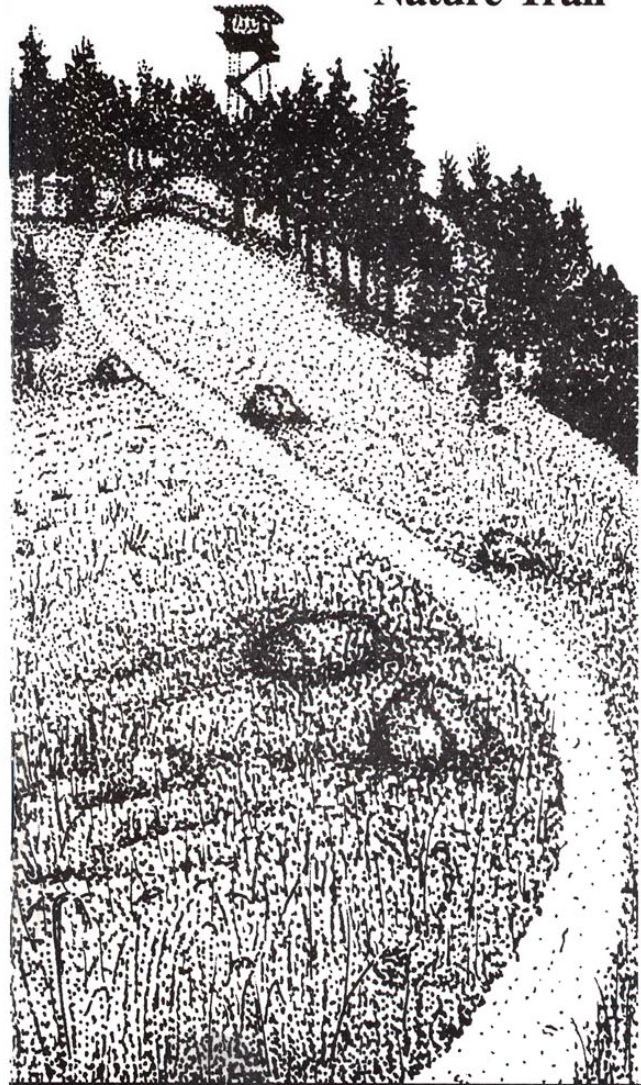


RANKIN RIDGE

Nature Trail



Black Hills Parks & Forests Association © 2002
Design & Illustration: Rick Dressler
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Wind Cave National Park

Welcome...

There is nothing so constant in the natural world as change! The forces of nature, whether it be wind, fire, or weather, constantly change the plant and animals in this forest. As you hike this trail and read this guide you will notice that some of the changes are a direct result of a controlled or prescribed fire that occurred here in the spring of 2005.

While fire is a dramatic force, nature can also be subtle. Listen, touch, and closely observe the activities of the forest around you.

The Rankin Ridge trail takes you through a ponderosa pine forest. At several points along the trail you may view the peaks of the Black Hills to the west, open meadows, and the plains to the east.

The Rankin Ridge trail is a one-mile loop, beginning and ending at the parking lot. The trip usually takes about one hour or less. There are 14 interpretive stops placed at irregular intervals along the path. Your guided tour ends a short distance beyond the fire tower. From the last stop to the parking lot is about a 15 minute walk.

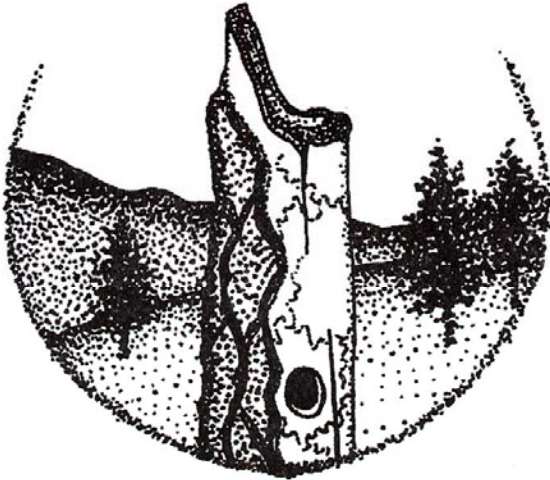


1**Forest Animals**

Rankin Ridge is at the southern boundary of the Black Hills, where fingers of forest and prairie interlace. Look for red squirrels, porcupines, woodpeckers, and turkeys in the forest. You may see mule deer, elk, coyotes, cottontails, and hawks that range through both forest and prairie. On the prairie surrounding Rankin Ridge, bison, prairie dogs, and meadowlarks may be present. As you walk the trail please be aware that bison, prairie rattlesnakes, and poison ivy may be encountered.

