RESOURCES

I. Definitions

- A. Resources-- <u>materials of Earth that people use.</u>

1. Resources of Earth - -trees, soil, minerals, fossil fuels, water, etc.

2. Human Resources

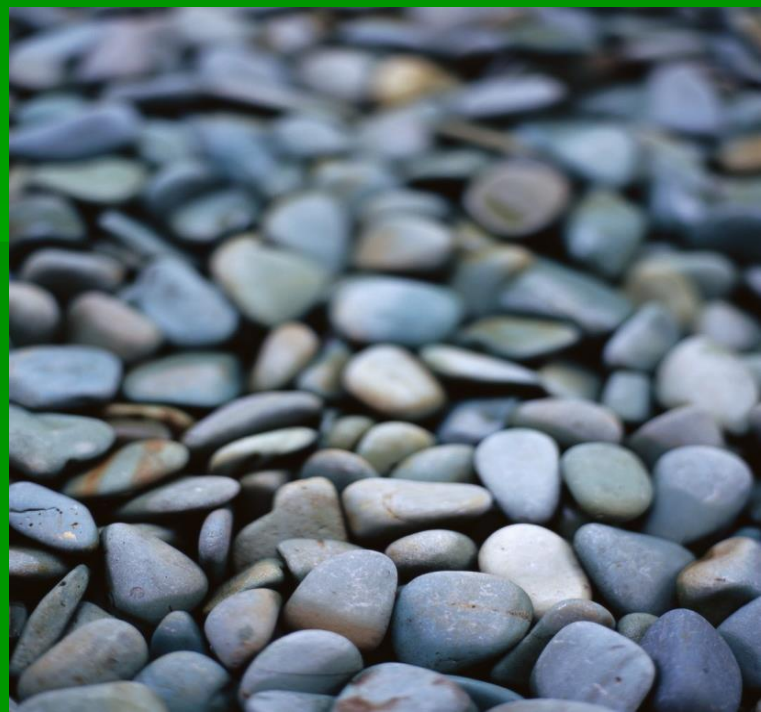
What would be some "human" resources?

B. Renewable Resources

--<u>will grow back if conditions are favorable</u>.

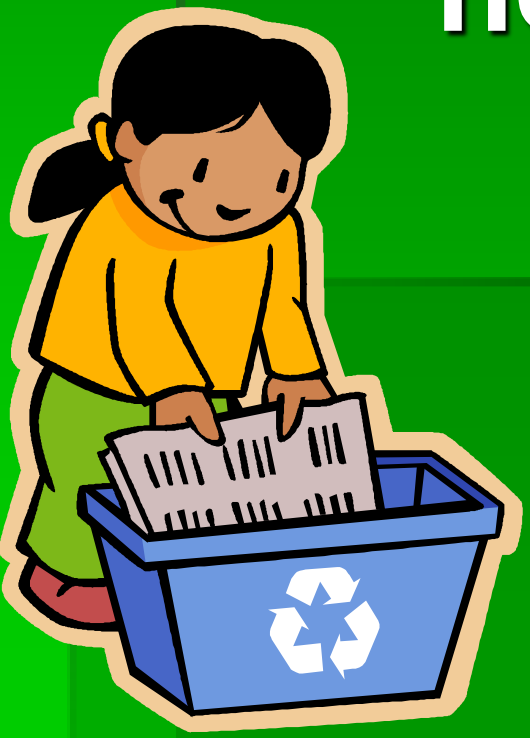
C. Nonrenewable Resources

--<u>cannot reproduce themselves.</u>



D.Recyclable Resources

--<u>can be reused</u> (both renewable and nonrenewable)



Reminder from Unit 1:

Why is it important to recycle resources?

II. Physical Resources

A. Land Resources

1. Soil--the top layer of Earth's surface.

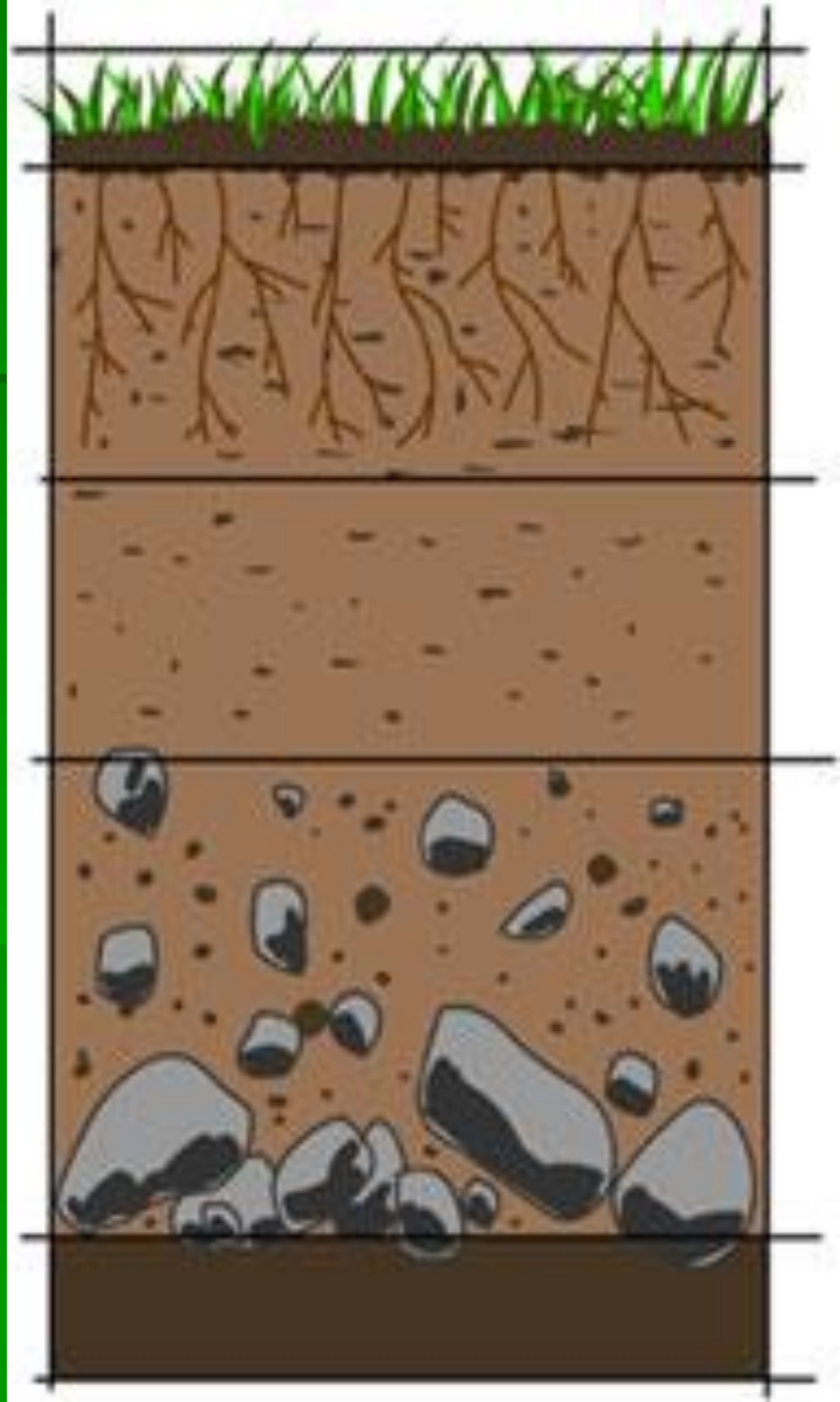
a. Needed to grow plants.

b. Composition

1) Organic matter (living or dead plants and animals) and inorganic matter (minerals)

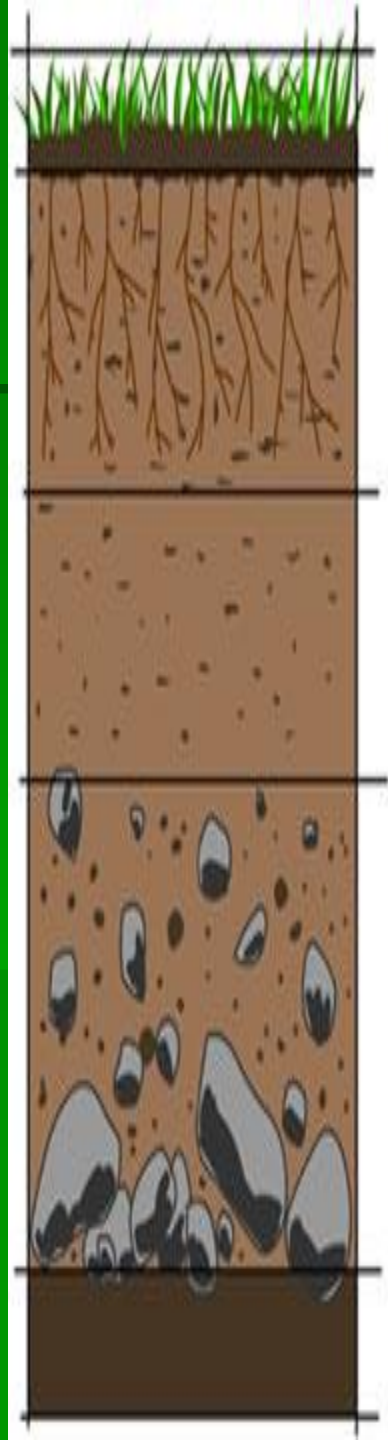
2) Three layers

a) Top layer --Humus (organic material)



b) Second layer— Humus material washed down and mixed with mineral particles.

