44.3D: Temperate Grasslands

Temperate grasslands are areas with low annual precipitation, fluctuating seasonal temperatures, and few trees.

Learning Objectives

- Recognize the distinguishing characteristics of temperate grasslands

Key Points

- Temperate grasslands are found throughout central North America, where they are also known as prairies; they are also found in Eurasia, where they are known as steppes.
- Temperate grasslands have hot summers and cold winters; the growing season occurs during the spring, summer, and fall.
- Because of the low annual precipitation, temperate grasslands have very few trees.
- Grasses are the dominant vegetation; their roots and rhizomes provide increased fertility to the soil.
- Fires caused by lightening occur often in grasslands; without fires grasslands are converted to scrub forests.

Key Terms

- **steppe**: the grasslands of Eastern Europe and Asia
- **prairie**: an extensive area of relatively flat grassland with few, if any, trees, especially in North America
Temperate Grasslands

Temperate grasslands are found throughout central North America, where they are also known as prairies, and within Eurasia, where they are known as steppes. Temperate grasslands have pronounced annual fluctuations in temperature, with hot summers and cold winters. The annual temperature variation produces specific growing seasons for plants. Plant growth is possible when temperatures are warm enough and when ample water is available to sustain it, which typically occurs in the spring, summer, and fall. During much of the winter, temperatures are low and water, which is stored in the form of ice, is not available for plant growth.

Figure 1: Temperate grasslands in New Zealand: Temperate tussock grasslands form expansive and distinctive landscapes in the South Island and to a lesser extent in the central plateau region of the North Island of New Zealand.

Annual precipitation ranges from 25 cm to 75 cm (9.8–29.5 in). Because of relatively-lower annual precipitation in temperate grasslands, there are few trees, except for those found growing along rivers or streams. The dominant vegetation tends to consist of grasses; some prairies sustain populations of grazing animals. The vegetation is very dense and the soils are fertile because the subsurface of the soil is packed with the roots and rhizomes (underground stems) of these grasses, which anchor plants into the ground and replenish the organic material (humus) in the soil when they die and decay.
Figure \(\PageIndex{1}\): **Przewalski's horses on the Asian steppes**: The Przewalski's horse is a rare and endangered subspecies of wild horse. By the end of the 1950s, only 12 individual Przewalski's horses were left in the world and several reintroduction programs have released populations back into the grasslands in Mongolia and Ukraine.

Fires, mainly caused by lightning, are a natural disturbance in temperate grasslands. When fire is suppressed, the vegetation eventually converts to scrub and dense forests. Often, the restoration or management of temperate grasslands requires the use of controlled burns to suppress the growth of trees and maintain the grasses. Burning causes new grass to grow, which brings back the grazing animals.

### Organisms Found in Temperate Grasslands

Mites, insect larvae, nematodes and earthworms inhabit deep soil, which can reach 6 meters (20 ft) underground in undisturbed grasslands on the richest soils of the world. These invertebrates, along with symbiotic fungi, extend the root systems, break apart hard soil, enrich it with urea and other natural fertilizers, trap minerals and water, and promote growth. Some types of fungi make the plants more resistant to insect and microbial attacks. Grasslands also are home to a vast variety of mammals, reptiles, birds, and insects. Typical large mammals include the Giant Anteater and populations of grazing animals, such as the Blue Wildebeest, Przewalski's Horse, and the American Bison.

Figure \(\PageIndex{1}\): **Grazing animals**: The American bison (*Bison bison*), more commonly called the buffalo, is a grazing mammal that once populated American prairies in huge numbers.