The Sahara Desert
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Climate and Abiotic Factors

- **Annual Precipitation**: 1.5 cm
- **Average Temperature**: 20-25 degrees Celsius
- **Location**: 35-15 degrees North, 25-15 degrees East
Soil components

- Low Humus count
- Dry, brown to reddish-brown with variable accumulations of clay, calcium, carbonate, and soluble salts
- Mosaic of closely packed pebbles, boulders
Sahara Food Web

Cacti Primary producers

Primary consumers

Secondary consumers

Tertiary consumers
Eco tones

- Between the Sahara Desert and the Sudanian savanna lies the Sahel
- The Sahel is covered in grassland and woodland
- The Sahel has soils rich in nutrients from the Sahara and is comparably wetter due to the savanna
Limiting factors include the lack of available water in the Sahara, too hot temperature in day and too low temperature at night, and too strong winds.
Adaptations to Limiting factors

- A camel’s body’s temperature fluctuates throughout the day, allowing it to conserve water by not sweating.
- The African spurred tortoise burrows under the sand to protect itself from extreme temperatures.
- The African peyote cactus is built with thick stems. The thickness of the stems helps the plant to hold back water for a considerable amount of time.
Biodiversity

- Biodiversity is low due to lack of water and extreme temperatures
- There is incredibly low biomass due to limited availability of water and because of the lack of water producers must limit their growth and therefore limit the biomass
Symbiosis

- **Mutualistic** - Coyote eat fruits and disperse the seeds thru their poop
- **Commensalism** - The cactus wren bird builds its nest in the cacti. The bird’s young is protected from predators but the cactus is unaffected
- **Parasitic** - Mistletoe species live in host plants such as desert ironwood.
Tolerance and Threshold of *Leiurus quinquestriatus*

- The deathstalker survives best in 70-90 degree environments and can stand a humidity between 40-50%
Species

- Fennec fox is a generalist and it is a nocturnal omnivore which means its food sources include: rodents, insects, birds, and eggs.
- African Silverbill is a specialist that only feeds on grass seeds.
Species 2

- The Desert Bighorn sheep is a good indicator of human-caused pollution
- Sahelo-Saharan antelopes act as a keystone species and the population has been diminishing due to population pressures and cattle competition
Resource Partitioning

- There is resource partitioning between the hyrax and the African Silverbill because the hyrax eats the grass, while the Silverbill eats the seeds from the grass.
Environmental Problems/Endangered species

- *Dama gazelle*
- *Gazella leptoceros*
- *Addax nasomaculatus*
- The problem with the Sahara is that it’s spreading due to increased deforestation and its fragile creatures are being competed with for very limited resources
- The growth of the Sahara means that the inhospitable dry sands are spreading into previously moist areas
Environmental groups

- Sahara Conservation Fund - Educate the public on the importance of the Sahara diversity
- SEED Sahara Environment Excellence Destination - This organization focuses on research of the organisms within the Sahara