

the North Cascades



Challenger

Mt. Baker-Snoqualmie National Forest
North Cascades National Park



1995 EDITION

VISITOR INFORMATION GUIDE

FREE!



**Mt. Shuksan
from Heather Meadows.**

Welcome to the North Cascades

We are happy that you have included the North Cascades in your recreation and travel plans. The peaks, rivers, forests, and wildlife of these mountains make them an especially beautiful and interesting part of your public lands. We appreciate the role that each of you plays in caring for this place by what you do both here and at home. The publication of this newspaper by two agencies managing adjacent lands is one small example of a growing recognition that natural processes happen without regard to boundaries. Even distant activities such as the generation of airborne pollution affect wild places. Public land-managing agencies are working together to protect the North Cascades. You, too, have a role to play in preserving your heritage in the National Forests and Parks. We hope you have a safe and rewarding visit!

Jon Vanderheyden
Mt. Baker District Ranger
Mt. Baker-Snoqualmie National Forest

William F. Paleck
Superintendent
North Cascades National Park

If you have comments, suggestions or questions about the management of the National Park or the National Forest, please write us at: 2105 State Route 20, Sedro Woolley, WA 98284.

The **Mt. Baker District** of the Mt. Baker-Snoqualmie National Forest includes over 530,000 acres in northwestern Washington. The District encompasses the:

- Skagit Wild & Scenic River System
- Mt. Baker National Recreation Area
- Heather Meadows
- Mt. Baker Scenic Byway
- Sections of Glacier Peak Wilderness
- Noisy-Diobsud Wilderness
- Mt. Baker Wilderness

The **North Cascades National Park Service Complex** includes three areas of the National Park System totaling 684,000 acres, including **North Cascades National Park**, and **Lake Chelan and Ross Lake National Recreation Areas**. Ninety-three percent of the Complex has been designated by Congress as the **Stephen Mather Wilderness**. These areas embrace the crest of the North Cascades Mountains and are bounded on the west by the Mt. Baker-Snoqualmie National Forest.

1995 marks the 25th Anniversary of Earth Day, reminding us that National Parks and Forests are not islands but part of a larger whole. This edition of the *Challenger* highlights issues and happenings that affect the Park and Forest from beyond their boundaries. More than ever, public land managers are paying heed to this larger picture. Our everyday actions can contribute to preserving the heritage we have in these public lands.

In This Issue...

- 2 What to See and Do
- 3 Earth Day Perspectives
- 4 Diverse Stehekin Options
- 5 Minimum Impact, 10 Essentials
- 6 Mt. Baker Scenic Byway
- 7 Heather Meadows
- 8-9 North Cascades Highway & Camping in the North Cascades
- 10 Mt. Baker NRA, Hiking with Kids
- 11 Natural Resource Issues
- 12 Eagles, Mountain School, SWEP
- 13 Bear Safety, Goats in NCNP
- 14 Wildlife Observation Card, Boulder/Butte Fires
- 15 Northwest Interpretive Association (Books & Maps)
- 16 North Cascades Area Map, Park & Forest Information Stations

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 State Route 20 guide to points of interest; see back cover for detailed map of the loop.

Be alert when pulling on or off a highway, and use caution on Forest access roads. Protect valuables by keeping them with you when leaving your vehicle.



Walk Short Self-Guided Trails:

- Baker Lake: *Shadow of the Sentinels*, barrier-free loop trail through old-growth forest
- Newhalem: *To Know a Tree, Trail of the Cedars* and Visitor Center trails
- Colonial Creek Campground: *Thunder Woods Nature* trail
- Ross Lake Trail (100yd east): *Happy Creek Forest Walk*, barrier-free nature trail
- Rainy Pass: *Rainy Lake Trail*, paved one mile barrier-free route to Rainy Lake
- Hozomeen: *Trail of the Obelisk*
- Stehekin: *Imus Creek, McKellar Cabin and Rainbow Mist* trails



Hike & Climb

Many trails lead into 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. Obtain the most complete climbing information on conditions and hazards at Marblemount. Voluntary Climbing Registers are available at the Wilderness District Office, Sedro Woolley and Glacier. Refer to page 5 for trail safety information.



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. Hiking 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**. In the Mt. Baker Ranger District they are prohibited on the Picture Lake Path and the Table Mt. Trail, both at **Heather Meadows**.



Boat

Much of the recreation in the North Cascades is water-oriented. Travel to Stehekin by cruising up 55-mile long Lake Chelan. The Lake Chelan 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.

River floating 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, boat ramps are available at Baker, Gorge, and Diablo Lakes, and the north end of Ross Lake at Hozomeen. Boat rentals are offered at Baker, Chelan, and Ross Lakes.

Carry and use Coast Guard approved safety devices and life jackets. Be aware of weather and wind patterns.



Fish

The Skagit River (Washington's second largest after the Columbia) and its impounded lakes are home to 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 anglers a good chance at rainbow and cutthroat trout. Bait shops and local anglers are the best sources of information and advice.

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



Stay

Campground options are listed in the centerfold, along with the North Cascades Highway Map. Other accommodations include resorts 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** (360) 853-8325 operates by Forest Service special use permit at Baker Lake.

Many other private accommodations are available. Check visitor information or Chamber of Commerce offices for details.

Plan ahead for weekend trips by calling for reservations.



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.

Over 200 backcountry campsites are available for hikers and stock users at North Cascades National Park Service Complex. **Permits are required for all overnight stays in the Park Complex's backcountry.** These are available on a first-come, first-served basis from Ranger Stations at Marblemount, Sedro Woolley, Hozomeen, Glacier or on the eastside at Chelan, Stehekin, Twisp, Winthrop and Early Winters. For permit information contact: **Wilderness District Office**

North Cascades National Park
Marblemount, WA 98267
Phone: (360) 873-4500

Weather can change quickly. Be aware of the danger of hypothermia, caused by exposure to cold and aggravated by wet, wind, and exhaustion.



Visit

North Cascades Visitor Center near Newhalem conveys a sense of the North Cascades wilderness through exhibits & theater programs. Models, photographs, drawings, and videos dramatize the great variety of plants and animals living here. Maps on the walls of the visitor center place North Cascades National Park into its larger context. This year a relief model will be added to highlight geology and vegetation.

Naturalist programs are held daily during the summer. These include short talks out on the patio, walks to the vista point and Junior Ranger programs for children. Current schedules and announcements are posted at the center. Additional programs on the natural and cultural history of the North Cascades are held at campgrounds.

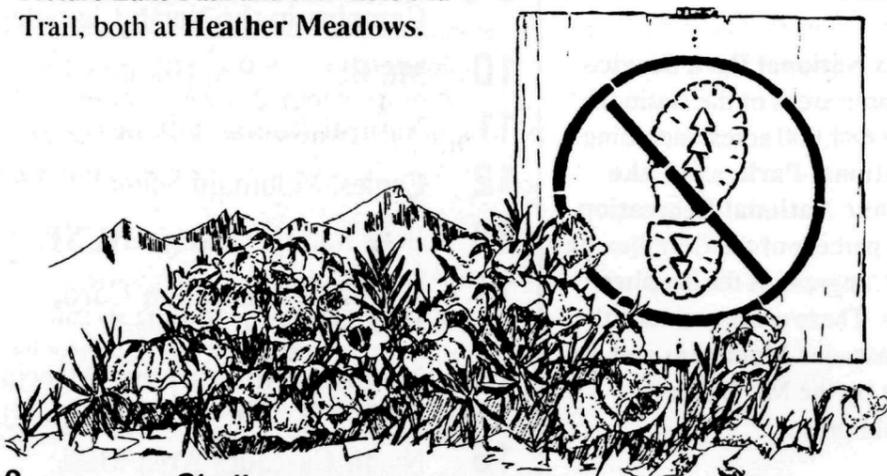
The Mt. Baker Ranger District's **Heather Meadows Visitor Center** offers a glimpse into the rich natural and cultural history of the Mt. Baker area. See page 7 for more details about Heather Meadows.

Golden West Visitor Center in Stehekin has a variety of programs this year. See page 4 for details.

Naturalist Evening Talks (Summer)

- Colonial Creek Amphitheater, Nightly
- Newhalem Creek Amphitheater, Weekends
- Golden West Visitor Center, Nightly

-Check bulletin boards for details-



Earth Day Twenty-five

In Yosemite Valley in 1868, writer-naturalist John Muir described the unspoiled natural beauty and the renewal of spring which surrounded him. Twenty years later Muir lamented the loss of flowering Sierra meadows to "hoofed locusts" and the cutting of ancient redwood groves with little regard to their past or future. Muir dedicated the rest of his years rallying support for wild lands and natural processes.

In 1970, Senator Gaylord Nelson challenged students from across the land to come together in a great cause - to save our planet. April 22 was proclaimed "Earth Day," a time to celebrate the earth. Through education and action, Earth Day hopes to rally a new direction in human relationships with the earth.

1995 marks a quarter century of Earth Days. This movement has spawned awareness and action around the world. It is much more than preserving natural landscapes. It is about our homes and resources, and how we interact with life processes in concert with all species. But, have these efforts been enough? While we seek ways to save our planet, we incur massive losses of resources around the globe.



In Anne and Paul Ehrlich's scholarly work, *Healing the Planet*, their final words are:

"It is an exciting time to be a human being, a member of a species playing the ultimate game of 'chicken.' By the time today's children are parents, it should be reasonably clear whether humanity will turn aside in time or continue headlong toward civilization's final collision. You can help make that decision."

Let us celebrate this year, and each day, with renewed hope and vigor in healing our planet. We hope that human care and interaction with the wild lands of the North Cascades will foster inspiration for a global perspective. Henry

David Thoreau wrote, "In Wildness is the preservation of the world." Native Americans have known they are physically and spiritually connected to all things. Perhaps here, in the North Cascades' Parks and Forests, our physical and spiritual beings might come closer to joining that natural order which can save our earth.

-Jim Harris, NPS District Interpreter

Magnificent Mountain Cycles

Mountain chains parallel the Pacific coastline of the United States and British Columbia, extending southward from the Aleutian Islands of Alaska to the coastal ranges of California. In Washington State, the North Cascades Range is a portion of this coastal chain and provides a rugged wilderness and climatic conditions that are unique to this region.

What do these mountains mean to visitors? To some they might be a place to "get away", a place to photograph an ice carved peak, to angle for rainbow trout, or to traverse a glacier. To others they might be a distant place to admire from the Space Needle of downtown Seattle. Still others might view these mountains as the product of complex geologic activity or a primary control of our environmental conditions. How did these mountains form? How do they affect our lives?

Imagine it's the Eocene Epoch (54 million years ago, when mammals first gained dominion on earth), and you're walking along the Washington coastline, located hundreds of miles east of its present site. Waves of the Pacific Ocean are breaking along the shelf, and as you look out at the horizon, an island seems to be approaching from the southwest. Assuming you would live another 50 million years, you might have observed what follows. Traveling at approximately the same rate at which a fingernail grows, this island approaches and collides with the coastline. The plate which carries the island continues its journey northeast, while ocean sediments and continental crust intensely deform and uplift. Strike-slip faults develop from the plate's motion, displacing terranes along the coastline. To the west, oceanic crust continues to disappear, subducted beneath the newly extended coastline. This action continues, thrusting oceanic and continental crust and sediments skyward, resulting in the modern Cascade Range.

