



the North Cascades
Challenger



Mt. Baker-Snoqualmie National Forest
North Cascades National Park

FREE!

Visitor Information and Regional Opportunity Guide

1994 EDITION



T-Bone Ridge and Eldorado Peak

Enjoy the North Cascades. . .

*a special place to visit with spectacular landscapes and diverse living systems:
from subalpine meadows carpeted with wildflowers—to lush lowland forests
from jagged peaks studded with glaciers—to dry country of pine and sagebrush
from cascading waterfalls—to blue-green lakes tinted with glacial flour.*

Wilderness—what it is, where it is, and why we need it is the theme of this year's Challenger. In wilderness, we preserve the human link to the natural world and ensure that plants and animals living there will remain for future generations to enjoy.

Message from the Superintendent

Welcome to the North Cascades National Park Service Complex, which is made up of North Cascades National Park, and Ross Lake and Lake Chelan National Recreation Areas. As the stewards of your national park lands we work hard in hopes that your visit will be enjoyable and safe. As the park enters its second quarter century, there is a new emphasis on understanding and managing these lands in the larger ecological context. The Stephen Mather Wilderness overlies 93 percent of the Complex and adjoins over two million acres of U.S. Forest Service wilderness areas and British Columbia Parks. Rare animals such as gray wolves and grizzly bears roam without regard to the boundaries drawn by man. The Complex is one part of a much larger area of ecologically interdependent public lands in the United States and Canada. We hope that during your visit the North Cascades will convey to you some of the special nature of this wild and diverse region.

Message from the District Ranger

Management of our National Forests continues to change as the American way of life evolves. As societal values change and our lifestyle makes more demands on natural resources, we realize the ever-increasing value of the National Forests. This is particularly true of our nation's designated wilderness areas. They are key refuges of our National heritage, and play an important role ecologically and socially for America and the world. Enjoy your visit and the wide spectrum of recreational pursuits in the North Cascades and Mt. Baker region, including the roots of the American heritage found in our local wilderness. Our basic goals are to preserve the area's natural and cultural resources and to provide for their enjoyment by the public. Your ideas can help us do our job better.

If you have a comment, suggestion or question which you would like to share, please write: Bill Paleck, Superintendent, North Cascades National Park Complex, or Jon Vanderheyden, Mt. Baker District Ranger, 2105 Highway 20, Sedro Woolley, Washington 98284.

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North Cascades Wilderness

There are places in the North Cascades which have never felt a human presence. There are seas of ice carved peaks—near unconquerable in their raw splendor. There are high routes traversing ridges and valleys of incomparable beauty.

There are more reachable places also exist, where a day hike takes one through flowering meadows to expansive vistas of hanging glaciers. There are wheelchair paths lead to ancient forest groves, cascading water falls, and an alpine lake.

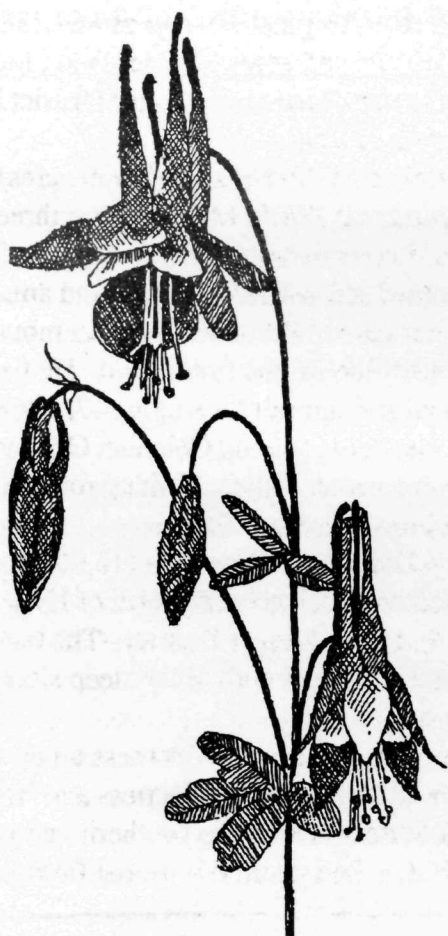
What is Wilderness? Is it a state of mind, an escape from urban life? Is it a place of pristine purity where we experience natural forces and systems unaffected by human activities?

Through time, as we struggled to develop civilizations, we felt often compelled to revisit a more natural reality—a world of time tested bounds and cycles. With the establishment of National Parks and Forests in the past century, we gave protection to certain aspects of that world. In 1964 Congress attempted to describe Wilderness in legal terms: "A place untrammeled by man."

We now know that there is no place on Earth where we can escape the effects of our human activities. We also know that the very act of visiting a natural area affects it in some way. Perhaps wilderness is not a place separate from our human world, but a place and an opportunity for us to experience and reflect on our attachment to the natural world to which we all belong.

The National Park Service and the United States Forest Service invite you to join us in not only experiencing some of the most pristine and beautiful areas in the world, but also in helping care for these magnificent wild lands of the North Cascades.

—Jim Harris
NPS District Interpreter



Wilderness: What is it?

Ask a hundred people "What is wilderness?" and you will get a hundred different definitions. To an urban individual, it may be a quiet spot in some city park. To others, it may require walking where no other person has walked before. To most, wilderness is somewhere between these two extremes.

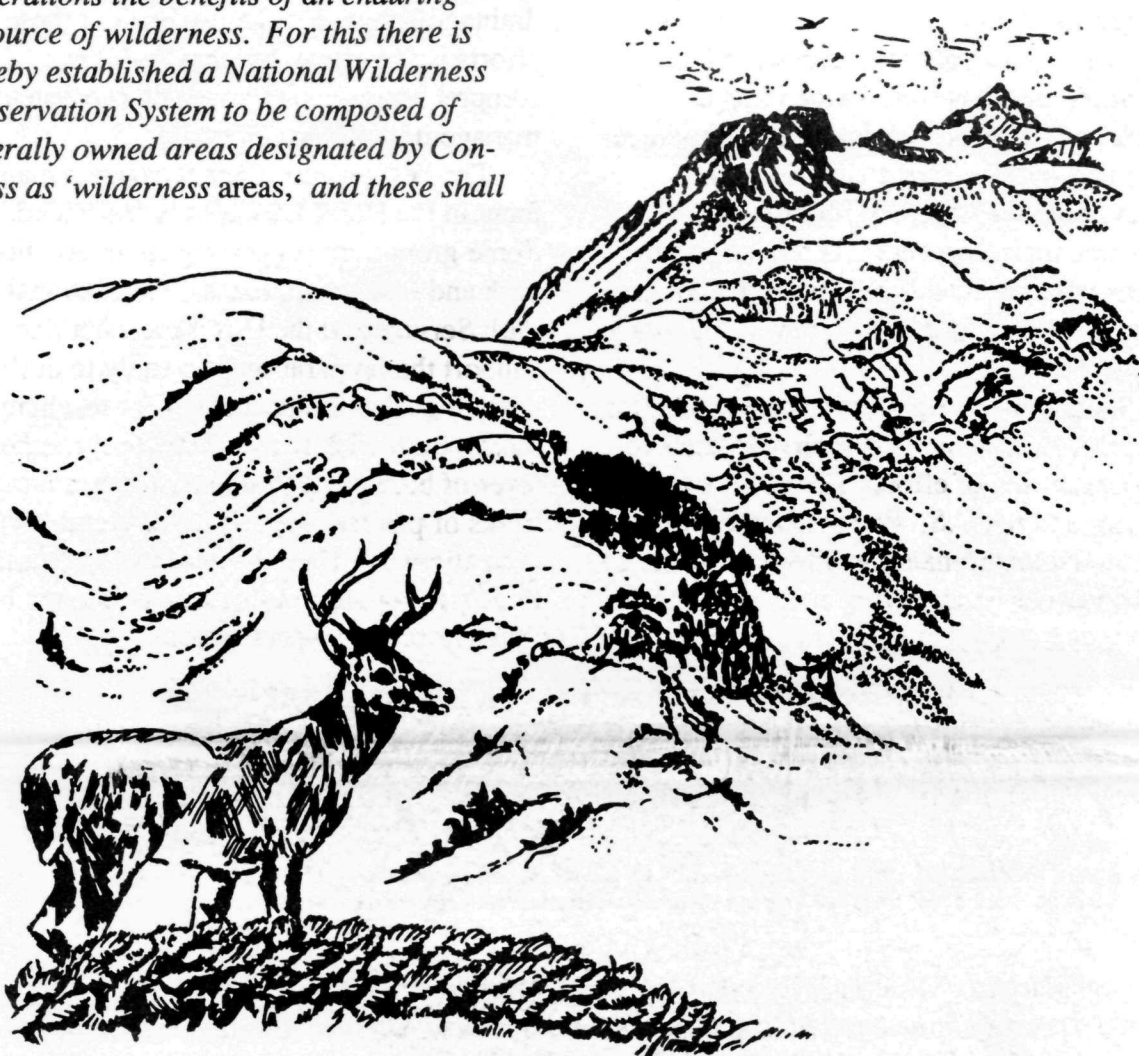
The Wilderness Act of 1964 states: "In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as 'wilderness areas,' and these shall

be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness.

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. "

Whether your wilderness is in your back yard or on some far off forest ridge, let your spirit commune there with the peace and tranquility of earth and nature. **Celebrate the 30th anniversary of the Wilderness Act.**

—Eli Warren
USFS Information Specialist



Wilderness Values

We commonly think of wilderness as large natural areas for hiking, climbing, and other recreational activities. But this is only partially correct. The Wilderness Act defines wilderness as "undeveloped Federal land retaining its primeval character and influence" with "outstanding opportunities for solitude or a primitive and unconfined type of recreation." The Act also designates wilderness for the "public purposes of scenic, scientific, educational, conservation, and historical use."

Expanding upon these reasons for the designation, three broad themes identify wilderness values: **scientific, symbolic or spiritual, and experiential.** Wilderness management supports these values.

Scientific Values: Wilderness areas preserve natural ecosystems and maintain species diversity. These areas are natural laboratories for learning and for scientific research into the forces that maintain life without human assistance.

Symbolic or spiritual: Creative inspiration is captured in nature's cathedrals. In wilderness, we celebrate life's forces and realize the spiritually sustaining and cleansing powers of natural areas.

Inherent and intrinsic values of wilderness help temper the tendency of humankind to conquer and subdue the entire Earth, and recognize that nonhuman organisms have their places on Earth, integral to our own survival.

Wilderness represents historical and current cultural values, such as freedom and pride in our nation's splendor.

Experiential: Aesthetic values go beyond scenic beauty to the notions of grandeur and power of nature.

Specific kinds of recreation that depend on wilderness settings include the quest for self-sufficiency, challenge, and skill-testing. With few people around, the recreational and therapeutic benefits of being in a tranquil primitive area are enhanced.

Thus, although we may commonly think of wilderness only in terms of recreational opportunities, these areas offer a broad range of unique values that benefit everyone.

Recommended reading:
Wilderness America
The Wilderness Society
Wilderness and the American Mind
Roderick Nash

Nature Has No Borders :

Managing the North Cascades as an Ecosystem

The greater North Cascades Ecosystem stretches from tide water on the west to the dry Okanogan River Valley on the east; from Washington's Snoqualmie Pass on the south to the Canadian Similkameen and Fraser Rivers on the north.

