


24 | Global Biogeography

Part V – The Living Earth

Geography 101
Physical Geography: Earth's Surface Landscapes
M. Pesses, Antelope Valley College

Today

- Biome basics
- Major biomes of the world
- Altering biomes
- Geoengineering


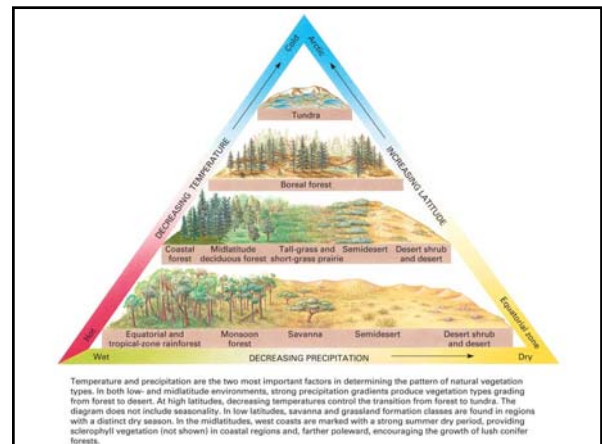
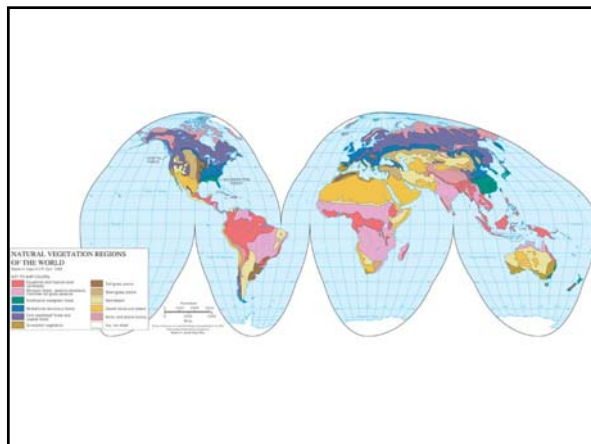


Biomes

- A large stable, terrestrial or aquatic ecosystem characterized by specific plant and animal communities
- Named for dominant vegetation
 - * Most visible part of the biotic landscape

Terrestrial ecosystems

- Plants are the most visible part of the biotic landscape
 - * Reflect Earth's physical systems
 - * Insolation amounts
 - * Water quantity
 - * Geomorphic processes






Major Terrestrial Biomes

- Vegetation (and species) mapped is “ideal”
 - * Prior to human alteration
- Not exotic species

Exotic Species

- Species of plants or animals not native to an ecosystem

Killer Bees

- Bees from Africa introduced to Brazil in the 1950s
- The Americas are home to **European Honey Bees**
- The two groups bred
 - * Making “**Africanized**” **Honey Bees**



Biomes


5 principle terrestrial biomes

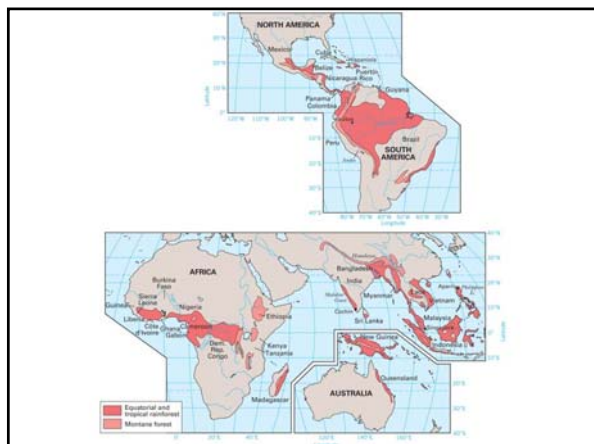
1. Forest
2. Savanna
3. Grassland
4. Desert
5. Tundra

Forest Biome

Important formations:

- * Low-latitude rainforest
- * Sclerophyll forest





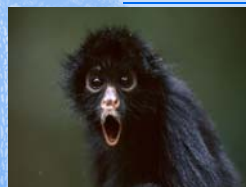
Low-Latitude Rainforest

- Wraps around the equator
- Account for 1/2 of Earth's remaining forests
- Biomass is located high in the tree canopy
 - * Insolation



Figure 17.8a
David L. Garbutt/Alamy Collection

Biodiversity

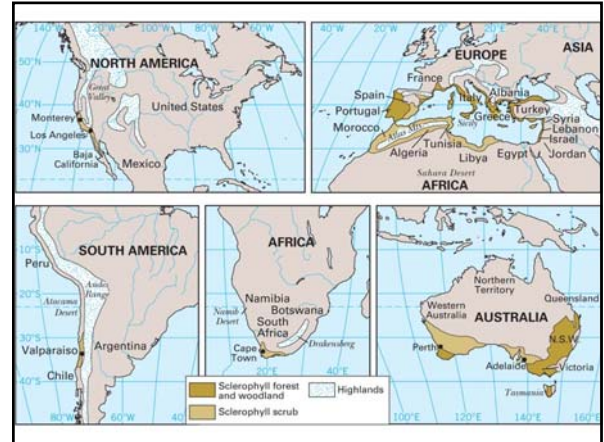
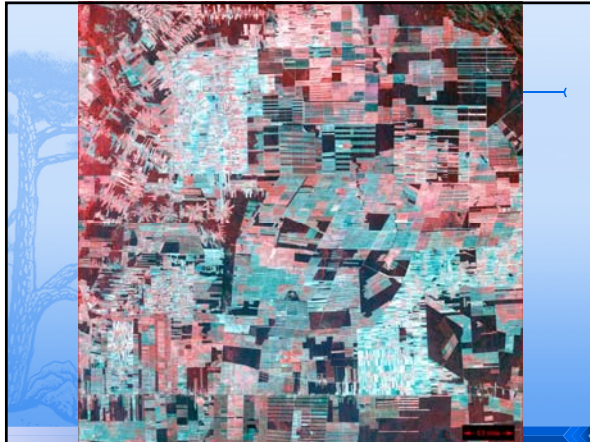


Biodiversity




Biodiversity





Sclerophyll Forest


- **Mediterranean Climate**
- **Sclerophyll**
 - * Plants adapted to survive drought by minimizing transpiration



Sclerophyll Forest

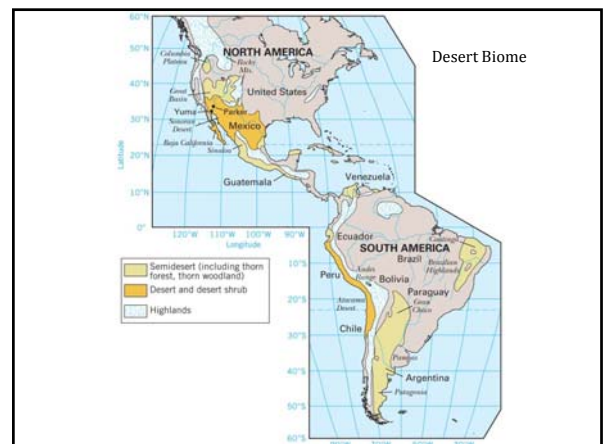
Chaparral

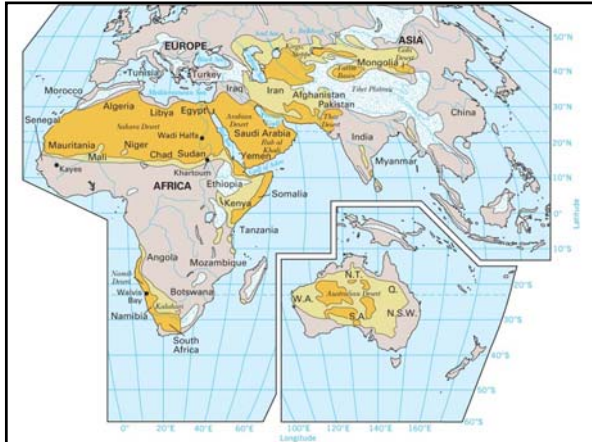
- * General vegetation in this biome
- * Leathery leaves, short, well-developed roots
- * Varies between woody shrubs and grassy woodlands
- * *Manzanita, oak trees, poison oak*