Upwelling magma from deep within the subduction zone constructed the chain of volcanoes that include Mt. Baker and Glacier Peak. If you remained in the same spot you would have been elevated thousands of feet and transported northward many miles along rising, faulted rock. In contrast to the mountain building processes, erosional forces continue tearing down mountains. The modern Cascade Range is a product of both forces.

Glaciation, along with rain, streams, rivers and wind, break down and transport rock off the Range. Preceding these modern alpine glaciers were several ice ages. During each ice age glaciers grew to cover the North Cascades. Large continental ice sheets from Canada and local alpine glaciers shaped the landscape. They carved U-shaped valleys, cirques, horns and other features in the Cascade Range. The North Cascades National Park alone is home to more than 300 glaciers, with as many glaciers outside the park. This makes it the largest concentration of glaciers in the lower 48 states.

The Cascade Range is a major influence on our environment. Bit by bit as the earth adjusts toward equilibrium, rocks and water wash down the mountains to the sea. This is a link in the recycling process, and since matter is neither created nor destroyed, these minerals will continue moving through our environment.

Millions of people visit the North Cascades National Park and Mt. Baker-Snoqualmie National Forests each year. Their impact will eventually affect distant environments. It's a cycle we need to be aware of. How does the range affect our lives? Earth Day 1995 reminds us of the importance of how to live with nature. It is a time of environmental awareness, reflection and commitment to protect our natural environment. In short, "It's up to us."

*-Kevin Marty, Volunteer
Klondike National Historic Site*

My First Earth Day



The year was 1991. I was a freshman in college, out on my own for the first time. Going to college was a dream of mine, and I was *finally* there. But along with all of the magic came knowledge. I met Alicia through a mutual friend. She worked in the Environmental Center. Her tales of brutality toward animals and diminishing rainforests were difficult for me to listen to. I realized that I had lived in a world protected from some of the harsher realities of life. I began to question what I put in my mouth when it was dinner time. I started to go out of my way to buy recycled products. I took an environmental studies class. I began building an ethical foundation upon which to base my beliefs.

Then came Earth Day. I remember it well. It was a beautiful, sunny day in April. My friends and I were volunteering our time at the Environmental Center booth. Everyone gathered on the university campus to celebrate a common theme. I didn't know it at the time, but there was something behind the fanfare, a kind of understanding and appreciation. It was Earth Day, the first I had ever *experienced*. The excitement of the day and the people I met urged me to explore the intricacies of the environmental movement, to see if it had a place for me.

Now, four years later, I am about to graduate from Huxley College of Environmental Studies. I am more aware of the fragility of our planet and of the importance of such events as Earth Day to bring attention to its plight. When Gaylord Nelson, founder of Earth Day, spoke at Western he said that our environmental problems will only be solved through a change in ethics. But we won't care unless we first understand. Earth Day helps us to appreciate our plight, but action needs to be taken. If you have a concern, tell your local congressman. Our problems will not be solved unless we show this concern.

When I look back to my days in public school, I can't help but wonder why I wasn't taught more about this national holiday. I feel cheated when I think of how my teachers ignored its significance. Why can't Earth Day be as meaningful to schoolchildren as Valentine's Day or Halloween?

Perhaps it took 25 years for our country to acknowledge its importance. Let's not let another 25 years go by without increasing children's awareness of Earth Day. The coming generations should know and understand what direction our planet is heading so that they may make sound decisions about its future.

-Barbara A. Borst

Diverse Options at Stehekin

Stehekin residents, the National Park Service (NPS), and North Cascades Stehekin Lodge are working together to provide more opportunities for visitors year-round.

North Cascades Stehekin Lodge has expanded winter services to include lodging, meals, transportation to trailheads, and assistance with grooming ski trails. Valley residents also provide lodging and services. The NPS provides information, programs, and snowshoe walks.

As the snow melts, hundreds of miles of hiking trails open in the Stehekin vicinity. In summer, businesses in the valley offer horseback rides, raft trips, guided fishing, and special motor tours. The NPS expands its information services at the **Golden West Visitor Center**. Here you can find books, maps, and area orientation. Rangers present talks and other programs daily on cultural and natural history.

The NPS and Stehekin residents, under the auspices of the Arts and Humanities of Stehekin, offer three special programs: Golden West Gallery, workshops, and Travel Series programs.

Northwest artists exhibit a variety of works on a three-week revolving basis from May through October. Exhibitors programs interpret their form of artistic expression

Stehekin Valley Transportation

The NPS and Stehekin Adventures, Inc., are offering transportation services in Stehekin again this summer. Both provide a narrated tour, camping and hiking information along the way. Passengers may embark or disembark at any point along the routes. Other local companies provide similar tours.

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. Along the way there are scenic views of the Stehekin River tumbling over large boulders and resting in deep, quiet pools. Tantalizing glimpses of jagged, glacier-clad peaks appear behind dense forests of ponderosa pine, Douglas-fir, and Pacific silver fir.

The NPS shuttle buses are 14-passenger vans. They can carry backpacks but not bicycles. The shuttle bus system will operate from May 19 through September 30, and may continue until October 15. Buses depart Stehekin Landing daily at 8 a.m. and 2 p.m. The round trip from Stehekin Landing takes from 2 to 5 hours, depending on the season. Weather permitting, the road should be open by July 1 to Cottonwood Campground.

The fare is \$5 per person, per zone, one-way. The two zones are: Stehekin to High Bridge and High Bridge to Cottonwood. From May 19 through early June, the system will operate only to High Bridge (11 miles

relating to the natural and human history of Stehekin. A variety of media is on display: paintings, photographs, batiks, quilts, jewelry, sculptures, wood carvings, and more.

Workshops at the Golden West Visitor Center offer varied experiences such as fishing, basket-weaving, culinary uses of plants, and home fire safety.

The Travel Series programs are presented by both NPS rangers and valley residents. These slide programs introduce a global perspective to the North Cascades.

North Cascades Stehekin Lodge offers overnight accommodations, a restaurant, store, gasoline, boat moorage, and bicycle and boat rentals. Various other businesses provide services during the summer season, including transportation, day and overnight horseback trips into the wilderness, bicycle rentals, and guided raft trips down the Stehekin River. Several businesses provide food and overnight accommodations on private property within the Stehekin Valley. The NPS and businesses in the Stehekin Valley share the goal of providing a wide variety of services to the valley's visitors.

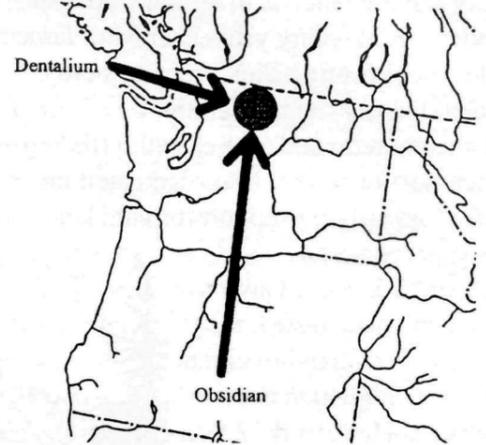
Travel to Stehekin and enjoy a rich diversity of experiences at any season of the year in this unique setting.

from Stehekin). From early June through early July, the bus will go as far upvalley as Bridge Creek (16 miles from Stehekin). From early July through September, the bus will go to the end of the road at Cottonwood (23 miles from Stehekin). Dates are subject to change, depending on rate of snow melt and storm damage.

Reservations are recommended to ensure a seat on the NPS shuttle buses. To reserve a seat, call the Golden West Visitor Center between 8 a.m. and 4:30 p.m. at (360) 856-5703, ext. 14, between May 19 and October 15. You must reconfirm your reservation by contacting the Golden West Visitor Center by telephone or in person two to four days in advance of your ride. You do not need to reconfirm if you make your reservation less than two days in advance. Backpackers can make reservations for bus when picking up a multi-day camping permit for trips which include transportation on the shuttle buses; in this case also, reconfirmation is not necessary.

Stehekin Adventures, Inc. operates a 36-passenger bus from Stehekin Landing to High Bridge from June 9 through September 30, charging \$4 per one-way trip. This bus can accommodate bicycles and backpacks. No reservations are required.

Artifacts Found From Afar



Museum collections preserve natural history specimens and cultural objects that represent ecosystems, landforms, and human activities. We can glimpse into the past through the artifacts found in the North Cascades.

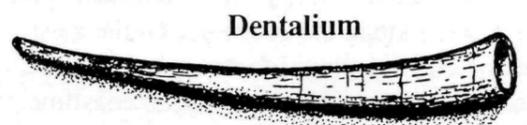
Native peoples living along the rivers and hunting in the high country found most essential resources close by. Occasionally, materials from far away were shaped into tools such as knives and arrowheads, incorporated into ornaments, and utilized as currency. Although artifacts of such "exotic" materials are rare in archaeological sites in the park (less than one percent of items found), they provide important clues about ancient trade routes and relationships in the North Cascades and beyond.

Among the most widely traded items in the Pacific Northwest was obsidian, or volcanic glass. It was highly prized for making stone tools because of its predictable flaking qualities and ability to form a very sharp cutting edge. From as far back as 9,000 years ago, this dark glassy rock was traded from flows in southern and central Oregon to as far north as the central coast of British Columbia. Much of the obsidian found in the park comes from these Oregon sources, but one item comes from a source in northeastern California, and others may come from a source in central British Columbia. A dart or arrow tip of obsidian is on display at the Park Visitor Center in Newhalem.

Another widely traded material among native peoples was shell, particularly dentalium. Dentalium is a small mollusk possessing a hollow, tusk-like shell (pictured), which was harvested in deep water by native peoples of the ocean coast of Vancouver Island and the Olympic Peninsula. It was highly prized as personal ornamentation, and was traded as far north as Alaska, east to the peoples of the Plains, and south to California. Its display was a sign of high status and wealth. Fragments of dentalium have been found within the park.

These items may have been traded for mountain goat wool and other resources unique to the mountains throughout the Pacific Northwest.

Ongoing research by park archeologists and laboratory analysis of source material continues, linking local inhabitants to distant places.



-Camille Evans, NPS Collections Mgr & Gregg Sullivan, NPS Archaeologist

Mt. Baker Trails: No More Heyday?

Back in the heyday of the Mt. Baker Trails and Wilderness program in 1988, the district had a 31 person crew (built up from a three person crew in 1980). New trails were being constructed, old trails were being reconstructed, and almost all existing trails were maintained to a standard level; brushed, logged out and minor tread repair done.

But alas, the sun soon set on this heyday. The money pot for trail construction dried up and maintenance dollars dropped; by 1994 the crew had dwindled. Less than one-third of a 250 mile trail system was maintained to standard. Many of the less popular trails were essentially abandoned, suffering from the sometimes harsh elements.

To add to the problem, every year there is increased use on most trails. Without sufficient wilderness ranger patrol, many trail users do not respect the regulations; building campfires, trampling fragile meadows, littering, and camping in closed campsites, to name a few problems. This adds more work to the existing backlog of maintenance needs.

