Mountain goat

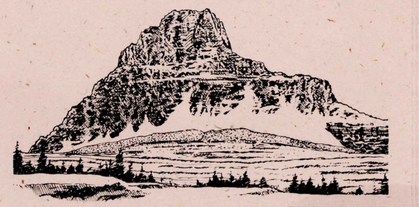
Goats and Sheep

Mountain goats (white animals with black horns) are at home on cliff faces, and bighorn sheep (tan animals with white rumps) are seen on open grass-covered slopes. The goats stay in the high country, even in winter. They forage for small plants tucked away in rock crevices on slopes blown free of snow. Although the high country is summer habitat for bighorns, in winter they move to south-facing slopes at lower elevations.

The distributions of plants and animals are interrelated. Each animal, like each plant, has specific requirements for survival. What would happen to these animals if the composition of plants in the high country changed?

Red and Green Rocks

Slow but constant geologic changes shaped this landscape. Dating back over one billion years, these mountains contain some of the oldest sedimentary rocks known. Sand, silt and clay particles were deposited in a shallow sea over a billion years ago. The red in the mudstone rocks is from the mineral hematite, while the green is from chlorite. The land was uplifted and then eroded by water and ice. Although peaks and vistas often seem timeless and static, in reality they are constantly changing--eroding bit by bit.



Clements Mountain

Arêtes, Horns and Moraines

A classic glacially-carved landscape surrounds you. Ice Age glaciers carving the Lake McDonald and St. Mary valleys met to form the depression of Logan Pass. Valleys eroded by rivers of ice are characteristically U-shaped, while those cut by water are V-shaped. The Garden Wall, visible across the Going-to-the-Sun Road from here, is an arête (French for fish-bone). It is a narrow ridge of rock left when Ice Age glaciers carved both sides of the mountain. The pyramid shape of Clements Mountain, a horn, was the result of several glaciers working on all sides.

When you step off the wooden boardwalk at its uppermost end, look around. A high ridge of grey rocks parallels the trail. At one time Clements Glacier moved these rocks downslope like a conveyer belt. As the glacier melted and receded it dropped rocks forming this ridge, called a moraine.

Snowfields or Glaciers?

All snow seen from the boardwalk is just that--snow. Glaciers differ from snowfields in that glacial ice is denser, and it moves. About 50 glaciers exist in the park today. They formed after the last of the Ice Age glaciers melted and are much smaller than the Ice Age glaciers.

At the overlook to Hidden Lake you have crossed from the east side of the Continental Divide to the west. Hidden Lake lies 800' below. The lake fills a cirque formed by a small alpine glacier as it accumulated snow, enlarged and began to flow downslope. Directly southeast of you is Mt. Reynolds, straddling the Continental Divide. From the Hidden Lake overlook, the large mass of Sperry Glacier is visible to the south. Look along the north end of the lake for the outlet of Hidden Creek which flows into Avalanche Creek. To the left of the outlet, Bearhat Mountain rises over 2,300' above the level of the lake.

A Second Look

As you return back down the trail, look at the great expanse surrounding you and read the patterns of color and texture in the rocks and plant life. Glacier National Park is a place of wild beauty, rugged landscape and fragile scenery. It is an outdoor playground, laboratory and museum--inseparably linked to the surrounding world.

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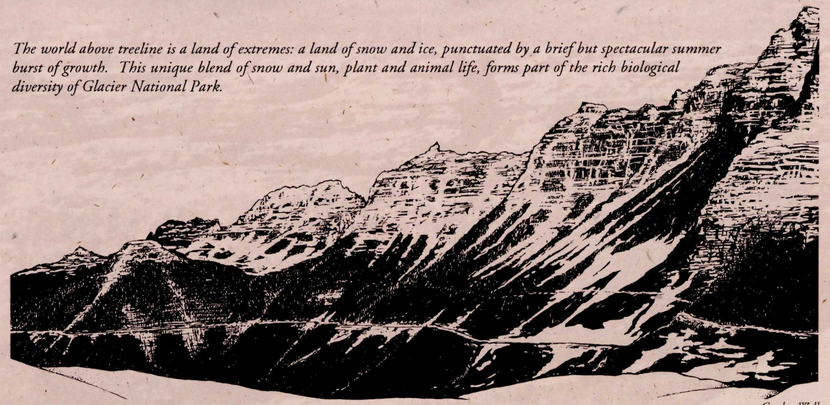
hidden lake

nature trail

The world above treeline is a land of extremes: a land of snow and ice, punctuated by a brief but spectacular summer burst of growth. This unique blend of snow and sun, plant and animal life, forms part of the rich biological diversity of Glacier National Park.



