

# RANKIN RIDGE

## Nature Trail



Wind Cave National Park

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# Welcome...

**T**here is nothing so constant in the natural world as change! the forces of nature, whether it be wind, plants 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 1994.

While fire is a dramatic force, nature can also be subtle. Listen, touch, and closely observe the activity 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, and the plains to the east.

Ranking Ridge tail is a one-mile loop trail, 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.

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**I****Forest Animals**

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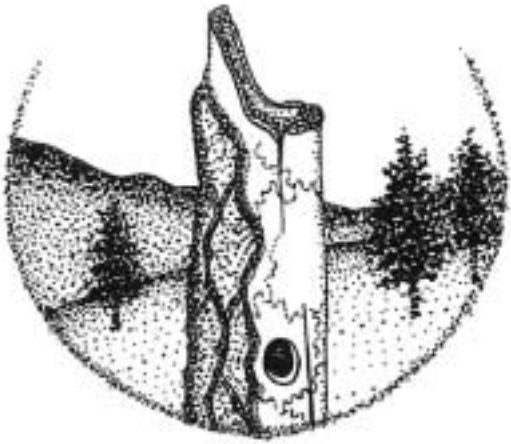


**R**ankin Ridge is at the southern boundary of the Black Hills, where fingers of forest and prairie interlace. Look for red squirrels, porcupines, woodpeckers, and turkeys in the forest. You may see mule deer, elk, coyotes, cottontails, and hawks that range through both forests and prairie. On the prairie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

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**P**onderosa Pine dominates Rankin Ridge. As a drought resistant species, its extensive root system and limited need for water makes 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 the ponderosa pine will extend a thick trunk 150 to 180 feet in the air. But here its needs are marginally met, so it seldom seems to deserve the adjective "ponderous," meaning of great size.



One result of the 1994 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 slits 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 bore holes 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.



**M**any 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

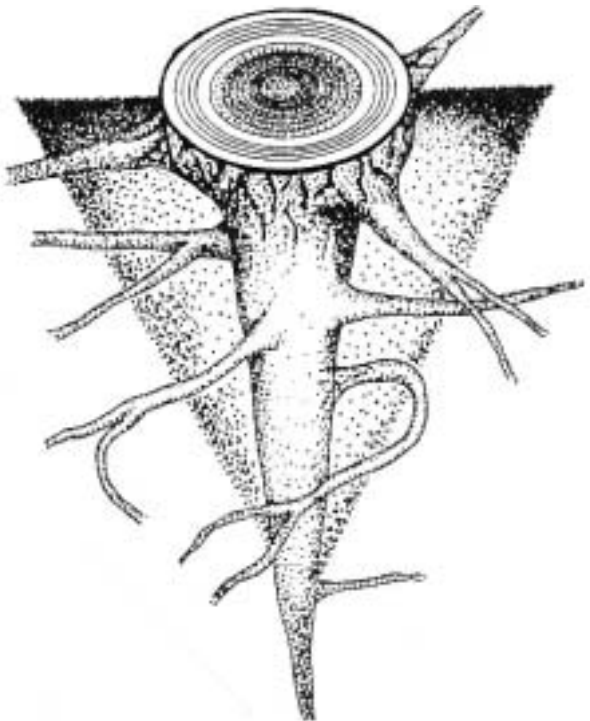
Water from spring rains and snow melt is critical to plant growth and survival. Wind cave National Park receives about 16 inches of precipitation a year so it is extremely important for plants and animals to use it efficiently. Because the needles of conifers, such as pine, juniper, and spruce, have 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.



**E**ven 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 seedling from the surrounding trees. This combination of grasses, shrubs, and seedlings provide ideal cover and food for wildlife.



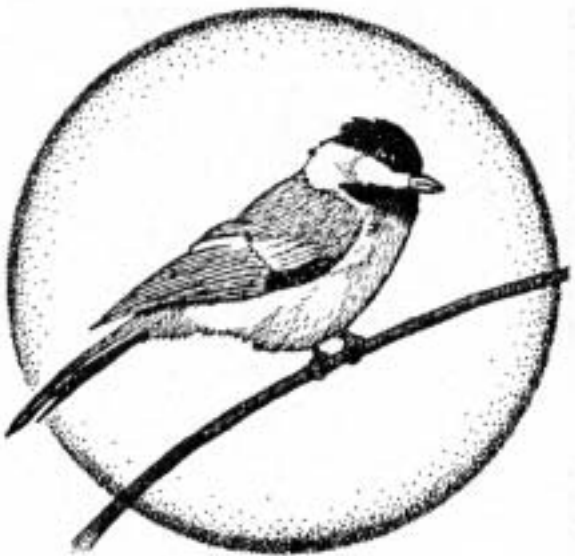
**F**or the ponderosa pine seedling to grow to a mature tree it must survive many challenges. The cones of a ponderosa pine require two years to mature before releasing their seeds. Once released, the seeds must have the right conditions to germinate and grow. Growth depends on soil texture, plant competition,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



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 provides a food source for many forest animals. One of the more important shrubs is the common juniper. This low-growing plant is identified by the white stripe on the bottom side of the leaf and by the purple pea-sized berry. In areas where the forest is not too thick, the common juniper is abundant. The juniper berry, which is actually a cone, is an important food source for many birds found along the trail.

Also found in this sub-canopy, or understory, are creeping juniper, western snowberry, and flowering plants such as the pasqueflower, shooting star, leadplant, and sage-wart.

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 the feisty little bird. Chickadees may be seen nesting in the cavities of snags that the fire provided.





**O**ccasionally a rock slide 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.

**R**ocks and mountains change very slowly, but they do change. 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 plants to colonize the rocks. The death of these plants combined with dust from the air become the soil for mosses and small plants. As plant roots fill the cracks. The rocks break apart and the formation of soil begins. 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 grass.

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**F**ire has many uses 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.

People have only recently recognized the need for fire to maintain 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.

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Another consequence of ponderosa pine expansion into the prairie is the reductions of wildlife habitat.

Sharp-tailed grouse need open grassland for feeding, loafing, nesting, and brooding sites. Fire creates and maintains the open display arenas used by males during breeding. Males will return to the arenas the day after a fire.

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### An Invitation To The Fire Tower

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**A** climb up the fire tower presents a panoramic view. Gone are the days of fire lookouts watching for smoke from fire towers. Today's fire lookouts detect smoke over a larger area from airplanes. This fire tower is staffed during periods of extreme fire danger and following an intense electrical storm. You are welcome to climb the tower stairs to the top platform. There are 72 steps, a strenuous climb, but your reward is a spectacular view.

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**L**ook 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, and when prairie dog towns stretched for miles; a time when the forest was harnessed by fire; when the processes of formation and preserved 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.







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