The African Savanna
Climate

- Annual precipitation: 50.8-127 cm per year
- Average temperature: 27-30 Degrees Celsius
- The savanna covers about 5 million square miles (approximately half of Africa) mostly found in central Africa
Soil

• Abiotic Factors:
  – The soil type in the savanna varies. It can either be sandy, so that it drains well and dries out quickly in hot weather or clay like so that it does not drain well and it become swampy and water logged.
  – The pH of the soil and the mineral salt of soil are abiotic factors too.
  – Periodic fires ravage the savanna and provide new nutrients for the soil.

• Biotic factors:
  – Dead grasses and decaying animals.
Ecotones

• An ecotone is a region of transition between two biological communities.

• The Eastern Miombo Woodland ecoregion ranges from southern Tanzania to northern Mozambique and Malawi. Only low-nutrient vegetation grows in the dry climate and poor soil. However, the combination of smaller ecotonal habitats allows the area to support a variety of mammals, including possibly the largest populations of African elephant and African wild dog on the continent.
Limiting Factors

• The amount of water

• The fertility of the soil
  – 3 examples:
    • Plants have adapted to take in a lot of water during the wet season and less water during the dry season
    • Fertility of the soil, limits what plants can grow so elephants and giraffes have adapted to eating leaves off of large trees
    • Plants in the savanna are adapted to survive drought and extreme heat or cold. Adapted to having deep roots to tap into groundwater
Biodiversity and biomass

• Unfortunately, much of Africa's great biodiversity is at risk.
• Hunting, grazing and forest clearing are prime causes of the loss of biodiversity.
• Low biomass of herbivores because of the dryness and lack of large supporting plants other than grasses
Range of tolerance for the Acacia Tree

• Temperature: Between 14.7 and 27.8 degrees Celsius
• pH: Between 5.0 and 7.2
• Precipitation: Between 66 and 228 cm
Different species

- **Generalist**: Lions eat large game such as gazelle, zebra, and other similar grassland herbivores.
- **Specialist**: Giraffes only eat the leaves of the acacia trees found in the savanna.
- **Indicator**: The Acacia trees are an indicator for the savanna because they give a good view on the water level and show the effects of the periodic burnings. It is also used as a major food source for the herbivores and as home to many of the birds.
- **Keystone**: Elephants feed on the acacia trees and ultimately stop them from overrunning the savanna and making it into a woodland.
Symbiosis

- **Mutalistic Relationship**: birds remove parasites from a rhino and in return the rhino protect the birds.

- **Commensalistic Relationship**: grazing animals stir up insects which the cattle egret eats, and the birds perch on the cattle, removing the ticks from their skin.

- **Parasitic relationship**: Ticks drink the blood of a lion.
Resource partitioning

- The ungulates or hoofed creatures of the savanna have partitioned their grazing habits to maximize for each species. The smaller species need higher quality food but are fine scale foragers while the large species can handle lower quality food but are coarse scale foragers.
Environmental problems

• Over the years humans have hunted many African animals to extinction.
• Pollution is one of the main threats to Africa’s savannas. The air can be polluted by smoke and exhaust fumes. More pollution means more Carbon dioxide, which increases the heat of the biome, if too much carbon dioxide gets into the air the animals that have adapted to the plains may have to adapt again to fit into an almost desert-like biome.
• Water that is in the savanna today contains many chemicals, as it has been through polluted areas with starving people and large factories. All animals have to have water. If the water is polluted the chemicals will pollute the animal’s body and then the animal will die out.
• Some Statistics:
  – There are said to be less than 2000 zebras left in the wild as of 2011.
  – Programs designed to stabilize populations of black rhino in South Africa have meant that 40 percent of the animals are now found in South Africa.
  – Statistics suggest that in the 1980s alone the population of African elephants fell from 1,300,000 to 750,000. Now in 2011, most elephants are found in natural reserves.
legislation

• **The Nature Conservancy** - The Nature Conservancy’s vision for Africa is rooted in the people and their communities; population growth and changes in climate have altered Africa’s landscapes over the past 50 years. With increasingly complex challenges comes the need for evolved conservation strategies.

• African elephants are protected by the **African Elephant Conservation Act**, whose purpose is to grow healthy populations of African elephants.

• Acts like the **Endangered Species Act** help a lot of places in the world, but especially Africa in aiding to repair the environment.
Bibliography