Managed as North Cascades National Park, Ross Lake and Lake Chelan National Recreation Areas and the Mt. Baker-Snoqualmie, Okanogan and Wenatchee National Forests, federal lands within the Washington portion of the North Cascades are one of the most intact wild areas in the contiguous United States. North of the international border, parts of the ecosystem lie within the Manning and Cathedral Provincial Parks and Skagit and Cascade Provincial Recreation Areas.

The various parks and forests in both countries are, however, divided into a patchwork of laws, politics, and management practices not designed to consider the ecosystem as a whole. With each year it becomes more apparent that the long-term preservation of these wild areas depends on their being managed with a view to the whole ecosystem.

Some citizen organizations are calling for an international park and reserve to achieve this integration of effort. The National Park Service and the U.S. Forest Service recognize the need to coordinate the efforts of agencies and countries in protecting and managing an area which, for nature, has no borders.

There are many examples of cooperation among the agencies managing portions of the North Cascade Ecosystem. Parks, forests, and wildlife departments on both sides of the border and at federal, state, and provincial levels are together planning the recovery of species listed by the U.S. as threatened or endangered. The grizzly bear and the gray wolf are notable examples. Canadian and U.S. agencies are writing a fire management plan for transboundary wildlands.

By international treaty, the Skagit Environmental Endowment Commission brings together representatives from Washington and British Columbia to further research, interpretation, and appropriate recreational facilities in the Skagit River drainage above Ross Dam. Each of these efforts is important, but they lack the comprehensive approach which ecosystem management would offer.

The best way to adopt ecosystem management in the North Cascades is undecided. Some groups are suggesting an international park and reserve approach. The National Park Service and the U.S. Forest Service support the preparation of a study to outline desired goals and alternatives for reaching them. Both wish to avoid creating another layer of bureaucracy and unduly restricting rights of private property owners and recreationists. These agencies will continue to work with all groups interested in the long-term welfare of the ecosystem.

Stephen Mather Wilderness

The Stephen Mather Wilderness, named after the first Director of the National Park Service, was established in 1988. This 634,614 acre wilderness is one of 30 wilderness areas in the State of Washington.

This Wilderness is managed by the North Cascades National Park Service Complex. Use of the area is controlled according to the goals of the Wilderness Act of 1964. Management techniques include mandatory camping permits, minimum impact education, designated campsites, quotas on both party size and numbers of parties, and an impact restoration program supported by a native plant nursery.

The Wilderness District Ranger Station is located in Marblemount. The Station includes a Wilderness Information Center and the native plant nursery. Please stop by if you are interested in learning more about the Stephen Mather Wilderness, the different management actions, or the nursery operation.

—Hugh Dougher

NPS Wilderness District Ranger

Washington Wilderness Act of 1984 Celebrating Ten Years

In the early 1900s, people were concerned about the loss of America's wildlands to human progress. The Forest Service, in 1924, became the first federal agency to protect wildlands under its jurisdiction. In 1964 Congress passed the Wilderness Act establishing a National Wilderness Preservation System. In 1984 these areas were added to Wilderness Areas of Washington: **Boulder River Wilderness** (49,000 acres) and **Henry M. Jackson Wilderness** (103,591 acres) are both located in the Darrington Ranger District. Vegetation is typical of the western Cascades with cedars, true firs, western and mountain hemlock. **Glacier Peak Wilderness**, 112,607 acres added to an original acreage of 464,258 for a total of 576,865 acres. Glacier Peak, highest point in the Darrington Ranger District is a dormant volcano.

Mt. Baker Wilderness (117,900 acres) surrounds 10,778 ft. Mt. Baker on three sides. Recreational activities began on Mt. Baker in 1866 when a librarian and amateur explorer named Edmund Coleman mounted an expedition for the first ascent. He finally reached the summit on August 17, 1868. This standard route up Coleman Glacier bears his name. Other climbing routes follow Easton and Boulder Glaciers.

Noisy-Diobsud Wilderness (14,300 acres) located near Baker Lake, north of Hwy 20 in the Mt. Baker Ranger District. The terrain is extremely rugged with many steep slopes and ridges.

Other Forest Service Wilderness areas added are the **Clearwater Wilderness** and **Norse-Peak Wilderness** in the southern part of the Mt. Baker-Snoqualmie National Forest.

For detailed information on trails and access to these Wildernesses, visit offices listed on the back page of this newspaper.



What to See and Do



Drive the North Cascades Highway loop (SR 20, 153, 97, 2) across the Cascades Mountains. See pages 8-9 for Highway 20 guide to points of interest; see back cover for detailed map of the loop.



Walk **Short Self-Guided Trails:**

- *Baker Lake: *Shadow of the Sentinels*, loop trail through old-growth forest
- *Newhalem: *To Know a Tree*, *Ladder Creek Falls* and Visitor Center Trails.
- *Colonial Creek Campground: *Thunder Woods Nature Trail*
- *Ross Lake Overlook: *Happy Creek Forest Walk*, barrier free nature trail
- *Rainy Pass: *Rainy Lake Trail*, paved 1-mile to Rainy Lake.
- *Hozomeen: *Trail of the Obelisk*
- *Stehekin: *Imus Creek*, *McKellar Cabin and Rainbow Mist Trails*



Hike Many trails lead into the wilderness. Overnight backpacking trips into **North Cascades National Park** require a free permit, but day hikes do not. Climbers should choose experienced partners or licensed guides, register and obtain climbing information at Marblemount or the Ranger Station closest to entry point.



Bike Many people tour the North Cascades Highway by bicycle. The remote beauty of the route offers a unique and challenging experience. Be well supplied with water, food and warm waterproof clothing. Travel single file on the right edge of the road, use reflectors and bright clothing.

Trails are closed to motorbikes and bicycles. Most side roads are rugged enough for the most avid mountain biker.



Pets Pets are allowed in developed recreation areas within the National Forest and National Recreation Areas. Pets are prohibited within the National Park except on the Pacific Crest Scenic Trail, where they must be on a leash.



Boat Much of the recreation in the North Cascades is water oriented. Access to Stehekin is by cruising up 55-mile long Lake Chelan. The boat company operates Lady of the Lake and Lady Express daily in summer. Get specific information in advance including schedules and a list of *Accommodations and Services* from a Ranger Station.

Floating a river is an adventure worth planning. Experienced boaters run the Skagit, Nooksack and Stehekin Rivers. Rafting with a licensed outfitter may be a better option.

For lake recreation, launches are available at Baker, Gorge, Diablo, and the north end of Ross Lake at Hozomeen. Boat rentals are offered at Baker, Ross, and Lake Chelan.



Fish The Skagit River

(Washington's second largest after the Columbia) and its impounded lakes offer many species of trout and salmon. In order to protect spawning fish populations, it is necessary to comply with special regulations including closures, seasons, bag limits, and gear restrictions. These are listed in the Washington Department of Fish & Wildlife game fish regulations and in the *Fishing in the North Cascades* brochure.

Lake Chelan has fresh water cod and salmon. The Stehekin River gives fishermen a good chance at rainbow and cutthroat trout. Bait shops and local fishermen are the best sources of information and advice.

Fishing in Washington, including in the National Parks and Forests of this area, requires a valid Washington State fishing license.



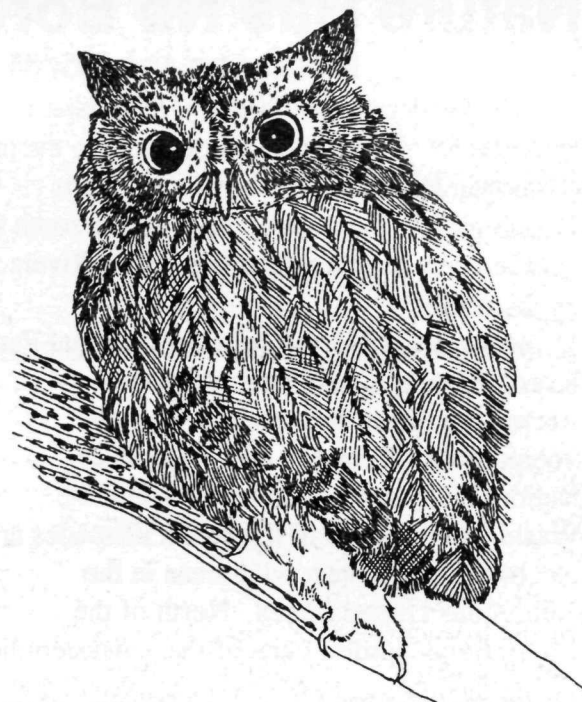
New Exhibits

North Cascades Visitor Center at Newhalem receives its permanent exhibits in the summer of 1994. Models, photographs, drawings, and videos dramatize the great variety of plants and animals living in the North Cascades. A large relief model will highlight geology, and artifacts will illustrate the past activities of people. Detailed topographic maps on the lobby walls will put North Cascades National Park into its larger context.

Later in the year, a new movie will be shown, alternating with the Wilderness slide show. The striking diversity and beauty of the back-country is the movies' focus with narration by those who have experienced it firsthand. Together the exhibit area and theater programs convey a sense of wilderness preserved.

Wilderness is both a physical place, and an abstraction, a feeling we have. What we call "wilderness," some called "home" for thousands of years. The Visitor Center's audiovisual programs will present some wilderness ideas and emotions. The exhibits, in contrast, will focus on scientific and historical details about the North Cascades.

Touring a visitor center is no substitute for exploring the park itself. Exhibits and programs at North Cascades Visitor Center may give you the extra nudge needed to do just that.



Backcountry Camp

National Forest wilderness camping does **not** require a permit. Camping at designated or existing sites is encouraged. Party size is limited to 12 and campfires are discouraged in subalpine areas.

North Cascades National Park Complex has almost 100 backcountry camps for hikers and an additional 30 sites for horse campers. These sites require free backcountry permits for overnight stays, available on a first come first-served basis from Ranger Stations at Marblemount, Sedro Woolley, Stehekin, Hozomeen, or Glacier. For more information on permits contact:

Wilderness District Office
North Cascades National Park
Marblemount, Washington 98267
Phone: (206) 873-4500



Stay

Campground options are listed in the centerfold, along with the North Cascades Highway Map. Other accommodations include resorts with services within the Park Complex; Ross Lake Resort, Rockport, WA 98283, (206) 386-4437 and North Cascades Stehekin Lodge, Box 457, Stehekin, WA 98816, (509) 682-4494). The Baker Lake Resort (206) 853-8325 operates by special use permit in the National Forest at Baker Lake.

Many other private accommodations are available. Check visitor information or Chamber of Commerce offices for details. Plan ahead by calling for reservations.