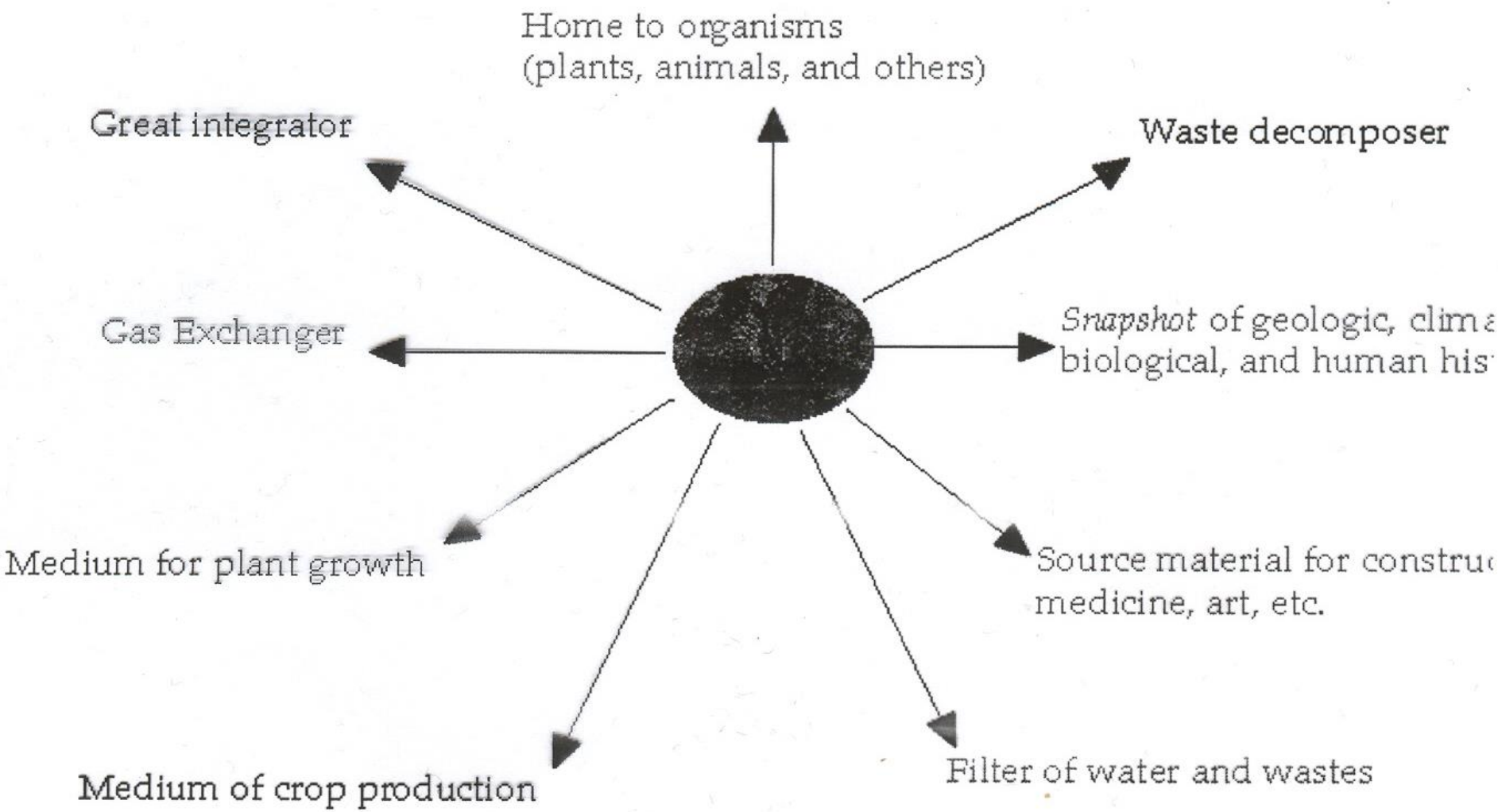
c) Third layer— Parent Material (rock)



c. Each layer helps to determine what kind of soil is produced.

(Sometimes the soil has little or no humus. Sometimes areas have no soil at all, only bare rock.)

The soil is a:



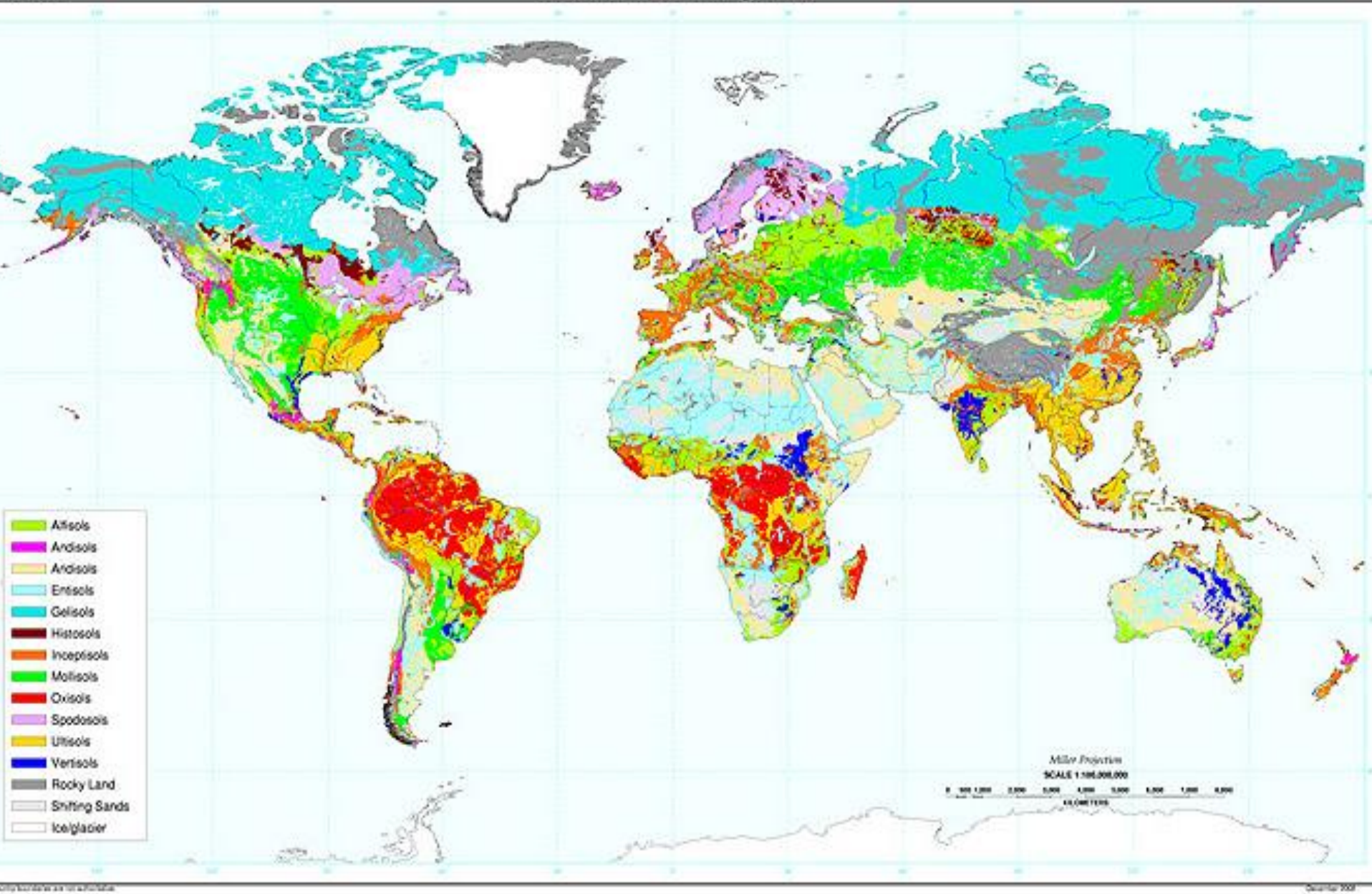
here is a limited amount of soil, and so it must be properly cared f

d. Soil Types

1) Different types of soil are found over large areas or zones.

2) There are 12 major zones --although locally there are minor divisions

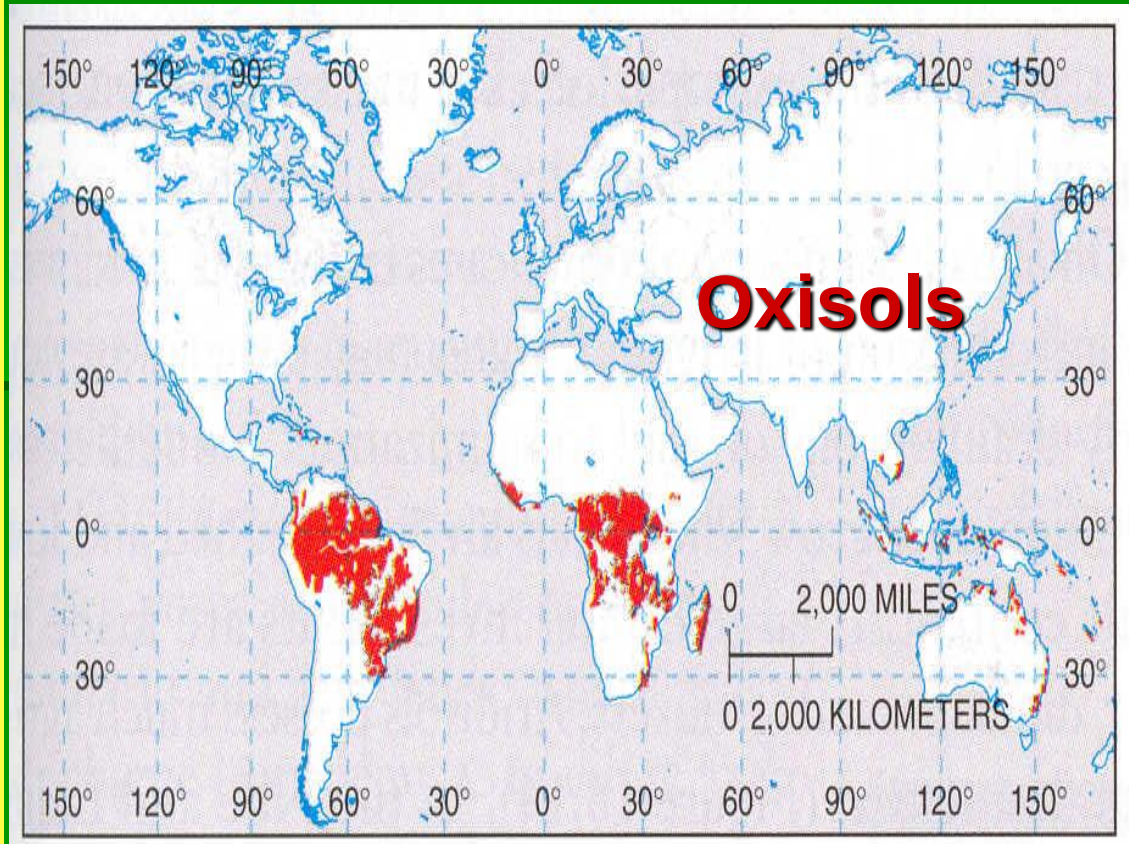
Global Soil Regions



a) Oxisols –low fertility–found where it is warm/hot with a lot of ppt.—nutrients wash away.