Sclerophyll Forest

- Regions of **high fire danger** in the summer
 - * The biome actually seems to be well adapted to fire
 - * Quick recovery afterwards
 - * Native American fire ecology
 - * Improve seed harvests
 - * Control vegetation
 - * Herd game






Deserts

Adaptations to survive in harsh climates

Xerophytic plants

- * Adapted to live in dry places with brief, intense rainy season




Deserts

Adaptations to survive in harsh climates

Biological warfare

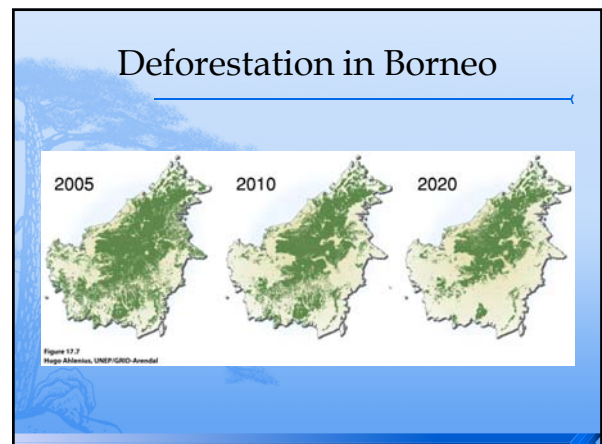
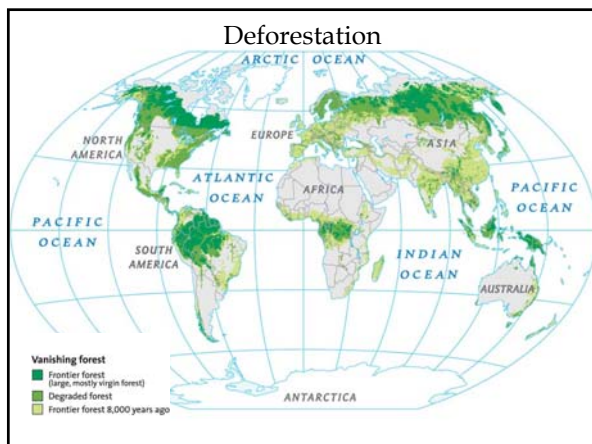
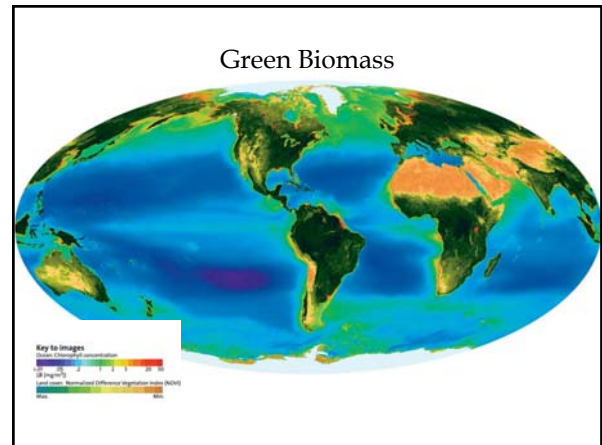
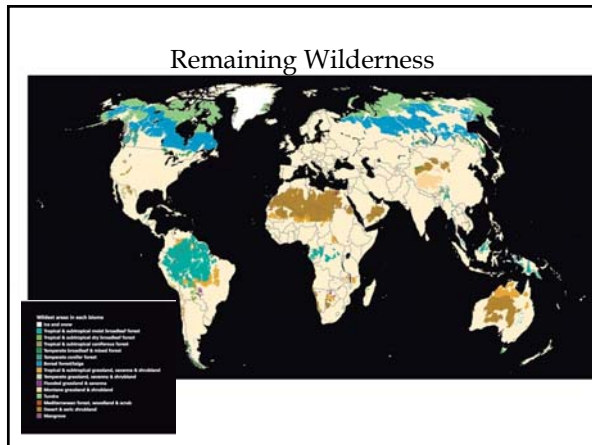
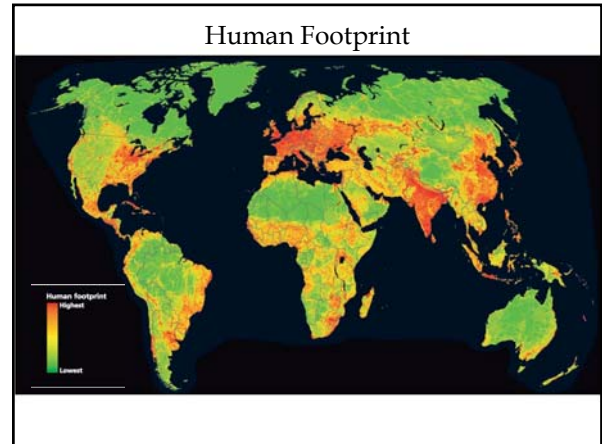
- * Creosote bushes
- * Roots spread toxins to limit competition with other plants

