

# glacier

Glacier National Park is a ruggedly beautiful wilderness famous for its glaciers, lakes, wildflowers, and wild animals. It is a land of sharp, precipitous peaks and knife-edged ridges girdled with evergreen forests and luxuriant wildflower meadows. Alpine glaciers lie in the shadow of towering walls at the heads of ice-carved valleys. Streams flow northeast to Hudson Bay, south-east to the Gulf of Mexico, and westward to the Pacific.

Visitors come to this park on the border of Canada to enjoy scenery, wildlife, and solitude. A vast network of foot and horse trails invites hikers and riders to venture far from the roadsides to experience the pleasures of unspoiled nature.

## A ROMANCE IN ROCKS

To understand the "personality" of Glacier, you must look to the geological past. The rocks that now loom so loftily in Glacier were deposited as sediments more than a billion years ago.

For millions of years thick beds of ooze solidified into limestone; later sediments covered the limestone and became mudstone, and these in turn were overlaid with sediments that compacted into additional limestone. These strata show as streaks on the sides of Glacier's 300-meter-high (1,000 foot) precipices.

About 70 million years ago, stresses in the earth's crust acted on the deeply buried mudstones, sandstones, and limestones of the old sea bottom. As the tensions and strains became acute, the rock was warped and finally broken; the western part, a thousand meters thick, slid over the eastern. The pressures continued for millions of years until a gigantic 500-kilometer-long (300-mile) section of the earth's crust had been moved more than 60 kilometers (37 miles) to the east, capping young rock with strata more than 1 billion years old. This same process created other mountain systems throughout the world; few overthrusts, however, have been as great as this—the Lewis Overthrust of Glacier.

The carving of the park's rugged landscape was principally the work of glaciers during the last three million years. The moving ice deepened the main valleys and cut back the base of the cliffs to form U-shaped valley profiles. Tributary valleys were not worn as deep and thus have become hanging valleys over which streams plunge, sometimes a hundred meters, to the floor of the main valley below. Glacial ice, by plucking away the mountainside, has formed huge amphitheatres, called cirques, at high elevations. In many of these cirques, recent glaciers can be seen still performing the same kind of work, on a smaller scale, as their predecessors.

Thus, the mountains and valleys of the park tell a story of great oceans millions of years ago; of gigantic forces which elevated, crumpled, and broke the earth's surface; of the ceaseless erosion of the mountains by streams and their modification by vast glaciers; of the melting and recession of the great glaciers that had formed the broad, U-shaped valleys. The valleys, in turn, were partially filled with water, forming the lakes for which Glacier National Park is so well known.



Going-to-the-Sun Road at Logan Pass reaches an altitude of 2,026 meters.

## WILDFLOWERS, WILDERNESS AND WILDLIFE

Because of Glacier's size and range in elevation, a wide variety of plant and animal life finds suitable habitats within its boundaries. Only the hardiest plants and animals are able to survive the alpine environment on the windblown mountain summits; lower, in the westside valleys, luxuriant Pacific-type forests support a large and diverse plant-and-animal community. Plains on the Atlantic drainage side of the Continental Divide provide an expansive view of grassy, flower-covered meadows that are a soft contrast to the rugged defiles seen in the distance.

The eastern slopes, more exposed to cold winds and receiving less moisture, have open forests of Engelmann spruce, subalpine fir, lodgepole pine, Douglas-fir, and limber pine. The western slopes, benefiting from warmer, moister Pacific winds, have denser forests of larch, fir, spruce, and lodgepole; and in the Lake McDonald Valley redcedar and hemlock.

The park's brilliant floral displays begin in early spring and progress up the mountainside as the snow recedes, culminating in the unrivaled alpine summer show. They are most accessible near Logan Pass, along Going-to-the-Sun Road. These high-altitude wildflowers must survive in a severe climate with only a few summer months in which to grow. Some plants to look for in the alpine gardens are heather, gentian, beargrass, glacier lily, and stunted subalpine fir.

