Chapter 10- Biodiversity

* Short for “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* Number and variety of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species in an area
* 1.7 million known species, most insects
* Estimated over 10 million

**Levels of Diversity**

* Species diversity- All the differences between the populations of a species, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species
* Ecosystem diversity- Variety of \_\_\_\_\_\_\_\_\_\_\_\_\_\_, communities, and ecological processes within and between ecosystems
* Genetic diversity- Different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contained within all members of a population (Gene pool)

**Benefits of Biodiversity**

* Species \_\_\_\_\_\_\_\_\_\_\_ within food web
* Keystone species- Species \_\_\_\_\_\_\_\_\_\_\_ to the functioning of the ecosystem
	+ Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and kelp beds
	+ Sea Otters protected…eat sea urchins…kelp beds regenerated.
* Larger populations with larger gene pools survive under pressure
* Bottleneck- As populations shrink, the gene pool does as well
	+ Increase in genetic disorders
* Some species used for food, clothing, shelter, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* ¼ of drugs derived from plants
* Almost all \_\_\_\_\_\_\_\_\_\_\_ from fungi
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or studied species represent potential products
* Most \_\_\_\_\_\_\_\_\_\_\_ originated from a few areas of \_\_\_\_\_\_\_\_\_\_ biodiversity
* Hybrid- New crop variety from genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can result from dependence on too few plants

**Ethics, Aesthetics, and Recreation**

* Species and ecosystems have the right to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ regardless of value
* Some cultures believe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has a higher purpose
* Outdoor activities enhanced by nature
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Supports the conservation and sustainable development of ecologically unique areas

**Current Extinctions**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- many species extinct in a short time
	+ Dinosaurs, 65 million years ago
	+ 25% of all species by 2100
* Species prone to extinction
	+ Not cockroaches and rats
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ populations
	+ Migrating species
	+ Those with large or special habitats
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Likely to become extinct
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Declining population and in danger of becoming endangered





**How Do Humans Cause Extinctions?**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and fragmentation
	+ 75% of extinctions
	+ Ex: Florida panther
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ exotic species (non-native)-Not native to region
* Harvesting, hunting, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Passenger pigeons (early 1900s)
	+ American bison
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ DDT and Bald Eagle

**Areas of Critical Biodiversity**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Native to/found only in certain region
* Tropical Rain Forest
	+ A/B 7% of Earth’s surface
	+ \_\_\_\_\_\_\_\_\_\_\_\_ of the world’s species
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Coastal Ecosystems
	+ Fraction of marine environment with many species
	+ 60% threatened by humans
* Islands
	+ Distinct but limited species
	+ Ex: Hawaii and Honeycreepers
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Most threatened areas of high species diversity
* Biodiversity in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ CA Floristic Province: 3, 488 native plants; 2,124 endemic sp; and 565 threatened/endangered
	+ Everglades, CA coast, Hawaii, Midwest prairies, Pacific NW forests

**Biodiversity Hotspots**



**Saving Species One at a Time**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to return to wild.
	+ Ex: CA Condor
	+ 9 left in 1986
	+ 58 in wild/102 in captivity (2002)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Genetic Material
	+ Germ plasm banks (reproductive cells)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Aquariums, and Gardens
	+ Some species last hope
	+ Living museums
* More Study Needed
	+ Captive species may not reproduce or survive in wild
	+ Small pop. vulnerable to infectious disease and inbreeding

**Preserving Habitats and Ecosystems**

* Most effective way to save species-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strategies
	+ Protect entire ecosystems
	+ Focus on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* More Study Needed
	+ Research species and ecosystems

**Legal Protection for Species**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ 1973-Endangered Species Act
	+ USFWS- list of endangered and threatened species; 983 in 2002
* USFWS must prepare a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Propose to restore or protect habitat
	+ Controversy between developers and conservationists
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Protect one or more species across large areas of land through trade-offs or cooperative agreements

**International Cooperation**

* International Union for the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of Nature and Natural Resources (IUCN)
	+ Over 200 gov’t. agencies and 700 private organizations
* International Trade and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Convention on International Trade of Endangered Species (CITES)
		- Stopped slaughtering of African elephants
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ To preserve biodiversity and and ensure sustainable and fair use of genetic resources
	+ United Nations Conference on Environment and Development (Earth Summit) in 1992.
* Private Conservation Efforts
	+ More effective
	+ World Wildlife Fund; The Nature Conservancy; Greenpeace International

**Balancing Human Needs**

* Protecting species often \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Some endangered species sources of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or income
* Not considered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ due to a lack of understanding
* Understanding is key to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species