THE TROPICAL RAIN FOREST

LEA ZELLER, MIRIAM GRAUF, LENA STEINER

THE TROPICAL RAIN FOREST

TROPICAL RAINFORESTS OF THE WORLD

ABIOTIC FACTORS

ABIOTIC FACTORS

- Climate
- Temperature
- Rain
- Soil
- Sun
- Wind
- Water sources

CLIMATE

- Temperatures in tropical rain forests vary and change often
- Doesn’t even change between night and day
- Is around 25 to 27 degrees.
- The rainfall ranges are about 2000 to 4000 mm per year
- Dry: If there is a month with less than 100mm of rain
- The atmosphere is hot and humid
- No seasons: the climate is consistent all year

RAIN/PRECIPITATION

- Precipitation is substantial
- Incredible amount of moisture leads to many unique adaptations in plant species
- "Wet season“: monsoons or heavier rainfall become more common
- Temperate rainforests: some precipitation falls as snow at higher elevations
- Humidity: varies from 77 to 88 percent (allowing the growth of epiphytes or "air plants“)

SOIL

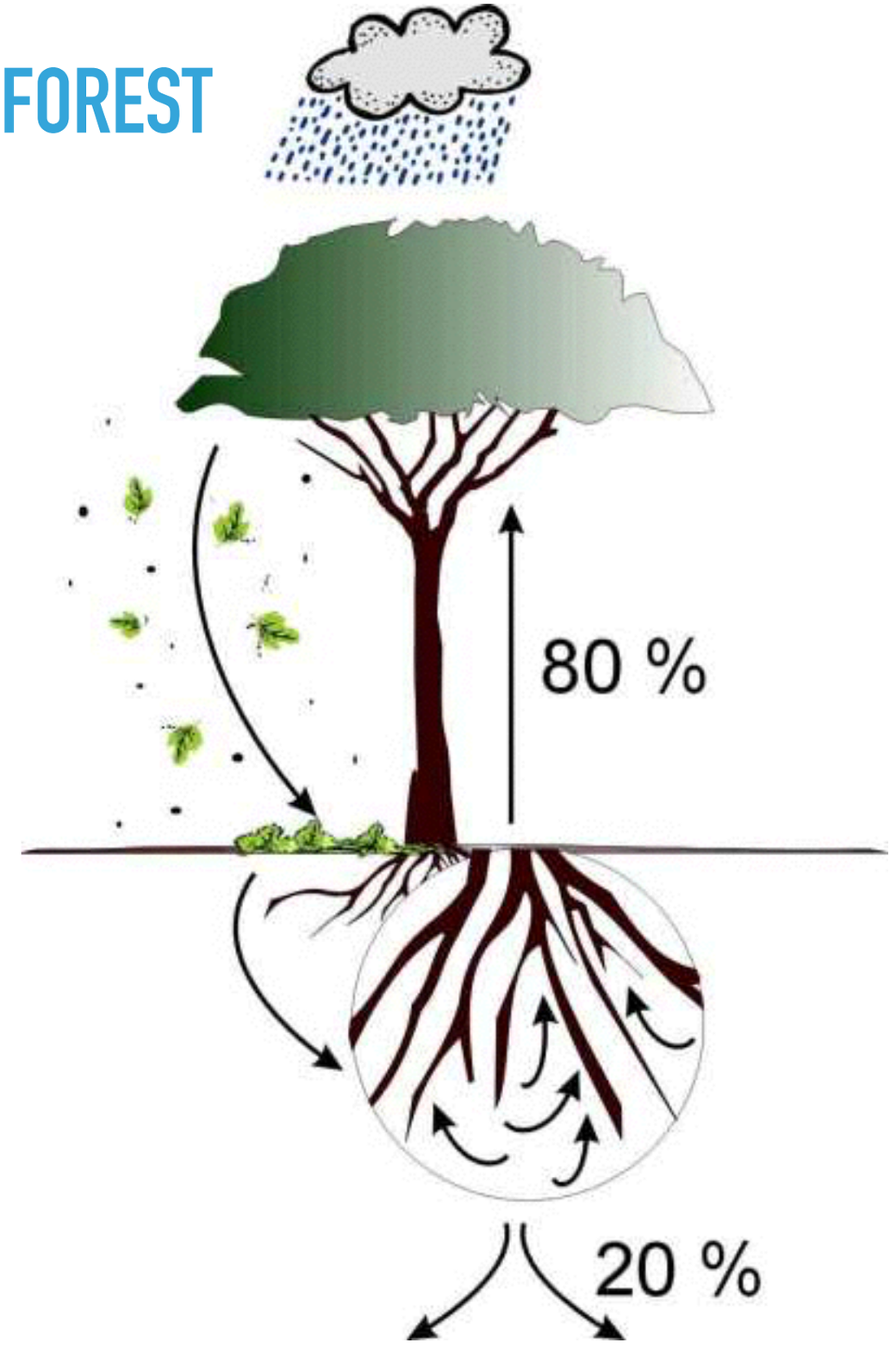
- Heavy rains leach nutrients from the soil
- Low quantity of organic matter due to the rapid decomposition in the warm, moist rain forest climate
- Soils in the rain forest are often nutrient-poor, acidic and thin
- More nutrients are tied up in living tissue (Leaves, branches, trunks,…) than in soil
- Some nutrients occurs where soils are very fertile (along rivers)