Beargrass, a beautiful, showy member of the lily family and a characteristic plant of Glacier, provides a spectacle beginning in June on the valley floors and reaching the higher slopes in August. At lower elevations occur representatives of the Great Plains flora—pasqueflower, shooting star, indian paintbrush, red and white geraniums, gaillardia, and asters.

You can do your part to help preserve the park's fragile plant communities by staying on the trails. *Admire the flowers—but do not pick them.*

Glacier's wildlife includes the bighorn, mountain goat, moose, wapiti (American elk), grizzly and black bears, and white-tailed and mule deer, all living in a natural environment relatively untouched by man. The beaver, hoary marmot, river otter, marten, pika, and other smaller mammals are important members of Glacier's fauna. Among the more noticeable birds are the osprey, water ouzel, ptarmigan, Clark's nutcracker, thrushes, and sparrows.

The mountain goat—not a true goat but an antelope related to the European chamois—is a marvelously sure-footed inhabitant of the crags above tree line, where it feeds on a variety of vegetation.



One of the special things about a national park is the opportunity to see wild animals in their native environment rather than in cages. Seeing a moose feeding in a swamp or a bear foraging in a meadow is an adventure for anyone. But in our excitement and desire for a better look, we often forget that we are in a wild environment where the animals are not dependent upon man for food—until we inadvertently make them that way. Think about it: every cracker tossed out takes away a bit of the wildness and freedom of an animal. Whether squirrel or bear, an animal spoiled by visitors is reduced to the antics of a caged animal craving some attention. Did you travel all the way to Glacier just to see another zoo animal?

Some rules have been established to assure your safety and that of the wild animals and to protect park values. It is unlawful to feed or molest any animal. Hunting is not allowed; in fact, possession of any device designed to discharge missiles and capable of injuring or destroying animal life is prohibited. All natural features—plants, animals, even the rocks—are protected by law. There are no poisonous snakes in the park; and other animals are not apt to harm you, if you do not approach them.

## GLACIER'S HUMAN STORY

Legends of the Blackfoot and Kutenai (Flathead) tribes indicate that they long held this area in awe and knew of Lake McDonald and St. Mary Lake. Over present park trails came western Indians to hunt bison on the plains, and in the cool mountain uplands they fished, hunted, and found relief from the summer heat.

Today the Kutenai live on a reservation southwest of the park, the Blackfoot on a reservation just to the east of the park. The Kutenai once controlled a vast area immediately east of the Rocky Mountains but were driven west and over the mountains by the Blackfoot. Unlike many western and Plains tribes, the Blackfoot have no clearcut record of migration or origin.

A clue to their origin is their language, one of the Algonquian family spoken by many North American Indian tribes. From this evidence and certain legends, students of Indian culture deduce that this once great nation migrated from the east, probably through the Lake States into southern Canada, and spread southward into eastern Montana, driving lesser tribes before them. This Indian nation now resides on four reservations in southern Alberta and northern Montana, gradually losing the ways of their forefathers and taking on modern dress and the English language. At Browning, 21 kilometers (13 miles) east of East Glacier, a museum is maintained by the Bureau of Indian Affairs, U.S. Department of the Interior, to interpret the customs and ways of life of the Plains Indian.

The area of the park was probably seen by members of the Lewis and Clark Expedition in 1806, but it was not explored by frontiersmen until 1846 when Hugh Monroe, a Canadian trapper, visited St. Mary Lake. In the 1850s railroad surveyors made tentative explorations into the mountains.



The bighorn lives on high, open slopes in summer, where like the mountain goat it feeds on both woody and herbaceous plants. It moves to lower elevations in winter.

