

## TROPICAL RAINFOREST - STRUCTURE AND DEFORESTATION

### Data response exercise

1.
  - a. Name 3 continents with tropical rainforest.
  - b. Brazil has more rainforest than any other country, name 4 other countries in South America with rainforest.
  - c. Name 2 other types of vegetation found in Brazil.

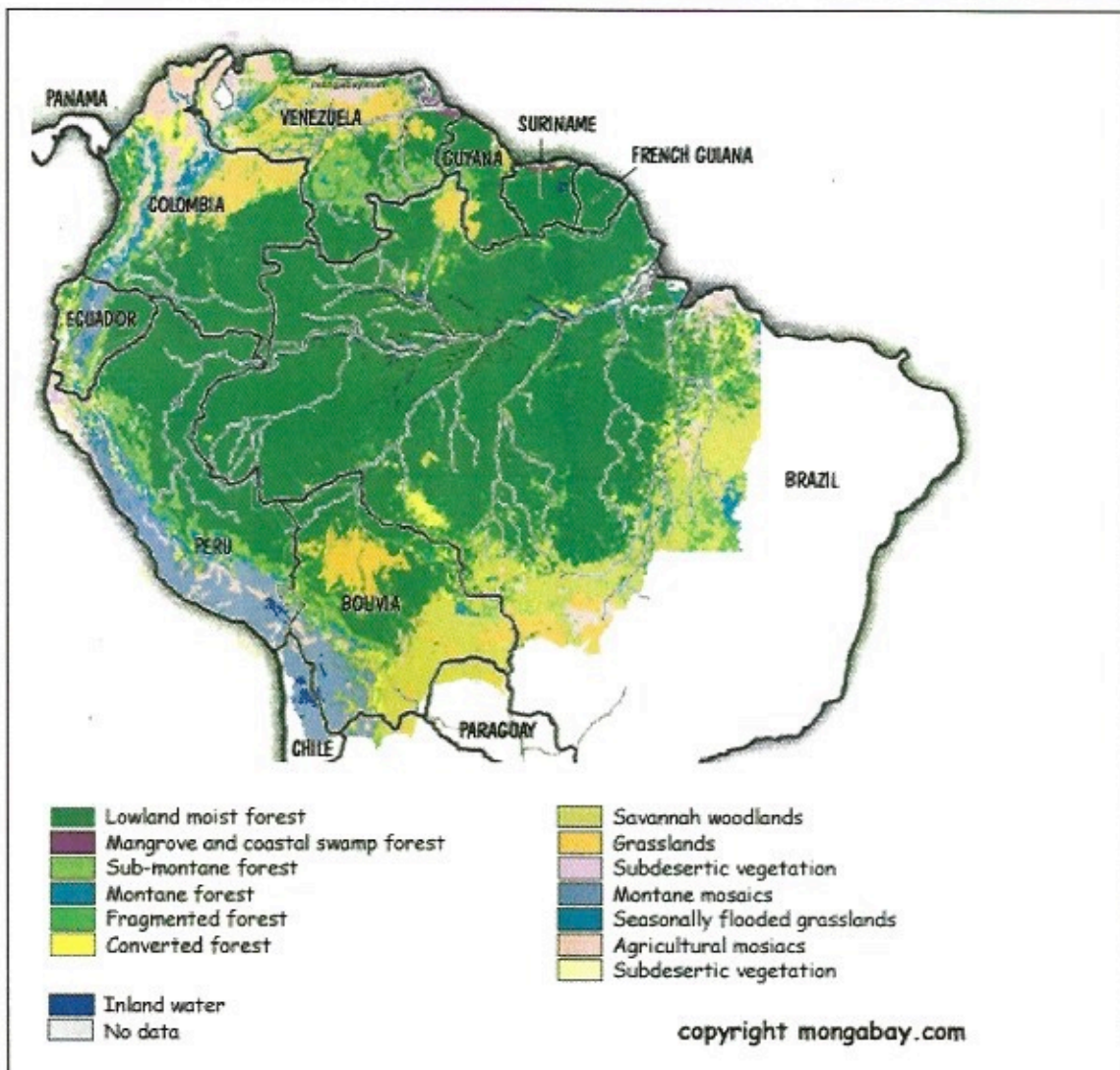
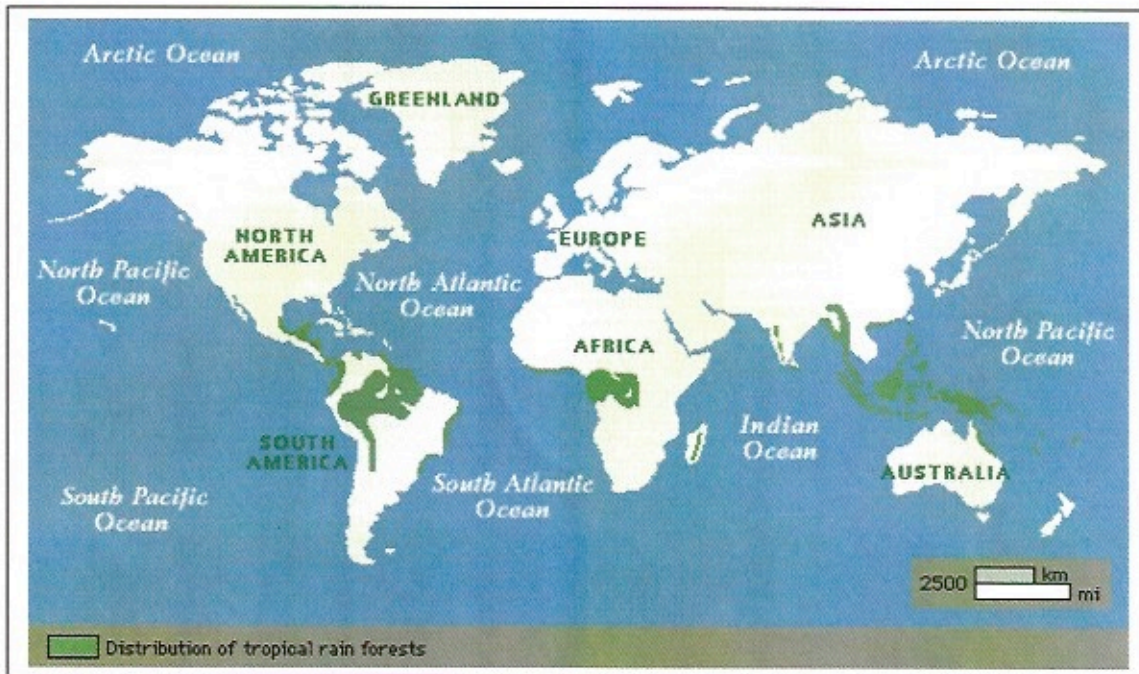
9
  