Leave No Trace: Minimum Impact Techniques to Remember

Protect wilderness. Be aware of your impact and practice the following techniques:

- Plan ahead.** Prepare mentally and physically. Choose destinations that you are in condition to handle and take suitable equipment (see the 10 essentials). Obtain permits for backcountry overnights in North Cascades National Park Complex.
- Limit party size.** Keep party size below 12 individuals (animals & people) to minimize your impact when traveling in the wilderness. In cross-country zones, limit six people.
- Stay on the trail.** Making parallel trails, cutting switchbacks, and widening trails causes severe erosion and damage to soil and plants. Wear smooth sole shoes in camp areas.
- Leave rocks and flowers.** Building, moving or changing anything in the wilderness can be extremely destructive. Do not level ground or dig ditches for tent pads.
- Camp only in designated sites.** 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.
- Use campstoves instead of 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.
- Carry a collapsible water bottle.** This will minimize your trips to water sources.
- Wash responsibly.** Use only biodegradable soaps in small quantities or no soap at all, and wash 100 feet from water sources.
- Pack out litter.** It's a good idea to eat all the food you prepare; leftovers may attract animals. Buried litter disturbs soil and may be dug up by animals.

Volunteers have tried to reduce some of his backlog. For example, last year:

- Whatcom County Backcountry Horsemen helped to replace a rotten section of puncheon walkway on a horse trail.*
- Seattle-based Women's Climbers Northwest helped to restore a damaged meadow by planting native plant plugs.*
- A group of high school students from Camp Orkila cleared brush along an entire trail.*
- People worked in the district's greenhouse collecting foliage and seed for starts to assist with high alpine revegetation efforts.*
- A few individuals have taken the initiative to remove brush and do minor tread repair on their own.*
- Reach Out Expeditions maintained the Hidden Lakes Peak Trail.*

There is still much to be done and we need your help.

As a backcountry user, there are many things you can do to help when out hiking or riding. If you see litter, pick it up and pack it out. Contact the local Forest Service office if you find a problem that you cannot fix. Resource managers will take care of it as soon as possible.

Groups and clubs are encouraged to offer volunteer services; all districts are in need of assistance. Maintenance work is always needed and bridge and puncheons often need repair. Last but not least, make sure you and your companions are responsible trail users. Abide by the rules so that those who come after you can enjoy the same experience you did.

-Lu Schilling, Mt. Baker Trails



Trail Facts

Many visitors to the North Cascades enjoy hiking its miles of trails. While you're hiking, consider what has occurred to make your experience possible.

The North Cascades National Park trail crew tries to maintain 386 miles of trail annually. This trail system includes six suspension bridges, 79 other bridges totalling 5,274 feet, 15,888 feet of reinforced trail using log or rock through wet areas, 5,469 drainage devices (water bars and dips), and 125,535 feet of trail that require annual brush clearing. The trail crew maintains 99 hiker and horse camps (with fire grates, hitch rails, tent pads, and toilets), and three historic fire lookouts and other structures in the backcountry.

Who does all this work? The size of the crew fluctuates annually but averages 15 employees: a foreman, three crew leaders, two animal packers, and laborers. The foreman works year-round while the rest of the crew works six to nine months. Five women are on the crew. The age of crew members averages 34 years, and they all have about 10 years of trail maintenance experience. They are a diverse group of people in excellent physical condition. They're used to working hard and living in the backcountry under a variety of extreme environmental conditions. All share a love for the wilderness.

Trail maintenance is a never-ending task. Bridges and facilities wear out. Brush continues to grow and needs to be cut back. There never seems to be enough money or people to get all the work done.

You can help. If you encounter loose branches or rocks on the trail, move a few out of the *travelway*. Stay on the maintained trail, don't cut switchbacks or create new *social trails*, and treat backcountry facilities with respect. Thanks for your help.

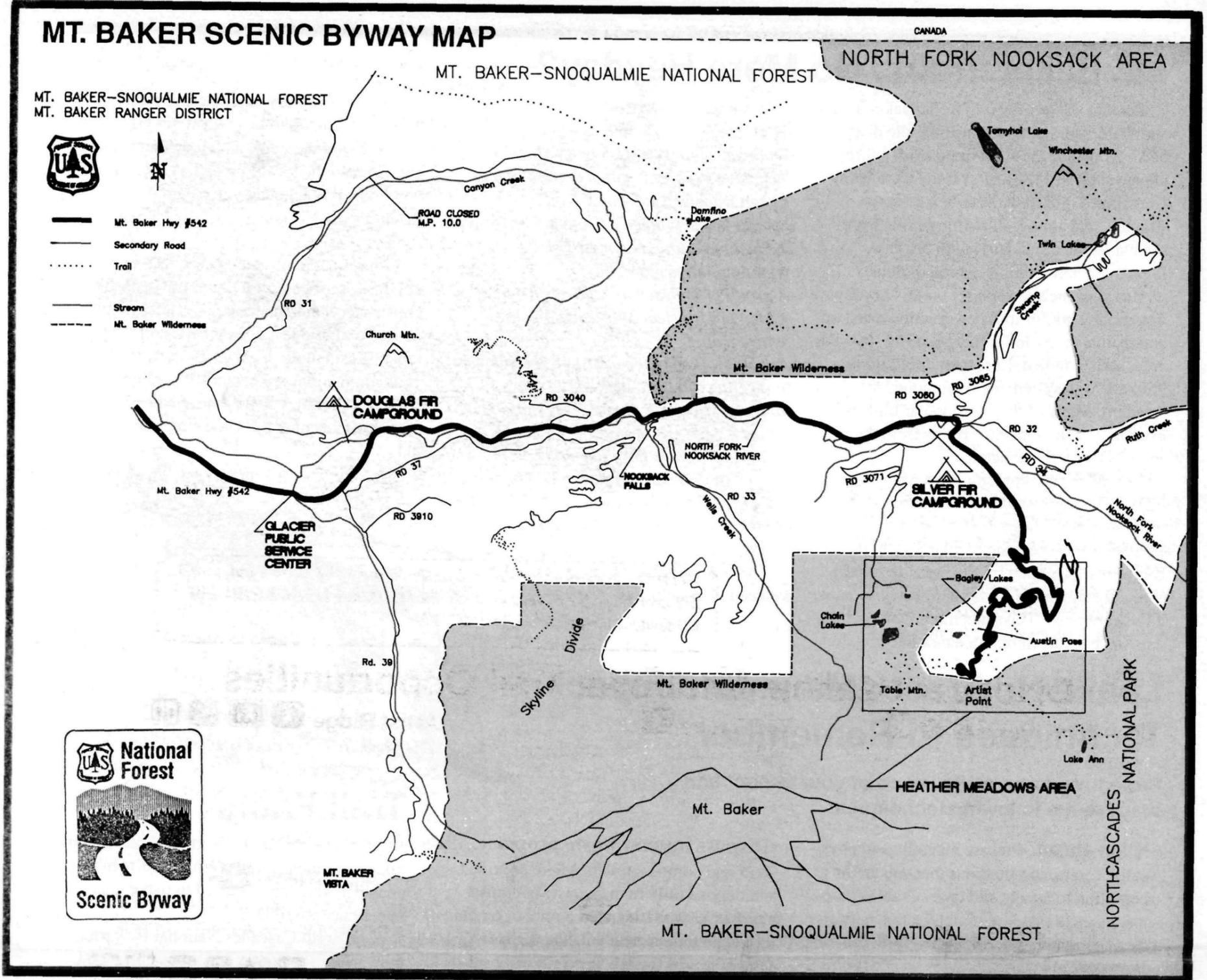
-Don Mann, NPS Maintenance Worker & Safety Officer

The 10 Essentials

Delays or changes in weather can cause emergencies. Even on short day hikes, each person should take and know how to use the following items:

- Navigation**—Topographic map and compass.
- Food**—**Extra** food and water. Boiling water can kill Giardia, but water treatment pills may not.
- Clothing**—**Extra** clothing, including rain gear, wool socks, sweater, mittens, and hat.
- Light**—Flashlight with spare bulb and batteries.
- Fire**—Waterproof matches and fire starter such as a candle.
- Sun Protection**—Sunglasses and sunscreen ointment.
- 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.

MT. BAKER SCENIC BYWAY MAP



Mt. Baker Scenic Byway

The upper 24 miles of the Mt. Baker Highway, State Route 542, 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 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. At road's end, trail systems lead into the Mt. Baker Wilderness, where snowcapped Mt. Baker rises majestically above the landscape. During winter months, snows accumulate and motor traffic ends below at the parking facilities of the Mt. Baker Ski Area.

Points of Interest

•Glacier Public Service Center Milepost (MP) 34

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 (CCC). Today it is operated during the summer season by the Forest Service and National Park Service as an information center.

•Mt. Baker Vista

Dramatic viewpoint at the end of Forest Road 39, the Glacier Creek Road. Offers a close-up look at Mt. Baker's Coleman and Roosevelt glaciers. Picnic tables line the parking area.

•Douglas Fir Campground

MP 36

Camp units nestled under tall timbers along the swift moving North Fork Nooksack River. CCC era picnic shelter available for day use. Fee area.

•Horseshoe Bend

Trail MP 36

One and a half mile hiker-only trail wanders through a forested ledge above the river's bank.

•Nooksack

Falls
MP 41

The falls plummet 100 feet over rocky outcrops. Fence-lined pathway leads to viewpoint. Stay behind fenced area for safety reasons.

•Silver Fir

Campground
MP 47

This 21 unit campground is located on the North Fork Nooksack River near Ruth Creek. CCC era picnic shelter available for day use. Fee area.

•Heather Meadows MP 52

Icons: ? (info), wheelchair, stroller, baby carriage, camera, binoculars

Popular day-use recreation area located along the upper reaches of the Byway. Short summer season offers glimpse into subalpine life cycles. Barrier-free sections of **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. **Heather Meadows Visitor Center** showcases the cultural heritage of the area. Open summers only July through mid-September.

Backcountry Awareness

Don't let a pleasurable outing turn into an unexpected tragedy by not being prepared. Unfortunate incidents have touched the lives

of visitors accessing backcountry areas from Heather Meadows. These reminders emphasize that entering into a mountain experience should not be taken lightly.

- Be well informed.
- Research maps & trail handbooks.
- Carry a well stocked day pack.

(For tips see "The 10 Essentials", p. 5) Most importantly, understand there is a difference between a day outing in a developed area like Heather Meadows and exploring the surrounding Mt. Baker Wilderness, where the environment is managed in its natural state.