POOR FOUNDATIONS

- Loose, sandy and nutrient-poor soil due to rapid nutrient uptake
- Trees use above-ground root systems to capture nutrients
- Creates an incredibly nutrient-rich topsoil
- large trees receive little nutritional support (deeper soil in the rainforest is so heavily leached) → leads to adaptations like buttress roots

NUTRIENT CYCLE – RECYCLING IN THE RAINFOREST

- Ion-poor rainwater removes nutrients from the trees through their leaves ➔ osmosis
- Nutrients meet a network on the ground consisting of tree roots and fungi ➔ mycorrhiza community
- Nutrients are immediately reabsorbed by roots and not stored in the soil: around 20% of the nutrients are lost to the system
- Nutrients circulate constantly in the vegetation for the most part



BIOTIC FACTORS

BIOTIC FACTORS

- flowering plants first appeared in tropical rainforests about 100 million years ago
- about 40 million years ago, other types of vegetation evolved across larger areas as these forests expanded
- over 50% of the plant and animal species on Earth are found in tropical rainforests

ANIMALS

Birds:

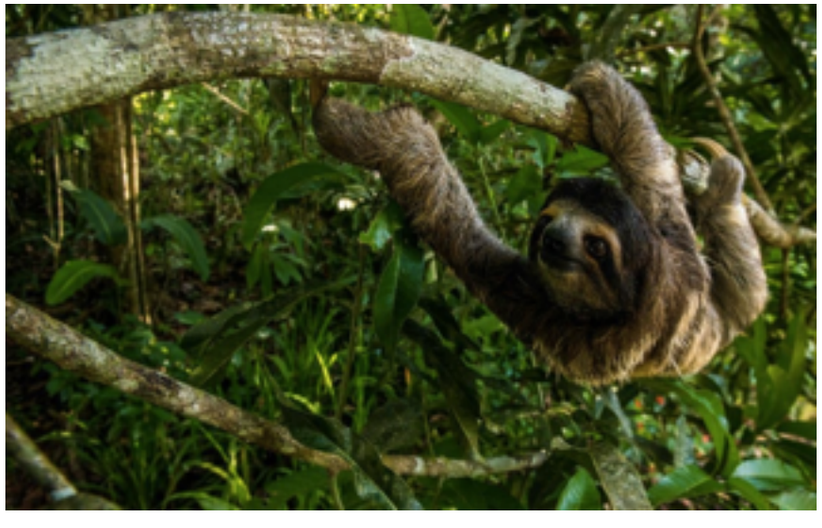
- collared sunbird

- keel-billed toucan

- bird of paradise

ANIMALS

- spider monkeys
- kinkajou
- tree kangaroos
- three-toed sloth



INSECTS

- 42000 different species of insects in 1 hectare of tropical rainforest

REPTILES AND AMPHIBIANS

PLANTS

- 1 hectare of tropical rainforest can have over 300 species of trees and 1500 species of higher plants
- 2/3 of the world's flowering plants are in tropical rainforests
- trees have average hight of 40 m but some can reach 80 m
- a single rain forest tree may support several thousand species of insects
- there are plants that can't live without particular species of fungi, the hummingbirds or insects and animals