2.
  - a. Use the photographs of rainforest vegetation to explain plant type, plant adaptation and forest structure in Amazonia.
  - b. How does the nutrient cycle work in the rainforest?

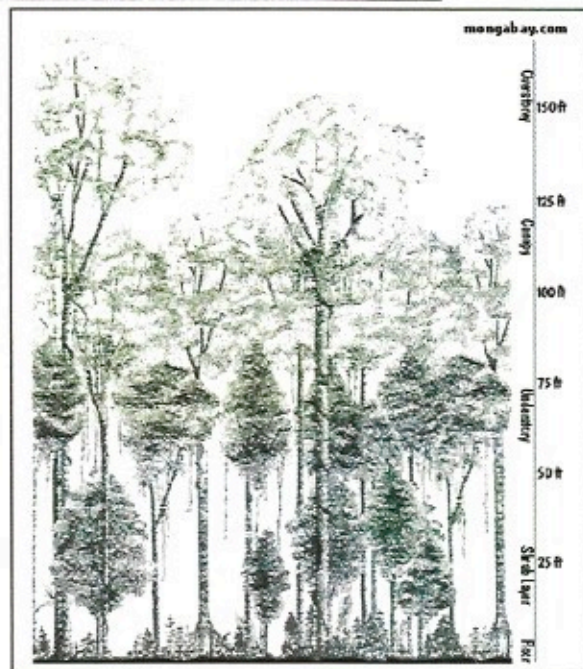
15
  
3.
  - a. Which year had the most deforestation in Rondonia (a Brazilian state in Amazonia) between 1988 and 2011? Quote the figure in hectares.
  - b. Which year had the least deforestation in Rondonia? Quote the figure in hectares.
  - c. What was the general trend in deforestation from 2004 to 2011?
  - d. Approximately what percentage of total Amazonia deforestation took place in Rondonia over the period shown?