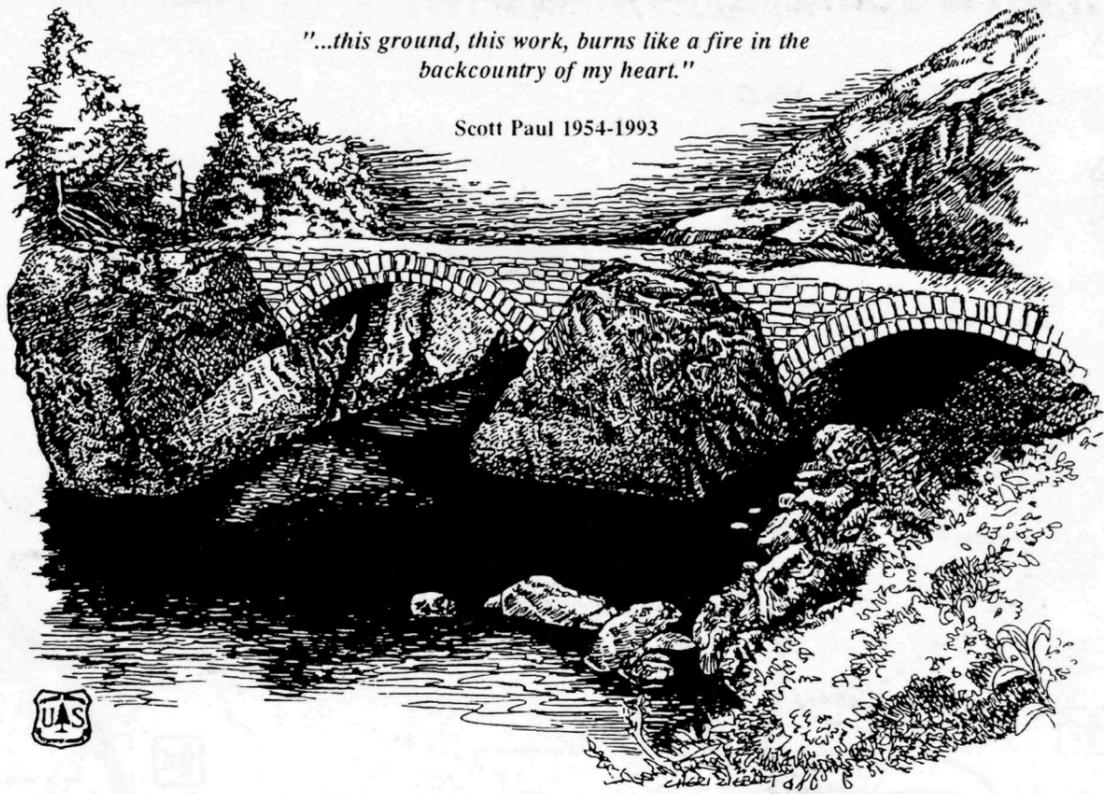
Heather Meadows

Yesterday, Today and Tomorrow

Recreationists have been heading up to Heather Meadows since the early 1920s when a grand lodge accommodated overnight guests from around the globe. A tragic fire ended this opulent era, followed by the nation's Great Depression, out of which was born the Works Project Era and the Civilian Conservation Corps (CCC).

During the mid to late 1930s CCC crews worked alongside the Forest Service constructing the original trail system and picnic grounds that make up the core of facilities at Heather Meadows. One of their achievements was the warming hut now operated as the Heather Meadows Visitor Center.

The Forest Service recognized a need to rehabilitate facilities at Heather Meadows in the 1980s. Project work addressed visitors' needs and the protection of delicate natural resources. Now the future of Heather Meadows is up to us all. Help preserve this outstanding area by following the area regulations and staying on the designated trail system.



Heather Meadows is dedicated to the memory of Scott Paul, to his life and 16 years of service with the Mt. Baker District trails and wilderness programs from 1977-1993.

Discover Heather Meadows Trail Opportunities

Picture Lake Path

The classic alpine vista of Mt. Shuksan mirrored in Picture Lake is one of the most photographed mountain scenes in North America. Take your camera, walk along the half mile loop and enjoy the beauty of the mountain's reflection in the waters of Picture Lake. **No pets allowed on trail.**

Fire and Ice

Located adjacent to the visitor center, this half mile self-guided interpretive loop is barrier-free and leads to a scenic overlook above Bagley Lakes.

Bagley Lakes

This one and a half mile hike winds along the east shore of Bagley Lake. The trail joins with the Chain Lakes and Wild Goose trails. One of the attractions on this trail is the Twin Arch Bridge over Bagley Creek.

Chain Lakes

Traverses along the side of Table Mt., enters the Mt. Baker Wilderness and drops down into the Chain Lakes basin. The six and a half mile trail continues past the lakes, climbs up and over Herman Saddle and drops down into Bagley Lakes basin. A return loop can be made by using the Wild Goose Trail at Terminal Lake back to Artist Point. Campfires prohibited. Camp only in designated sites.

Lake Ann

Drops down into headwaters of Swift Creek before climbing through rocky slopes to the lake. The last mile of this four mile long hike is often snow covered late into summer. Wear sturdy boots, take your camera, drinking water and insect repellent. Campfires prohibited.

Table Mt.

Narrow, exposed, one mile trail. The view from the top is even better than the thrill of getting there. **Use extreme caution, especially when hiking with children. No pets permitted on the trail.**

Wild Goose

The Wild Goose trail winds through Heather Meadows connecting to other trails and facilities. The first segment begins at the ski area parking lot and ends at Austin Pass picnic area. The second section starts at Terminal Lake and ends at Artist Point.

Panorama Dome

Trail drops down through Galena Canyon and heads approximately two miles toward the summit of Panorama Dome. Rough trail may be hard to follow after 3/4 mile. Slated for reconstruction.

Terminal Lake Austin Pass

Unequaled views from over 40 picnic sites. Just adjacent to the picnic area is the small but beautiful Terminal Lake. This area is very fragile and can easily be damaged. Please do not wade or swim in the lake.

Artist Ridge

This one mile self-guided interpretive loop is barrier-free for the first 200 feet to a scenic viewpoint. Baker Lake can be seen in the basin below. Mt. Rainier can be seen in the distance on clear days.

Ptarmigan Ridge

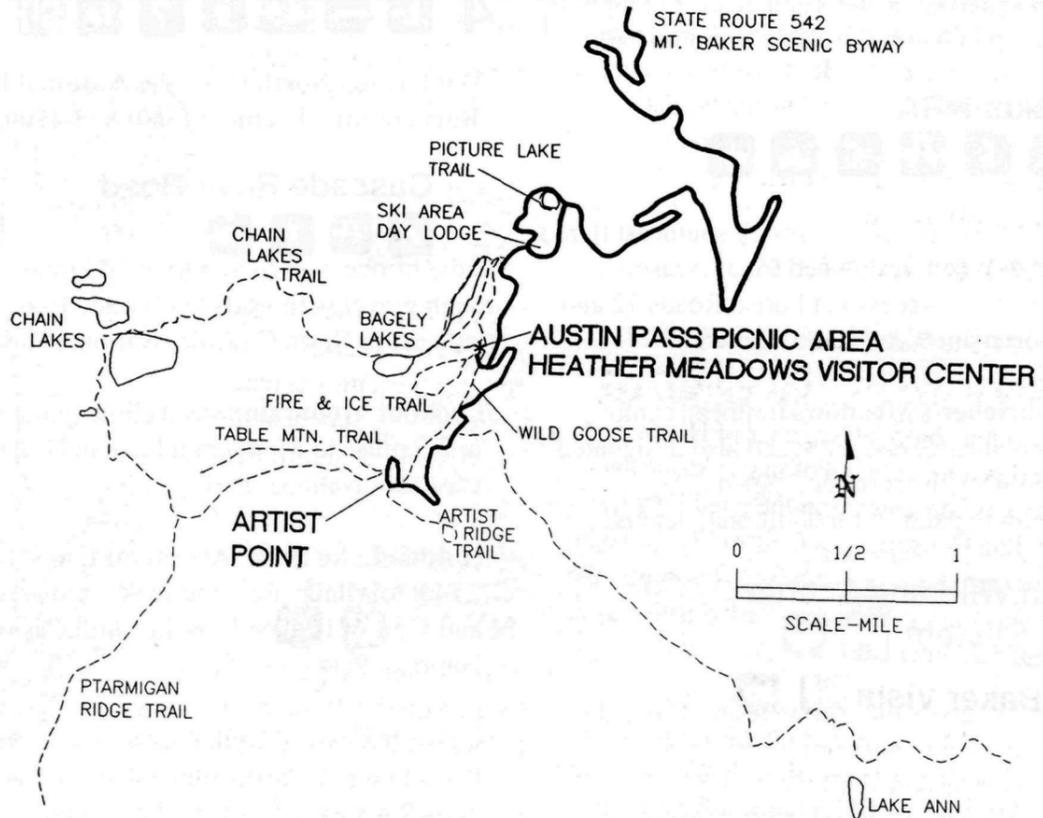
Branches off Chain Lakes trail one mile from Artist Point. Enters Mt. Baker Wilderness.

Artist Point

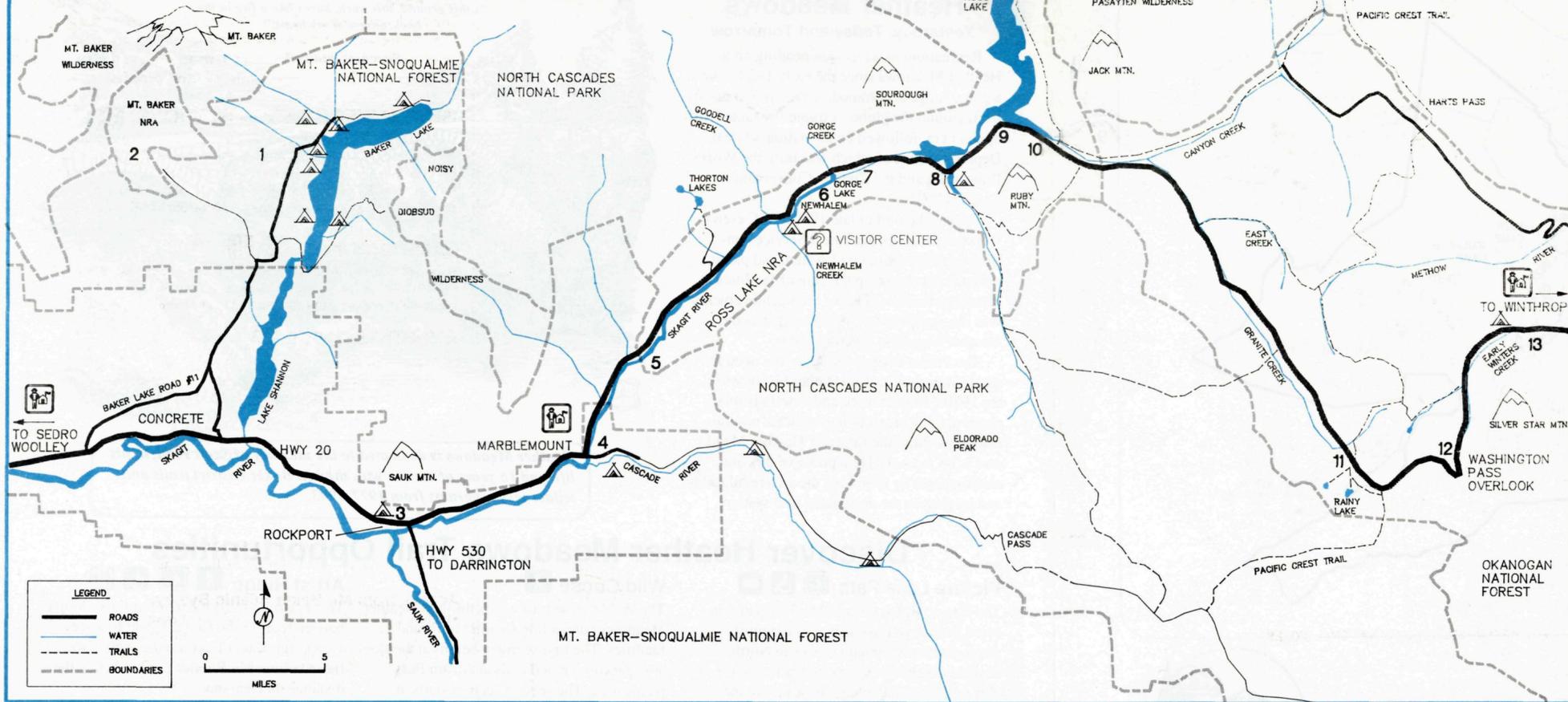
Parking and viewpoint at road's end. Here you will find ultimate views of Mt. Baker and Mt. Shuksan if the sky is clear. Chain Lakes, Table Mt., Ptarmigan Ridge and Artist Ridge trailheads.