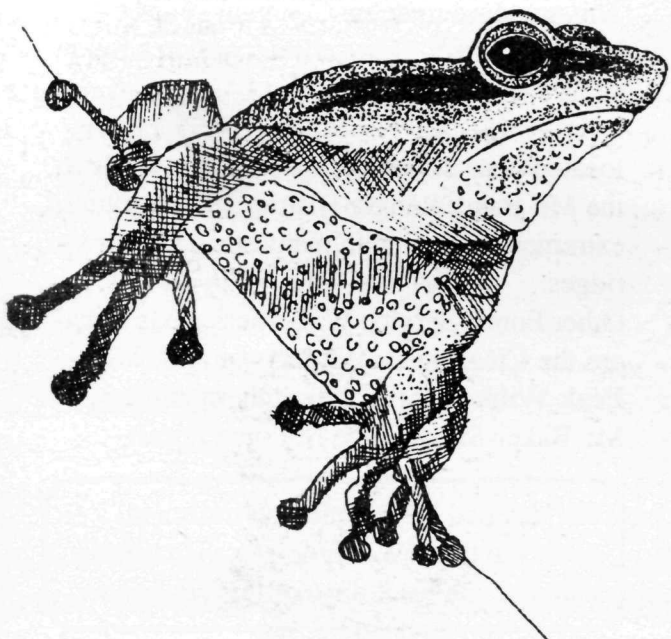
Naturalist programs (Hwy 20):

This summer there will be daily naturalist programs in and near the North Cascades Visitor Center. These will include short patio talks, walks to a spectacular mountain vista, extended walks, special programs and activities for children. Youngsters can become Junior Rangers by taking part in ranger activities. Ask for the instructions.

Join rangers nightly at the Colonial Creek Amphitheater (eleven miles east of the Visitor Center) for topics from birds to wildflowers and ancient forests to glaciers.

Winter programs/snowshoe walks:

During the winter months at the North Cascades Visitor Center, each Saturday and Sunday at 2 pm, gather in front of the fireplace to share stories and facts on "Winter Wildlife." If conditions permit, follow the Ranger out to scope mountain goats on Ross Mountain or to explore snow filled woods.



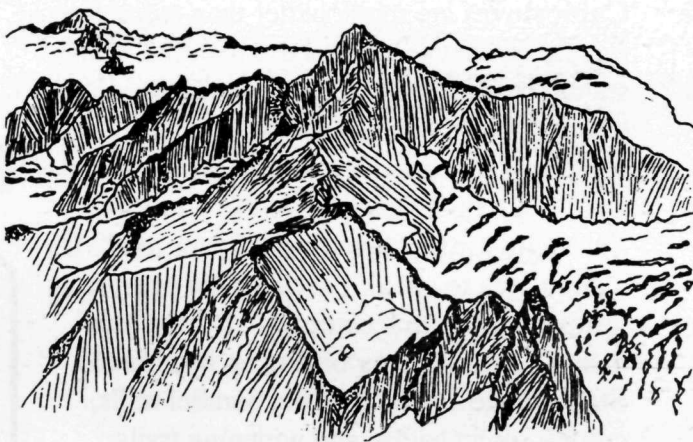
Mountains in Motion

The North Cascades are still rising, shifting, and forming. Geologists believe that these mountains are a collage of terranes, distinct assemblages of rock separated by faults. Fossil and rock magnetism studies indicate that the North Cascades Terranes were formed in other places, some many thousands of miles south of here. Attached to slowly moving plates of oceanic rock, they drifted northward, merging together about 90 million years ago. Exactly when they arrived here is still in question.

Colliding with the North American Continent, the drifting rock masses were thrust up-wards and faulted laterally into a jumbled array of mountains. The collision broke or sliced the terrane into north to south trending faults that are still evident today. Highway 20 crosses the Straight Creek fault just east of Marblemount.

Geologists believe the rocks to the west of the fault slid more than 100 miles north of the slice to the east. The rocks to the east of Straight Creek Fault are gneisses and granites, while those to the west are completely different recrystallized mudstones and sandstones. Over time, these predecessors to today's North Cascades were further faulted and eroded to a nearly level plain.

During the past 40 million years, heavier oceanic rocks thrust beneath the edge of this region. Intense heat at great depths caused them to melt. Some of the melt rose to the surface in fiery volcanic eruptions like Mt. Baker. The rest crystallized at various depths to form vast bodies of granitic rock. The

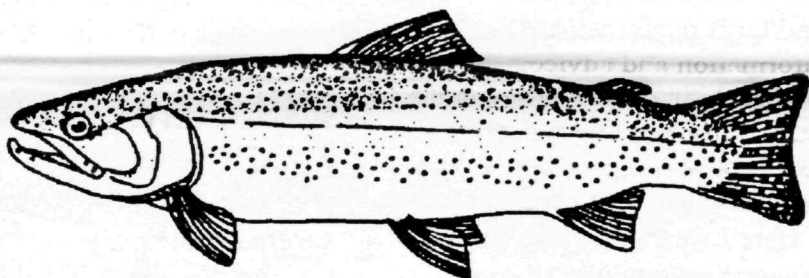


North Cascades have again pushed upward to majestic heights, exposing the roots of the ancient collision zone. Ice, water, and wind will eventually level the peaks around us, returning them bit by bit to the sea.

Scientists agree that the rocks around you comprise some of the most complex and least understood geology in North America. By studying the rock types found in an area and mapping the locations of the rock outcrops, a "geologic picture" slowly takes form.

For more information on both the variety of rock types here and the North Cascades geologic story, stop by the rock display at the Diablo Lake Overlook at milepost 132 on Highway 20. Also, check out the striking rock outcrop across the highway from the overlook. You can see lighter colored intrusions that were injected into the darker "country" rock. Additional information is available at the North Cascades Visitor Center in Newhalem.

—Patty & David Bean
Park Naturalists



Hydropower in our National Forests

Most of us are familiar with the large dams on rivers throughout western Washington—the Baker River Dams, Ross, and Diablo Dams to name a few. But how many are familiar with the small hydroelectric facilities, such as the Koma Kulshan Hydroelectric Project on Sandy, Sulphur, and Rocky Creeks in the Baker Lake Basin? Koma Kulshan came on line in 1990, and produces electrical energy for about 2,000 local homes.

While large dams have substantial water storage capabilities, small hydro facilities are usually what is known as "run-of-the-river." This type of facility involves a small dam which diverts water into a penstock, a pipe that delivers the diverted water to the powerhouse further downstream, after which the water is returned to the stream.

Run-of-the-river facilities do not normally change average daily flow or the chemical characteristics of a river or stream, and they do not normally inundate large amounts of land, as do larger dams. However, run-of-the-river facilities have a bypass reach—the stream or river segment between the diversion structure and the powerhouse. Average flows in the bypass reach are reduced during operation, and the flow rate fluctuates in the bypass reach and below the powerhouse. These flow changes can potentially have negative impacts on fish and other aquatic life forms.

Other risks to the stream that can occur during project operation include pipeline failure and powerhouse failure, with risks of negative environmental consequences.

The Federal Energy Regulatory Commission (FERC) is the federal agency responsible for granting licenses to companies to develop hydroelectric projects.

The Mt. Baker-Snoqualmie National Forest is presently tracking 37 small hydroelectric project proposals on or potentially affecting National Forest land. This represents a large workload for fish and wildlife biologists and other technical staff. They work to ensure that the projects are compatible with National Forest land use regulations.

The need to carry out this program must be balanced with all other programs of the Forest Service, a multiple use agency whose mission is to provide land stewardship.

In addition to the Forest Service and FERC, other governmental bodies are involved in the various stages of project licensing and operation; these include County, State, and Tribal agencies.

Properly sited and operated, small hydroelectric facilities bring forth many benefits in terms of energy production and local jobs. Poorly sited, projects can cause catastrophic impacts to fisheries or other resources.

—Wendy Cole
District Fisheries Biologist

Alien Invasion

What is one of the largest threats to the integrity of the North Cascades ecosystem? Surprisingly, it's invasion. Not by alien visitors, but by invading non-native plants.

Over thousands of years, more than 1700 different native plants have adapted to specific North Cascade habitats. Though most of these plants are resilient after natural disturbances such as fire, they do not fare as well in areas of human disturbance. Native plant communities are most prone to impacts from human disturbance in low elevation dry habitats and high elevation cold habitats.

Native plant communities are disturbed by a variety of human activities like excavation and road building. Such soil disturbances create an ideal habitat for alien plants to colonize.

Most non-native plants colonize well in disturbed soils. Native plants, while they can grow in disturbed sites, don't do as well when they must compete with non-natives. Aliens usually arrive as seeds attached to vehicles, cargo, luggage, and pets, colonizing disturbed sites. The most aggressive invaders are from southern Europe or Asia.

Several non-native plants have become established in the North Cascades and are out-competing native species. The most widespread alien is diffuse knapweed (*Centaurea diffusa*). In their homeland, knapweed and other non-native species must compete with each other and with predators (usually insects) which keep them from spreading. When they arrive here, those competitors and predators are absent.

For several years the National Park Service has toiled to reduce the spread of knapweed and other alien plants. The Stehekin community in the Lake Chelan National Recreation Area assists the effort by hand-pulling plants in the valley. In 1992, valley residents adopted stretches of road and pulled plants along the road side.

In another effort, employees and volunteers gathered native grass seed, which is used to fill in the "voids" created by the removal of the offending non-native plants. Hopefully, the grasses will become established in the human-disturbed areas, and stem the tide of knapweed.

Knapweed has the potential to spread to much higher elevations in the North Cascades ecosystem. The Stehekin valley is surrounded by wilderness, but knapweed has already invaded some wilderness areas 30 miles to the east. Efforts like those initiated in the Stehekin valley should help prevent the further spread of knapweed into the local "high-country" and protect natural plant communities.

—Damian Sedney
Resource Management Specialist



Minimum Impact Techniques

When in the backcountry, please be aware of your impact, and follow these suggestions: **Plan Ahead**—Prepare mentally and physically. Collect maps and materials. Choose destinations that you are in condition to handle and take suitable equipment. Obtain permits for backcountry overnights in North Cascades National Park.

Limit your party size to minimize your impact when traveling in the wilderness.

Carry plenty of water. Boiling can kill Giardia, but water treatment pills may not.

Leave Rocks and Flowers where you find them for all to enjoy and so that animals and plants are not disturbed. Building, moving or changing anything in the wilderness can be extremely destructive. Help maintain a balanced, natural ecosystem by not disturbing or feeding wildlife.