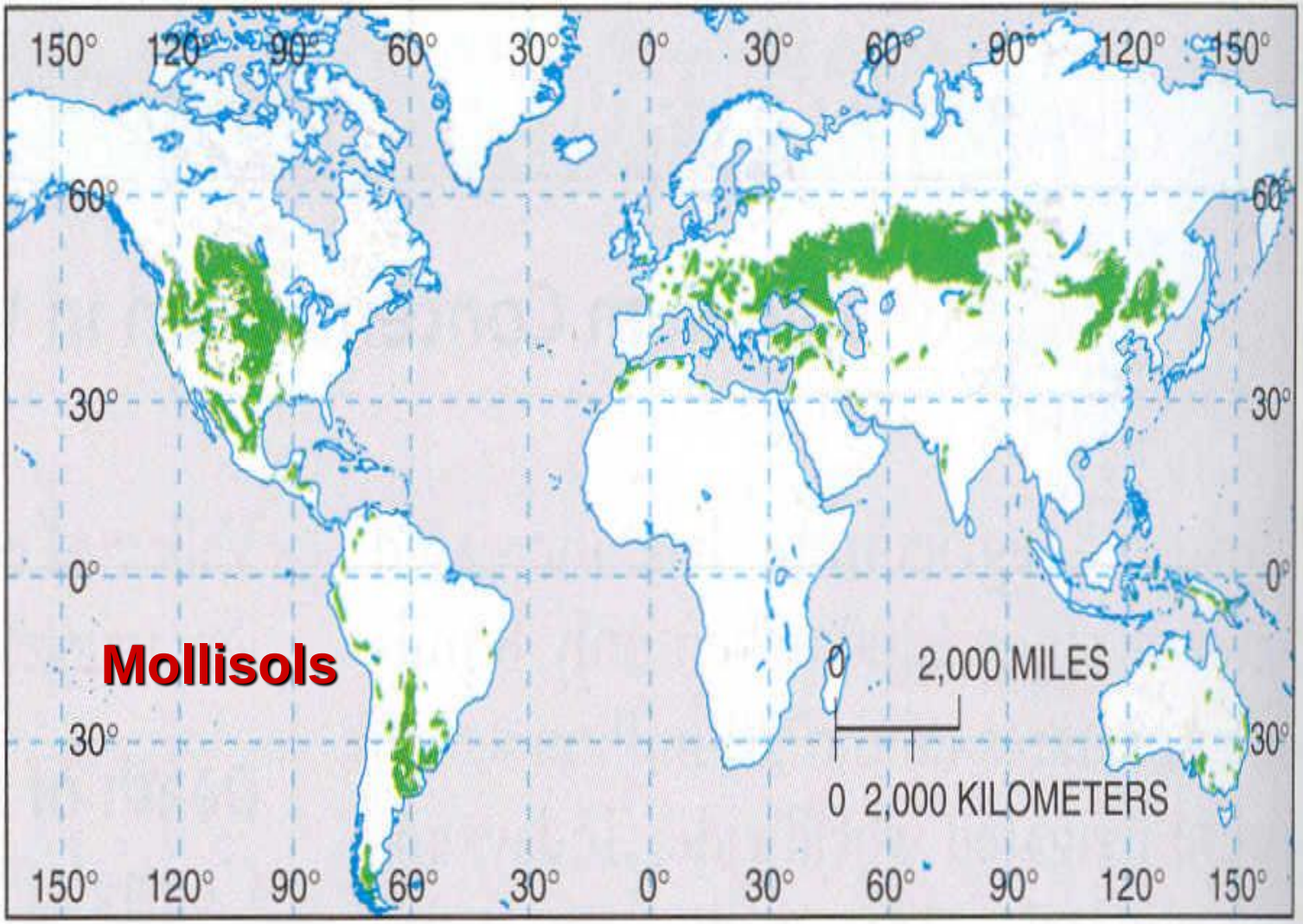
[Leaching---nutrients are washed away---found along the equator.]

What kind of vegetation is found along the equator? How can the soil be poor in fertility and support this type of vegetation? What happened when agribusiness men from the US moved to the Amazon Basin and tried to grow crops there after cutting down the natural vegetation? How is the land used by the native population?



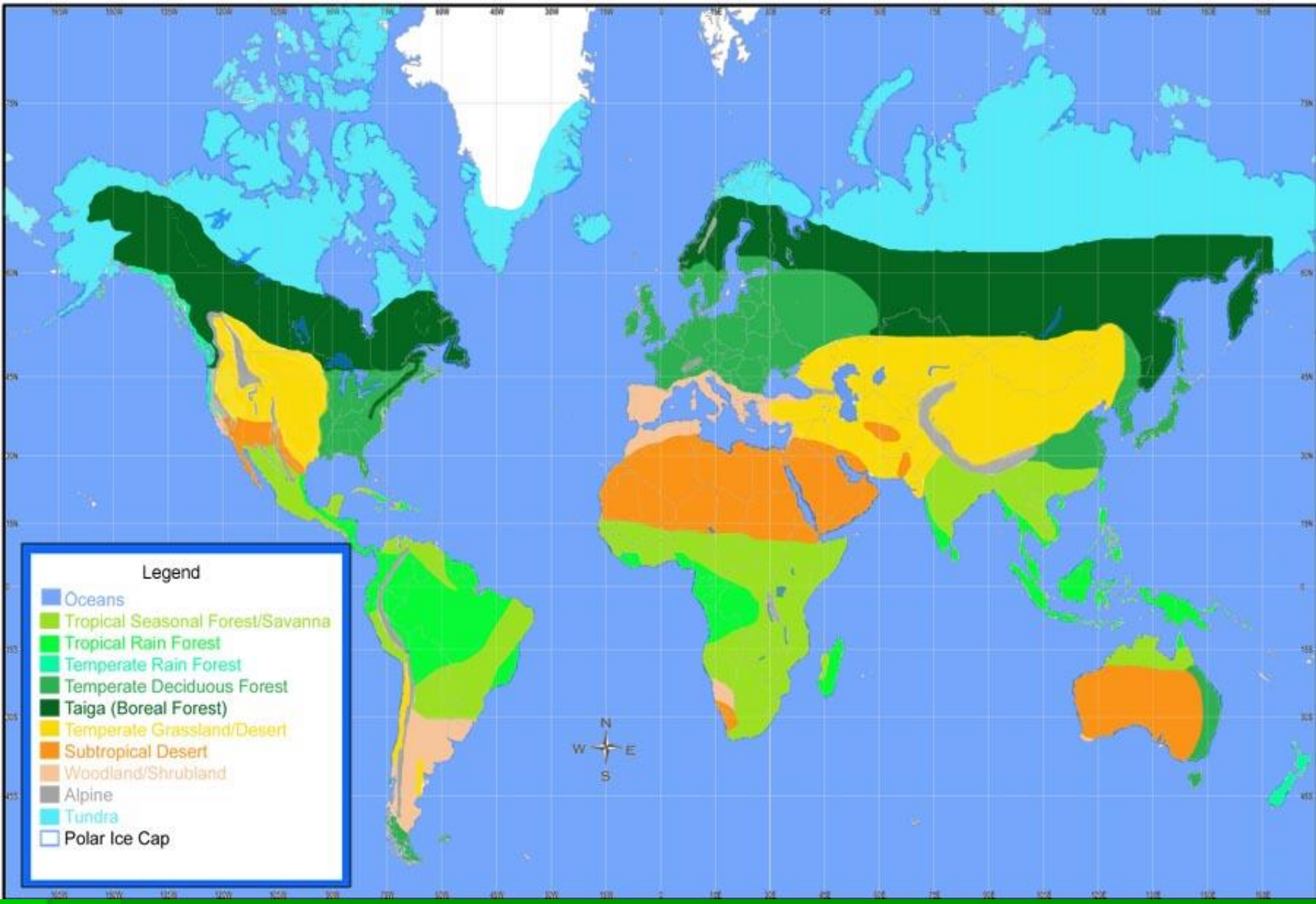
c) Mollisols-- grassland soil-- very fertile

How is this land used today?