Heather Meadows Area



NORTH CASCADES HIGHWAY CORRIDOR



Barrier-Free Facilities

The National Park and Forest Service have been working hard to make recreational facilities available to everyone. The accessibility of trails, campsites, viewpoints, restrooms, and visitor centers is being upgraded throughout the North Cascades.

VISITOR INFORMATION STATIONS:

- NPS/USFS Ranger Station-- Mile 65, SR20, Sedro Woolley
- Wilderness Information Station -- Mile 105, SR20, Marblemount
- North Cascades Visitor Center-- Mile 120, SR20, Newhalem
- Glacier Public Service Center -- Mile 34, SR542, Glacier
- Heather Meadows Visitor Center-- Mile 55, SR542

CAMPGROUNDS:

- Goodell Creek -- Mile 119, SR20, near Newhalem (*Moderately accessible*)
- Newhalem Creek -- Mile 120, SR20, near Newhalem
- Colonial Creek-- Mile 130, SR20, Diablo Lake

AMPHITHEATERS:

- Summer Season**
- Newhalem Creek Campground-- Mile 120, SR20
 - Colonial Creek Campground -- Mile 130, SR20

TRAILS:

- May be inaccessible during winter months*
- Access from Highway 20:**
- Shadow of the Sentinels -- Baker Lake Highway
 - Sterling Munro -- Mile 120, SR20, North Cascades Visitor Center
 - Trail of the Cedars -- Mile 121, SR20, Newhalem
 - Happy Creek Forest Walk -- Mile 134, SR20
 - Rainy Lake Trail -- Mile 161, SR20, Rainy Pass
- Access from Mt. Baker Scenic Byway:**
- Picture Lake Path -- View Mt. Shuksan at Heather Meadows entry. (*Restrooms not available at Picture Lake*)
 - Fire and Ice Trail -- View Bagley Lake & Mt. Herman at Austin Pass.
 - Artist Point-- Artist Ridge offers spectacular views of Mt. Baker, Mt. Shuksan and Baker Lake.

1 Baker Lake

Nine mile long recreational reservoir formed by the upper dam on the Baker River. Developed campgrounds accessed off the Baker Lake Hwy. Maple Grove Campground on the lake's eastern shore is accessed by boaters or hikers along the East Bank Trail.

- Baker Lake Resort:** Store, camping, cabins and boat rentals; (360) 853-8325.
- Trails:**
 - Shadow of the Sentinels: Half-mile loop through ancient forest.
 - East Bank trailhead: Off Forest Road 1107.
 - Anderson and Watson Lakes: Access to Noisy-Diobsud Wilderness.
 - Baker River: Road's end, leads to Sulphide Camp in North Cascades National Park.

2 Mt. Baker NRA

Encompasses 8,473 acres on southeast flanks of Mt. Baker designated for all-season recreation. Access via Forest Roads 12 and 13 off main Baker Lake Highway.

- Schrieber's Meadows trailhead camp available for one night and also designated for horse users (after August 1).
- Refer to page 10 for additional details.

Skagit Wild and Scenic River System

The Skagit, Sauk, Suiattle and Cascade Rivers. Spawning salmon attract many wintering bald eagles. See page 12 for more details on the Skagit W&SR System.

3 Rockport

- Mt. Baker Ranger District:** Sauk Mt. Trail access off Forest Road 1030. Switchbacks up south facing slope to mountain ridge-top. Panoramic view.
- Rockport State Park**
- Skagit View and Sauk Springs Trails** loop south of Highway 20 at **Rockport State Park**, five more miles of trail circles park.
- Howard Miller Steelhead Park:** Located at Rockport along the Skagit River.

4 Marblemount

- Wilderness/North Cascades National Park Backcountry Permits:** (360) 873-4500.
- Cascade River Road**
Cross bridge over Skagit River. 23 miles of rough gravel road leads to Cascade Pass trailhead in North Cascades National Park.
- Lookout Mountain:** Steep climb, junction at 2.5 miles to Monogram Lake in North Cascades National Park.

Hidden Lake Peak

Access off Forest Road 1540, four mile ascent to lookout tower and view of Hidden Lake in North Cascades National Park.

- Cascade Pass:** 3.7 mile trail at road's end leads to spectacular views, continues to Stehekin Valley Road and Park Service shuttle bus (reservations required).

5 Ross Lake NRA

117,574 acres, administered by North Cascades National Park Service Complex.

- Thornton Lakes Road/Trail:** access 4.7 miles up windy, gravel road. Hike five steep miles to Lower Thornton Lake, first of three alpine lakes.
- Goodell Creek Campground:** Rustic sites along Skagit River, open all year. Raft launch, float trips by prearrangement.

6 Newhalem

- Newhalem Creek Campground:** Summer only, \$10.
- North Cascades Visitor Center:** Interpretive programs, books and maps. Open daily May thru October. Open weekends in winter.
- Loop Trails:** To Know a Tree and Trail of the Cedars.
- Skagit General Store:** Supplies, souvenirs.
- Ladder Creek Falls:** Located behind Gorge Power House. Loop trail through flower gardens and pools, lit at night.
- Gorge Creek Falls:** Four miles east of town, park and view a 242' waterfall.

7 Diablo

- Seattle City Light tours of **Ross and Diablo Dams**, boat trips, incline railroad and dinner. Summer Thursday thru Monday only. Fall weekend tours. Museum near tour office; (206) 684-3030.
- Sourdough Lookout Trail:** Strenuous five mile hike up Sourdough Mt.
- Diablo Lake Trail:** 3.8 mile hike (one-way) above lakeshore.

8 Colonial Creek Campground

- Campground on Diablo Lake:** \$10.
- Thunder Creek Trail:** Begins at south end of campground. Connects with **Thunder Woods Nature Loop**. Leads to junction for **Fourth of July/Panther Creek Trail**. Steep climb leads 3.2 miles to Fourth of July Pass. **Panther Creek Trail** continues five miles northeast to State Route 20.

9 Ross Dam Trailhead

- Ross Lake Resort:** Floating cabins, boat rentals, portage service and water taxi, (206) 386-4437.
- Ross Dam Trail:** One mile descent to top of Ross Dam. Cross dam and hike west bank of Ross Lake to Big Beaver trail and backcountry camps.
- Happy Creek Forest Walk:** .3 mile boardwalk on south side of State Route 20. East of Ross Dam trailhead.

10 East Bank Trailhead

Descend to Ruby Creek suspension bridge, connects Ross Lake NRA with Pasayten Wilderness. After a 2.6 mile walk west, the trail extends north 24 miles along Ross Lake to Hozomeen.

11 Rainy Pass Picnic Area

One mile barrier-free paved trail leads to **Rainy Lake**, waterfall and glacier view platform. Longer hikes to **Lake Ann** (two miles), **Heather** and **Maple Passes**.

12 Washington Pass

New restroom facilities and barrier-free trail open in July.

13 Upper Methow Valley

- Early Winters Information Center**
- Mazama turnoff to Hart's Pass (22 miles), reaches highest point accessible by vehicle in Washington State (closed to trailers).
- Methow Valley Ranger District and Visitor Center**

Car Camping in the North Cascades

There are many public campgrounds adjacent to the North Cascades Highway. Most sites are filled on a first-come, first-served basis. Private campgrounds and resorts may provide cabins and showers.

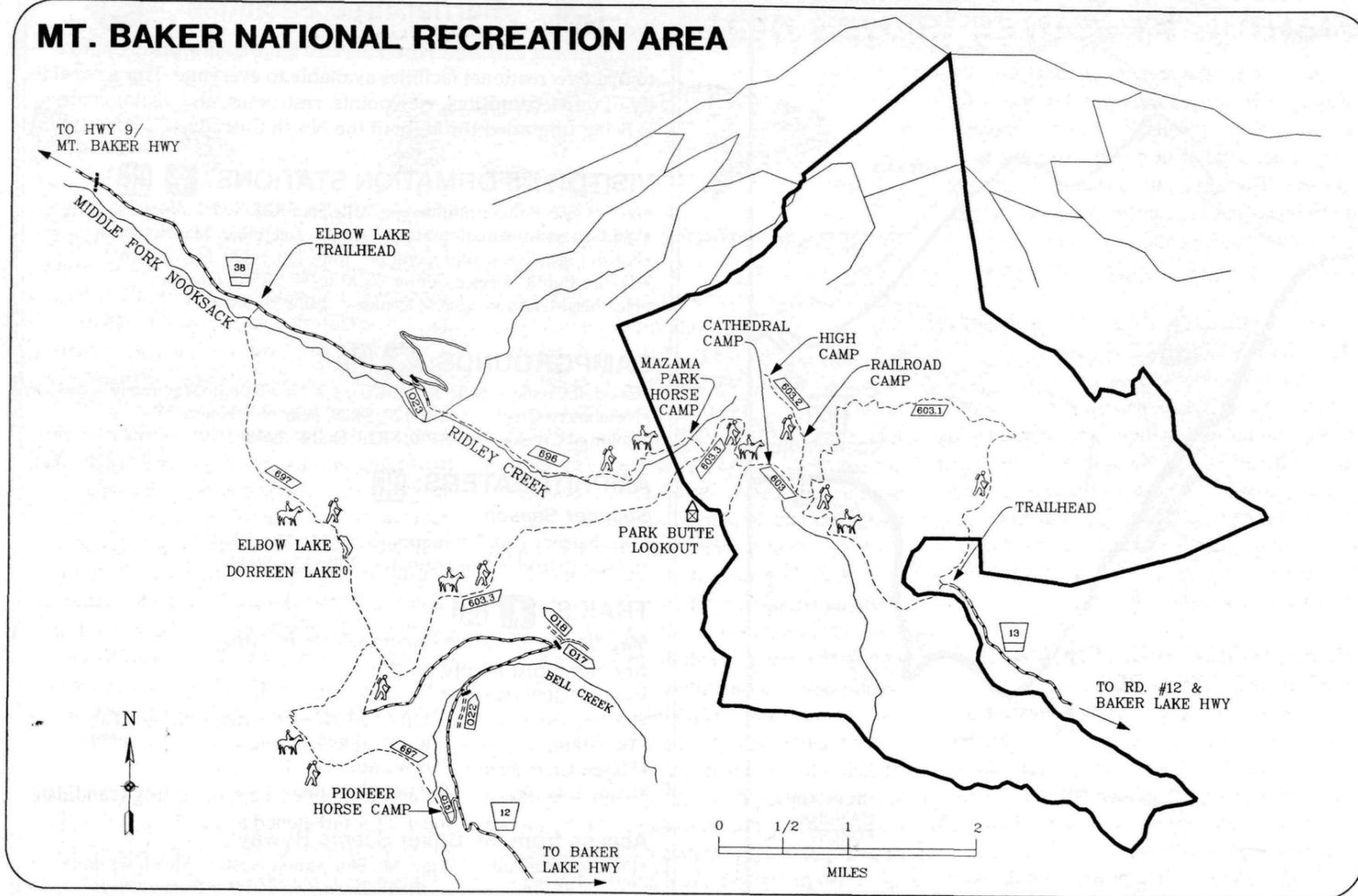
Free campgrounds are primitive, requiring that you bring your own water and pack out garbage. When a fee is charged, there are amenities such as running water and garbage facilities. Some National Park campgrounds offer Ranger-guided programs.