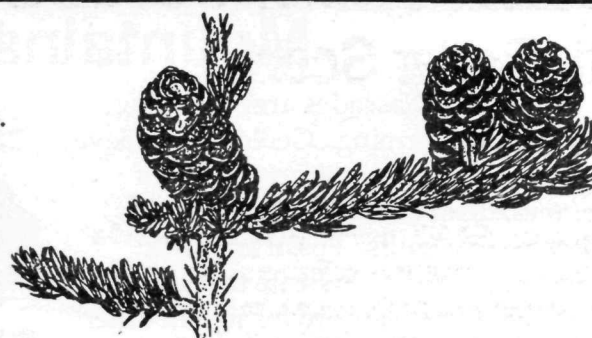
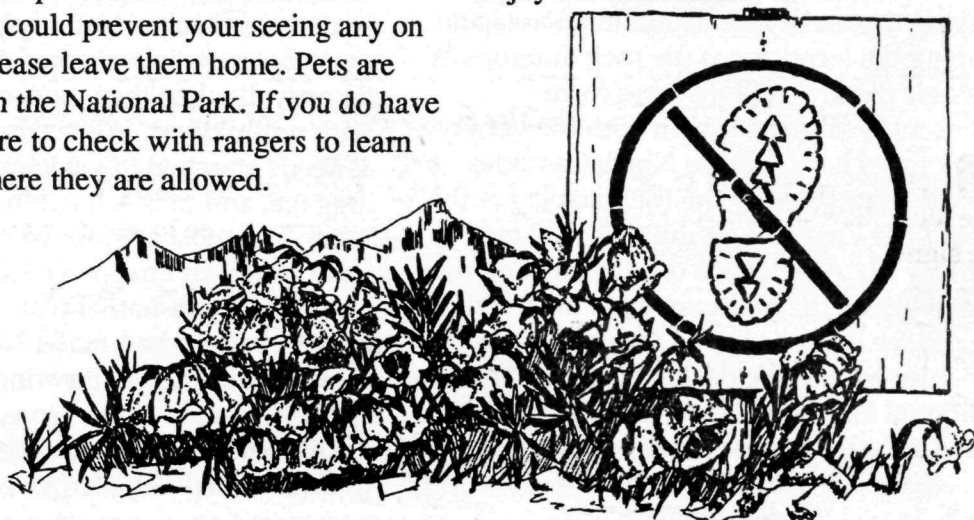
Pets—dogs in particular—are a threat to wildlife and could prevent your seeing any on your trip. Please leave them home. Pets are prohibited in the National Park. If you do have a dog, be sure to check with rangers to learn the areas where they are allowed.

Campstoves are much better than wood fires. Fires sterilize the soil and use material which should be allowed to recycle naturally. Use only existing fire rings and wood that is dead and down for campfires. Keep the fire small and be sure it is dead out before you leave.

Pack Out Litter including leftover food. It's a good idea to eat all the food you prepare as leftovers may attract animals. Buried litter disturbs soil and may be dug up by animals.

Stay on the Trail. Making parallel trails, cutting switchbacks, and widening trails causes severe erosion and damage to soil and plants.

Camp in an established site to prevent the spread of bare areas. In cross-country areas without designated sites avoid fragile alpine vegetation and camp on snow, rock, or in a grassy area of the forest. Tread lightly and enjoy the wilderness.



The 10 Essentials

Each person should take, and know how to use, the following items in wild country—even on short day hikes. There may be delays, a change in weather or more serious emergencies.

Navigation—Topographic map and compass.

Light—Flashlight with spare bulb and batteries.

Food—EXTRA food and water.

Clothing—EXTRA CLOTHING including rain gear, wool socks, sweater, mittens, and hat.

Sun Protection—Sunglasses and sunscreen ointment

Fire—Waterproof matches and fire starter such as a candle.

First Aid—Aid kit including any special medications you might need.

Knife—A folding pocket knife

Signals—Audible and visual; whistle and metal mirror.

Emergency Shelter—Plastic tube shelter or waterproof bivouac sack.

The Magic of Wilderness

Five days in the Mt. Baker Wilderness—alone. I'd been looking forward to it all summer. In late August, I started preparing for my trip, and when September finally arrived some friends dropped me off at Heather Meadows on the flanks of Mt. Baker. I shouldered my pack and started out. My destination was Lake Ann, a backcountry camp near the base of Mt Shuksan.

There were few other hikers on the trail and I relished the solitude. I fell into an easy rhythm, adjusting to the weight of my pack and the familiar swing of my water bottle. Soon the sights and sounds of the backcountry surrounded me. Mt. Baker loomed ahead, draped in a mantle of new snow. The blueberry bushes along the path were loaded with fruit. Marmots and pikas kept popping out of the rocks, monitoring my progress.

As I neared the camping area, my eyes were assaulted by flashes of fluorescent-pink and neon-turquoise: the tents and gear of other campers. Those jarring colors don't belong in the wilderness. They shrink the space and jump out instead of blending into the area as weathered earthtones do. It's hard to ignore a camp dominated by bright colors.

Looking around for a place to make camp, I noticed signs left by previous visitors: a trench dug into the fragile alpine soil, tiny heather plants broken—crushed by someone's

heavy hiking boots, garbage scattered about, and nails driven into trees with bits of rope still dangling from them.

Muttering in disgust, I set about cleaning up the area. Here I was, miles into a designated Wilderness Area, and the all-too-familiar signs of our society surrounded me.

Wilderness, by its very definition, is a place to escape civilization and all it implies. With the number of people using our Wilderness Areas increasing, we all need to be aware of the effect we have on the land.

Minimum impact means exactly that: leaving little trace of your presence. It's not difficult to do, but it takes conscious effort. Brightly colored tents and packs look great in the store, but they clash with the colors of nature. Buy gear in earthtones. Campfires appeal to us, offering warmth and safety against the dark—and a pile of cold ashes and mutilated trees in the morning.

If the weather's questionable, either be prepared for rain (or snow) or **don't go**. Don't plan to alter the environment to make it easier on yourself. That trench around your tent will force rainfall into rapidly flowing channels, eroding soil and disturbing fragile plants. Tarping a tree for a rainfly causes broken branches and stripped bark. Particularly in sub-alpine areas, recovery is slow. It takes years for a site to re-stabilize.

Wearing tennies around camp, instead of heavy hiking boots, not only feels good to tired feet but is gentler to the earth. Try to walk and sit on rock areas around camp, and stay on existing trails. Cutting a switchback once may not do noticeable damage, but if we each do it—well, we all know that story.

Anything visitors leave behind has to be cleaned up and packed out by forest rangers, so don't put garbage in the toilets. **Pack it out.** Speaking of toilets, if compost or pit toilets

aren't available, make like a cat and dig a hole, and pack out your paper.

Encountering wildlife is one of the best things about visiting the wilderness, but consider your impact on



them also. Don't share your food. It's not healthy for animals, it breeds dependency, and it encourages camp raiding on their part. Hang all food and scented items, including sweaty equipment. Deer will chew packs, footgear, and clothes for the salt in the sweat. It's tempting to make contact with a wild creature, but think about your motives for doing so and the consequences to the animal. Just watch quietly and give thanks for the meeting.

There's an old saying, "Take only photographs, leave only footprints." I think we must go by the maxim "don't even leave footprints." Leave the site less impacted than when you arrived; keep the wild in wilderness.

It took me most of the evening to work out of the blue funk I got into when I arrived at Lake Ann. I was resentful and angry about having to deal with other people's mess. Luckily, I had four days left to enjoy the wilderness. When I left for home, I felt renewed and at peace. Being in the wilderness had worked its magic once again.

—Michele LaFontaine

Mt. Baker Scenic Byway

The upper 24 miles of the Mt. Baker Highway, SR542, have been designated a National Forest Scenic Byway. Beginning at the Glacier Public Service Center the byway route ascends along the North Fork Nooksack River ending at spectacular Artist Point, elevation 5140', in the Heather Meadows Recreation Area.

A series of switchbacks along the last 10 miles offer outstanding views of glacial carved peaks and craggy Mt. Shuksan in North Cascades National Park. During winter months, snows accumulate and motor traffic ends 2.5 miles below at parking facilities for the Mt. Baker Ski Area.

Glacier Public Service Center



Listed on the National Register of Historic Places, this unique blend of native stone and timbers was constructed in the late 1930s by the Civilian Conservation Corps to be a Forest Service Ranger Station. Today it is operated by the Forest Service and National Park Service as a joint information center.

Heather Meadows



Popular day-use recreation area located at the upper reaches of the byway. Short summer season offers glimpse into subalpine life cycles. Barrier-free sections of the Fire and Ice and Artist Ridge Interpretive Trails have been developed for physically challenged visitors. More difficult hiker-only trails enter the surrounding Mt. Baker Wilderness, where group size is limited to 12 persons. The Lake Ann trail leads to climbing access for spectacular Mt. Shuksan in North Cascades National Park.

Artist Point



Located at road's end, Artist Point offers spectacular views of Mt. Baker, Mt. Shuksan and Baker River Valley.

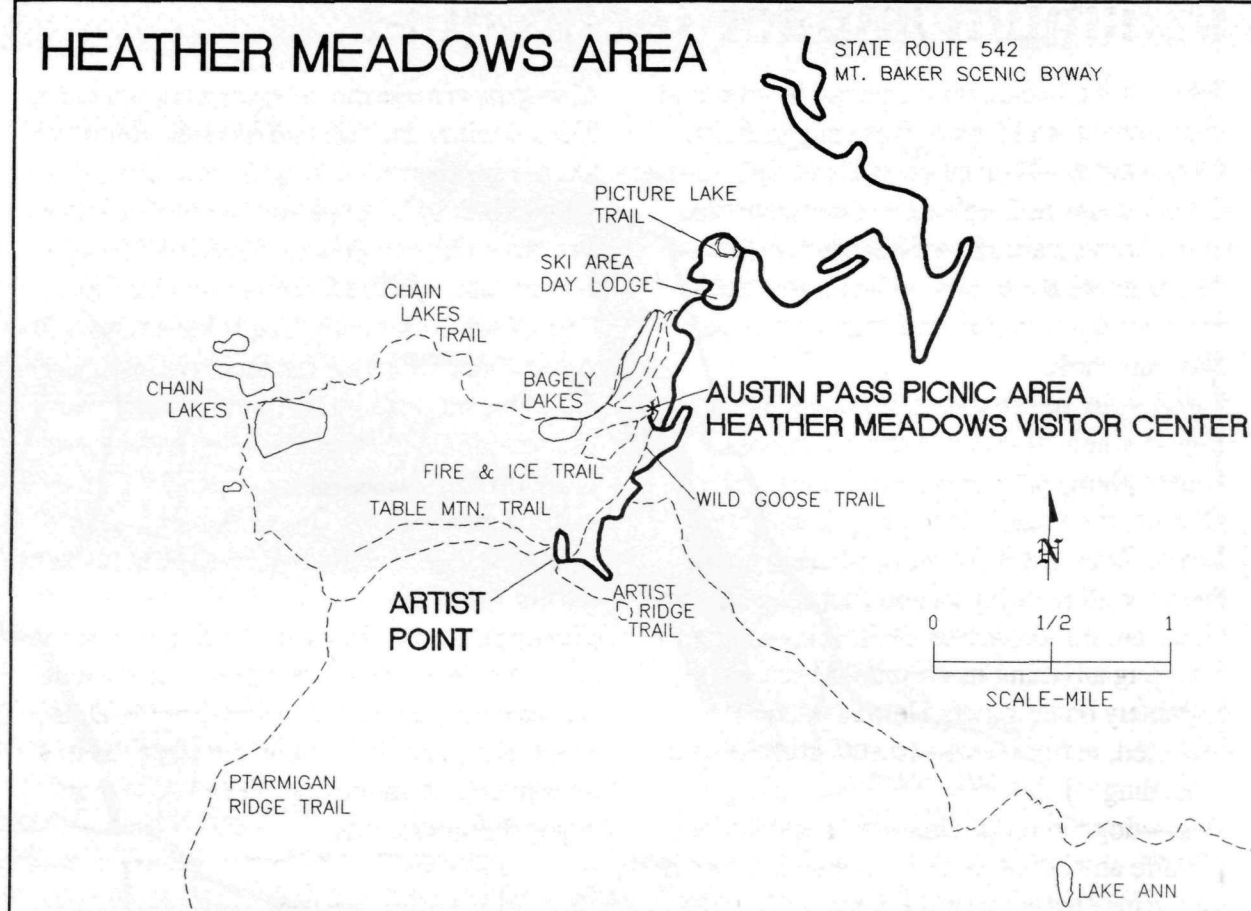
In Remembrance: Scott Paul, Friend of the Wilderness

Scott Paul, Trails and Wilderness Coordinator for the Mt. Baker Ranger District, provided energetic leadership to a generation of Pacific Northwest trail builders and backcountry enthusiasts.

