

# Loss of tropical forest and soil destruction

- One third of the total land area on earth is forest.
  4. 3 billion hectar.
  - 43 million square kilometers.

**Cleared forest in  
Amazon area.**



# Slash and burn in southern Leyte, Philippines



Growing cassava on a steep slope.



# Soil survey in Leyte, Philippines



Forest soil which still keeps soil organic matter.



The land where the forest was cleared in the southern Leyte.



Punta

Soil with degraded soil organic matter.



# Loss of tropical forest and soil degradation.

- Area of tropical forest: 20 million square kilometer.
  - 0.17 million square kilometers are lost annually.
- Area of tropical rain forest and seasonal forest: 11 million square kilometers.
  - 0.1 million square kilometers are lost annually.
  - Tropical forest will vanish in 100 years.



# Reasons for the decrease of forest.

- Expanding cities and residential area.
- Turning to permanent grass land and cultivated land.
- Turning to large scale plantations (oil palm, coffee, sugar cane)
- Total forest clearing for timber, pulp and paper production.
- Opencut mining.

# Reasons for the decrease of forest. (continued)

- Charcoal production
- Typhoon and wild fires.
- Clearing of mangrove forest for shrimp raising.
- Construction of infrastructures.
- Construction of dam for hydroelectric power generation.

# Clearing of mangrove forest.



[yaccyann.maxs.jp/amamioosima/14.jpg](http://yaccyann.maxs.jp/amamioosima/14.jpg)



Shrimp raising pond in Sumatra, Indonesia.



Afforestation of cleared mangrove.

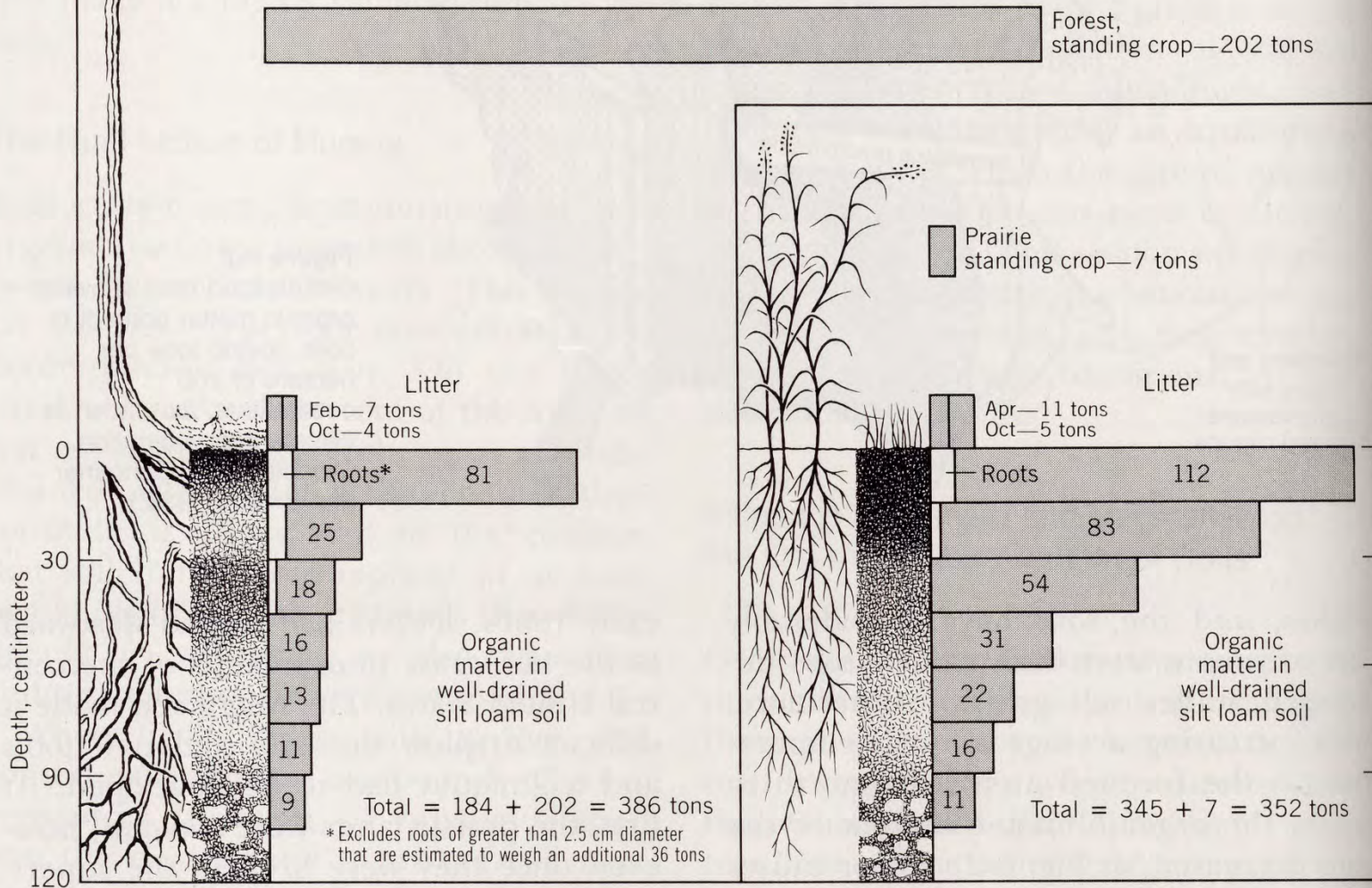
# Richness of tropical forest ecosystem and its vulnerability.

- One half of the total biological species are living in the tropical forest.
- The speed of organic matter decomposition and cycling is very fast.
- Very little organic matter and nutrients are stored in their soils.

Tropical trees absorb nutrients from very thin surface soil.



# Comparison of plant biomass in the forest and prairie grassland in Wisconsin, USA.



**Figure 6-3**

Metric tons per hectare distribution of organic matter in forest (white oak, black oak) and prairie (big bluestem, Indian grass) ecosystems in south central Wisconsin. (Adapted from Nielsen and Hole, 1963. Courtesy of F. D. Hole, Soil Survey Division, Wisconsin Geological and Natural History Survey, University Extension, University of Wisconsin.)



# Amount of carbon supply and soil carbon storage in various climate zones.