Reservations are taken at most National Forest campgrounds; call 1-800-280-CAMP for details. Call Marblemount (360-873-4590 ext. 16) to reserve a rustic group camp at Goodell Creek.

LOCATION	CAMPGROUND	FS	SP	P	NP	CP	WHEELCHAIR ACCESSIBLE	DRINKING WATER	FLUSH TOILETS	GARBAGE FACILITIES	HUKING TRAIL	BOAT RAMP	FISHING	TRAILER HOOK-UPS (MOTOR HOMES)	TENT OR TRAILER CAMPING (UNITS)
HWY 542	DOUGLAS FIR	FS													30
	SILVER FIR	FS													21
	KULSHAN	P													79
BAKER LAKE ROAD	HORSESHOE COVE	FS													34
	PANORAMA POINT	FS													16
	BOULDER CREEK	FS													10
MP.14- MP.23	PARK CREEK	FS													12
	SHANNON CREEK	FS													20
	ROCKPORT STATE PARK	SP													62*
HWY 20 MP.96- MP.180	STEELHEAD PARK	CP													59*
	GOODSELL CREEK	NP													22
	NEWHALEM CREEK	NP													129
CASCADE RIVER ROAD	COLONIAL CREEK	NP													164
	LONE FIR	FS													27
	KLIPCHUCK	FS													46
VIA B.C.	EARLY WINTERS	FS													12
	MARBLE CREEK	FS													24
ROAD	MINERAL PARK	FS													4
	CASCADE ISLANDS	NP													15
VIA B.C.	HOZOMEEN	NP													122

LEGEND: FS = FOREST SERVICE SP = WA. STATE PARK P = PUGET POWER NP = NATIONAL PARK SERVICE CP = COUNTY PARK (360)853-8808

MT. BAKER NATIONAL RECREATION AREA



Mt. Baker National Recreation Area

The southern slopes of Mt. Baker lie within the Mt. Baker National Recreation Area (NRA). These 8,600 acres include part of Sherman Peak on Mt. Baker, two active glaciers, glacial moraines, alpine meadows and lakes, a cinder cone and miles of trails accessing landmarks such as Schrieber's Meadows and the historic Park Butte Lookout in the neighboring Mt. Baker Wilderness.

No roads enter the Mt. Baker NRA. Day hikers and backpackers crowd the trails on summer weekends. The Easton glacier is a favorite climbing route up Mt. Baker. Horses and other stock use the trails from August 1 to Nov. 1. As summer fades, hunters and huckleberry pickers move in. In winter, the recreation area offers off-road snowmobiling. Nordic skiing, snowshoeing and ski mountaineering are also popular.

Congress established the Mt. Baker NRA in 1984 as part of the Washington State Wilderness Act. The NRA differs from the adjacent Mt. Baker Wilderness Area in allowing use of snowmobiles during the winter months.

Groups entering the Wilderness Area must limit their number to 12 individuals (including pack and saddle animals). Hikers are urged to stay on designated trails and respect trail closure signs. Backpackers must camp at designated tent sites established for their use.

All camps have composting toilets located near them. Water may be distant from the camp, so campers should be prepared to pack water and to treat or boil it to avoid illness.

Mt. Baker NRA Designated Camp Sites

Railroad Camp

Seven sites located within the first half mile of Railroad Grade trail.

Cathedral Camp

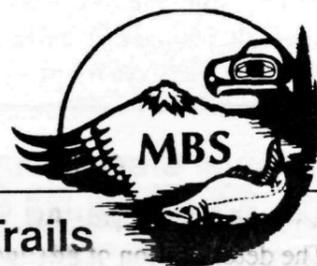
Will be under construction during the '95 season. Campers may use these camps unless the crew is working in the area.

High Camp

Four sites located 1 1/2 miles up the Railroad Grade trail.

Mazama Park Horse Camp

Stock camp that will be under construction during the '95 season.



Mt. Baker NRA Trails

Trails in the Mt. Baker NRA have been designed primarily for hiker and/or horse use. The use of motorized and mechanized equipment is strictly prohibited except when snow levels are sufficient and snowmobile use is permitted.

Park Butte Trail #603

This 3.5 mile trail passes through scenic Schrieber's Meadow, crosses Rocky Creek on a suspension bridge or horse ford, switchbacks up a forested slope to Morovitz Meadow and ends at the historic Park Butte Lookout.

Scott Paul Trail #603.1

This six mile trail begins 100 feet up the Park Butte trail, providing an alternative hiker-only route into the Mt. Baker high country. Trail extension constructed in 1992 crosses terminal moraine on Squak Glacier, as well as the Railroad Grade, giving spectacular views of glaciation at work.

Railroad Grade Trail #603.2

This one mile trail leads off the Park Butte trail at two miles. Follows the edge of the Railroad Grade to High Camp.

Bell Pass Trail #603.3

This 4.5 mile trail connects the Park Butte trail and Railroad Grade trail with the Elbow Lake trail via Cathedral Pass, Mazama Park and Bell Pass.

Elbow Lake Trail #697

This nine mile trail begins at Pioneer Camp near the end of Forest Road #12 or at milepost 10 on the Middle Fork Nooksack Road, Forest Road #38. Does not enter the NRA but accesses trails that do.

Ridley Creek Trail #696

This four mile trail begins near the end of Forest Road #38, and ends in Mazama Park. Not maintained.

Some Tips for Hiking with Children

Bring along extra items such as:

- Wholesome snack foods
- Extra water
- Sunscreen
- Insect repellent



Other helpful suggestions:

- Dress children in layers
- Young children should stay within sight
- Older children should stay within earshot
- Give them a whistle in case they get lost



Some suggestions for keeping children entertained:

Have them bring along a friend.

Sing songs, **bird watch**, **identify** plants, **look** for animal tracks.

Natural Resource Issues of the North Cascades

Resource management within North Cascades National Park Complex encompasses biological, cultural, historic, geologic, hydrologic, atmospheric, and aesthetic resources. The top natural resource issues are introduced and summarized here. Additional information can be found at visitor centers and from resource management personnel.

RARE, THREATENED, ENDANGERED, AND SENSITIVE MAMMALS

Some of the 75 mammal species indigenous to North Cascades have declined due to human-caused mortality and/or habitat loss or modification. The National Park Service is participating in interagency recovery efforts involving the federally-listed endangered gray wolf and the threatened grizzly bear. Other sensitive species include fisher, wolverine, and Townsend's big-eared bat.

RARE, THREATENED, ENDANGERED, AND SENSITIVE BIRDS

Several of the 200 species of birds that either breed in or pass through the Complex are currently listed as threatened or endangered. These include peregrine falcon, bald eagle, marbled murrelet, and spotted owl. The National Park Service is participating in a cooperative monitoring project of bald eagle winter use along the Skagit River. Other Park studies include breeding bird surveys, habitat or population surveys for peregrine falcon, osprey, spotted owl, and harlequin duck.

AIR POLLUTION IMPACTS ON BIOTA

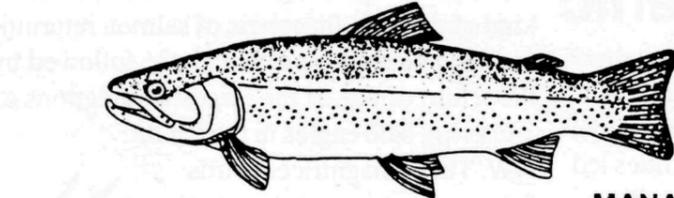
The deterioration of pristine air quality in the Complex is likely due to prevailing westerly winds carrying vehicle emissions and industrial and large urban area pollutants from the Puget Sound vicinity. There are weather stations at several locations in the Complex. Eight parameters including Ozone and acid precipitation are being studied. Visibility cameras have recorded the presence of airborne particulate matter.

Watershed Analysis — Part of the President's Forest Plan

Issues covered by the President's Forest Plan pass beyond the boundaries of National Forests. Several federal agencies are directly involved, including the U.S. Forest Service, Bureau of Land Management, and National Park Service.

Among other things, the President's Forest Plan directs the Forest Service to complete a process called *watershed analysis* before many activities can proceed. Watershed analysis is one part of an "Aquatic Conservation Strategy", developed to restore and maintain the ecological health of whole watersheds and aquatic ecosystems on public lands. Most activities, from watershed restoration to trail building to timber harvest, cannot move forward until the process is complete. Proposed actions must be consistent with ecosystem management objectives and other President's Forest Plan guidelines.

Watershed analysis involves the inventory and analysis of all the information that is known about a watershed. It also considers past and present use by people, and the



FISHERIES: RIVERS & LAKES

The 11 known species of native fish in the west slope's rivers and tributaries have been impacted by agriculture, urbanization, hydropower development, logging and past fish stocking and harvest practices. In order to mitigate for loss of spawning and rearing habitat, Washington Dept. of Fish & Wildlife constructed a salmon spawning channel (Park Slough) adjacent to the Skagit River cooperatively with the National Park Service. Park biologists monitor the returns in Park Slough and are finding that native populations of chum and coho salmon are being increased by this and similar channels. Park staff has also monitored selected streams to determine water quality, temperature, flow, gradient, and resident salmonid populations.

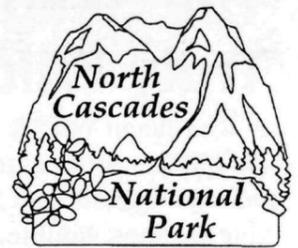
The native fish species of the lower Stehekin River and of Lake Chelan have been severely impacted by hydropower operations, natural catastrophic flooding and introduction of non-native aquatic species. The native sport fish included Lake Chelan cutthroat trout and bull trout. However, bull trout may be extinct in Lake Chelan and the Stehekin River.

DEGRADATION OF NATURAL RESOURCES

Increased development and population growth in the Pacific Northwest increase the potential for degradation of natural resources. Activities that threaten natural resources include air pollution, overflights, acid precipitation, fish stocking, water pollution, hunting, mining, and administrative actions. Baseline information is necessary to detect resource threats, trends, impacts and associated causes.

effects of past and current management. The intent is to develop and document a scientifically based understanding of the processes and interactions occurring within a watershed; this understanding is essential for making sound management decisions. Watershed analysis is an ongoing process that will serve as the basis for developing project proposals and determining restoration and monitoring needs. Watershed analyses will be expanded and updated as needed to consider additional information or changing conditions.

Public involvement is also important. An awareness of the full range of values, resource needs, and public expectations associated with the watershed being analyzed is fundamental. We encourage you to participate in this process.