Scott was involved in a fatal accident last September while helping to build a backcountry bridge in the Siuslaw National Forest. He was 39 years old. Scott will be deeply missed by all who shared his love of high mountains, hard work, good poetry, and well-crafted trails.

"To know Scott Paul, you needed to walk a trail with him and see the contours and angles through his eyes. He would visualize a corner here, a bridge there, always with an eye for minimal impact to the landscape. He never forgot the need for balance in life, displaying this through his love for his family," wrote friend and colleague Russ Hanbey.

Scott was a graduate of Huxley College of Environmental Studies in Bellingham, WA. He is remembered with affection by many people there. "There were many more trails built and much more wilderness preserved as pristine because Scott was there," said Wendy Walker, former Forest Service colleague of Paul's, now an instructor at Huxley College. His lasting legacy, she believes, was his commitment to wilderness.



Heather Meadows Trail Opportunities



Picture Lake Path

0.5 mile loop. Scenic viewpoint with interpretive signs.



Fire & Ice Trail

0.5 mile. Barrier-free section leads to scenic overlook.



Chain Lakes Trail

6.5 miles. Enters Mt. Baker Wilderness. Access at Bagely Lakes or Artist Point. Campfires prohibited.



Lake Ann Trail

4 miles. Enters Mt. Baker Wilderness. Junctions with 3 mile long Swift Creek trail at 2.5 mile. Campfires prohibited.



Artist Ridge Trail

1 mile. Barrier-free to scenic viewpoint.



Table Mt. Trail

1 mile. Steep, hiker-only trail to top of Table Mt. Enters Mt. Baker Wilderness.



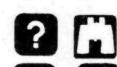
Ptarmigan Ridge Trail

Junctions off Chain Lakes trail 1 mile from Artist Point. Enters the Mt. Baker Wilderness.



Wild Goose Trail

Hiking route from lower ski area up to Artist Point, completes Chain Lakes Loop.



Heather Meadows Visitor Center

Have you ever been to Heather Meadows and wanted a question answered? Wondered if Mt. Shuksan was Mt. Baker or if there was a trail to Chain Lakes? Finding answers to these questions has challenged visitors at Heather Meadows for years. The new Visitor Center will help change that.

The Heather Meadows Visitor Center is in the historical Civilian Conservation Corp era Austin Pass Warming Hut constructed in the early 1940's. 1993 the building was restored to its original condition, inside and out. A ramp was constructed to provide access to the main floor of the Visitor Center for everyone.

The Heather Meadows Visitor Center will be open daily July through September. The Center is staffed by volunteers who will help visitors plan their time at Heather Meadows, directing hikers and walkers to favorite trails that wander through the meadows and out into the Mt. Baker Wilderness Area.

Interpretive exhibits in the center provide information on the natural and cultural history of the area. Free brochures and maps are available on request.

To reach the Visitor Center, follow Highway 542 through the town of Glacier and continue 20 miles to Heather Meadows, and follow the signs to the Visitor Center.

Lake Chelan National Recreation Area: Access Stehekin

Transportation Options

The National Park Service (NPS) and Stehekin Adventures, Inc. offer transportation services along the Stehekin valley road this summer. Both provide a narrated tour and camping and hiking information along the way. Passengers may embark or disembark at any point along the routes. Shortly after the boat arrives, a bus departs for Rainbow Falls.

Stehekin Valley Road begins at Stehekin Landing and is paved for four miles. At Harlequin Campground, asphalt gives way to gravel. Beyond High Bridge, 11 miles from Stehekin Landing, the road becomes rough. View the Stehekin River tumbling over large boulders and resting in deep, quiet pools. Peek through dense forests of ponderosa pine, Douglas-fir, and Pacific silver fir at jagged, glacier-clad peaks.

The NPS shuttle buses are 14-passenger vans. They carry backpacks, but not bicycles. Stehekin Adventures, Inc. operates a 36-passenger bus which can accommodate bicycles and backpacks. No reservations are taken. See chart for information.

Reservations are recommended to insure a seat on NPS shuttle buses. To reserve a seat up to 30 days in advance, call the Golden West Visitor Center between 7:30 am and 4 pm at (206) 856-5703, EXT 14 between May 15 and October 12. Confirm your reservation by contacting the Golden West Visitor Center two to four days in advance. Riders may sign up as much as two days in advance. Backpackers can make reservations for buses when picking up a multi-day camping permit for trips which include transportation on the shuttle buses. In these cases, reconfirmation is not necessary.



Golden Passports

The Federal Recreation Passport Program includes three different types of "Golden Passports". There have been changes in two of the passports but entrance to all National Park and many other federal areas is still free of charge to passport holders. Golden Age and Access Passports also include half price recreation user fees for camping. **Golden Eagle** (For People Age 17-61) Golden Eagle Passports are now valid for one full year from the **date of issue**. The cost remains \$25.00 per passport and only defrays entrance charges (not camping fees). **Golden Age** (For People 62 and Older) A one time cost of \$10.00 is charged. If the passport is damaged and can still be recognized, replacements can be issued free of charge. If lost, the initial cost of \$10.00 will be charged for the replacement. **Golden Access** (For People with certain disabilities) There have been no changes in the Golden Access Passports. They are still free of charge with proper certification.

For further information refer to the **Federal Recreation Passport Program** pamphlet available at most U.S. Forest Service and National Park Service Offices.

North Cascades Stehekin Lodge

Lake Chelan Recreation, Inc. operates the North Cascades Stehekin Lodge. The Lodge offers overnight accommodations, a restaurant, store, gasoline, and bicycle and boat rentals. Various other businesses, authorized by the National Park Service, provide visitor services during the summer season. These include transportation, day and overnight horseback trips into the wilderness, bicycle rentals, and guided raft trips down the Stehekin River. Several individuals provide food and overnight accommodations on private property within the Stehekin Valley.

The National Park Service and businesses in the Stehekin Valley work together to provide a wide variety of visitor services.

Visions of Wilderness

The Golden West Visitor Center, your center for information services at Stehekin, will have a new look and more to offer this summer. In partnership with local communities, several changes have been made to provide visitors with better services.

Exhibits, the information desk, and the sales area have been redesigned and moved. The **Golden West Gallery** will host a series of exhibitions from local communities. These will include arts, humanities, natural history, and cultural history exhibitions. Exhibitors will present workshops and programs weekly on their exhibitions, using various media. Evening programs will be offered nightly at the Golden West Visitor Center.

Stehekin Valley Road Transportation

TIME PERIOD AND PROJECTED ROAD STATUS	NPS SHUTTLE BUS FEES departs Stehekin daily at 8 am and 2 pm	STEHEKIN ADVENTURES (between Stehekin & High Bridge only)
Dates are subject to change		
May 15 through early June; road open to High Bridge (11 miles)	\$5 per one-way trip	not operating
Early June through early July; road open to Bridge Creek (16 miles)	\$8 per one-way trip	\$4 per one-way trip Zone 1 only
Early July through mid-September; road open to Cottonwood (23 miles)	\$10 per one-way trip	\$4 per one-way trip Zone 1 only
Mid-September through October 16; road open to Cottonwood	\$5 per one-way trip per zone. Zone 1 = Stehekin to High Bridge Zone 2 = High Bridge to Cottonwood	not operating

Fragile Mountain Plantlife

The conditions of life in high mountain zones are rigorous. Wind, cold, excessive sunshine, sparse soils, and extremely short growing seasons test survival. Most plants have adapted structurally; alpine counterparts of familiar plants are usually much smaller. This minimizes wind and cold exposure as the plants lie close to the ground in clumps. Many have hairy stems and waxy leaves to protect against moisture loss from constant high winds. Sun exposure can be a problem despite low temperatures. Some healthy alpine plants are red-brown or brown. These dark pigments protect them from certain solar rays the atmosphere does not adequately block at these high elevations.

The blossoms of alpine plants may be exaggerated in scale, looking far too large for their stems and leaves. This adaptation helps attract pollinators during the short time available for reproduction. Many plants are pollinated by flies and spiders, not bees, which may freeze at cold mountain temperatures. Seed-bearing plants must blossom and be pollinated in several days, not weeks.

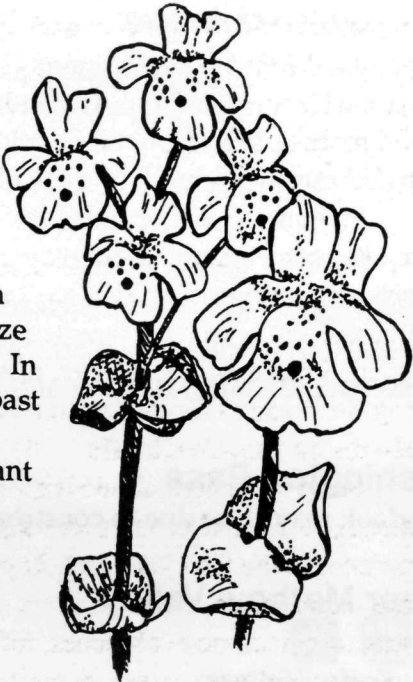
Damage to such fragile ecosystems can take hundreds of years to recover naturally, if they ever do. Once an area loses its vegetation cover, soils are exposed to erosion. If soils are removed an area may become permanently barren.

Unfortunately, such delicate meadows and passes are popular highcountry spots. Some have been overused and are worn down to bare ground. In several alpine areas

park resource managers have placed jute netting to cover trail scars and protect seedling transplants. These are some of the obvious signs of a landmark revegetation program spearheaded by North Cascades National Park (NCNP) and supported by many volunteers.

Another facet of the program is the park's native plant nursery in Marblemount, where slow-to-grow species are carefully nurtured from seeds. Supporting region-wide efforts, NCNP helped Forest Wilderness managers in their major five-year revegetation program at Heather Meadows.

Before hiking or camping, please ask a Ranger what you can do to minimize your impact. In many areas past misuse has destroyed plant communities and left permanent erosion scars. Your awareness and cooperation in avoiding sensitive plants during hiking and camping trips will help these programs succeed.



Ghost Cat of the Cascades

Mysterious, enigmatic, secretive—the cougar weaves in and out of myth and legend like a wisp of smoke. Catamount, painter, puma, mountain lion—many names from many places, all belonging to the cat known in the Pacific Northwest as cougar. *Felis concolor*, “cat of a single color,” to biologists; in American folklore, ghost walker and ghost of the wilderness. Who is this creature that inspired so many names, so many myths?

Because of the cougar’s elusive nature and the historical attitude that it was a varmint to be subjected to vehement predator control programs, knowledge of the species is limited. Encounters in the wild are rare, and the opportunity to observe the cougar’s everyday routine seldom occurs.