Garden Wall

Introduction

This pamphlet will guide you from the Logan Pass Visitor Center to Hidden Lake Overlook, a one-way distance of 1.5 miles. This trail climbs 500 feet from an elevation of 6,680 feet above sea level at the visitor center. Depending on snowfall, you may or may not be able to see the wooden boardwalk. It was built because too many trails were threading over the meadows at the expense of the plants. The beauty of these meadows cannot withstand human footsteps. Please use and stay on the established trail. Although the old trails haven't been used for twenty years, they are still evident.

We seek your help in protecting this treasure. We ask that you do not pick flowers, feed animals or remove rocks. All animals are wild and should not be approached. Visitors who follow will thank you.

Backbone of North America

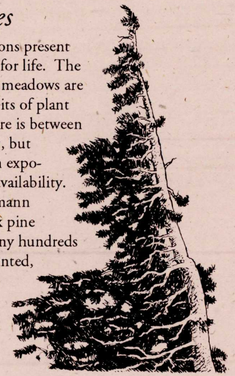
Here at Logan Pass you are standing on the Continental Divide which separates the major drainage of water from Alaska to Mexico. All rain and snowmelt west of the Divide flows to the Pacific Ocean via the Columbia River drainage, while precipitation east of the Divide flows to Hudson Bay.

In this part of Glacier National Park the imaginary line of the Continental Divide follows the top of the Garden Wall south to Mt. Pollack, then descends to Logan Pass where it crosses the Going-to-the-Sun Road and the surrounding meadows.

The rich diversity of plant and animal life found in Glacier National Park is a direct result of the weather barrier formed by the Continental Divide. Relatively warm, moist air masses from the Pacific linger on the slopes west of the Divide, while cold, dry, arctic air masses dominate the climate to the east.

Twisted Trees

Harsh alpine conditions present special requirements for life. The clustered trees in the meadows are at the uppermost limits of plant survival. Treeline here is between 7,000 and 8,000 feet, but varies with wind, sun exposure, soil and water availability. Subalpine fir, Engelmann spruce and whitebark pine form elfin forests many hundreds of years old. The stunted, twisted trees grow in thickets which provide shelter from wind and aid in soil moisture retention.



Patterns of Color

It has taken hundreds of years for these meadows to establish their carpet of wildflowers and grasses. Note the moist and dry areas in the meadows and how the pattern of color of the different plants follows the pattern of moisture availability.

Although these plants survive drought, constant wind and below freezing temperatures, they are fragile. With a growing season of six weeks, there's not much time for a seed to germinate, a plant to grow, a flower to be pollinated, or seed to be set for the coming year. A short growing season also makes these meadows particularly vulnerable to human trampling. Each kind of plant has specific requirements of sunlight, moisture and nutrients. A closer look will also reveal how each plant is adapted to survive this harsh environment. Hairy or waxy leaves help prevent moisture loss, while new buds often contain dark pigments to shield them from the strong ultraviolet radiation of the sun. Large blossoms quickly attract pollinators, helping the plant to reproduce in the short alpine summer.

Camouflaged Birds

Some birds, like mountain bluebirds, rufous hummingbirds, and golden eagles share this area during the summer, then migrate either downslope or hundreds of miles away to escape the alpine winter.

However, white-tailed ptarmigan remain as year-round inhabitants of the high country. They have feathered feet which act like snowshoes. Brown-speckled in summer and snow-white in winter, ptarmigan depend on camouflage for protection from predators. Look for them on rock ledges and in the meadows among the alpine willow, a favorite food source.

White-tailed ptarmigan

Hoary marmot

Two Hibernators

Animals have several survival strategies including hibernation and migration. Ground squirrels and marmots must store enough fat on their bodies during the short summer season to last them through their winter hibernation. Both engage in summer feeding frenzies. Please respect these animals enough to leave them undisturbed. Allow them to eat from the meadows--and not from your hand.

Living only in alpine areas, hoary marmots are less common than Columbian ground squirrels which are found from the plains to the mountaintops. Hoary marmots, named for the silvery cast of hairs on the front half of their bodies, are about twice as big as the foot long, yellowish-brown Columbian ground squirrels. Both animals sound alarms at the hint of danger. Listen for the "chirping" of ground squirrels and the marmot's sharp whistle.

Columbian ground squirrel