8
  
4. Examine the causes of rainforest destruction in Amazonia. 

12
  
5.
  - a. Draw a spider diagram to illustrate the effects of deforestation in Rondonia.
  - b. Use this diagram to write a detailed account of the impact of deforestation on Rondonia.

20

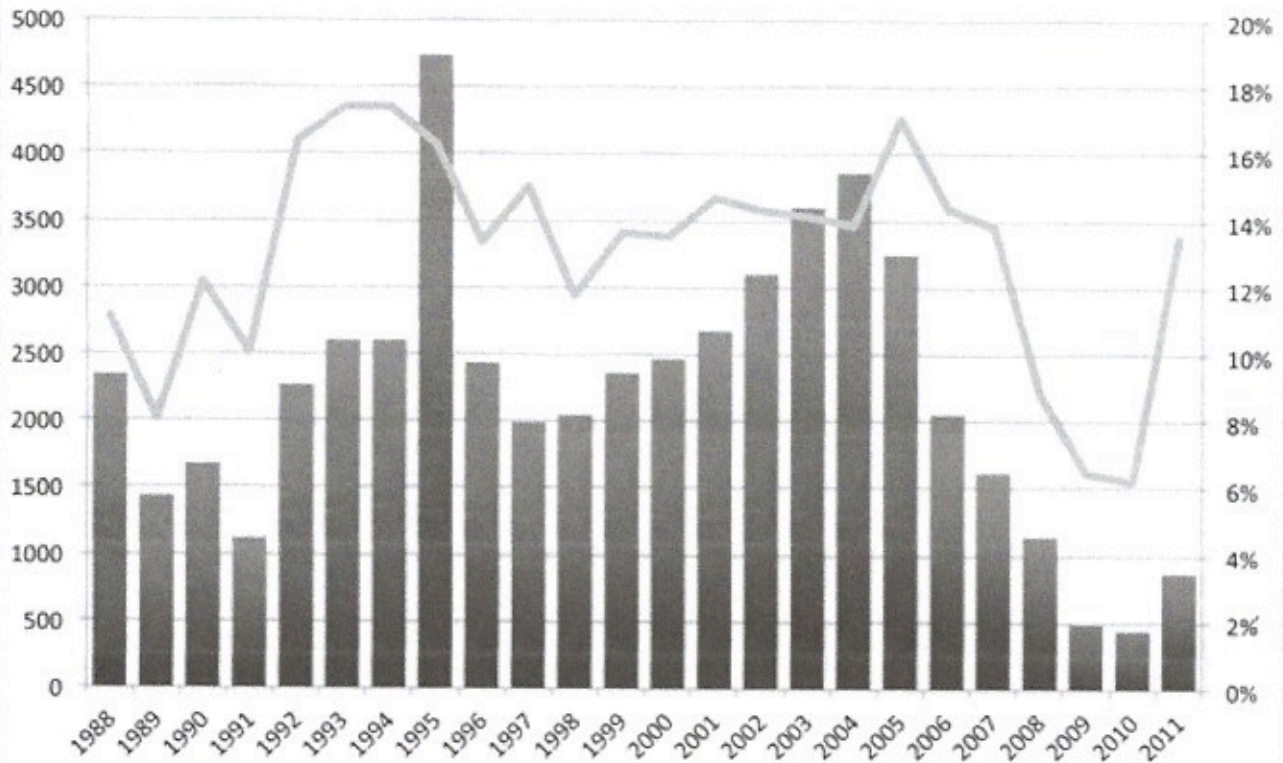




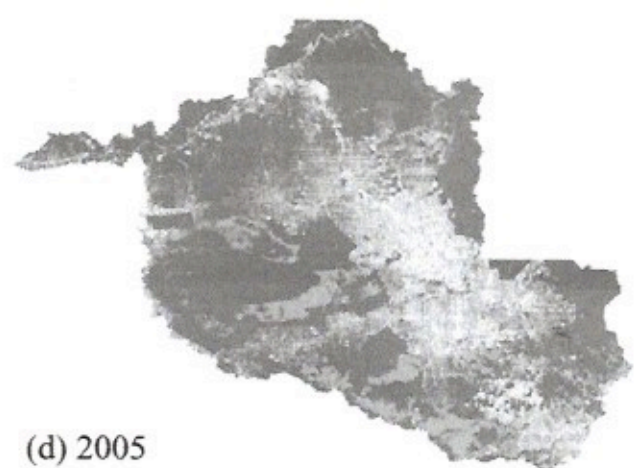
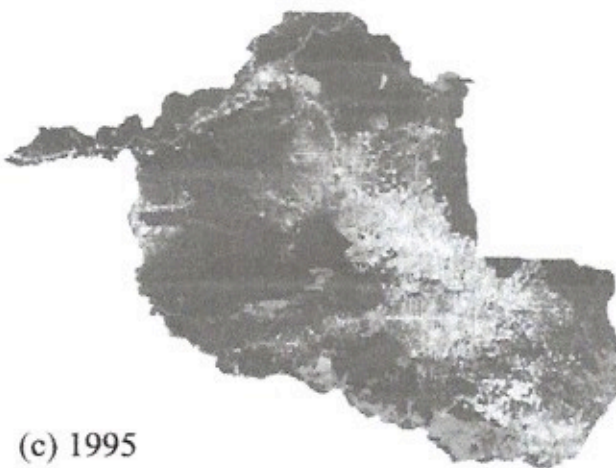
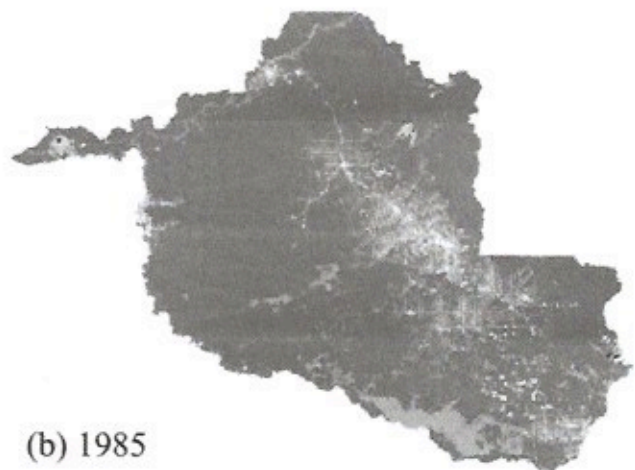
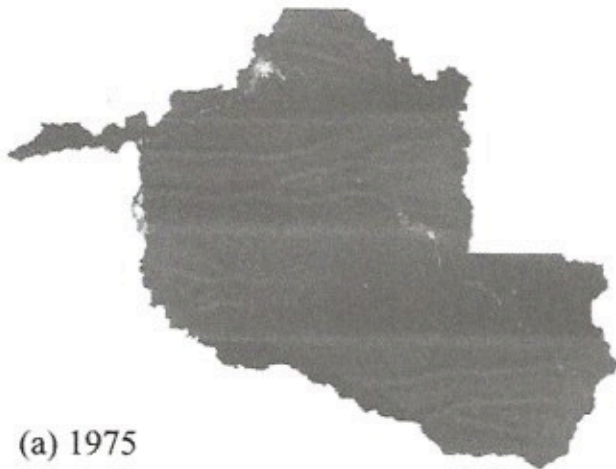
**RAINFOREST VEGETATION**