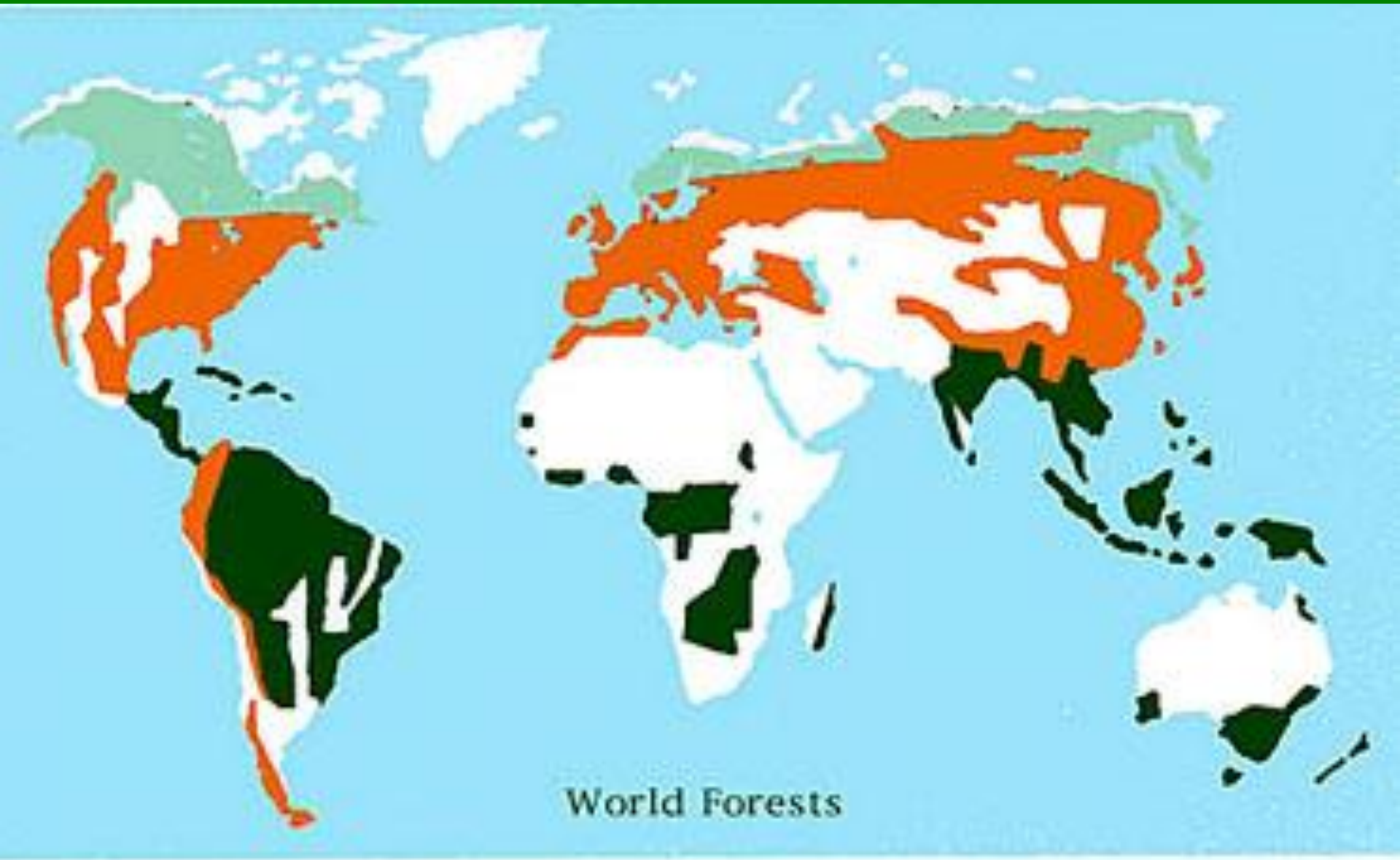


2. Vegetation--plant life.

a. Natural Vegetation


Legend
Oceans
Tropical Seasonal Forest/Savanna
Tropical Rain Forest
Temperate Rain Forest
Temperate Deciduous Forest
Taiga (Boreal Forest)
Temperate Grassland/Desert
Subtropical Desert
Woodland/Shrubland
Alpine
Tundra
Polar Ice Cap
N
W
E
S

1) Forests--found in areas of a lot of ppt.— Low Cells, Windward side of mts., etc.
   a) Tropical Rainforests
   b) Subtropical Forests
   c) Deciduous Forests
   d) Needleleaf or Evergreen Forests


World Forests
Boreal
Temperate
Tropical

- Forests cover almost one-third of the earth's land surface; the global area of forest systems has been reduced by one half over the past three centuries.
- Worldwide, the total forest area in 2005 is just under 4 billion hectares; the rate of deforestation is about 13 million hectares per year. The net change in forest area in the period 2000-2005 is estimated at -7.3 million hectares/year.

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

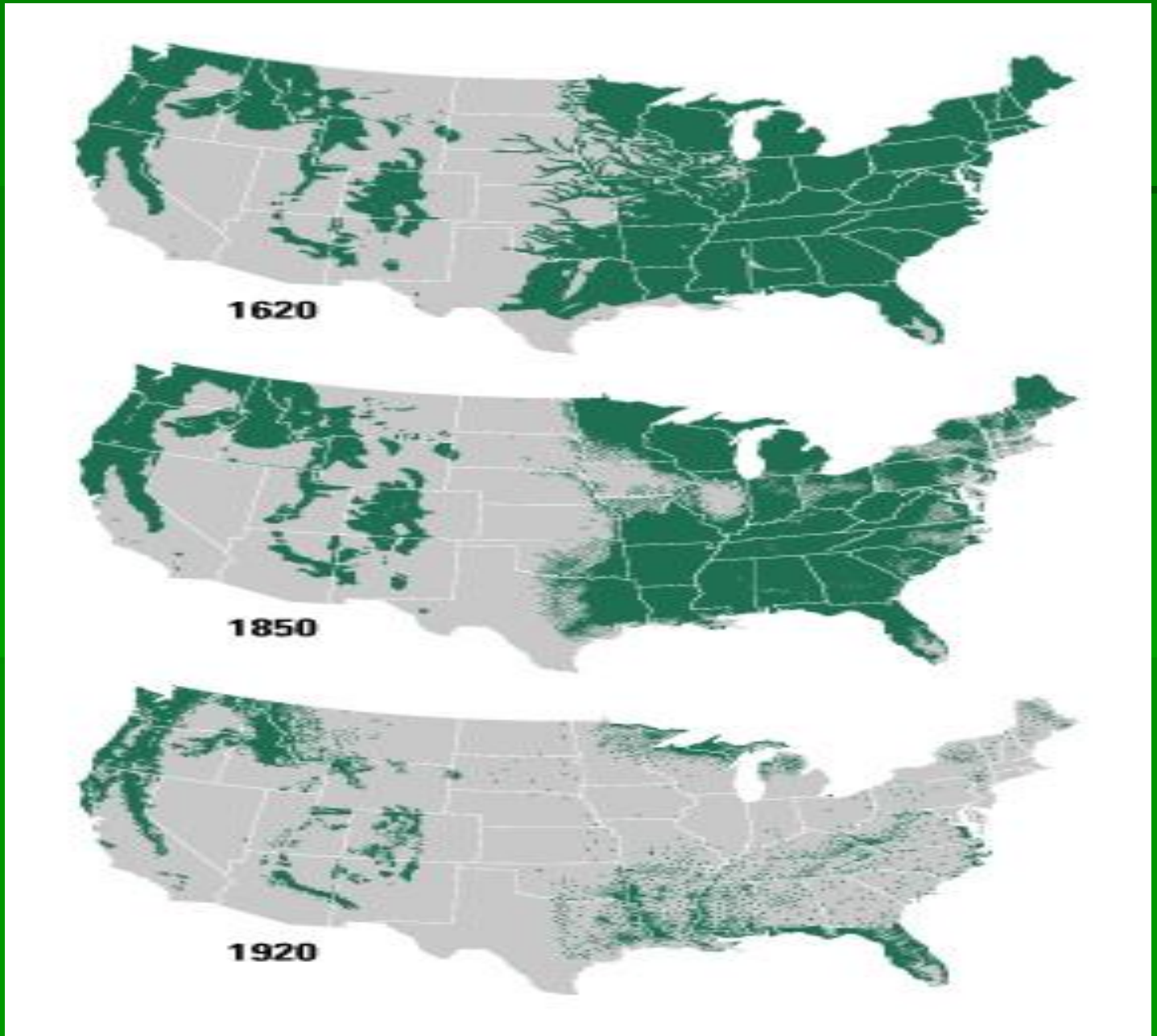
- Tropical forest are home to about 50% of all plant and animal species on the planet
- Approximately 1.5 billion tones of wood is harvested for fuel annually worldwide.