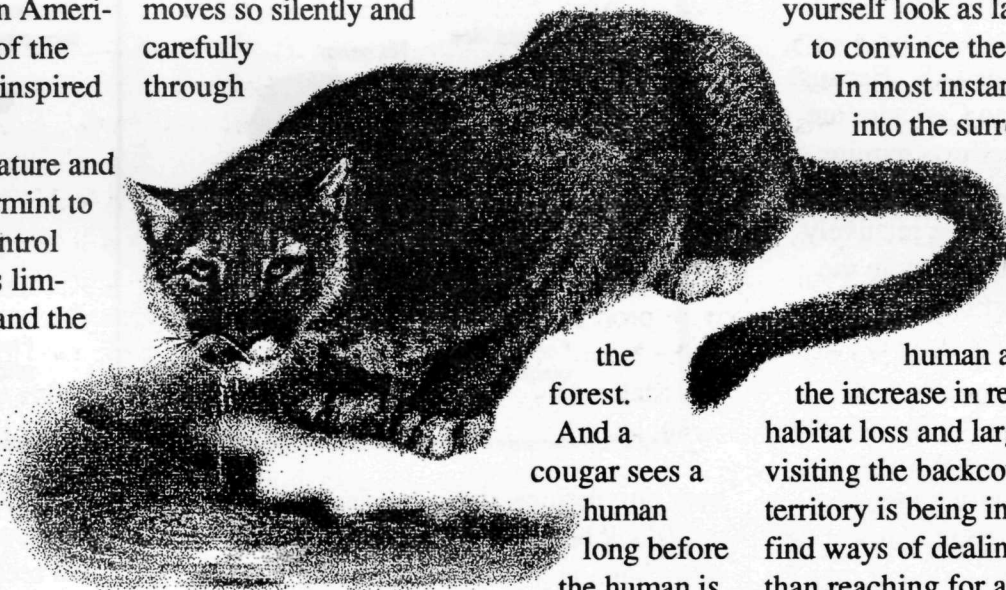
The cougar avoids humans—and with good reason. The human predator is the main threat to the cougar’s existence due to hunting and habitat loss. Although cougars often share habitat with wolves and grizzly bears, encounters between the species are rare.

Adult cougars come together only to mate, usually staying together less than a week. A litter of one to five cubs is born 90 days later. The tiny spotted cubs weigh less than a pound at birth. Like domestic cats, their eyes are deep blue, changing to gold as they mature. The cubs remain with their mother for up to two years. By then their spots have faded and their coats are the tawny-grey of an adult.

A female cougar is a playful and loving mother, teaching her kittens what they need to know to survive. She is aggressive in their

defense, even chasing off males who may come around. It is not uncommon for a male to eat cubs. He may then mate with the mother, which assures the survival of his genetic line.

It’s difficult to find traces of an animal that moves so silently and carefully through



the forest. And a cougar sees a human long before the human is

aware of the animal: it sees and melts away into the wilderness.

In the North Cascades, as in all cougar habitats, biologists don’t really know how many cougars are out there. Many sightings are undocumented and people often so want to see a cougar that they are convinced they have, even though the actual animal seen may have been a coyote or even a bobcat.

Cougars rarely attack humans; they avoid confrontation. In most encounters, the cat is easily chased off by loud yelling and arm-waving. In several instances, however, cougars show curiosity, even following hikers

or skiers for long distances. If you do meet a cougar, do not act submissively. Crouching, turning, and running: all these acts may trigger an instinctive attack response.

If the cat seems aggressive, stand your ground, throw rocks and sticks, try to make yourself look as large as possible. The idea is to convince the cat that you are not prey.

In most instances, the cougar disappears into the surrounding woods, leaving

you with a feeling of wonder. You have seen the ghost cat of the Cascades.

Encounters between human and cougar have been on the increase in recent years, mainly due to habitat loss and larger numbers of people visiting the backcountry. The cougar’s territory is being invaded, and humans need to find ways of dealing with encounters other than reaching for a gun. Too often, that’s the first response when it should be the last resort.

If, by some lucky chance, you meet a cougar in the North Cascades, give thanks for the encounter—it’s a rare privilege. A cougar, like all nature’s creatures, is more beautiful running free than mounted as a trophy or locked in a cage.

—Michele LaFontaine

Recommended Reference—
Cougar, The American Lion
Kevin Hansen

Animal Mountaineers

Amongst the crags and ridges of this wilderness dwell supreme mountaineers. Mountain goats are superbly adapted to the harsh conditions of the North Cascades. They traverse the steep terrain aided by their strong muscular forequarters, scrambling over rocky slopes on split, pliable hooves with soft rubbery pads with a hard outer lining. Their compact bodies with thick, hollow hair and wool “subfur” hold heat and repel wind and water. Mountain goats are not really goats at all, but are members of the antelope family.

During the summer, many family groups of mountain goats make their home on Mt. Baker and numerous other Cascade peaks. You can sometimes see these animals at a distance from Artist Point and other viewpoints. Mornings and evenings they browse on huckleberry and shrubs. Mid-days they are more sedentary, often resting on snow banks during warm summer afternoons.

In winter, bands of goats move down to south facing ledges where they gain some protection from harsh winter elements. The warmer southern exposure and brisk valley winds keep these ledges free of snow, allowing the goats to forage for lichen, grasses and shrubs on snowfree bluffs.

Survival in high alpine regions is a struggle. Mortality rates average 60-70 percent in the first year and 50 percent during the second year of life. Causes of high mortality include avalanches, falls, predation (cougar, golden eagles), parasites, and poor winter conditions causing stress. Mountain goats are mature in 2.5 years and live about 10 years in the wild.



So—where, specifically, are the mountain goats in the North Cascades? How are they doing and what do they need to flourish? Since capturing and tagging goats in rugged mountain terrain is dangerous for both goat and researcher, information about habitat was collected from the observations of backcountry users.

Park scientists entered the information into a computer linked to a Geographic Information System. By combining geographic data with reported locations of goats, a map of probable habitat was developed and is on display at the North Cascades National Park Headquarters in Sedro Woolley.

This research helps resource managers assess potential impacts on mountain goats when evaluating proposed projects in the park such as trail construction and other development. Visitor reports are invaluable and are greatly appreciated. Please report mountain goat and other unique wildlife sightings to park staff.

What's the Weather?

Have you heard the old saying, “If you don’t like the weather, just wait ten minutes and it’ll change?” When traveling the North Cascades we might add “If you don’t like the weather just travel ten miles.”

Weather here moves in from the Pacific Ocean. The mountains force moisture-laden air to rise, cooling and condensing it and causing the moisture to fall as rain or snow. The wet west side of the mountains contrasts sharply with the dry east side, where the mountain crests cause a rain shadow. Proximity to the ocean also moderates temperatures nearer the water. Further from the water, deeper into the mountains, temperatures are more extreme.

Summer temperatures in the heart of the mountains may reach highs near 100 degrees F and the same day return to nightly lows in the 40’s and 50’s. Averages are in the 70’s and 50’s during summer.

During a single day, weather may be unpredictable and vary greatly. Valley winds tend to move up-slope warming the mountains with solar heat during the morning and early afternoon. Later, mountain winds reverse, producing a cooler down-slope flow of air.

As storms pass down the eastern slopes of the Cascades they drop much less moisture. In Stehekin, just east of the crest, less than one-fifth as much snow falls as on the western slopes. You are less likely to get wet hiking east of the mountains. It is wise to carry a canteen of drinking water and be prepared for temperature and weather extremes in all areas of the Cascades. Take rain gear and a tent. If you are caught in a storm they will be well worth the extra weight.

Grizzly Bears in the North Cascades

The legendary grizzly bear, threatened with extinction, is protected by the Endangered Species Act. Federal agencies are required by the Act to protect the grizzly bear and aid in population recovery. A portion of the North Cascades ecosystem, covering nearly 10,000 square miles from I-90 north to the Canadian border, is one of six Recovery Zones for grizzly bears in the U.S. Because grizzly bears in the Canadian Cascades are also endangered, recovery efforts require international cooperation between the U.S. and British Columbia. Given the relatively small area available for bear habitat in the Canadian Cascades, successful recovery in B.C. depends upon successful recovery in Washington.

Grizzly bears were once found throughout most of North America. Habitat loss and over-hunting, including bounty hunts, decimated the overall population in the lower 48 states from well over 50,000 to fewer than 900 bears—less than two percent of the population prior to 1800. Most of the remaining bears are found in two separate areas in the Rocky Mountains. We don't know how many grizzly bears historically inhabited the North Cascades, but some 3,800 grizzly bear hides from this area were documented in Hudson's Bay Company trapping records between 1827 and 1859. Experts estimate that fewer than 20 still live in the North Cascades Recovery Zone.

From 1986 to 1991, biologists evaluated the North Cascades ecosystem for its ability to support a viable population of grizzly bears. Their findings suggest over-hunting was one of the primary factors in driving the population so low, and that enough high-quality habitat remains to support a grizzly

bear population.

Black bears, the more familiar species, are more abundant than grizzly bears. We don't know how many currently live in the North Cascades, but black bears are seen less frequently today than a few decades ago.

The two species' common names can be deceptive. Bears of both species can range in color from white to black. "Grizzly" bears are so called due to their sometimes brindled, or "grizzled" coat. They are also called brown bears along our upper northwest coast and in Eurasia. Even experts can have difficulty distinguishing a black bear from a grizzly.

Both species usually flee from humans rather than approach them. People may pass by bears in hiding, never knowing a bear was nearby. Like people, bears are omnivorous: they eat almost anything. Vegetation and insects are primary foods. And both species

are very fast learners, who, once they have gotten an easy meal from one human source, will seek more. They often teach this behavior to their cubs. Both species have a very acute sense of smell, able to detect another bear—or a smelly camp—over as much as 30 miles.

Despite their general wariness, it is important to remember that both bear species are powerful and potentially dangerous. Please follow these precautions when camping in North Cascades and vicinity:

Food Storage: Keep a clean camp. Store food, garbage, cooking gear, and cosmetics properly at all times. Lock these items in your car trunk if you are in the frontcountry. A small float sack is a handy container for these items; it's easy to carry and hang, and will keep things dry during rainy periods. They are available at sporting goods stores. Hang food far from sleeping area, at least 10 feet above the ground and 4 feet out from the tree trunk. To keep food odors out of your sleeping area, do not use sleeping bag or tent stuff sacks for storing food or other items.

Garbage: Deposit garbage in bear-proof garbage cans where available. Otherwise, pack it out. Never bury or burn garbage, including toilet paper and used tampons.

Cooking: When you camp, try to have your sleeping area and personal gear at least 100 yards or meters uphill or upwind from your cooking area. Never cook in your tent. Do not sleep in the clothing you wore while cooking.

Hunting and Fishing: Where hunting is permitted, store game meat the same as food. Dispose of fish entrails by puncturing the air bladder and dropping it in deep water to allow natural decomposition.

Horse: Store horse pellets the same as food.

Camping: Choose another campsite if you see bears, dead animals, or bear signs such as tracks, droppings, or diggings. Be alert!

