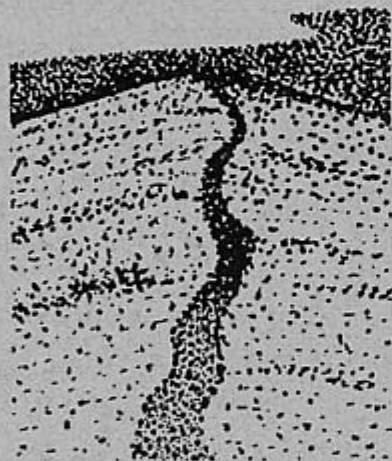
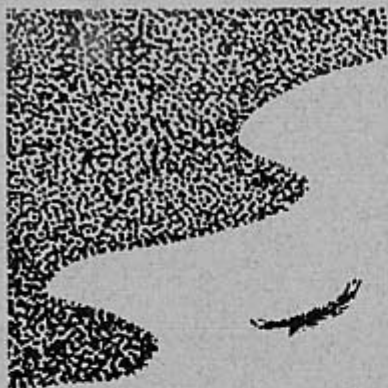


ELK MOUNTAIN

Nature Trail



*"Every part of nature teaches that
the passing away of one life is the
making room for another."*

—Henry David Thoreau



Black Hills Parks & Forests Association © 1993

Design & Illustration: Rick Dressler

Printed on Recycled Paper

Wind Cave National Park



Welcome...

"Come forth into the light of things. Let nature be your teacher."

—William Wordsworth

As any experienced observer of nature will tell you, to truly appreciate the splendors of a nature trail requires more than walking, looking and reading the brochure. Curiosity, imagination and a love of nature are ingredients that can make your walk a special experience. Also, remember not to rush. Take a moment to sit under a tree or in the grass if you are feeling in a hurry.

Elk Mountain Trail encompasses a blend of prairie, forest and riparian areas which together create the beauty of Wind Cave National Park. While hiking the trail and visiting the nine interpretive stops you will become more familiar with these areas, how they were shaped and how they interact. The trail begins here, ends in the amphitheater behind you and should take about one hour.

Please be alert when hiking the trail. A fence keeps the bison out of the area, but an occasional prairie rattlesnake may be seen. Pets are permitted on this trail but must be on a leash. Please do not remove any plants along the trail so that they can be appreciated by others.

1

A "Lively" Place

"There is nothing more eloquent in nature than a mountain stream."

—John Muir



Right now you are in a very lively place! To find out why, imagine yourself as a small animal standing at the bottom of the gully. One thing you might notice is the amount of moisture. After a major rain, this little ravine will flow with water. Even when it appears dry, it still contains more water than the surrounding forest or prairie. The additional moisture allows for greater plant diversity, which supports more animal life. If you don't believe it, look up the sides of the ravine and notice how the vegetation changes. As a small animal, you can see why you might seek this area for food and shelter. In many ways, the banks of streams and drainages, called riparian areas, are the lifelines of the park. As you hike, notice the different plants and animals in these lifelines.

2

Diversity as a Way of Life

"I think I could turn and live among the animals, they are so placid and self contained."

—Walt Whitman

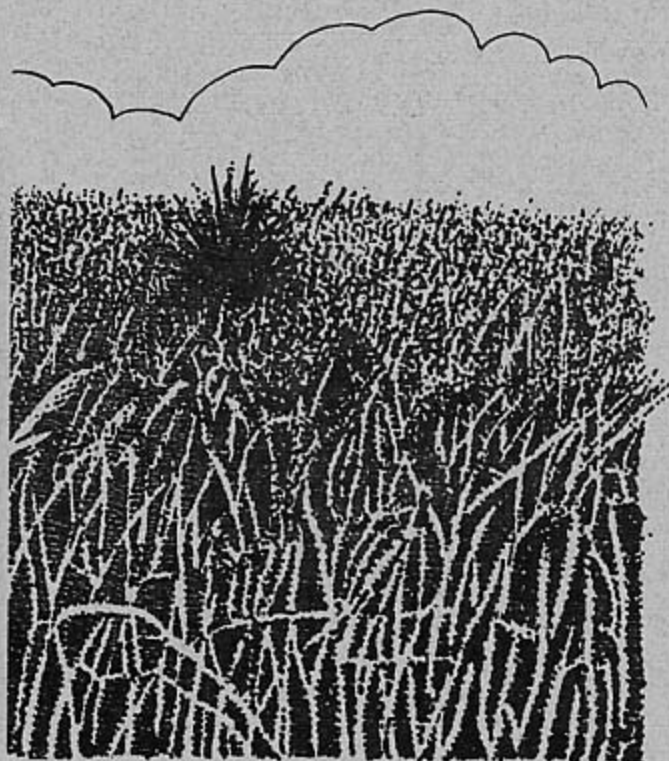
Here's a problem for you to solve. What do you get when you add prairie, forest and riparian areas together? Give up? Diversity!

