The North-Central Forest Region



What trees are around you?

The answer changes depending on climate, topography, and natural disturbances. Together, these factors create a mosaic of different forest types called forest regions. Each of Montana's eight regions is characterized by certain types and compositions of trees and other plants. The North-Central Forest Region stretches north of the Dearborn River into Canada, with the Continental Divide and Havre marking the western and eastern borders. Only about 1/10th of the land in this area is forested. but some pine, spruce, and fir forests persist despite the harsh winters.



Below 5,000 ft in elevation, forests are rare. Groves of quaking aspen dot the grasslands. Isolated areas of limber pine can also be found.



ALBERTA

Great Falle

Between 5,000 and 6,000 ft in elevation, Douglas-fir, lodgepole pine, and spruce grow, especially in areas protected from the wind.

Central
North-Central
Northwest

MONTAN

Havr

Southeast Southwest Other

SASKATCHEWAN

SOUTH DAKULA

South-Central

West-Central



Above 6,000 ft in elevation, subalpine fir and whitebark pine are common. Above 8,000 ft, conditions become too harsh to support forests.

Topography

Imagine a trip up a mountainside in north-central Montana. The forest changes based on elevation, steepness, and direction. Even small changes can make a big difference in how much water, sunlight, or wind a certain area receives, and what types of trees are able to grow. The pictures above illustrate how elevation affects forests in the North-Central Forest Region. Shelter from wind is also important in the North-Central Forest Region. Trees growing in the protection of valleys or on east-facing slopes do not have to withstand the same harsh winds.



The North-Central Forest Region's volatile weather makes for harsh growing conditions. Strong chinook winds are common during the cooler months. Chinook winds happen after air loses moisture going over the western slope of a mountain range. As the dry air moves down the eastern slope, it rapidly warms. Chinook winds cause trees to lose water, as evidenced by "red belts" - swaths of forests with dry, brown needles. If severe enough, the sudden water loss can kill trees.

Disturbances

While topography and climate change forests over thousands of years, natural disturbances can change the way a forest looks in months, days, or even hours. Fire, pests, disease, avalanches, and windstorms are natural parts of the North-Central Forest Region. Often these disturbances help keep forests healthy by creating new space for trees to grow and returning nutrients to the soil. After a major disturbance like a fire, the forest grows back in stages over many years. This process is called succession. The pictures to the right depict a typical succession cycle in the North-Central Forest Region. Forest regions are determined by the types of trees present in the climax forest, but it is common to see many stages of succession occurring at the same time.



Disturbance

Disturbances occur at different scales. For example, the grasslands of the North-Central Forest Region historically burned every 3-20 years. The subalpine fir forests historically burned about every 100 years.

Pioneer Species

The first plants to grow after a major disturbance are called pioneer species. Many wildflowers like arnica and beargrass are pioneer species, as well as a variety of grasses.





Shrub Stage

Over time, trees and shrubs begin to grow in some areas. Juniper, kinnikinnick, and snowberry are among the most common shrubs in the region. Shade from the shrubs allows tree saplings to begin to grow.

Climax Forest

As the trees get taller, they shade out earlier succession species, creating the climax forest. The climax forest will persist until the next disturbance. In the North-Central Forest Region, the climax forest often features limber pine, Douglas-fir, or subalpine fir. Some areas may never grow forests; here, grasslands represent the climax stage.



Resources

Read more about the different forest regions in "Forest Regions of Montana" at: https://www.fs.usda.gov/research/treesearch/32532

Read more about disturbance and succession in "Fire Ecology of Montana Forest Habitat Types East of the Continental Divide" at: https://www.fs.usda.gov/research/treesearch/29570