**Biodiversity Notes**

**Index of Diversity-** A Mathematical value used to equate the level of diversity.

**Simpson’s-** use when sample size is the same (ie our 1000 mL beaker)

**Shannon’s-** use when sample sizes are different (ie comparing diversity between different sized lawns, parks, rivers, etc.

**Types of diversity**

**Genetic Diversity**- number of genetic characteristics of a specific species

**Habitat Diversity**- different kinds of habitat in an area

**Species Diversity-** measured 3 ways

**Species Richness-** total # of species

**Species evenness-** abundance of those species

**Species dominance-** to most abundant species (not tied to trophic level)

Evolution is the process of diversification.

Examples-

Jaws in fish (lampreys = archaic)

Watertight skin & eggs in reptiles

Mass extinctions provide momentary (in the realm of Earth’s history) decreases in biodiversity and opportunity for increased diversity.

**Competitive exclusion principle-** two species naturally cannot coexist when they compete for the same resources. One will always outcompete the other.

**Example-** Beetles in flour

**Example-** Planaria temp preferences

**Niche-** Organism’s “role” in the environment. What does it eat? Where does it live? What extremes can it survive at? How big is it?

**Factors that increase diversity-**

Diverse habitat (creates many places to live)

Moderate level of disturbance (kills weaker organisms/promotes strong, adapted ones for that environment)

Small variation in environment conditions (relatively same temp, soil, geology- or a gradual change)

High diversity at one trophic level promotes high diversity at others

Evolution

Middle of succession- either extreme limits diversity of what can live there

An environment that already has life in it

**Factors that decrease diversity**

Environmental stress

Extreme environments

Limitation in a supply of essential resource (water)

Extreme disturbance

Exotic species

Geographic isolation (ie island- real or created)

**Why preserve it?** International Union for Conservation of Nature and Natural Resources (IUCN) reasons.=

**EO Wilson’s Top 10**

* immediately act to protect hotspots
* keep remaining ‘frontier’ (original) forests
* cease all logging of old-growth forests, everywhere
* protect/restore world’s lakes and rivers
* identify marine hotspots and treat them the same as land hotspots
* finish mapping the world’s biodiversity
* ensure ecosystems are involved in a conservation strategy instead of just management
* make conservation a profitable endeavor
* start ecological restoration projects through products- ie 1 cent/1 cup
* bottom-up political pressure

Developing countries using natural resources as source of income

Background extinction rate

What you can do

Political

Activist

Educational

Personal changes