Diversity is healthy because it means a wide variety of species exist. More variety means a more dynamic life system. This truth can be applied to many things in life. For example, if you were a farmer and you grew potatoes, corn and wheat, your farm would be more stable than your neighbor's which only produced potatoes. If a severe potato blight came along or if few people were buying potatoes, your more diverse farm would more easily survive. Nature needs diversity for the same reasons.

A good diversity of animal life is found along the trail. Look for wildlife and note what types of animals are found in riparian, prairie and forest habitats. You might want to think about change and diversity from your own experience. Is it possible that people visit National Parks out of a need for diversity and change?

"Consider the grasses and the oaks, the swallows, the sweet blue butterfly—they are one and all a sign and token showing before our eyes earth made into life."

—Richard Jefferies



Whether it's a city, town or neighborhood, chances are you live in some type of community. As a matter of fact you are standing in a community called the mixed grass prairie. Like the communities we create, this grassland contains individuals that have important jobs. The mixed grass prairie is unique because it contains the tall grasses of the humid eastern states and the short grasses of the arid western states, which adds further to the park's diversity. Wind Cave National Park then is a transition zone. You could say it's a place where east meets west.

While the grasses compete for moisture and sunlight, they also have the ability to cooperate. For example, the roots grow to different depths, which reduces competition for water and minerals. Another adaptation is seasonal succession, where each species of grass has a time when it dominates and blooms. Over forty grasses have been identified at the park. How many can you see blooming along the trail?

Like in our communities there is competition for resources, but a little cooperation goes a long way.

"We live in a period of atmospheric turmoil. Three hundred twenty-five volcanoes are active. The polar ice-fields produce frigid and adventurous winds. The air is harried about by constantly changing pressures. The sum of these perturbations is the drama of contrasts we call weather."

—Morris T. Longstreth

Now here's a pretty sight! Look at those hills! The valleys! It's rather inspiring don't you think? Maybe even uplifting!

As a matter of fact, it took an uplifting event to create these beautiful hills. Geologists estimate that about 60 to 65 million years ago two large land masses to the west began to collide. This collision created the Rocky Mountains, but also produced a rippling effect in the earth's crust producing the dome mountains that we now call the Black Hills.

