The variety of life forms, the ecological roles they perform and genetic diversity they contain

- * # of species (life forms): **1.75 million identified & described**;
Estimates of between 3.7 & 111 million species,
with a working estimate 13.62 million.

Types of diversity:

Genetic Diversity: Variety in the genetic makeup among individuals within a species

Species Diversity: Variety among the species or distinct types of organism found in different habitats of the planet

Ecological Diversity: variety of forests, deserts, grasslands, streams, lakes, oceans, coral reefs wetlands & other biological communities

Functional Diversity: biological & chemical processes or functions such as energy flow & matter cycling needed for the survival of species & biological communities

* **Processes:**

* **photosynthesis** * **energy flow** within & between systems

* **ecological efficiency:** Trophic levels, food webs

* **plant & animal succession**

* **geographic dispersal:** Physical factors, Biotic factors

Basic Building Blocks:

* **rate of respiration** by the plant (where the plant uses some of the energy-food created in photosynthesis; also involves glycolysis, & the Krebs Cycle)

* If increase respiration -----→ Then decrease efficiency of photosynthesis

* If increase in heat (temp.) -----→ Then increase respiration

* **availability of water**

* If increase water -----→ Then increase CO₂ uptake by plant which increases photosynthesis

* **rate of evaporation & transpiration**

* If increase rate of evaporation -----→ Then decrease of efficiency of photosynthesis

** **Results of photosynthesis:**

** creation of **Biomass** or *useful chemical energy* (plant & animal)

* plant biomass or **phytomass is created directly by photosynthesis**

* **animal biomass is created indirectly by photosynthesis**

* highest amounts of Biomass created in warm, wet areas

* lowest amounts created in cold and dry areas

Net Primary Productivity: The net photosynthesis for a given community; this considers all growth & reduction factors that affect the amount of biomass fixed in an ecosystem

NPP = photosynthesis - **respiration**
(the chemical energy made by plants in photosynthesis) (the chemical energy used by the plants to live, grow, reproduce, etc)

ENERGY FLOW: both within and between systems