MANAGEMENT OF NATURAL LAKES & HERPETOLOGICAL POPULATIONS

Researchers are investigating the ecological impacts of stocked trout on naturally fishless lakes. The Complex has about 245 natural lakes, ponds, and tarns, ranging from small, shallow ponds to relatively large, deep alpine lakes. Most of the natural high lakes were devoid of fish life because of natural barriers to fish migration. Currently over 75 high lakes support introduced populations of rainbow, cutthroat, brook and golden trout. Salamanders were the dominant, naturally-occurring aquatic vertebrate predator in the high lakes prior to stocking. A multi-year study is examining the effects of fish introductions on native fish communities. If salamanders are absent from lakes with fish, biologists need to know if this is because of fish predation or lack of suitable habitat and environmental conditions.

In Washington, the spotted frog (candidate species for threatened and endangered status) has declined west of the Cascade Mountains. NPS research focuses on determining the abundance and distribution of amphibians and reptiles within the Complex.

OTHER RESOURCE MANAGEMENT ISSUES IN THE PARK:

- Ungulate Ecology and Management
- Rare, Threatened, and Endangered Plants
- Sediment and Erosion Control
- Geology, Landform, and Soil Mapping
- Management of Exotic Plants
- Wilderness Management
- Wetland Management
- Skagit River Management (Recreational Use)
- Stehekin Firewood/Natural Fire Management
- Vegetation Impact Monitoring, Rehabilitation
- Glacier Monitoring for Climate Change
- Vegetation Response to Climate Change

-Karen Nolan, USFS
Environmental Coordinator

The Skagit River: Truly Wild & Scenic

The Skagit Wild & Scenic River System (W&SR) includes segments of the Sauk, Suiattle, Cascade and Skagit Rivers. Remarkable fisheries, wildlife, and scenic qualities led to their inclusion in the Federal Wild and Scenic Rivers System in 1978, 10 years after the federal system's establishment.

This congressional designation requires that federal land be managed to protect the W&SR. State and private lands within the W&SR are influenced by various state and local regulations. Forest Service staff help assure that W&SR values are being protected through participation in the Timber, Fish and Wildlife (TFW) process sponsored by the Washington Department of Natural Resources (DNR).

The Forest Service also acquires land from willing sellers to protect river values and provide access. Since 1978, more than 2,000 acres have been added as public land. A number of partners have been utilized in this endeavor, including; River Network, The Nature Conservancy, the Skagit Systems Cooperative (represents Upper Skagit, Sauk-Suiattle, and Swinomish Tribes), and state agencies.

Watershed restoration projects on federal lands within the Skagit Basin began in the summer and fall of 1994. Additionally, the State's Department of Ecology and DNR initiated "Jobs for the Environment", a watershed restoration effort for state and private lands in the Skagit Basin. Improved water quality and fish habitat enhancement are key to the future health of the river system.

Sharing the Skagit: The Skagit Watershed Education Project

"I learned that a watershed isn't just water, it's the mountains and the things that are surrounding the water. We have to take care of the land and the water together."

-4th grade student, Mt. Vernon

The Skagit Watershed Education Project (SWEP) reflects the river from which it draws its lessons. Currently finishing its third year, SWEP teaches students to think of their own backyard as part of a larger picture.

Each school year, the North Cascades Institute leads 1200 third through fifth grade students and 60 teachers, from the seven school districts within the watershed, in classroom and field trip activities. These focus on geography, land use, riparian ecosystems, non-point pollution prevention, and stream restoration and ecology.

SWEP grew out of a need for locally relevant educational materials for educators. Although the Skagit watershed is the second largest watershed in the state, providing one-third of all the fresh water and salmon to Puget Sound, educational materials relating to this northwest treasure were scarce. Development of the *Sharing the Skagit* curriculum guide, maps, slide shows, and a student activity guide were important first steps in making essential background information available to students and teachers.

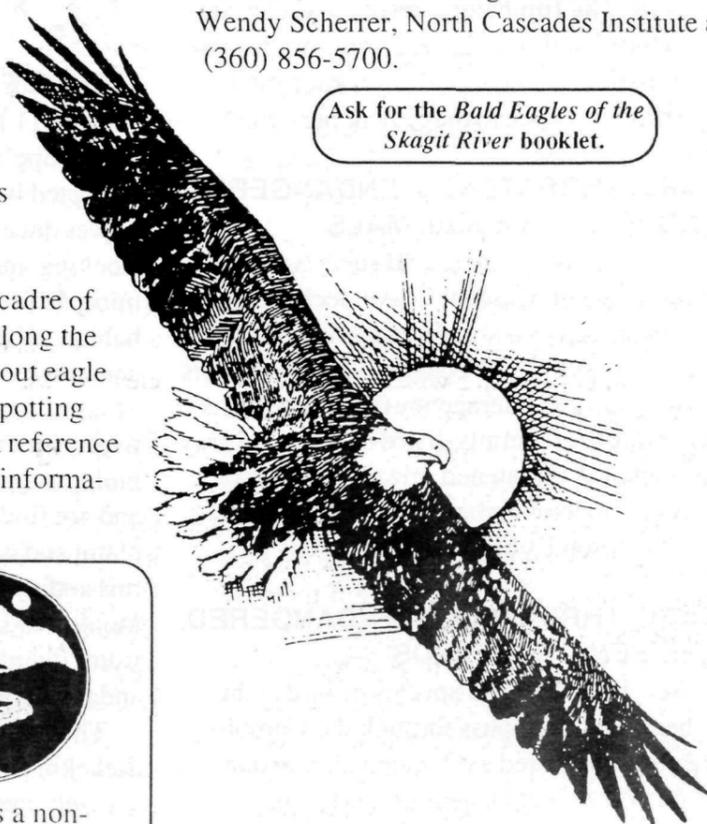
Eagle Watchers

Winter on the Skagit River has a special kind of magic—the magic of salmon returning from the ocean to spawn and die, followed by the return of one of the largest populations of wintering bald eagles in the Pacific NW. These magnificent birds frequent the river each year to feed on chum salmon. And so the cycle of life continues.

For the past two winter seasons "Eagle Watcher" volunteers have staffed four sites along the Skagit between Rockport and Marblemount. This enthusiastic cadre of people help manage visitor use along the river by distributing handouts about eagle watching etiquette, monitoring spotting scopes for viewing and sharing a reference tub of eagle photos and ecology information with other interested folks.

This program is sponsored by the Forest Service and North Cascades Institute. Anyone interested in participating during the 1995/96 season should feel free to contact Jim Chu, Mt. Baker Ranger District or Wendy Scherrer, North Cascades Institute at (360) 856-5700.

Ask for the *Bald Eagles of the Skagit River* booklet.



Come
Explore
With Us!



North Cascades Institute is a non-profit educational organization dedicated to increasing understanding and appreciation of the natural, historical, and cultural landscapes of the Pacific Northwest. Our primary focus is field-based, environmental education for children and adults. These include year-round programs for all ages. For more information or a catalog write us at:

2105 State Route 20
Sedro Woolley, WA 98284
Call (360) 856-5700 ext. 209

Earth Day is Every Day at Mountain School

"I learned so much about myself and that no matter what, I'll always be a part of nature. We need the sun, the moon, the stars..."

-Mountain School student, 5th grade

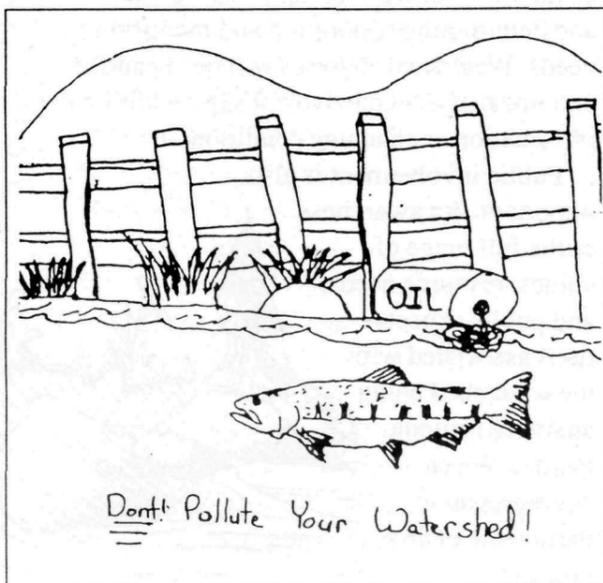
After three days and two nights camping, hiking, living, and learning together at *Mountain School*, quotes like this are common. Fifth to seventh grade classes, accompanied by their teacher and parent chaperones, have participated in this award-winning environmental education program each spring and fall since 1990.

Developed and operated by the North Cascades Institute, *Mountain School* invites students to North Cascades National Park to learn about life. Mountain, forest, and river ecosystems, plantlife and wildlife, human cultures in nature, as well as cooperative living skills fill their days with experiences they will never forget.

The camping-based program focuses on hands-on learning activities and hikes, weaving the interdisciplinary threads of science, music, art, history, and social studies into the fabric of environmental education. Each day is focused and sequential, with respect to the land, and each other, an underlying theme.

Children are encouraged to transfer the lessons learned from nature to their own lives back home. Parents and teachers enthusiastically agree on its value. As Dick Simpson, Burlington-Edison Elementary school teacher exclaimed, "Mountain School is one of the most important experiences my students will have in their entire school careers!"

-Christie L. Fairchild, NCI



Respecting the Grizzly Bear

For thousands of years grizzly bears have roamed the mountains and valleys of northwest Washington, "living the quiet life that all Bears prefer, minding their own business, doing their duty by their families, asking no favors of anyone excepting to let them alone" (E.T. Seton).

Indians told several different tales about the bears. The stories speak of a deep reverence for the animal. Many tribes believed grizzly bears had once been tribal women, or that bears were otherwise kindred spirits. These tales and beliefs were rooted in many centuries of coexistence with grizzly bears, and an understanding that they and the bears had a great deal in common.

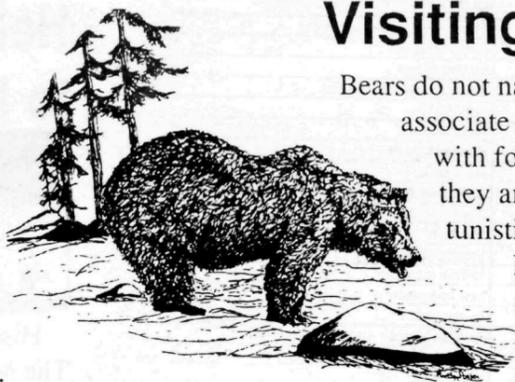
Bears, like people, are highly intelligent, long-lived creatures with individual personalities. Grizzly bears care for and teach their young for almost as great a part of their total lifetime as do most human cultures. Bears like to swim and play. Although we cannot know for sure why bears sometimes sit gazing at the landscape for long stretches of time, they seem to be enjoying the scenery. Bears and people also share the top of the food chain. Both need a variety of foods to survive. As species relying on most of the surrounding ecosystem for survival, bears and people occupy the same ecological "niche".

The spiritual tie between bears and people continues today. To many, the grizzly bear represents the last great symbol of the wilderness. Part of this relates to the wild spaces bears need for survival. The other part is less tangible; the humbling electricity of watching a bear lift a boulder to look for ants, or run with agile, lightning speed across a meadow, or simply knowing one can share wild and beautiful places with an animal that chooses not to be tamed.