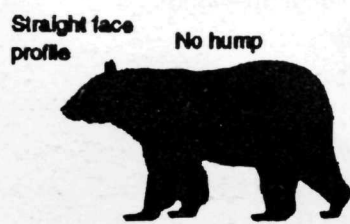
Dogs: Dogs may disturb a bear and lead it back to you. If dogs are permitted in the area (they are not in North Cascades National Park except along the Pacific Crest Trail), don't allow your dog to run free.

Bear sightings: If you have an encounter with a bear or see a grizzly bear, report the event to agency biologists at 206/856-5700, or the nearest ranger station.

Can You Identify a Grizzly Bear?

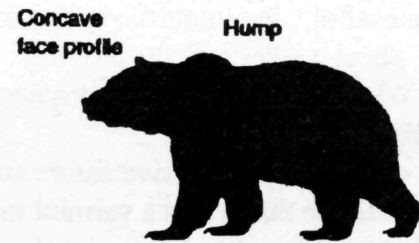
Color and size are sometimes misleading

Black Bear

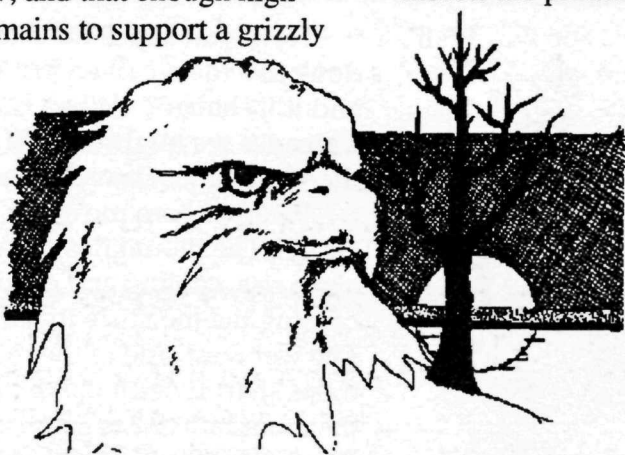


Front track of black bear

Grizzly Bear



Front track of grizzly bear



Eagle Watchers Volunteer

Winter on the Skagit River has a special kind of magic—the magic of salmon returning from the ocean to spawn. They start arriving in October, driven by an overwhelming instinct to reach the streams of their birth, there to spawn and die. Spent and dying fish glisten in the shallows of the river. In their dying the salmon give life, for the eagles come to the Skagit River to feed on this bounty. And so the cycle of life continues.

As the salmon and eagles come, so the people come to watch this rite of death and renewal in nature. Another eagle watching season has come and gone on the Skagit River. The U.S. Forest Service manages the Skagit Wild and Scenic River System, where the eagle watches take place. This winter the Forest Service started a cooperative partnership program with the North Cascades Institute, training 50 volunteers to provide eagle information to visitors along the Skagit River.

The program was initiated to manage visitor use along the Skagit River during the winter months when the eagles return to the area. "Eagle Watcher" volunteers distributed an *Eagle Watching Etiquette* handout to visitors that outlined appropriate behavior when viewing eagles along the river.

Each volunteer attended ten hours of eagle ecology/biology training in return for twelve hours of volunteer time along the Skagit River. The volunteers staffed four sites along the river between Rockport and Marblemount from January 1 to February 13. Each site had a spotting scope and a reference box of eagle photos and ecology information.

The Forest Service and North Cascades Institute anticipate renewing this project for the 1995 eagle season. Please contact Jim Chu, Forest Service, or Wendy Scherrer, North Cascades Institute, at 856-5700, if you are interested in participating.

Ask for the new publication:
*Grizzly Bear Recovery in
the North Cascades: Questions & Answers.*

Small Mammals of the North Cascades

Pika

"Eeenk, eenenk."

Hikers passing talus slopes are familiar with the sound, if not the sight, of the pika, a small relative of the rabbit. The cry is both alarm (they are prey for several predators) and challenge (they are very territorial). When an alarm sounds, pikas disappear instantly into the rock crevices, eluding the hunter. These energetic lagomorphs spend the brief mountain summer gathering mixed greens, dashing about frenetically, then pausing to cast a wary eye around before scrambling off for another load. The plant material they collect is spread on rocks to dry. It's later stacked in rock crevices for storage. Since pikas don't hibernate like most small mammals, this "hay" is their sole source of food during long subalpine winter, lasting 9-10 months in some regions of the Cascades. When you hear the pika's call, stop moving—stand still, and you may catch a glimpse of this busy harvester.

Bat

As dusk settles over the forest, they come—navigating by sonar, silent flyers on leathery wings.

Bats: creatures of awe and mystery. There are over 40 species of bats in North America but we know little about them because they are nocturnal.

Bats come out when people go in. These small mammals eat more insects by body weight than any other predator, snatching their prey on the wing.

Bats roost upside-down in large groups, sleeping all day and hibernating all winter. Some large species native to the Cascades migrate south in the coldest months. Mother bats nurse their young constantly in the first few weeks after birth, when they seldom leave their upside-down perch inside tree cavities or caves, even to feed. Old-growth forest, with snags, tree cavities and loose bark offer important roosting and nesting habitat for bats in the Cascades. Bats have extremely sensitive hearing. They use echolocation to locate prey and navigate, changing the speed and focus of their high frequency "blips" for precise aerial hunting.

Weasel

The long, thin body of a weasel is rare among warm-blooded animals—it's not a heat-efficient design. To keep warm, weasels need to eat approximately 40 percent of their body weight every day, more during cold winter months. But the shape is worth the cost—a weasel can slip into any crevice, flow down any hole after their favorite rodent prey. They are aggressive hunters and seldom lose their quarry once the chase begins. The coat is soft, silky brown in summer and white in winter. Weasels are active year-round, and in winter their white coat makes them almost invisible against the snow. The tailtip stays black and is thought to serve as a decoy. Owls and other predators target the dark tail tip instead of the body and the weasel can usually pull away from a tailhold and escape.

Marmot

The ultimate sun-worshipper, hoary marmots spend hours sprawled rug-like on rock slabs in the high country, lazily surveying their domain. When hikers appear, marmots are apt to roll a wary eye and contemplate moving rather than making a mad dash for safety. Their high shriek earned them the name whistle-pig although the noise is not really a whistle at all—it comes from the vocal chords. Marmots, the largest member of the squirrel family, excavate intricate burrows and passageways underground. They line their nests with clean dry grass, changed frequently. During the brief alpine summer, marmots put on enough fat to make up half their body weight, then the colony snuggles up together to conserve heat and beds down for about seven months. During rainy interludes they rarely venture out—the marmot's thick, plush coat loses its insulating ability when wet.

Snowshoe Hare

When all the land is wrapped in snow and most forest creatures are deep in winter hibernation, the snowshoe hare moves silently through the forest. Its large hindfeet act like "snowshoes" allowing the hare to move quickly over the snow. And they need to move quickly—foxes, great horned owls, golden eagles, weasels, bobcats, and lynxes all prey on this creature. While the

hare's defenses of speed, camouflage (the brown coat turns white in winter), and alertness are excellent, predatory pressure on them skyrockets during the winter when other small mammals are hibernating. The species survives the winter assault by prolific summer breeding. Females give birth several times a year, producing two to four young, born fully furred and with their eyes open. Hares appear to revel in the warm summer weather, indulging in footdrumming, rough and tumble play, and an ecstatic courtship dance when males and females take turns somersaulting over one another.

Flying squirrel

The flying squirrel is seldom seen because of its crepuscular lifestyle (active in the hours before dawn and after dusk), but it is quite common. Distinguished by huge eyes and velvet-soft fur, this fragile squirrel doesn't really fly, but glides gracefully through the forest, stretching broad flaps of skin between its front and rear legs. In old-growth forests flying squirrels seek out old woodpecker cavities for nesting. Here the babies are safe until their eyes open at one month of age. Unlike most members of the rodent family, these squirrels like meat, but their main food in summer and fall is truffles. Truffles are underground fungi that provide vital nutrients to coniferous trees through a symbiotic relationship. Flying squirrels have an important role in the ecosystem—spreading truffle spores throughout the forests. On quiet evenings, you may hear a soft chirp and the thump of a landing as they go about their nightly business of finding food.

Beaver

Ten thousand years ago, beavers the size of black bears roamed the continent—and today beavers are still the largest rodent in North America. Beaver sightings are rare, but evidence of their handiwork is common throughout the Cascades: beaver dams, ponds, mounds, and beaver-gnawed trees. Beavers need only hear the sound of running water and the urge to build a dam takes control. Poles, saplings, and mud are dragged and piled into place to form a very efficient structure. Smaller mounds, or lodges, are constructed in the pond as living quarters. Hollow inside, with the entrance underwater, these lodges provide a safe haven from predators. In areas where lodges aren't feasible, beavers construct burrows in river banks. After their pond freezes in winter, the beavers let some water out through the dam, lowering the water level of the pond and providing a "breathing space" between the water's surface and the bottom of the ice. Then they go happily about their business: feeding on poles stashed underwater in the summer, grooming, playing, and sleeping. Hunted and trapped almost to extinction for their pelts, beavers have made a comeback. Persistent and adaptable, they can even be found trying to construct dams near central Seattle and Portland.

—Michele LaFontaine

Recommended reference:
Cascade-Olympic Natural History
Daniel Mathews
Pacific Coast Mammals
Russo and Olhausen

Teaching For Wilderness

In the winter of 1983, a group of friends started a school dedicated to teaching people about the wonders of the Pacific Northwest. The dream is alive and growing—for eleven years North Cascades Institute (NCI) has been sharing the beauty of this special part of the world with others.

North Cascades Institute is a nonprofit educational organization dedicated to increasing understanding and appreciation of the natural, historical, and cultural landscapes of the Pacific Northwest. The Institute offers year-round educational programs in the schools, adult field seminars, workshops, teacher training, conferences, curriculum development, publications, and research. Their mission is to provide leadership and excellence in outdoor and environmental education—to help people learn about, appreciate, and care for the land and its inhabitants.

Environmental education teaches how to live with balance and respect in the world. Institute programs explore the connections between living and non-living things, between living beings, and between the natural and the human overlays of societies, economics, and cultures. Environmental education is an approach—as much as a series of topics—that begins with direct experiences in nature.

These experiences open doors to awareness and appreciation which lead to increased understanding and knowledge of the land.

The Institute works cooperatively with schools, organizations, corporations, and agencies throughout the Pacific Northwest. Partnership programs with the U.S. Forest Service, National Park Service, State Parks, Western Washington University, and many school districts help share understanding of the North Cascades with people from the region. NCI is working with North Cascades National Park and the City of Seattle to design and operate the North Cascades Environmental Learning Center, a new residential environmental education facility to be built along the shore of Diablo Lake.

The goal of environmental education is to integrate an understanding of ecological concepts and relationships with the development of environmental ethics and values. Facts and feelings are both important. Finally, environmental education emphasizes problem solving: putting knowledge and skills to use, both individually and in groups, to help make a better world.

—Saul Weisberg

For a current catalog or more information contact NCI at: 2105 Highway 20, Sedro Woolley, Washington 98284, (206) 856-5700, ext 209.



Partnerships in Education

North Cascades National Park and Mount Baker Ranger District have joined forces with North Cascades Institute, a leader in environmental education, to provide the region's foremost environmental education programs.