Efforts to preserve the natural wonders of Glacier as a national park really began in 1885 when George Bird Grinnell, ardent naturalist, conservationist, and editor of *Forest and Stream*, became captivated with the region. Returning annually for many years, he saw the possibilities of the area as a park. For 25 years he labored courageously to have it set aside, contending against the opposition of those who wished to further their private interests and the arguments of congressional committees.

Finally, in the spring of 1910, after previously rejecting two bills to make the area a national park, Congress passed a bill establishing Glacier National Park. President Taft signed it on May 11.

But this area is more than a national park. Trails cross the international boundary, the distribution of the native plants and animals shows that ecological rather than political boundaries control them; a glacier has carved one valley in two nations; and the Rocky Mountains are a single physiographic unit and a great scenic resource spanning two nations. With this in mind, Rotary International promoted the idea of a U.S.-Canadian park. In 1932 the Waterton-Glacier International Peace Park, comprising Glacier National Park in the United States and Waterton Lakes National Park in Canada, was established by Presidential proclamation, as authorized by the United States Congress and the Canadian Parliament.

## TO ENJOY THE PARK

### ... Utilize Its Interpretive Programs

The National Park Service encourages you to become acquainted with the park through its guided walks, campfire programs, and other activities. These activities begin in mid-June and extend through August; some weekend activities are usually conducted in late May and in September and October. Schedules are at all ranger stations and visitor centers.

Be sure to see the orientation film and exhibits at the St. Mary Visitor Center (open late May to mid-October) and exhibits at Apgar Information Center (late May through mid-September) and Logan Pass Visitor Center (mid-June to mid-September).

### ... Ride a Bicycle

Bicycling in Glacier can be fun, but some roads are narrow and winding and have little or no shoulder. As a result, the use of bicycles is restricted in some areas. Details are available at all ranger stations.



Iceberg Lake nestles in a basin below Mount Wilbur and Iceberg Peak, near Many Glacier Hotel.

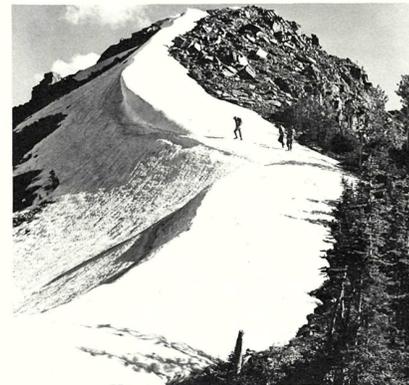
### ... Go Horseback Riding

Scheduled horse trips ranging from two hours to many days are operated out of Many Glacier, Lake McDonald Lodge area, and Apgar. For persons bringing their own stock, *Glacier's Backcountry Map & Trail Guide*, a free folder providing restrictions and regulations, is available.

### ... Take a Boat

Boating is permitted on Glacier's waters. Motorboats are permitted only on Kintla, Bowman, McDonald, Waterton, Sherburne, St. Mary, and Two Medicine Lakes. Motor size is limited to 10 h.p. or less on Kintla, Bowman, and Two Medicine Lakes. Boats can be rented at Many Glacier, Apgar, Two Medicine, and the Lake McDonald Lodge area. When boating in Glacier keep alert for weather changes. Mountain storms can be sudden and severe. Always carry approved lifesaving devices.

Excursion boat cruises are offered at Many Glacier, Rising Sun, Waterton Lake, Two Medicine, and Lake McDonald Lodge.



Three men hike the trail to Mount Lincoln.



The white-tailed ptarmigan, here seen in full summer plumage against a snow bank, feeds on the leaves of willow and alpine fir above tree line.

### ... Fish Its Streams and Lakes

If you are an angler, you will welcome the seclusion that characterizes most of Glacier's lakes and streams. Twenty-two kinds of fishes have thrived here because of the natural foods available and the nearly constant temperature of the waters. The most memorable experiences are provided by angling for native cutthroat and Dolly Varden trout.