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

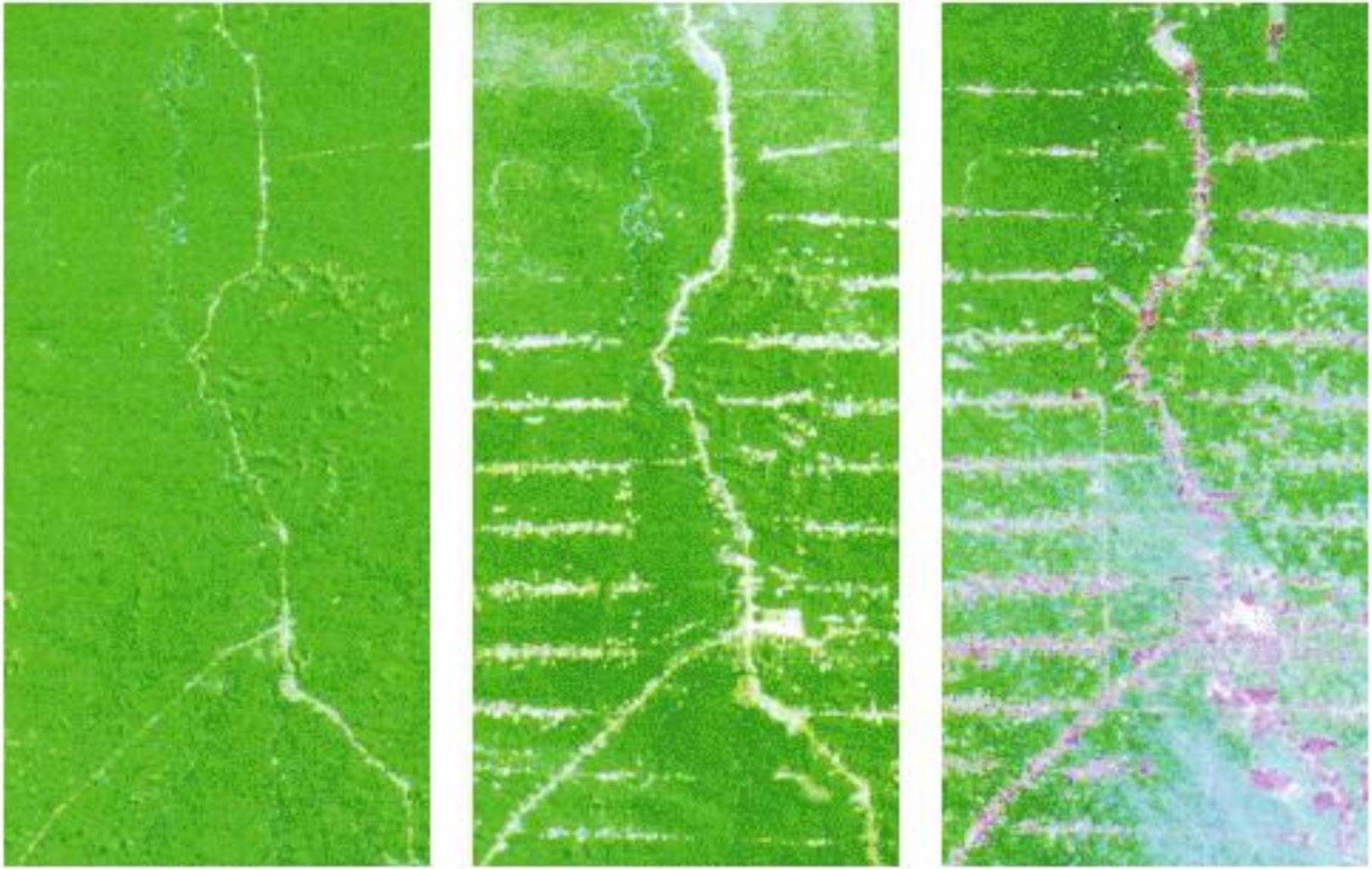
- Forest are among the most notable storehouses for biological diversity on the land—they house over two-thirds of known terrestrial species; they also harbour the largest share of threatened species.

- UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

Forests: Deforestation



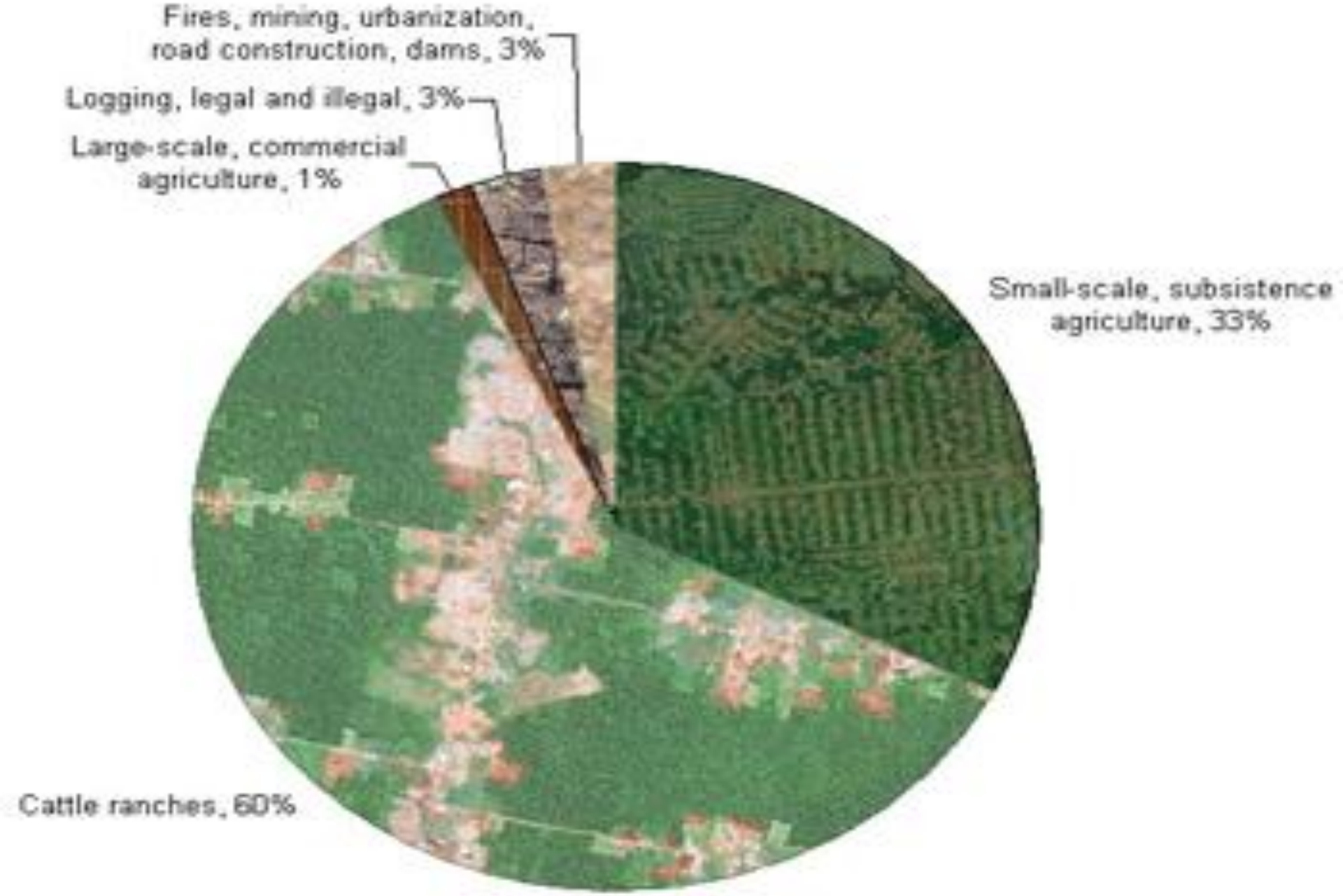
Amazon Rainforest Deforestation



1973 1979 1986

TRIC

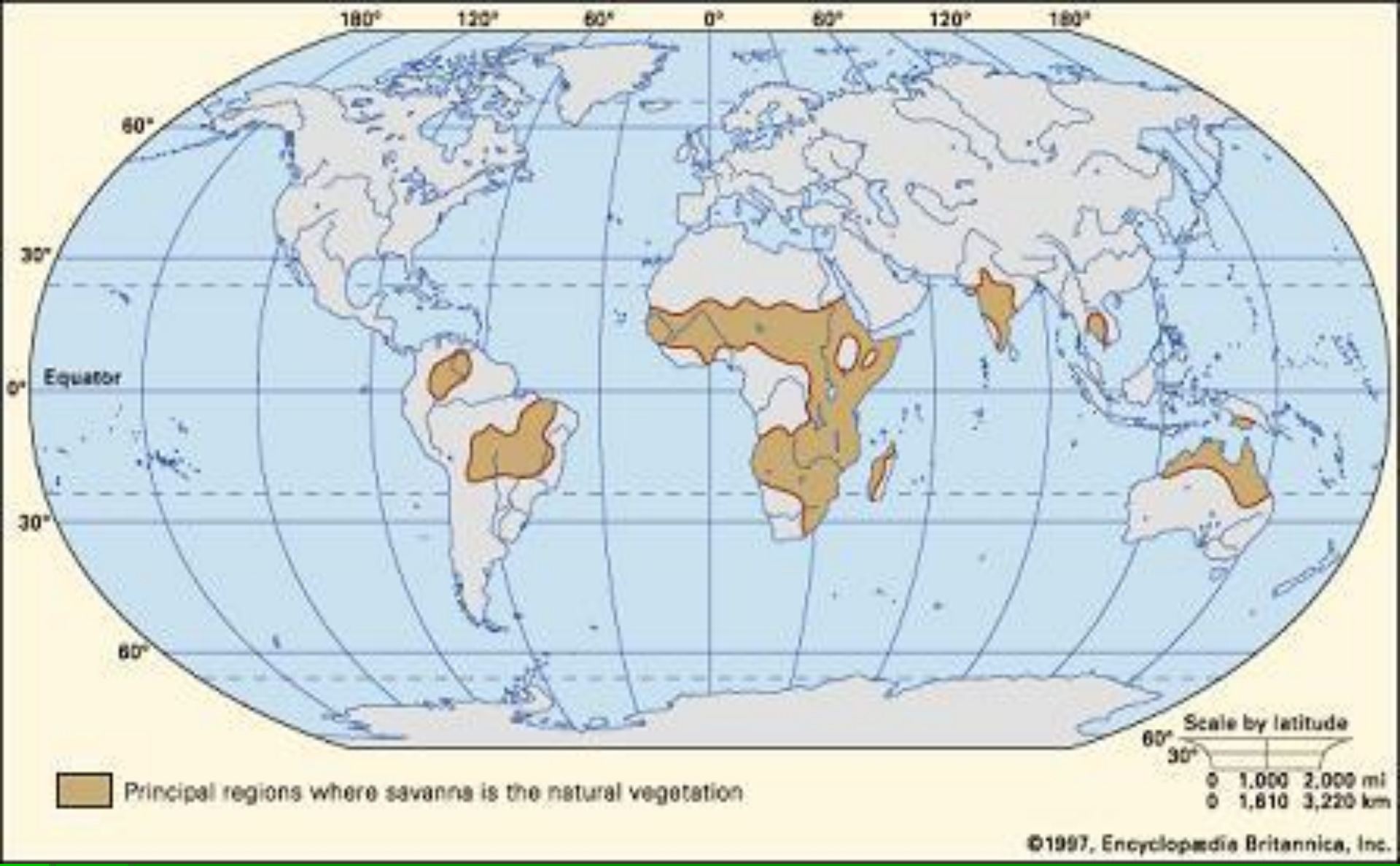
Causes of Deforestation in the Amazon, 2000-2005



2) Savanna--grassy areas w/ scattered trees--between forests & grasslands in moisture requirements

a) covered 40% of Earth's surface prior to human intervention.

b) has mostly been modified by human caused fire.