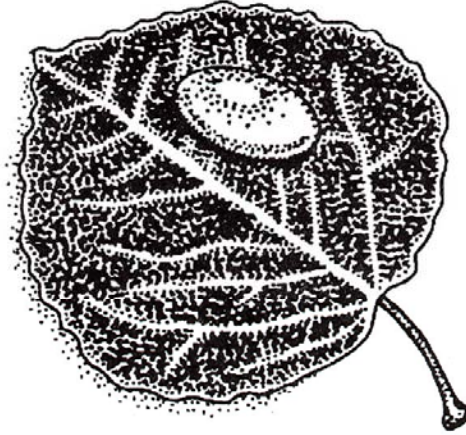
2**The Ponderosa Pine**

Ponderosa pine dominates Rankin Ridge. As a drought resistant species, its extensive root system and limited need for water make it well suited to live in the Black Hills. On this arid northerly exposure, in such rocky soil, pines grow about four inches taller each year. Under ideal conditions a ponderosa pine will extend 150 to 180 feet into the air. But here its needs are marginally met, so it seldom seems to deserve the adjective "ponderous," meaning of great size.

3**Life and Times of Snags**

One result of the 2005 fire was to leave dead standing trees called snags. You can see some of these to the right of the trail. Snags attract many forms of wildlife. For example some insects, such as longhorned beetles, lay their eggs in slips cut into the bark. When the larvae emerge from the eggs, they initially bore into the nutritious inner bark and eventually tunnel through the wood before developing into adult beetles. Some boreholes may be seen if you look closely at these snags.

The longhorned beetle and the other insects found on the snags are an important food for many types of birds. Over time, the snags may become nesting sites for the common flicker and the black-capped chickadee.

4**Water: Substance of Life**

Many factors determine what types of plants will grow in an area. Elevation, latitude, soil, terrain, and climate are all significant, but the most important factor is water.

Water from spring rains and snowmelt is critical to plant growth and survival. Wind Cave National Park receives about 17 inches of precipitation a year so it is extremely important for plants and animals to use it efficiently. Because the needles of conifers, such as pine, juniper, and spruce, have less surface area than the leaves of most deciduous trees, they are more efficient water users. Therefore, conifers can survive in areas where aspens or cottonwoods would die of thirst.

5

Open Spaces Are Great Places



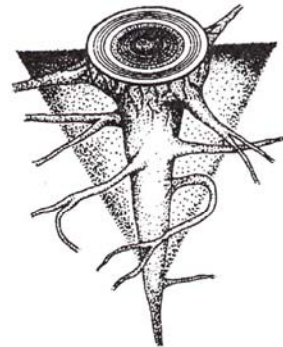
Even in the most dense forest, natural events can create open spaces. Fire is probably the most significant force in a pine forest, but something as commonplace as the falling of a large tree can open the forest canopy and let sunlight reach the forest floor. Then, for a few years in that sunny place, conditions are right for the growth of grasses, wildflowers, and some shrubs. Conditions are also right for the sprouting of pine seedlings from the surrounding trees. This combination of grasses, shrubs, and seedlings provide ideal cover and food for wildlife.

6

The Challenge to Survive

For the ponderosa pine seedling to eventually become a mature tree it must survive many challenges. The cones of a ponderosa pine require two years to mature before releasing their seeds. Once released, the seeds must have the right conditions to germinate and grow. Growth depends on soil texture, plant competition, seedling condition, and moisture. Moisture is the critical factor. The ponderosa pine's fast growing taproot seeks out moisture at many levels within the soil. But even before germination the seed may be eaten by mammals or birds.

If conditions are right, many seeds may germinate and the seedlings must compete for survival. Trees growing close together are called "doghair." Fire is the major force that thins these doghair stands, allowing the surviving trees to get the required nutrients, moisture, and sunlight.