## Deforestation in Rondônia, 1988-2011 (ha)

— Deforestation in Rondônia as % of total Brazilian Amazon deforestation

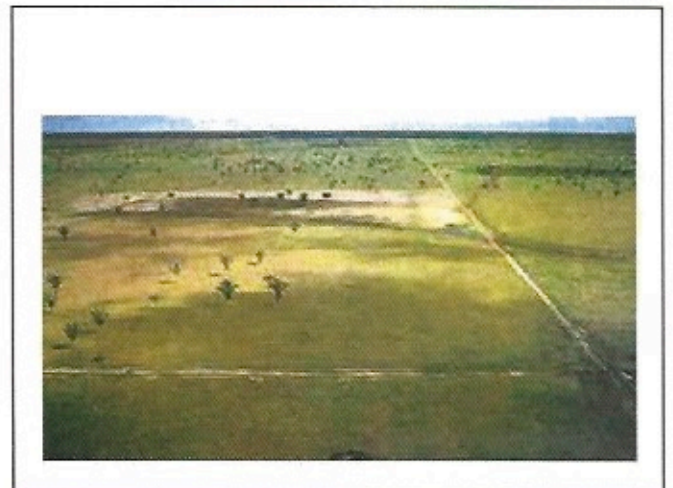
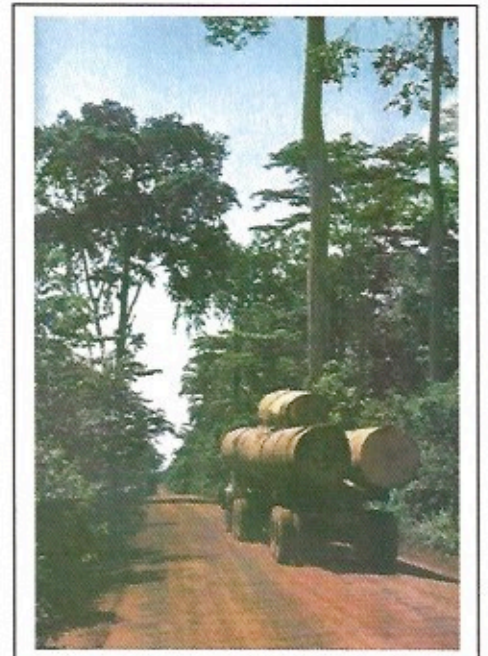
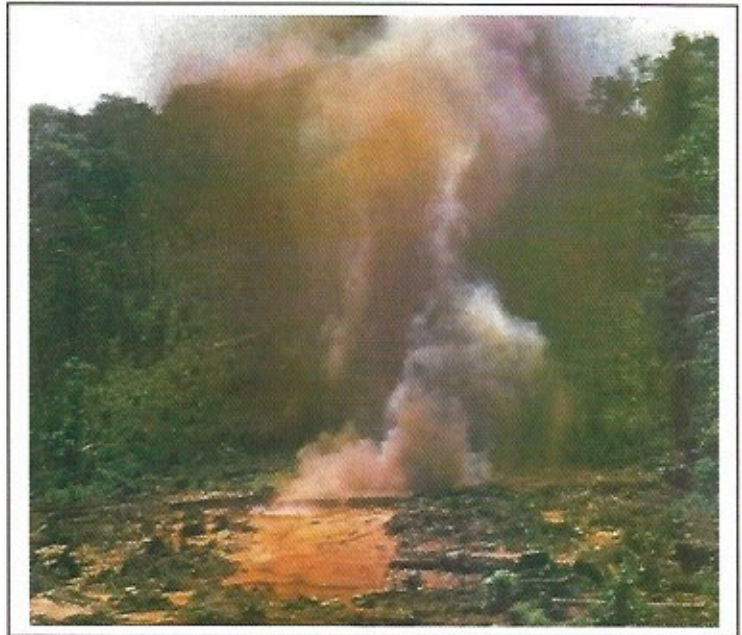
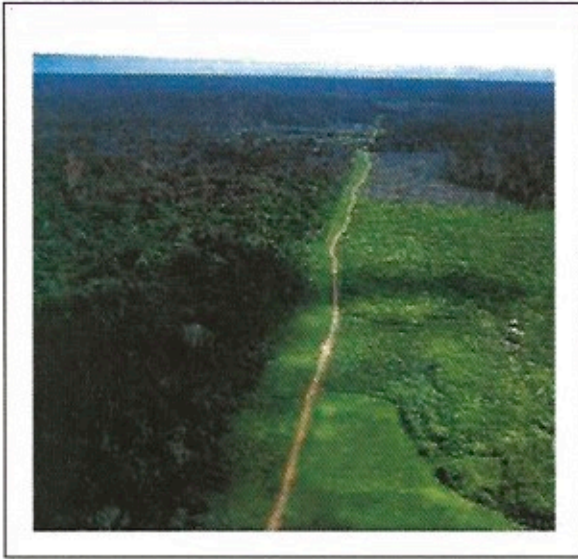