180°
120°
60°
0°
60°
120°
180°
60°
30°
0°
Equator
30°
60°
Scale by latitude
60°
30°
0 1,000 2,000 mi
0 1,610 3,220 km
Principal regions where savanna is the natural vegetation
©1997, Encyclopædia Britannica, Inc.

3) Grassland--grasses, less ppt. requirement than savannas.

a) Prairie—tall grasses

b) Steppe—short grasses

(This is where the wheat & grain crops are grown--called the "Bread Baskets of the World"--Great Plains, Pampas, Steppe, Australia, etc.--primarily Mollisols Soil.)

The World's Grasslands

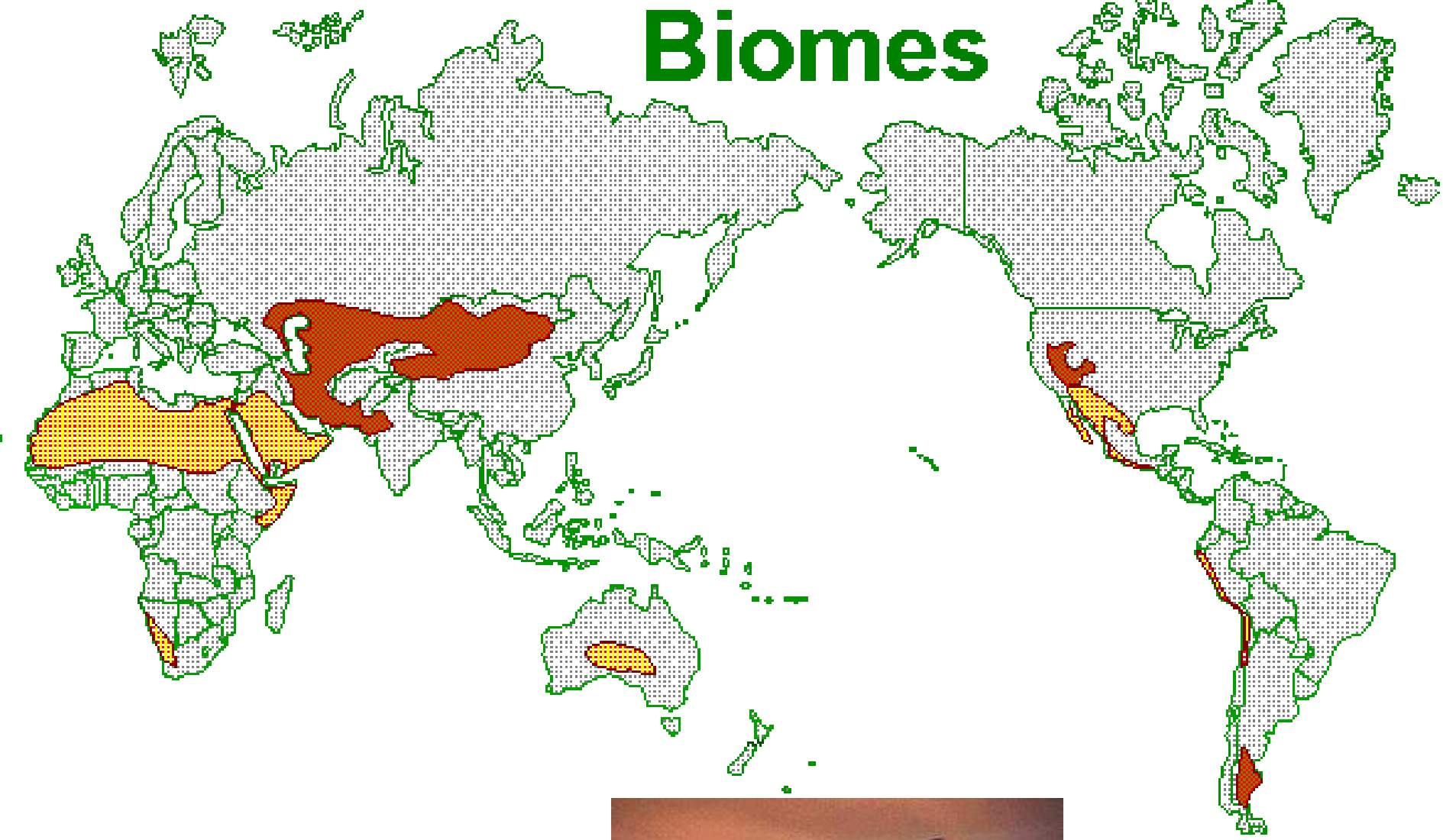
PRESERVE Grassy Butte, ND

- **One fifth of the Earth's land surface is grassland—a biome found on every continent except Antarctica**
- **Grassland biomes can be found in the middle latitudes, in the interiors of the continents.**
- **Most of the world's natural grasslands have been converted to wheat or corn fields.**

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

4) Deserts—very sparse, very little vegetation but there is some—driest region [Cresol Bush, Cactus (only in N.A.), Joshua Tree, Rabbit Bush, etc.] —xerophytic type of vegetation.

Biomes



a) cover more than one-third of the land area of Earth.

b) The deserts are expanding in a process called desertification

11) poor agricultural practices (over grazing and poor agricultural practices)
22) improper soil-moisture management
33) erosion
44) salinization
55) deforestation
66) global climate change

5) Tundra--treeless areas with grass, moss, and small flowering plants--very cold--ground is usually frozen.

Biomes

- **The Earth's tundra and polar regions are the world's least populated regions.**
- **Arctic Tundra is in the Northern hemisphere, while Alpine Tundra is found on mountains throughout the world**

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

b. Planted Vegetation

1) Two types of crops

a) Food Crops-- grains, fruit, vegetables, nuts, tea, coffee, etc.

b) Industrial Crops-- trees (lumber, paper), cotton (cloth), jute (rope), rubber, hay (feed), flowers (perfume, ornamental uses), etc.

- Cultivated systems, including croplands, shifting cultivation, confined livestock production and freshwater aquaculture cover approximately 24% of total land area.
- In the last two decades, the major areas of cropland expansion were located in Southeast Asia, parts of South Asia, the Great Lakes region of eastern Africa, the Amazon Basin, and the U.S. Great Plains.

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

- The major decreases of cropland occurred in the southeastern United States; eastern China and parts of Brazil and Argentina.
- According to FAO estimates, 1,500 million hectares (3,706 million acres) of the world's land is currently being used for growing corps.
- Of all human activities, agriculture consumes the greatest amount of water, accounting for 70% of all water withdrawals worldwide.

UNEP, One Planet, Many People, Atlas of Our Changing Environment, 2005-2006

2) People have changed the natural environment.

a) cut down the forests--deforestation.

b) plowed the grasslands.

c) introduced new plants.

d) overused--desertification, etc.

e) fertilizers have been added.

f) over planted, over grazed, over cleared, etc.

examples--Dust Bowl, Ethiopia, Australia, Somalia, Indonesia, etc.

c. Vegetation is a renewable res., but it often takes a long time to grow back (ex. the Redwood takes centuries to grow back.)

CROPLAND

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CROPLAND

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3. Minerals--a natural res. taken out of the land, such as precious stones, metal ores, & fossil fuels.

a. Not grown--found in ores (the hard rock minerals are found in) and must be mined.

b. Are not renewable.

c. Metals vs. Nonmetallic Minerals

1) Metals--solid, shiny and can conduct electric currents

a) Plentiful metals--iron, aluminum, manganese, titanium, magnesium, etc.

b) Scarce metals--
Copper, lead, zinc, tin, tungsten, chromium, gold, silver, platinum, uranium, etc.

2) Nonmetals-- minerals which do not have the characteristics of metals.

a) Minerals for chemicals, fertilizers, and special uses-- sodium chloride (salt), phosphates, nitrates, sulfur, precious stones (diamonds, rubies)

Conveyor belt depositing salt, Cabo de Gata, Spain

b) Building materials--clay, sand, gravel, gypsum, etc.

c) Fossil Fuels--coal, petroleum and natural gas [not technically minerals --produced from organic materials--included since it takes millions of years to produce and they are mined.]

4. Land resources often have an influence on where people live.

Give some examples of some land resources (soil, vegetation, minerals) that attracted people to settle in the US. In the World.

a. Iron Ore & Steel--NE US

b. Petroleum--Texas, Alaska, Saudi Arabia, etc.

c. Farmland

d. Gold & Silver-- California, Nevada, Colorado, Australia, Brazil,

e. Diamonds--South Africa, Russia, Australia, etc.