Glacier has many good fishing lakes and many miles of swift-flowing streams. Rainbow, brook, and cutthroat trout occur in Swiftcurrent, Josephine, and Grinnell Lakes, as well as in the lakes of Upper Swiftcurrent Valley in the Many Glacier area and the Middle and North Forks of the Flathead River on the park's south and west boundaries.

A free folder on regulations entitled *Fish and Fishing in Glacier National Park* is available upon request. A license is not required to fish in the park.



Listen for the whistle of the hoary marmot, a dweller of talus slopes and alpine meadows near tree line.

### ... See It In Winter

Winter use is encouraged for those who enjoy the out-of-doors in snow. Park roads remain unplowed in winter, except for the Going-to-the-Sun Road between Park Headquarters and Lake McDonald Lodge. Over-the-snow vehicles are permitted on selected unplowed roadways. Ski touring and snowshoeing are becoming more popular every year. For those interested in winter activities, write to the park for more detailed information. There are no accommodations within the park during the winter months. Motel accommodations and dining facilities are provided in nearby communities.

### ... Stay In Its Campgrounds

Paved park roads provide access to eight of Glacier's campgrounds—Apgar, Avalanche Creek, Fish Creek, Many Glacier, Rising Sun, St. Mary, Two Medicine, and Sprague Creek. **Trailer space is provided in all except Sprague Creek (tents only).** All have fireplaces, tables, sanitary facilities, and cold running water; there are no utility connections.

If you desire more solitude and quiet, consider a campground along a gravel road where only fireplaces, tables, and pit toilets are provided—River, Bowman Creek, Bowman Lake, Cut Bank, Kintla Lake, Logging Creek, and Quartz Creek. Because the roads are narrow and rough, campers should inquire at a ranger station before attempting to pull a trailer or camper-pickup into those areas.

A few rules are necessary, for your comfort and safety as well as for park protection. Build fires only in the fireplaces provided. Make sure fires are out and cold before you leave the campground. Pour water on your fires before you leave.

A digest of camping regulations is available at Park Headquarters, entrance stations, ranger stations, visitor centers, and information centers.

### ... Take Its Trails

An auto or bus tour of the park can be exciting and rewarding. But to appreciate fully the park's grandeur, to experience the sense of peaceful solitude it offers, you must sample the backcountry. Leave your car and take the time for a half-day hike at least. With a backpacking outfit, a reasonably good pair of legs, and some time you can reach remote parts of the park the carborne traveler is not even aware of. More than 1120 kilometers (700 miles) of trails await the explorer of this wilderness.

All backcountry travelers who intend to have a fire or to camp overnight must obtain a Backcountry Camping Permit. This permit can be obtained from any ranger or at any information center during summer. In winter and generally in late fall and early spring it is necessary to go to Park Headquarters or to St. Mary Ranger Station to obtain the permit. These permits are issued on a "first come" basis, and no earlier than 24 hours before departure time.

Trails at lower elevations are usually open by mid-June, but many of the high country passes may not be free of snow until late July.

All hikers are advised to stay on marked trails and to avoid crossing steep snowbanks.

At campgrounds build fires only in the fireplaces provided. Self-contained stoves (not wood fires) are recommended and are required at many backcountry sites. Make sure fires are out and cold before leaving camp.

Pets are not permitted on trails.

## SAFETY PRECAUTIONS

**Hiking and climbing precautions.** Accidents in the mountains, even minor ones, may have serious or fatal consequences. Severe storms come quickly, even in summer, with attendant exposure to low temperatures, rain, snow, sleet, and lightning. All hikers and climbers should observe the following precautions:

**Never climb alone. Register before and after the climb. Avoid steep snowfields. Carry proper equipment. Don't overestimate your physical ability. Start early. Avoid open high ridges and peaks during lightning. Turn back in adverse weather. Move cautiously on steep or rocky areas. Do not allow children to run downhill.**

**Pets are not allowed on trails or in areas not accessible to automobiles.** In areas where they are permitted, they must be kept on a leash.