The Skagit Watershed Education Project is a multifaceted school program in its second year. School children in 3rd-6th grade living in the Skagit River watershed are learning all about mountains, glaciers and streams that flow into this 2nd largest river in Washington.

Mountain School, sponsored by North Cascades Institute and the National Park Service, provides an environmental education camping experience to school children from Bellingham to Seattle. During intensive three-day sessions, children participate in activities ranging from hiking mountain trails to joining in evening campfire sessions, all while learning about ecological issues and biological communities of the region.

These interagency programs blend talents and save energy. By cooperating like this, more educational opportunities are provided than any group could do on their own—a great example of synergy: the whole is greater than the sum of the parts.



Celebrating Wildflowers

Each summer the U.S. Forest Service sponsors a program called "Celebrating Wildflowers." Enjoy many special exhibits, self-guided hikes, and car tours with this theme. Pick up your own copy of *Celebrating Wildflowers on the Mt. Baker-Snoqualmie National Forest* for details of events and a wildflower check list. It's available in Sedro Woolley, Darrington and other offices.

The list of flowers include every color of the rainbow, every size and shape imaginable. Along with many impressive wildflowers, there are other plants (conifers, ferns, mosses, and grasses) found in the forest.



These species can be just as showy as the wildflowers, and many are found year-round. Each habitat has different collections of plants. Some of the more specialized species are only found in certain habitats, while others are generalists living in a wide variety of places. Take the time to look at what's growing around wildflowers and see the diversity of plant life in the Cascades.

It's Smokey's 50th Birthday

How many times have we seen the famous furry forest fire fighter with shovel in hand, spreading the message of fire prevention? To his initial message of fire prevention and fire fighting, this icon of forest protection has added ecosystem management, environmental issues and home fire safety in his educational outreach.

Children may become Junior Forest Rangers by writing to:
Smokey Bear Headquarters
Washington, DC 20252

Teachers can write for free classroom materials about fire safety and forests by sending name and address to:
Smithsonian Institute
Office of Elementary and Secondary Education
Arts and Industries Building
Room 1163, MRC 402
Washington, DC 20560

Let's all remember what Smokey says. ...
"Only YOU can prevent forest fires!"

NORTH CASCADES HIDE-A-WORD

Q W D T Y R A E B Y L Z Z I R G P O I
E N F S K A G I T R I V E R R L A W M
H J O E S I N A T I O N A L P A R K X
C C E R A N G E R B Z G R U I C J O P
N H R O T A G F U G M O S S W I D K R
A I G F W H Y L E E R T R A D E C F E
L P O T B V C O L O N I A L C R E E K
A M G N D S S A T K R I M M Y U K L C
V U T E L F H T S B U E W O L F T O E
A N R I E W F U L C E G H N Y K U I P
Y K V C E R T N E V A R G T H G I J D
F E R N S E D R H I R D P O A G R E O
D A W A T E R F A L L Y E R T E E K O
D E S A C L N I K E H E T S F R H U W

See if you can find the words in the jumble of letters above. Look for them forwards, backwards, up, down, or, diagonally, as well as while you are exploring! These are places, animals, plants or features you can find. Have fun learning & ask a ranger!

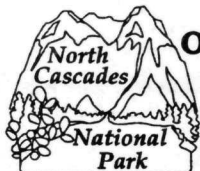
North Cascades Challenger

Produced and published cooperatively by
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Northwest Interpretive Association.**

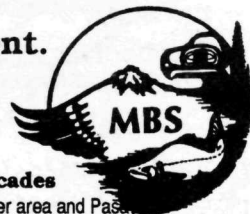
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Articles written by National Park and
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100 Hikes in the North Cascades

Complete details, maps and photos of hikes in the Mt. Baker area, North Cascades National Park Complex, Pasayten Wilderness and Methow-Chelan area. 240p. Ira Spring & Harvey Manning. \$12.95

Wilderness Basics—The Complete Handbook for Hikers & Backpackers

Compendium of everything you need to know for backcountry travel. Sierra Club's authors give good advice for staying warm, fed, comfortable and oriented in the wilderness. 224p. \$14.95

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Detailed approach and route descriptions of 78 climbs of all skill levels. Info on permit requirements, topo maps, photos, first ascents, equipment and areas of caution. 232p. Nelson & Potterfield. \$22.95

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Guide to family camps, short hikes & view roads on the North Cascades' east & west slopes. 215p. Sterling. \$10.95

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The latest in backcountry literature discussing essential and explicit environmental precautions about wilderness toiletries. Well done with humor and illustrations. 77p. Kathleen Myer. \$5.95

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This item is a necessity for any outdoors person and is a wonderful companion to the above book by Kathleen Myer. \$1.50

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Washington Wildlife Viewing Guide

Complete guide to ninety premier wildlife viewing areas. Includes full color photos and details of each view site, maps and access info. 96 p. Tourrette. \$5.95.

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A sophisticated field guide on plants and animals of the Cascade and Olympic ranges. More than 700 species described and illustrated. 320 color plates included. 625p. Daniel Mathews. \$22.50

A Field Guide to the Cascades & Olympics

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Pacific Coast Finders: Birds, Berry, Fern, Tree

Pocket guides to often-seen birds or plants of the Northwest; with black & white illustrations. Specify which, \$2.50 each.

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Resource on nearly 200 state-managed outdoor areas. Where they are, how to get there, park seasons, hours, fees, and regulations. 287p. Mueller & Mueller. \$14.95.

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The Wolf—a Howling in America's National Parks

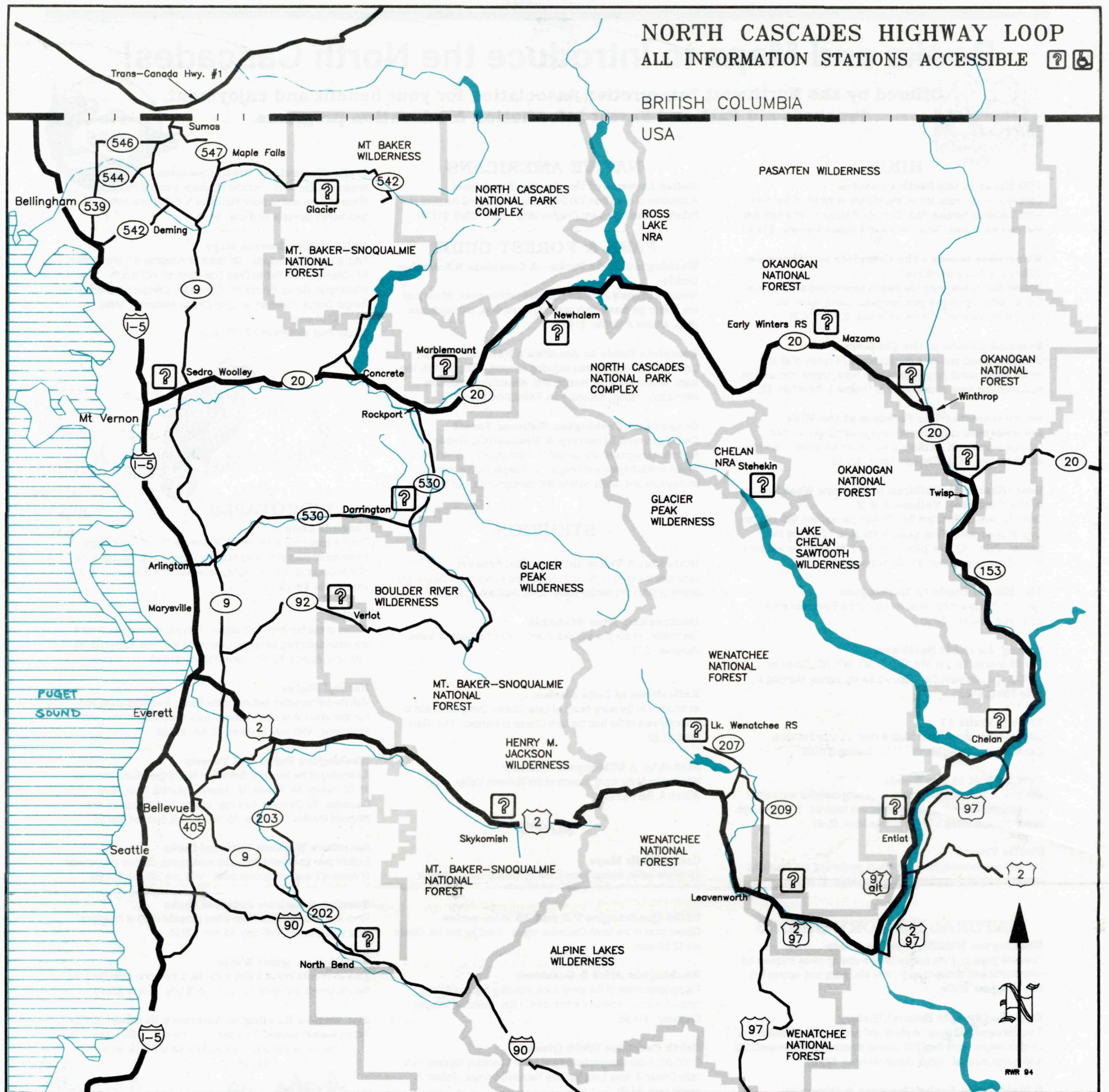
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North Cascades National Park Mt Baker Ranger District Mt. Baker-Snoqualmie National Forest SEDRO WOOLLEY

2105 Highway 20, 98284
Saturday-Thur. 8:00-4:30
Friday: 8:00-6:00
(206) 856-5700

MARBLEMOUNT
Skagit District / Wilderness District
Ross Lake National Recreation Area (NPS)
Backcountry Information / Permits
Daily 7:00am-8:00pm
Closes 6:00pm Tues. & Wed.
(206) 873-4590 (ext. 37 or 39)

NEWHALEM
North Cascades Visitor Center (NPS)
Daily 9:00-5:30
(206) 386-4495

STEHEKIN Golden West Visitor Center
Lake Chelan National Recreation Area (NPS)
Daily 7:30-4:00
(206) 856-5703 ext. 14

Okanogan National Forest
EARLY WINTERS
Daily 8:00-7:00, (509) 996-2534

WINTHROP Ranger District
Mon.-Fri. 7:45-5:00
Sat. 8:30-5:00; Closed Sunday
(509) 996-2266

TWISP Ranger District
Mon.-Sat. 7:45-4:30; Closed Sunday
(509) 997-2131

Wenatchee National Forest
CHELAN Ranger District
Lake Chelan National Recreation Area
Daily 7:45-4:30
(509) 682-2576 (USFS)
(509) 682-2549 (NPS)

LEAVENWORTH Ranger District
Daily 7:45-4:30, (509) 782-1413

LAKE WENATCHEE Ranger District
Daily 8:00-4:30, (509) 763-3103

Mt. Baker-Snoqualmie National Forest
GLACIER PUBLIC SERVICE CENTER
Mt. Baker Scenic Byway, SR 542
Daily 9:00-5:00, (206) 599-2714

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July-Sept. Daily 10:00-5:00

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(206) 436-1155

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Thurs.-Sun. 8:30-5:00, (206) 434-6111

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& Mt. Rainier National Park
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