De Beers controls between 67 percent and 80 percent of the diamonds sold in international markets. Near the Orange River, in South Africa

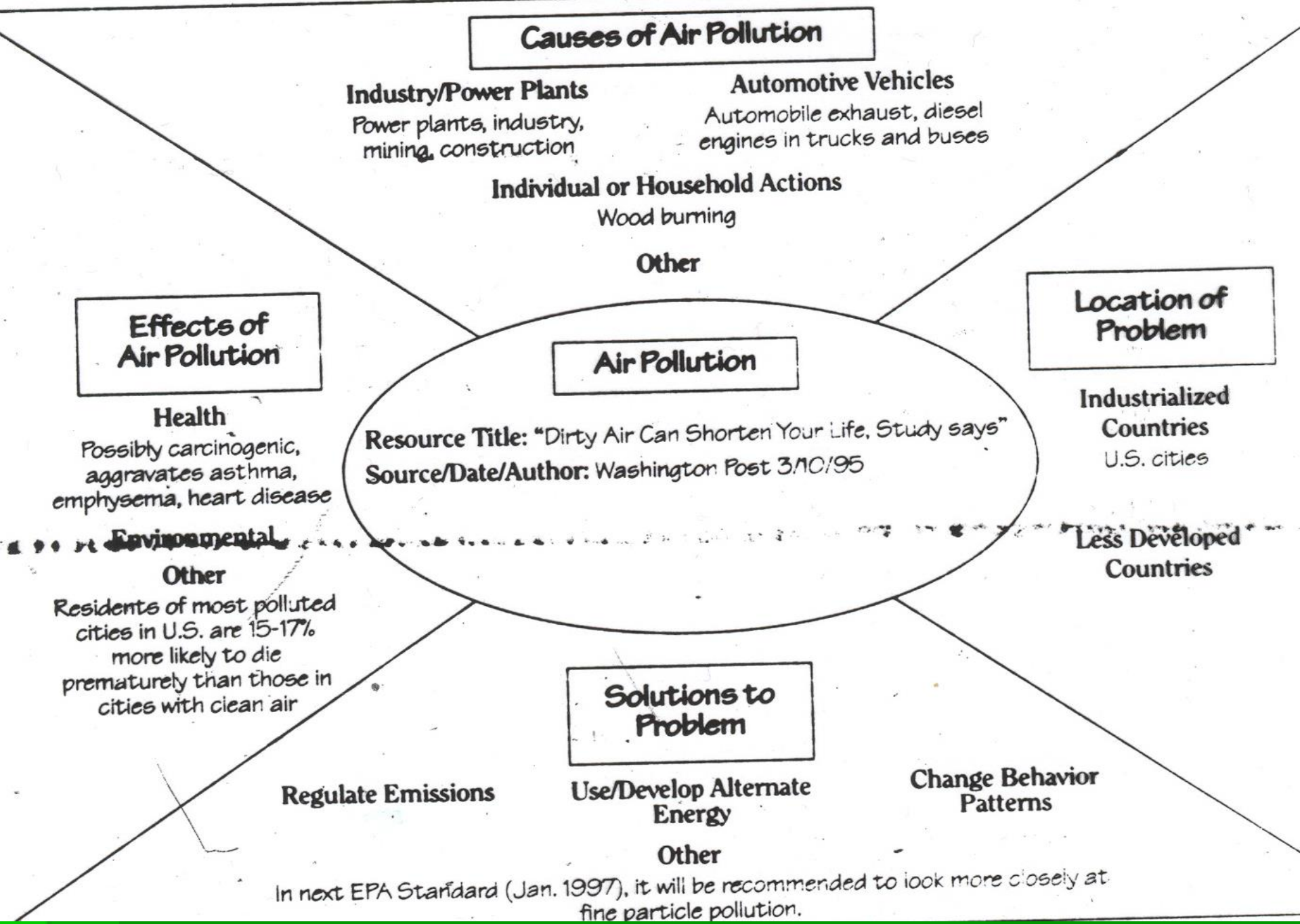
Yakutia , Siberia, Russia is the second largest producer of diamonds in the world

f. Emeralds—Colombia

B. Air Resources

1. Atmosphere--the layer of air that surrounds Earth.

2. Air is made up of gases.
   a. Nitrogen—most plentiful
   b. Oxygen
   c. Argon
   d. Carbon Dioxide


Causes of Air Pollution
Industry/Power Plants
Power plants, industry, mining, construction
Automotive Vehicles
Automobile exhaust, diesel engines in trucks and buses
Individual or Household Actions
Wood burning
Other
Effects of Air Pollution
Health
Possibly carcinogenic, aggravates asthma, emphysema, heart disease
Environmental
Other
Residents of most polluted cities in U.S. are 15-17% more likely to die prematurely than those in cities with clean air
Air Pollution
Resource Title: "Dirty Air Can Shorten Your Life, Study says"
Source/Date/Author: Washington Post 3/10/95
Location of Problem
Industrialized Countries
U.S. cities
Less Developed Countries
Solutions to Problem
Regulate Emissions
Use/Develop Alternate Energy
Change Behavior Patterns
Other
In next EPA Standard (Jan. 1997), it will be recommended to look more closely at fine particle pollution.

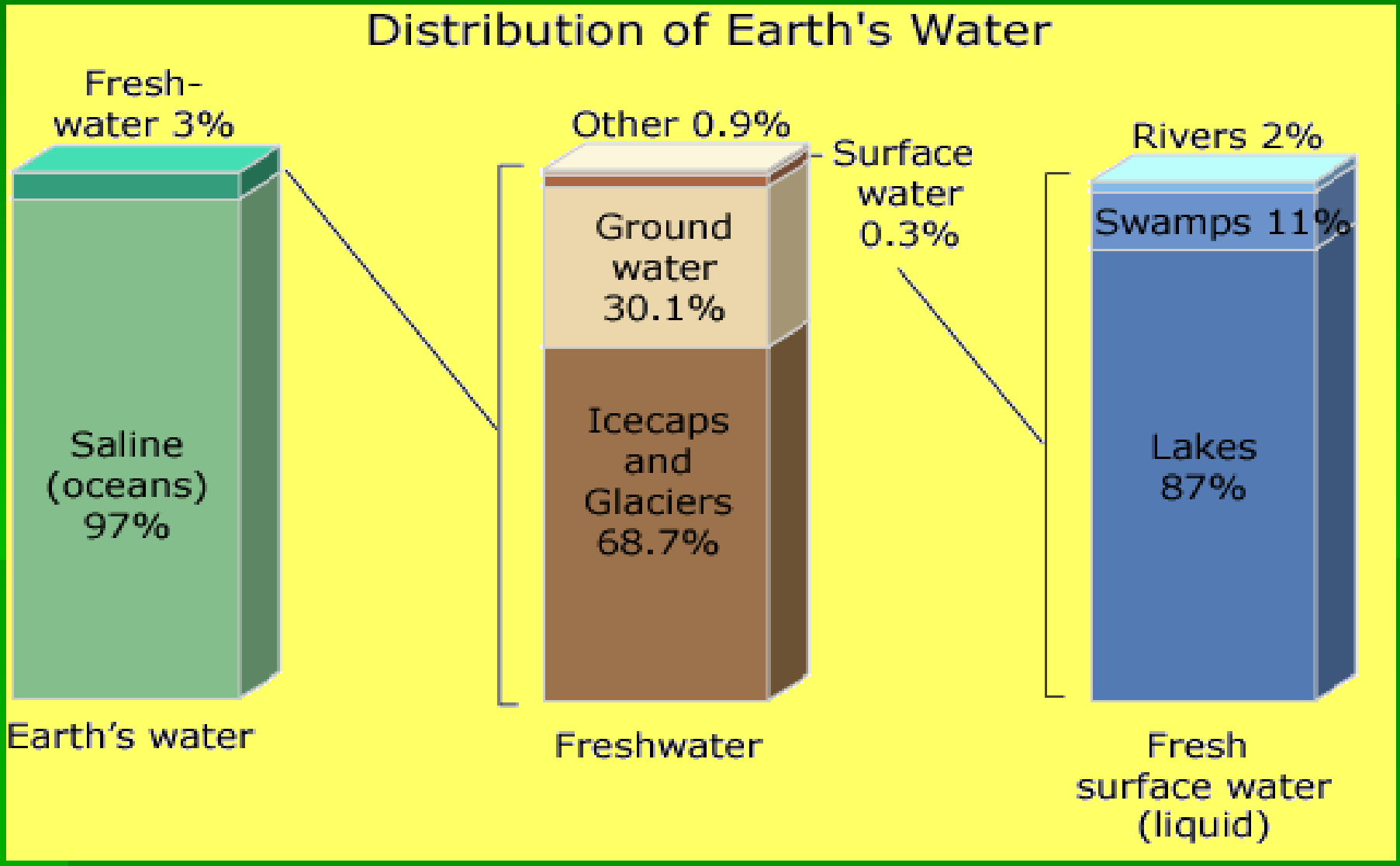
3. The atmosphere also creates a “greenhouse” effect.

a. Good Points--it keeps out harmful light rays and retains moisture and warmth near the surface of Earth.