**Wild animals are unpredictable and can be dangerous.** All wild animals will protect themselves, their young, and their territories from danger. Potential conflict between you and wild animals can be reduced if you take the following precautions:

Keep your campsite and your equipment clean, and keep all food sealed in containers to reduce odors that would attract animals.

When photographing wild animals, use a telephoto lens instead of trying to get close.

**Never try to feed any wild animals.**

Do not approach bears or any other animals. Such actions will be interpreted as aggressive behavior.

Bears often become dangerous when surprised. Announce your presence by using a small bell or by talking or singing when on trails.

**Vehicles are not allowed on trails or off the roads.**

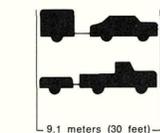
While safe and well designed, the Going-to-the-Sun Road is narrow and winding as it ascends the Garden Wall toward Logan Pass. Vehicles wider than 2.5 meters (9 feet), including mirrors or extensions, or vehicles in a combination of units longer than 9 meters (30 feet) are prohibited on Going-to-the-Sun Road between Avalanche Creek and Rising Sun Campgrounds during July and August. Before July 1 and after August 31, vehicles with a maximum length of 10.5 meters (35 feet) and a width of 2.5 meters (8 feet) may travel the road over Logan Pass.

## PROHIBITED



9.1 meters (30 feet)

## PERMISSIBLE



9.1 meters (30 feet)

## DETACHABLE MIRRORS

extending more than 15 centimeters (6 inches) beyond the side fender line of the motor vehicle must be removed except when actually towing a second vehicle.

Trailers may be parked temporarily at Rising Sun on the east side or in regular campgrounds on either side of the park while you drive to the other side and return. Oversized vehicles and trailers must go via U.S. 2 to get from one side of the park to the other.

Please do not hold up the traffic behind you. Take advantage of scenic turnouts.

## How to Reach Glacier National Park

The park is on U.S. 2 and 89 and near U.S. 91 and 89.

Airline service is available to Great Falls, Montana, 230 kilometers (143 miles) south-east of the park and Kalispell, Montana, 32 kilometers (20 miles) west.

Buses (connecting with transcontinental buslines at Great Falls and Missoula) and Amtrak stop at East Glacier Park and West Glacier (Belton) Stations. Both train and bus service is limited, and the stations are



Rugged Red Eagle and Mahtotopa Mountains loom over St. Mary Lake and Going-to-the-Sun Road east of Logan Pass.

## Accommodations

*Hotels, lodges, and cabins* are available, both in the park and at locations adjacent to it. Accommodations in the park are operated by Glacier Park, Inc. Information on rates, opening dates, types of accommodations, and services may be obtained from Glacier Park, Inc. (May 15 to September 15 write: East Glacier Park, MT 59434; September 15 to May 15 write: P.O. Box 4340, Tucson, AZ 85717). Reservations are advised; deposits are required.

## Forest Fire Management Program

Lightning-caused forest fires are a natural and necessary part of forest life. Areas adapted to natural cycles of burning and regrowth are prime habitat for many wild-life species including elk and deer. Glacier National Park was established in part to preserve the various ecosystems present by allowing natural processes to occur. Soon lightning-caused forest fires may be allowed to burn themselves out, providing they do not endanger human life and property.

Man-caused fires, however, are undesirable since they do not follow any natural cyclic pattern. Such fires can have a devastating effect when they occur in areas not adapted to fire. PLEASE BE CAREFUL WITH FIRE.

Sperry and Granite Park Chalets are open for the use of backcountry travelers from July 1 through Labor Day. Both are accessible by trail only. Sperry Chalet is a steep 10.5 kilometers (6.5 miles) from Lake McDonald Lodge; Granite Park Chalet is a relatively level 12 kilometers (7.6 miles) from Logan Pass. For rates and reservations contact Belton Chalets, West Glacier, MT 59936, 406-888-5511.