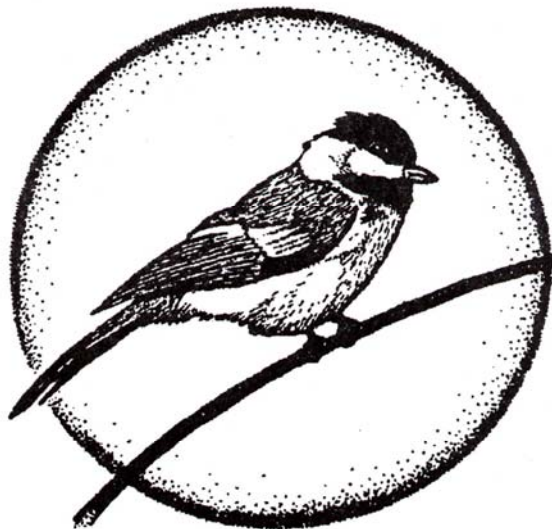


While the ponderosa pines provide the canopy for the Rankin Ridge forested area, many shrubs and flowering plants grow here as well. This sub-canopy, or understory, provides food for many forest animals. One shrub, visible here, is the western snowberry. The white berry this plant produces is an important food source for many birds.

The sub-canopy in the ponderosa forest changes with soil types and moisture. In areas where the forest is not too thick, chokecherry, raspberry, and juniper are the primary shrubs. The berries from these plants provide food for birds and small animals

Other plants found in this sub-canopy are grasses and forbs or flowering plants such as pasqueflower, shooting star, leadplant, and sagewart.

If you are being pursued by a little bird on the trail, chances are it is the one pictured below. The black-capped chickadee is a bit of a snoop and tends to follow you through its territory. Its familiar chick-a-dee-dee-dee song means that you have just invaded its space. Chickadees stay in the Black Hills year-round, feeding on seeds, insects, and wild fruits. Take a moment to look and listen for this feisty little bird. Chickadees may be seen nesting in the cavities of snags that the fire provided.

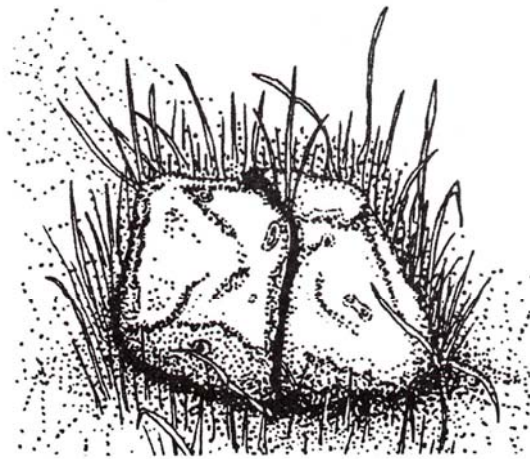




Occasionally a rockslide creates an open space. The resulting slope of jumbled rocks, though open and sunny, is an inhospitable place for most plants, and the scar is slow to heal. Though few plants find a foothold, the boulders now provide new homes for rodents, insects, and reptiles.