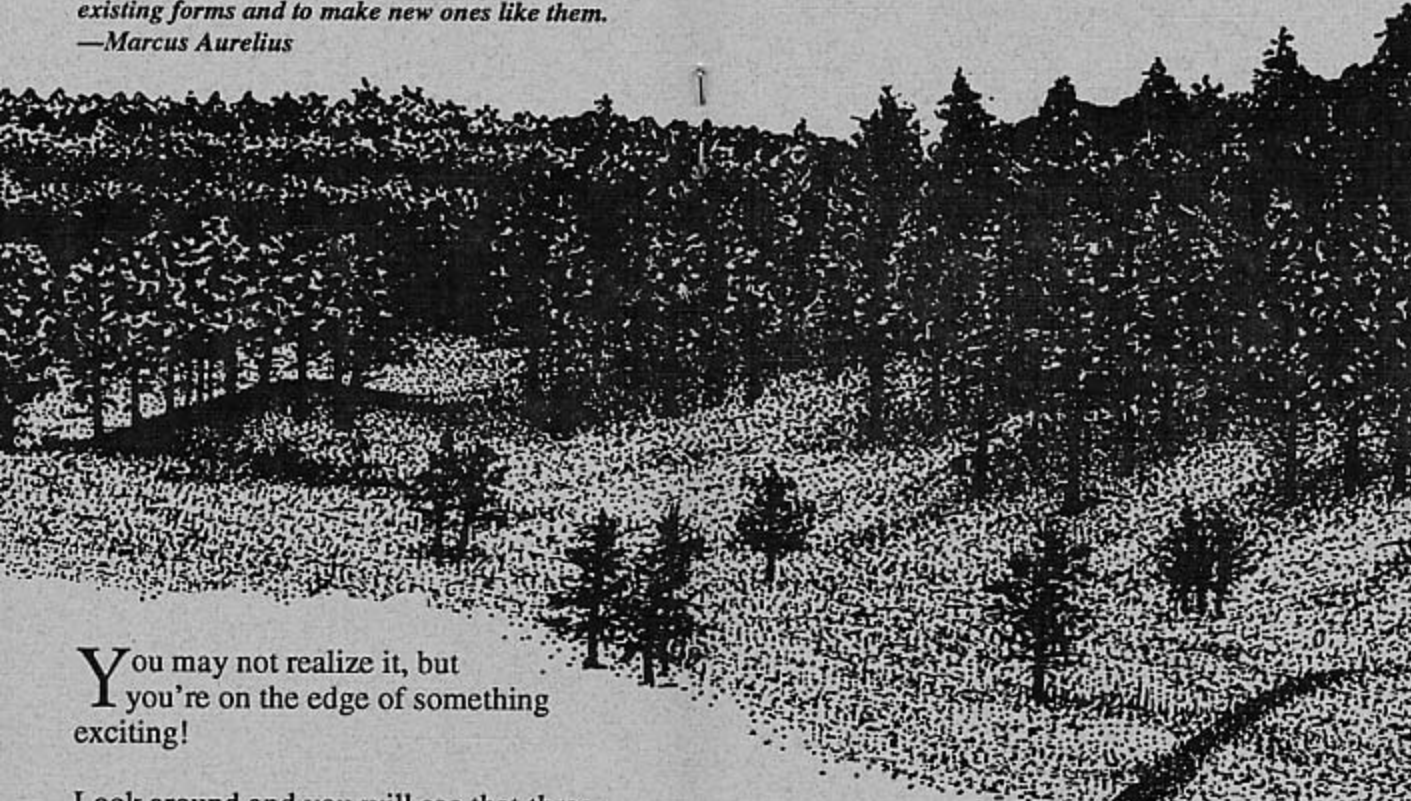
The Rockies and the Black Hills greatly influence weather by creating a barrier for storms. Clouds, coming from the north or west, are forced upward and cooled causing moisture to be released in the northern hills, or to be diverted around the hills. This accounts for the dry climate here.

Take a moment to enjoy this magnificent landscape. The open spaces and colors combined with the gentle hills make it truly memorable.



"Observe always that everything is the result of change, and get used to thinking that there is nothing nature loves so well as to change existing forms and to make new ones like them.

—Marcus Aurelius



You may not realize it, but you're on the edge of something exciting!

Look around and you will see that three of the park's ecosystems meet at this very spot. Where ecosystems meet is called an edge. This edge is exciting because it has characteristics of the forest, prairie and riparian areas, making it very diverse. Forest animals, such as deer and elk, feed along the edges during dawn and dusk then return to the shelter of the forest during the day. Edges provide both food and shelter, which is why you will often see more wildlife in these areas.

Edges are constantly changing. As the trees drop pine cones onto the prairie, seedlings begin to grow. When fire sweeps across the land it burns the young seedlings, reclaiming land for the prairie. In years between fires, seedlings again flourish. This cycle has occurred throughout history under natural conditions. As you hike look for signs of the fire cycle. Also, think about why many animals prefer to live "life on the edge."