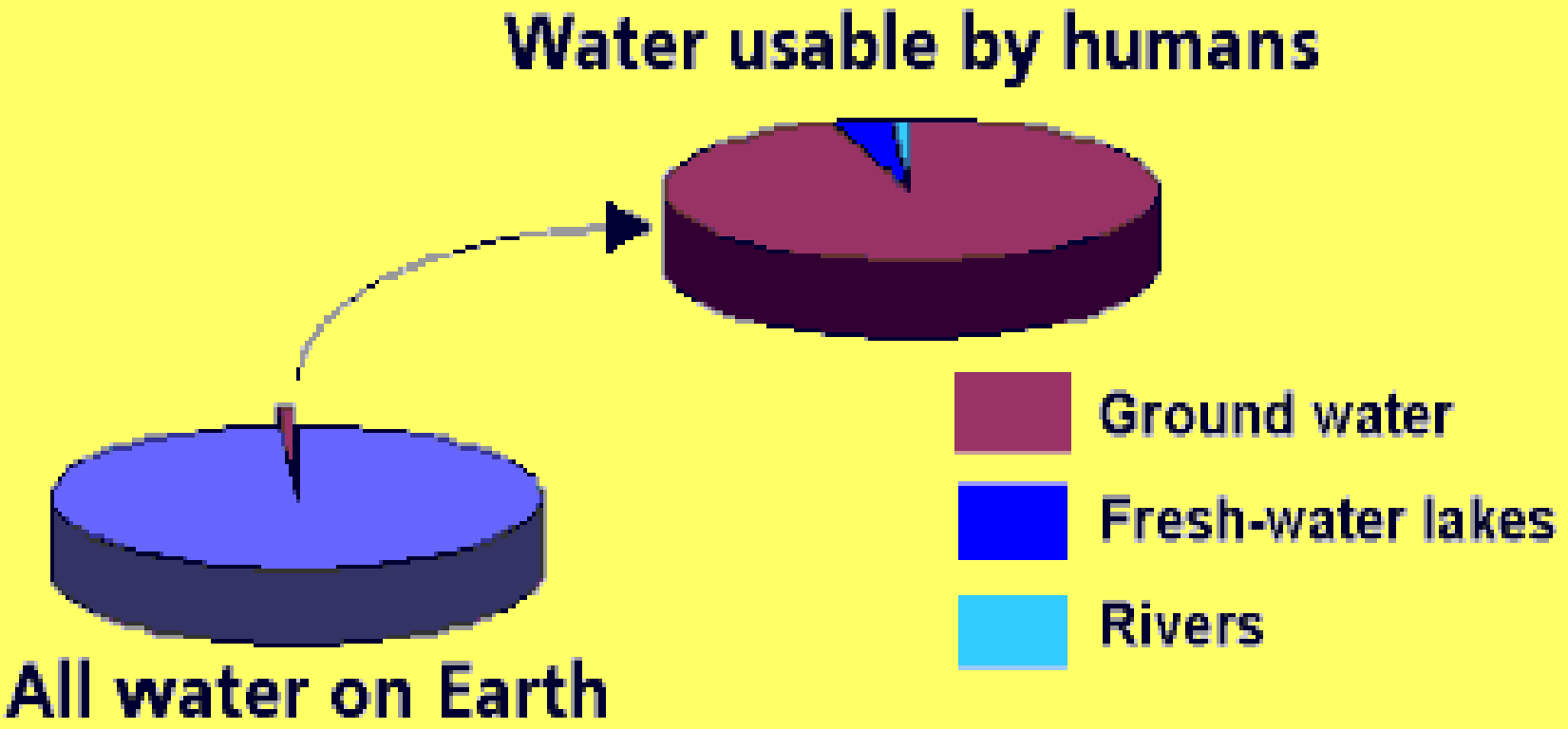
b. Bad Points--Some scientists believe with the additional pollution in the atmosphere the "greenhouse" is keeping in too much heat and the earth is getting hotter.

C. Water Resources

1. All forms of life need water.
2. Water also influences the climate and vegetation.


Distribution of Earth's Water
Fresh-
water 3%
Saline
(oceans)
97%
Earth's water
Other 0.9%
Ground
water
30.1%
Icecaps
and
Glaciers
68.7%
Freshwater
Surface
water
0.3%
Rivers 2%
Swamps 11%
Lakes
87%
Fresh
surface water
(liquid)

How much of Earth's water is usable by humans?



Total water withdrawals, 2000, in billion gallons per day

Water Facts

- There is the same amount of water today on Earth as there was 3 billion years ago!
- 2/3rds of the water used in an average home is in the bathroom!
- The U.S. has 3,500,000 miles of river but the NWS has only protected 11,303 miles
- If all the world's water fit into a gallon jug, freshwater would equal 1 tbsp.
- San Antonio is the largest city in the USA to totally depend on an aquifer for their water -- Edwards Aquifer.

Water facts cont

- Of the 1200 species endangered, 50% depend on river systems
- On average Americans use 160 gallons of water a day!
- 4-6 to flush the toilet, 55 for 10 minute shower, 2 gallons to brush your teeth
- One gallon of gasoline can contaminate 750,000 gallons of water
- Safe Drinking Water Act in 1986 increased regulations from 26-83 regulated contaminants

3. Water also influences settlement patterns.

Where?

Notice the higher population density in Egypt, western China, and northern India. What explains the "lines" of population density?

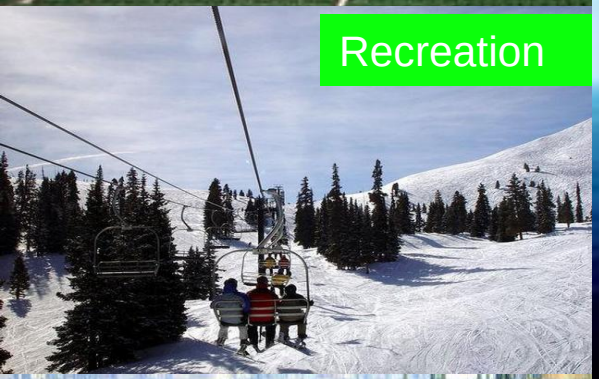
Why are there fewer people living in the interiors of the continents?

Living with Landforms, Resources and Natural Hazards


Irrigated farmland


Copper Mine, Arizona


Hong Kong Harbor


Recreation


Petroleum

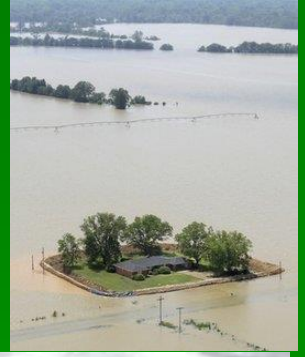

Commercial Fishing


Farming on Terraced land


Geothermal Energy


Forestry

Mississippi River Flooding, 2011

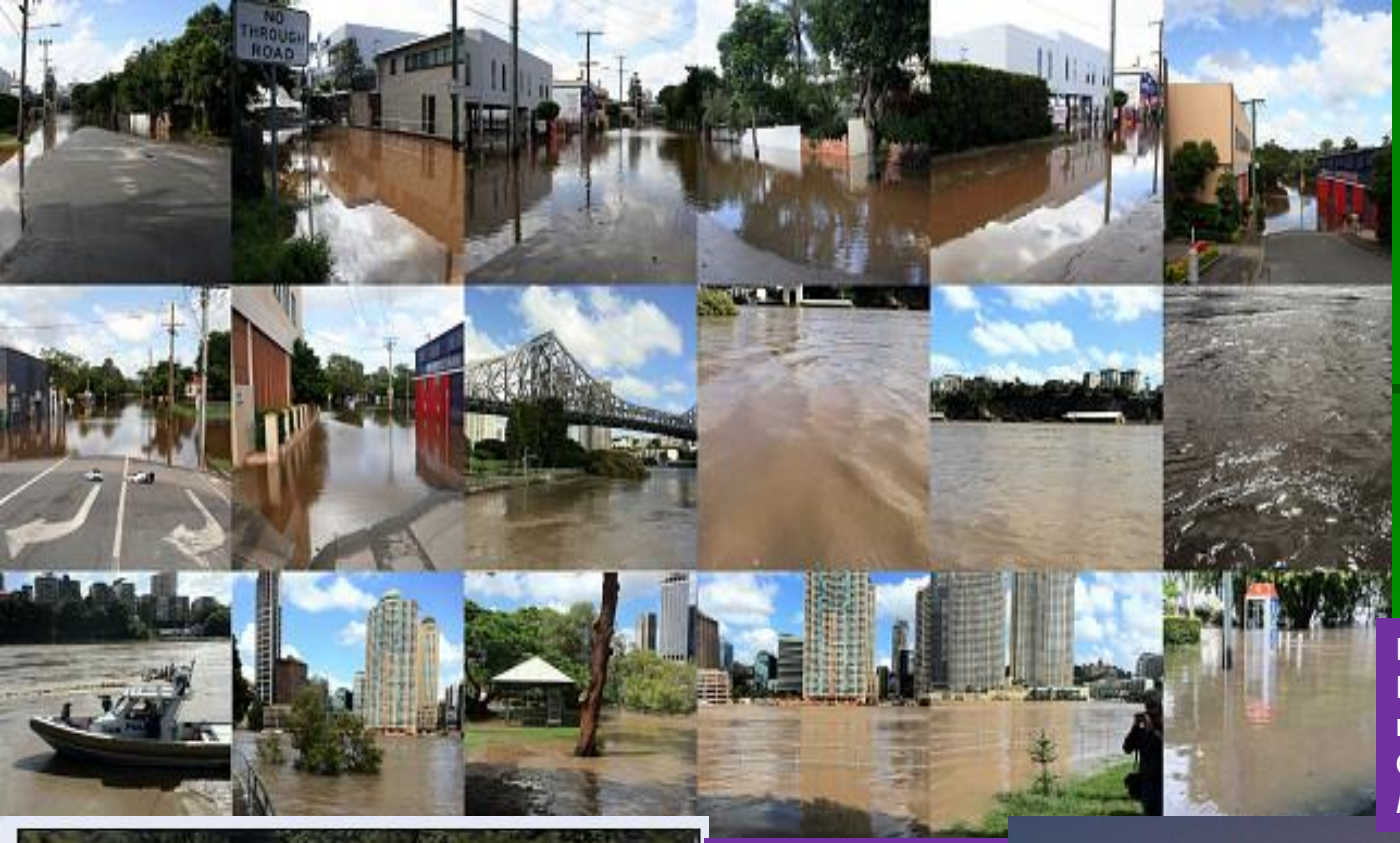


Hurricane Ike batters Texas coast
September 14, 2008

Joplin Missouri Tornado on May 2011.

The town of Vilonia, Ark was heavily damaged when a tornado hit during the night.| Photo by AP - Apr 26,2011

Brisbane, Australia, January 2011



Black Mountain burning. The Hobby-Eberly Telescope dome is at right. (Frank Cianciolo/McDonald Observatory) *Credit: AFP/Getty Images* , 2011

Brendan McDermid, EFE

A car travels in front of a house that has collapsed in Studio City. More than 6.5 inches of rain has fallen in the Los Angeles area.

LOS ANGELES (Feb. 22, 2005) - A deadly series of storms across California spawned tornadoes, landslides and avalanches as persistent rain flooded freeways and sent mud roaring into homes

Chilean Volcano, 2009

Air Pollution

Landfill

Japan Earthquake and Tsunami, 2011

Deforestation

Kilauea, 2010

Water Pollution

Oil Spill

Why do people live where they know that they will be impacted by hurricanes, earthquakes, mudslides, floods, tornadoes, etc.? i.e. New Orleans, and San Francisco

How does the environment influence people? i.e. why did Houston become the largest city in Texas when Galveston was the largest in 1900?

What impact do people have on the environment?