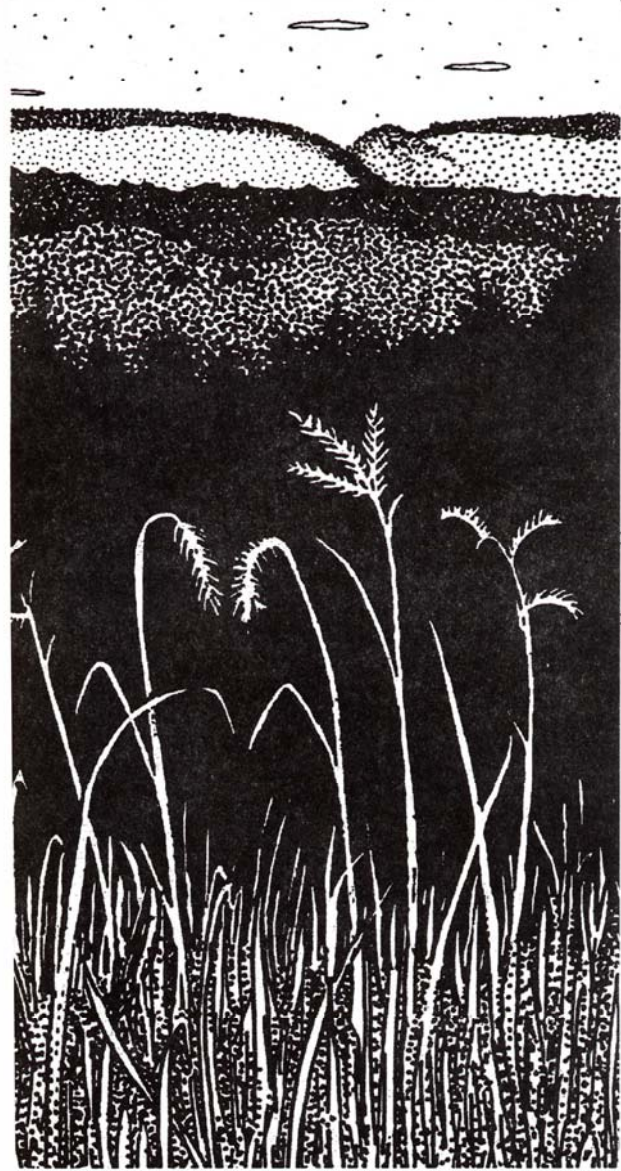
Rocks and mountains change very slowly, but they do change. As soon as a rocky mass is pushed upward, forces of erosion slowly begin to level it again. Wind and rain wear it away, grain by grain. Freezing water expands, enlarging small cracks until the rocks begin to crumble.

Lichens are often the first organisms to colonize the rocks. The dead lichens combine with dust from the air to become soil for mosses and small plants. As plant roots fill the cracks, the rocks break apart and the formation of soil continues. Decomposing plants add a fertile top layer to the soil. Burrowing mammals and insects mix and loosen the soil, which increases the amount of water available to plants.



As you reach the crest of the ridge, look to the east and to the prairie beyond. Clearly visible is the zone between forest and prairie. Here open meadows mix with forested hilltops. Under most conditions, the forest expands its range and competes with the prairie for water and space. Wet years provide the moisture that allows young pine seedlings to establish themselves on the prairie. Given time and the right conditions they eventually will crowd out the grasses.

Fire acts as the balancing mechanism, burning off trees and maintaining the prairie. Due to fire suppression practices over the past century, the forest has expanded. With the increase in forest size there has been a corresponding decrease in the amount of water flowing from the mountains. Trees, even ponderosa pines, need more water than grasses, so the streams of the Black Hills are smaller than they used to be, because of fire suppression. Historically, the lands of Wind Cave National Park burned every 8-12 years.



12**Fire Maintains
The Balance**

Fire plays many roles in the ecological scheme of things and has been a major force on our planet for millions of years. Fire opens the canopy of the forest allowing a healthy sub-canopy. The sub-canopy provides food and habitat for forest birds, mammals, and insects. Fire creates and maintains open areas needed by animals large and small. Fire thins the doghair stands allowing the remaining seedlings the space to grow.

People have only recently recognized the importance of fire in maintaining healthy ecosystems. More than 100 years of fire suppression have resulted in heavy build-ups of dead vegetation and dense stands of trees. Because of these conditions, today's wildfires tend to be larger, burn hotter, and spread faster and farther. This makes them more severe, more dangerous, and more costly in human, economic, and ecological terms.

Today, in Wind Cave National Park, wildfires are suppressed. The park uses a prescribed fire program to simulate the natural fires needed to maintain a healthy habitat and reduce the expansion of the ponderosa pine forest.

13**The Fire Tower —
A Reminder of Days Gone By**

You've reached the top of the ridge where the park fire tower stands as a lonely sentinel. Gone are the days of fire lookouts watching for smoke from fire towers. Today's fire fighters detect smoke over a larger area from airplanes. The fire tower is staffed only during periods of extreme fire danger and following intense electrical storms since it provides a panoramic view similar to the one you can see. For safety reasons, the fire tower is closed to climbing.

Look to the valley below and the distant horizon, and let your mind travel back two hundred years to a time before Euro-Americans settled the Black Hills. Imagine a rolling, unbroken plain without a single fence, building, or road. This was a time when bison roamed free in herds approaching a million; when prairie dog towns stretched for miles; when the forest was limited by fire; when the processes of formation and natural regeneration took place. Those processes are still active today. Wind Cave National Park is one of the few remaining places with examples of these events, a place where the past is preserved.