*Privately operated campgrounds* with utility hookups are near Glacier National Park; campgrounds within the park do not have hookups.

## ADMINISTRATION

Glacier National Park is administered by the National Park Service, U.S. Department of the Interior. A superintendent, whose address is West Glacier, MT 59936, is in immediate charge.

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

National Park Service  
U.S. DEPARTMENT OF THE INTERIOR

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# GLACIER NATIONAL PARK



## WATERTON-GLACIER INTERNATIONAL PEACE PARK

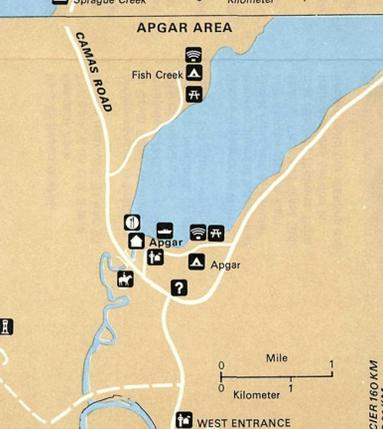
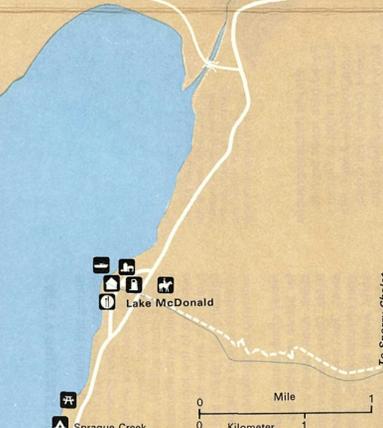
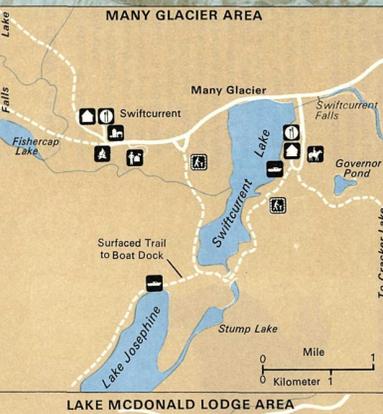
**Legend**

- Park Boundary
- Paved Road
- Light-Duty Road
- Dirt Road
- Trail
- Self-guiding Trail
- Picnic Area
- Ranger Station
- Fire Lookout
- Trail Campsite
- Campground
- Information
- Gas Station
- Boat rental
- Horse rental
- Food
- Store
- Lodging
- Amphitheater
- Campfire Circle

**Scales**

MILES 0 1 2 3 4 5  
KILOMETERS 0 1 2 3 4 5

The scales show the ratio between customary measurements and metrics. Altitudes are in meters, distances in kilometers. One meter is 3.28 feet. 1 kilometer is 0.62 miles.



**DRIVING GLACIER'S ROADS**

A hurried trip across the park between sunup and dusk, though a scenic treat, will hardly be a good introduction to Glacier—much less give you an understanding of its natural and human history. Take the time to enjoy the park's tranquil forests and beautiful lakes, to see its famed wildlife. Heed the words of Scottish-born naturalist, mountaineer, and conservationist John Muir, who said, "Give a month at least to this precious reserve. The time will not be taken from the sum of your life. Instead of shortening, it will indefinitely lengthen it and make you truly immortal."

*The Going-to-the-Sun Road*, which crosses the crest of the Rockies through the center of the park, is among the most spectacular roads in the world. From west to east, the 80-kilometer-long (50-mile) drive skirts mountain-rimmed Lake McDonald, gains the high country along the Garden Wall, crosses Logan Pass at treeline, and descends toward St. Mary Lake.

*Logan Pass* is closed by snow from mid-October to early June. Normally the only road open to automobiles in mid-winter is that between West Glacier and Lake McDonald Lodge.