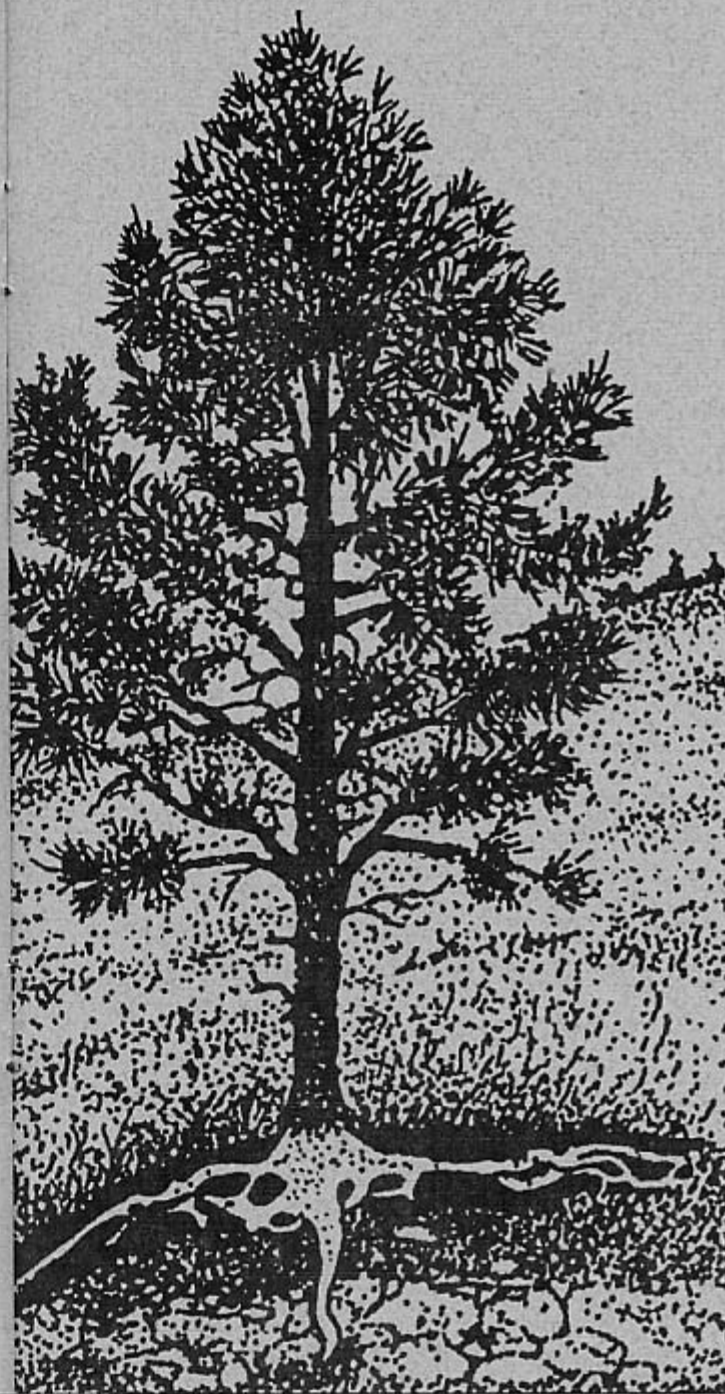
"The only conclusion I have ever reached is that I love all trees, but I am in love with pines."

—Aldo Leopold

Part of being inquisitive is asking "why." "Why" is an especially good word on a nature trail. For instance, you might find yourself asking, "why am I suddenly walking in a ponderosa pine forest? Why is it here?" For an answer, you need to consider two things, moisture and soil.

Moisture is necessary in every community. The movement of water through the soil and the amount of water available to vegetation is influenced by soil texture. Because ponderosa pine trees grow best on well-drained, silty soils they are usually found on the park's hilltops where this type of soil exists. These pines seldom grow in the middle of the prairie due to unfavorable soil conditions and a lack of moisture.

Moisture is also important for the germination of pine seeds. Once germinated, the nourishment contained in the seed enables it to send down a fast-growing tap root. Because this root grows deeply, the seedling can better survive wind and drought. Look for seedlings as you walk. Do they grow close together or far apart? Why would this happen?



"Fire seems to bring down the curtain but is really just the opening act. Unlike our plays, nature's drama has no curtain: each rain, each fire, each falling needle is another event in a long series of events that compose the unending drama of the natural world."

—Jack de Golia

For many years, a bear wearing a ranger's hat and dungarees has described forest fires solely in destructive terms. While Smokey has done a great job of reminding us to be careful with fire, we must be aware that fire can also be a friend.