## DEFORESTATION IN RONDONIA 1975-2005 (note : Cerrado is Savanna)



Forest
  Cerrado
  Deforestation

# IMAGES OF DESTRUCTION



## **RONDONIA – EFFECTS OF DEFORESTATION**

### **AGRICULTURE**

Increasing demand in the developed nations for inexpensive beef for human convenience foods has had a direct effect on the forests by resulting in their conversion to short-life pastures. Fast-food chains are the largest importers of beef. The soils organisms are killed when roots of trees are pulled up.

### **FIRES**

Fires destroy the canopies in which there is a high diversity of arboreal species. They also remove and destroy both live organisms and detritus. Forest biomass is severely reduced due to deforestation. The most harmful is slash and burn, and the use of bulldozers to drag and burn primary (virgin) rainforest. The trees are knocked down and allowed to dry out for a period of months, then they are torched. So pervasive was the growth of agricultural settlement in Rondonia, that during the dry season of 1987, 44,000 km<sup>2</sup> of forest were burned.

### **SOIL**

Amazon soils cannot provide nutrients from the parent material. When the forest is cut the soil is then exposed to the hot sun and torrents of rainfall because of the lack of protective layers of tree cover. Consequently, the top soil is washed away by heavy rainfall. The rain pelts the bare soil and existing nutrients are flushed away into the river. As a result the soil becomes infertile and is unable to support crops for any long length of time. Soil water deficiency adds problems to the hydrological system. Soil becomes dry in some areas.

The forest soil is thin and fragile and therefore cannot support crops for a long period. This is a destructive method of using the land. Because the soil is not able to retain its nutritional properties, peasants and farmers move on to clear more of the forest. Some nutrient matter remains on the surface, and in this enriched seeds are sown. Subsistence farming is necessary for the indigenous inhabitants but they have to rely heavily on fertilizers and pesticides. Eventually the soil becomes less supportive as it has been exhausted of its nutrients.

### **BIODIVERSITY**

The primary cause of the decline in diversity of the rainforest is habitat loss. In the rush to profit from the rainforest, no thought is spared for the welfare of the fauna and flora that depend on them. As a result, species are vanishing at an alarming rate, some before they have even been documented. Most arboreal animals occupy the upper canopy of trees so they are more threatened than those lower down. As forests diminish it has impacted the social, economic, climatic and political systems, biodiversity and the plight of the indigenous Nwabarak peoples of Rondonia.

### **INDIGENOUS PEOPLE**

Laws were passed in 1991 giving indigenous people the right to control what happens in their forests. But these property rights are not clearly defined to prevent or protect their land from unscrupulous cattle ranchers and loggers. There are incidents where it has been reported that natives are being killed or their land by prospectors for gold, cattle ranches and plots for growing monoculture cash crops such as corn. Nwabarak Indians of Rondonia are being killed by cattle ranchers who need their land.

### **CLIMATE:**

There is compelling evidence that deforestation is linked with climate change, both as a cause and an effect. Forest impoverishment through logging and surface fire cause a significant release of carbon to the atmosphere. Concern about global warming is based on the scientific evidence that the greenhouse effect is being strengthened as a result of human activity. The rate at which Rondonia's forests are being burned gives cause for concern.

Fires can cause a permanent change of climate as well as vegetation. When the forest is destroyed, less moisture is evaporated into the air, resulting in reduction of rainfall and a vicious cycle as droughts lead to more fires.

Apart from the loss of species, the clearance of the forests may have serious climatic consequences extending far beyond its borders. Flooding of the rivers have had and will have substantial effects on Rondonia's climate.