The following are scenic park routes that branch off main highways:

- Chief Mountain International Highway** climbs over glacial debris and through aspen groves with Chief Mountain as a beacon on one side. As the road crosses the international boundary to Waterton Lakes National Park in Canada, it offers a clear view of 3,190-meter high (10,466-foot) Mount Cleveland, Glacier's highest peak.
- The Two Medicine Road** leaves Montana Highway 49 about 6.4 kilometers (4 miles) north of East Glacier and leads to Trick Falls and Two Medicine Lake. Here is an unforgettable view of an expanse of lake, mountain, and forest.
- The Many Glacier Road** leaves U.S. Highway 89 at Babb 14 kilometers (9 miles) north of St. Mary. The 19-kilometer (12-mile) drive up Swiftcurrent Creek from Babb is well worth your time and effort, as there are many things to do and places to see.

A gravelled road leads into *Cut Bank Valley*, containing one of the park's smaller, more primitive campgrounds. This is the place for quiet and solitude!

*The North Fork Road* is a narrow gravel road from Fish Creek Campground to the North Fork area. Primitive campgrounds are located along the route to Kintla Lake, where the North Fork Road ends.

*The Camas Creek Road* leads from Apgar through forested land and past a moose swamp, providing alternative access to the North Fork area.

*U.S. Highway 2* follows the southern boundary of the park between the towns of East Glacier Park and West Glacier, a distance of 90 kilometers (55 miles). Glacier's interior roads are not high-speed highways. They are designed so that you can enjoy nature as you drive.

**Observe the speed limits—70 kilometers (45 miles) per hour unless otherwise posted.**

**Keep gears meshed and out of overdrive on grades.**

**Vehicles pulling trailers should use lower gear on grades.**

**Vehicles are not allowed on trails.**

A Naturalist also conducts trips along this route. Check schedule.

(S) Self-guiding trails at trailhead.

(R) Closed season based on weather forecast.

Inquire at ranger stations and visitor centers for information on other short hikes.

**HIKING DISTANCES (one way)**

Here is a partial list of hikes from a few hours up to a day:

| from                                      | to   | kilometers | miles |
|---|--|------------|-------|
| Many Glacier Hotel                        | Grinnell Glacier (B,N)                               | 8.0        | 5.0   |
|   | Cracker Lake   | 9.6        | 6.0   |
|   | around Swiftcurrent Lake (S)                         | 2.6        | 1.6   |
| Swiftcurrent Campstore                    | Iceberg Lake (N)                                     | 8.0        | 5.0   |
|   | Red Rock Falls (N)                                   | 4.8        | 3.0   |
|   | Baring Falls (S)                                     | 1.3        | 0.8   |
|   | St. Mary Falls (N)                                   | 3.3        | 2.1   |
|   | Virginia Falls (via Baring Falls and St. Mary Falls) | 7.0        | 4.4   |
|   | Scenic Point (N)                                     | 5.0        | 3.1   |
|   | Rockwell Falls (N)                                   | 5.6        | 3.5   |
|   | Cobalt Lake (N)                                      | 8.9        | 5.5   |
|   | Upper Two Medicine Lake (B)                          | 9.3        | 5.2   |
|   | Twin Falls (B,N)                                     | 6.4        | 4.0   |
|   | Dawson Pass  | 8.8        | 5.5   |
| West Glacier Park Entrance                | Apgar Lookout (drive 4 Km to trailhead)              | 5.2        | 3.2   |
| Avalanche Creek Picnic Area               | Trail of Cedars (S)                                  | 3.2        | 2.0   |
| Lake McDonald Lodge                       | Snyder Lake  | 6.7        | 4.2   |
| Logan Pass                                | Hidden Lake Overlook (S)                             | 2.4        | 1.5   |
| Goat Haunt (take boat from Waterton Park) | Rainbow Falls  | 1.3        | 0.8   |
|   | Janet Lake   | 4.8        | 3.0   |