Consider these ponderosa pines. They are prolific and under the right conditions, like the ones found here, many seedlings will survive. This creates very dense stands of small trees like you see beyond the fence. Because of competition for nutrients, moisture and sunlight, few seedlings grow into mature trees. Historically, fire has prevented the trees from becoming overcrowded by killing many of the smaller ones. This thinning also allows more sunlight to reach the ground encouraging grasses to grow on the forest floor. As you walk the path, notice how fire has thinned out the forest yet left many trees standing.



Although fire is beneficial to the forest, human structures and lives must be protected. Today, the National Park Service is using prescribed fire, one started under carefully calculated conditions, to keep the soil and vegetation healthy and in a more natural state.

"Miracles exist from our ignorance of nature, not in nature herself."

—Michel De Montaigne



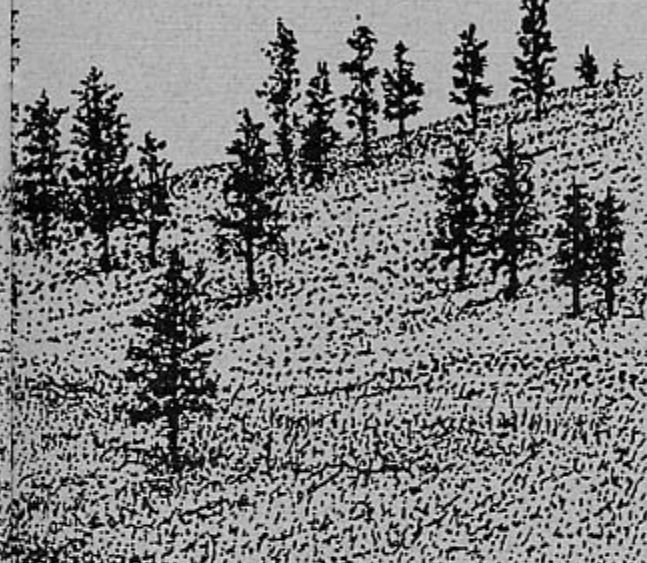
If a contest were held to select the world's greatest teacher, Mother Nature would receive many votes. Her style is unique in that she teaches from example and rarely announces an exam. As a student of nature, you will need to do lots of field work - closely observe and expect the unexpected.

Because fire can be beneficial or destructive, it is a hard lesson to learn. But destruction is often greater when we interfere with its natural cycle. Since the first Euro-American settlements in the 1880's until the early 1970's, fire was immediately suppressed. As a result, many of the forests have become crowded and stagnant with large amounts of forest debris. Increases in dead material has meant more fuel is available to produce hotter, more destructive fires.

At Wind Cave National Park, managers are attempting to catch up with the fire cycle, yet reduce the odds of fire spreading to buildings or neighboring lands. To reduce fuels, managers remove part of the forest's understory. The tree stumps in front of you serve as an example. However, beyond the fence no fuels were removed. In 1991, a wildfire burned this area. Comparing the forest beyond the fence with the one here, you can see how fuel removal reduced the severity of the fire in the campground. Removal of fuels may become less common as prescribed burns allow us to catch up with fire's natural cycle.

"The hours when the mind is absorbed by beauty are the only hours when we really live."

—Richard Jefferies



Thank you for hiking Elk Mountain Trail. You have seen and experienced a lot in a short time. As you've seen, the prairie, forest and riparian ecosystems blend to create a truly spectacular landscape. However, when viewing the park over a distance it is easy to conclude that the land, with its gentle rolling hills, lacks complexity. This deception in itself is amazing. In a way the terrain is somewhat like the sea. From the shore it appears to be little more than rolling waves. Who would suspect, without close examination, that below the surface lies a complex web of life that may never be fully understood? That complexity and the forces that make it possible are important to a balanced ecology.

Wind Cave National Park is working to protect this balance by allowing natural processes to continue to shape the land. This is a difficult task. There are many challenges to be met, such as the encroachment of non-native plants onto the prairie and misunderstandings of the importance of fire.

As you travel across the prairie, along the riparian habitat or through the forest, think of the broad spectrum of life that each supports. Also, remember that the park's staff is eager to discuss natural resources and the challenges that lie ahead.