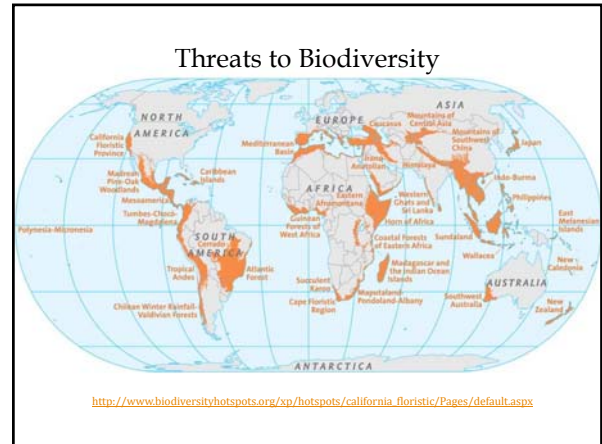


Altering Biomes

Again, these are ideal landscapes from "pristine" times

- * Humanity has dramatically altered these vegetation regimes through agriculture and development

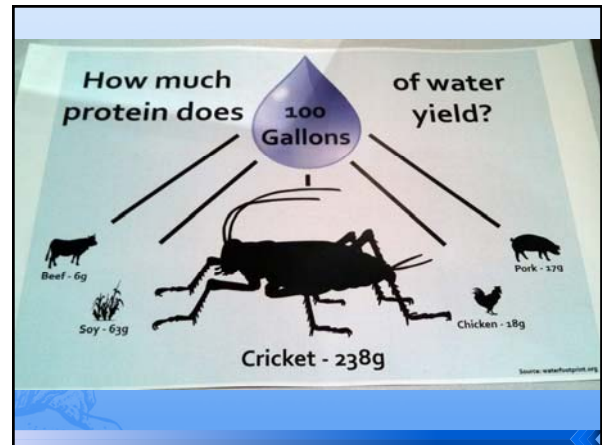




Changing Vegetation

Humans are a powerful force...

Aerial satellite imagery illustrating the impact of human activity on vegetation. The top row shows a mix of urban development and agricultural fields. The bottom row shows a large, circular area of cleared land, likely for agriculture or urban expansion, contrasting with the surrounding natural vegetation.



A package of Chapul Thai Bar, labeled 'THE ORIGINAL CRICKET BAR' and 'PROTEIN FROM CRICKET FLOUR'. The flavor is 'THAI BAR COCONUT, GINGER, LIME'. The brand name 'CHAPUL' is prominently displayed with the slogan 'FEED THE REVOLUTION'. Below the package is a detailed image of a cricket.

NO SOY • DAIRY FREE • ALL NATURAL
NET WT 51 g (1.8 OZ)

Geoengineering

“purposeful human activity that significantly alters the state of the Earth” (Lovelock 2008)

- * Fire ecology
- * Greenhouse emissions & slowing climate change?