The North Cascades grizzly bears are not threatened because of lack of habitat. Large areas of our ecosystem are still suitable for bears. Grizzly bears are adaptable to changes in their world; however, they cannot adapt to bullet shots. Trapping records indicate that 3,800 grizzly bear pelts had been taken from the North Cascades before 1859. Many more were killed by settlers, miners and others who often killed them on sight. Despite the fear of bears in popular culture, whether or not grizzly bears continue to exist is clearly a human choice. Bears are strong, adaptable and smart -- but they are not the most 'dangerous' animal in the wilderness. Human beings play that role.

Over the next several decades federal and state agencies in the North Cascades will work to increase the now perilously small grizzly bear population to a healthier level. Conserving the grizzly bear will help conserve many other species of wildlife and plants as well. And because bears and people need so many of the same things from the earth, including solitude, space and many renewable resources, conservation of the bears will help conserve for our future, too.

-Anne Braaten, NPS
Natural Resource
Specialist



Visiting Bear Country

Bears do not naturally associate people with food, but they are opportunistic feeders. Bears drawn to campsites by the

smell of food or garbage in a fire pit may learn that campgrounds provide easy meals. Once accustomed to human food, a bear may seek it aggressively. You can prevent unwanted bear encounters by following basic precautions of proper food storage and camp cleanliness.

Cooking

When you camp, try to have your sleeping area and personal gear about 100 yards (90 m) uphill or upwind from your cooking area. Wash dishes after a meal. Keep soap out of lakes and streams. At campgrounds, collect all grey water from cooking and washing in a bucket and deposit it in septic or vault facilities. Do not sleep in the clothing you wore while cooking. Keep sleeping gear and personal items free of food odors.

Camping

Choose another camping area if you see a large dead animal. Notify a ranger as soon as possible. Be alert!

Dogs

Loose dogs disturb wildlife and may lead bears back to you. Prevent these unwanted encounters; keep dogs on a leash. **Dogs are prohibited in the National Park.**

Food Storage

Store food, garbage, cooking gear, and cosmetics properly at all times. Lock these items in your car trunk if you are in the frontcountry. Otherwise, place them in a bag or backpack and hang it from a branch in your cooking area. The storage container should hang at least 10 feet (3 m) above the ground and at least four feet (1.2 m) out from the tree trunk. Also hang cosmetics, sunscreen, soap, toothpaste or any item with a fragrant or food-like odor. Plastic coated dry bags are good for food hanging since they seal in odors. Bear resistant cannisters are available commercially and will also keep rodents out.

Garbage

Pack it out. Never bury or burn garbage. Store it as if it were food.

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 your food.

Bear Sightings

If a bear comes close to your campsite you may be able to frighten it away by shouting or banging pots and pans. A bear accustomed to campground food may not be as easily discouraged. If you see a bear, report your sightings to agency biologists at (360) 856-5700, or the nearest ranger station.

The Munch on Mountain Goats

Mountain goats (*Oreamnos americanus*) are native to Alaska, the Cascade Mountains of Washington State, and a few other areas in the lower 48 states. Much of Washington's mountain goat habitat is on federally managed land (national parks and forests).

Mountain goats are specialized in their hoof and body shape so that they can be the most successful travelers on the cliffs where few predators will follow. To survive in such a specialized habitat, however, they are generalist herbivores who are able to eat most plants, including lichens, mosses, and conifers. They live at a variety of elevations, near different forest types, but always near cliffs.

In western Washington, mountain goats summer above 5,000 feet (1,500 m) elevation, near cliffs, snowfields, and wind. They are most often observed in meadows, dustbaths, and on bare rock benches. Typical mountain goat winter range is in lower-elevation, south-facing old growth forests that are interspersed with rocky outcrops. Because the best wintering areas are selected for their physical characteristics, and not for the availability of forage, food may be scarce.

A mountain goat's typical day includes morning foraging, bedding during mid-day and then a prolonged feeding period in late afternoon to evening. The timing and length of these periods seems to depend on weather and temperature. During hot summer days, afternoon bedding may continue until foraging areas become shaded; goats may then

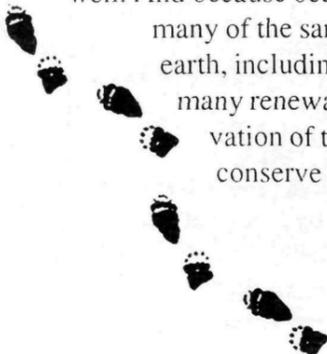
forage until well after dark, particularly if the moon is full.

Winter activity patterns are similar, but due to colder weather and shorter periods of daylight, foraging may be longer and bedding periods shorter during the day.

Male and female mountain goats look similar, with shaggy white coats and curved black horns. They live in loose family groups of several adult females (nannies), with their kids and yearlings. Adult males (billies) may be tolerated in the summer, when food is plentiful, and during the autumn mating season. However, during the harsh winter months, the dominant nannies get the best wintering areas.

Because of their life history characteristics, mountain goats are more vulnerable to population reductions than most ungulate species; it's harder for them to bounce back. Human presence can adversely affect mountain goats by causing them to use energy they would otherwise use to survive. Please keep a polite distance from any mountain goats you see and then come tell us about your experience!

-Sarah J. Welch, NPS



Wildlife Observations

Scientists and managers from several agencies are engaged in a wide variety of field studies on wildlife management issues. These topics include neotropical migrant bird surveys, endangered species monitoring, and baseline inventories of bats, salamanders, and other faunal species. Wildlife sightings reports by the public provide valuable supplemental data to these studies.

Sightings can be recorded on "Wildlife Observation Cards" (see example for your use). We encourage you to **submit** wildlife cards on any species. Of particular interest are sightings of:

Birds:

- Common Loon
- Harlequin Duck
- Northern Goshawk
- All owls
- Peregrine Falcon

Mammals:

- Fisher
- Gray Wolf
- Grizzly Bear
- Wolverine

Amphibians:

- All salamanders
- All frogs

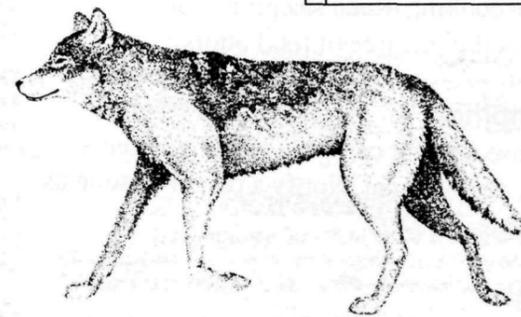
Many of these species are on the Endangered Species List. Biologists may perform follow-up visits to confirm sightings and collect additional data. Please include your telephone number on the card. We appreciate your assistance in providing valuable observational information of wildlife species in the North Cascades.

Boulder/Butte Fires Ignite Partnerships

For several weeks last summer in Lake Chelan National Recreation Area, Stehekin Valley rangers and residents gathered almost nightly at the Buckner Orchard to watch the progress of the Boulder/Butte fires on the hillside above. They speculated on how far the lightning-caused fires would spread. Would the firefighters be successful? Would fire reach the homes on the valley floor?

In the evenings fires blazed vividly against the dark sky. During the day, while thick smoke filled the air from fires above, rangers and residents inspected home settings and removed brush and other fuels that could jeopardize structures. Rangers developed a "Pony Express" system to contact residences without phones in the event of an emergency. Residents assisted the Park personnel in an "Adopt a Pump" program. Each day, nine miles of protective fire hose and 20 fire pumps were checked and tested.

Meanwhile, Park and Forest Service firefighters combined their efforts to contain fires, not only on the slopes above Stehekin, but also on neighboring Forest Service lands. The fires merged and spread without regard to agency boundaries. Firefighting techniques had to be carefully chosen to protect the safety of firefighters in the rugged terrain and to minimize impact on the wilderness forest. In many areas the fire was contained by an aerial attack, using helicopters and water drops, creating a wet line that tied together natural barriers, such as cliffs and scree slopes.



Ask for new booklet on
Gray Wolves in the North Cascades

Within those limits, the fires zigzagged up and down the slopes. A rolling ember would ignite brush below, sending fire in a diagonal run along a new slope. In places fires burned very hot and torched tree tops, while in other areas fires only lightly burned the ground and left green branches above. A mosaic was created, similar to natural mosaics caused by fire for millennia.

Ultimately, the Boulder/Butte fires covered 4,000 acres. Firefighters were successful in keeping the fire from reaching the valley floor and no homes were burned. Most importantly, the firefighters escaped serious injury.

A rehabilitation program immediately followed the fires. Fireline was filled in, cut stumps were recut low to the ground and covered with brush, and a monitoring program was initiated to detect invasion of non-native plants or deterioration of water quality.

What else resulted from 1994's emergency fire experience? We gained greater appreciation for the strength of partnerships. During a summer when firefighting resources were stretched to their limit, the Park Service, Forest Service and the people of Stehekin Valley combined efforts, resources and expertise in the protection of the valley. The people of the valley and the natural resource, which suffered a minimum of impact from firefighting, benefitted greatly from these alliances. In the forest mosaic on the slopes above Stehekin, new shoots began to sprout, even before the last embers were out.

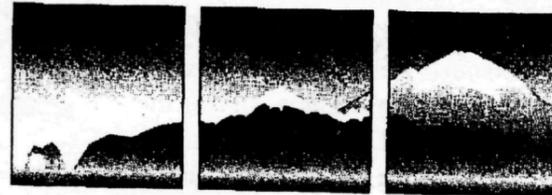
-Janet Kailin, NPS Fire Mgmt. Officer

CHECK THE BOX(ES) THAT DESCRIBE THE HABITAT

VEGETATION TYPES	<input type="checkbox"/>	Fescue meadows (east side)
	<input type="checkbox"/>	Heather meadows
	<input type="checkbox"/>	Deciduous forest
	<input type="checkbox"/>	Subalpine larch/Whitebark pine
	<input type="checkbox"/>	Subalpine fir
	<input type="checkbox"/>	Ponderosa pine
	<input type="checkbox"/>	Mountain hemlock
	<input type="checkbox"/>	Alaska cedar
	<input type="checkbox"/>	Pacific silver fir
	<input type="checkbox"/>	Western hemlock
	<input type="checkbox"/>	Douglas-fir
	<input type="checkbox"/>	Lodgepole pine
	<input type="checkbox"/>	Western red cedar
VEGETATION STAND STRUCTURE	<input type="checkbox"/>	Lush herbaceous
	<input type="checkbox"/>	Unvegetated
	<input type="checkbox"/>	Old-growth forest
	<input type="checkbox"/>	Mature forest
	<input type="checkbox"/>	Young forest
SPECIAL AND UNIQUE HABITATS	<input type="checkbox"/>	Pole-sapling dominant
	<input type="checkbox"/>	Krummholz (subalpine zone)
	<input type="checkbox"/>	Shrub dominant
	<input type="checkbox"/>	Grass/forb dominant
	<input type="checkbox"/>	Agricultural
	<input type="checkbox"/>	Avalanche paths
AQUATIC SYSTEMS	<input type="checkbox"/>	Riparian/Lacustrine
	<input type="checkbox"/>	Downed material
	<input type="checkbox"/>	Snags
	<input type="checkbox"/>	Cliff/Rim
	<input type="checkbox"/>	Talus
SPECIAL AND UNIQUE HABITATS	<input type="checkbox"/>	Lake/Pond
	<input type="checkbox"/>	Marsh/Swamp/Bog
	<input type="checkbox"/>	River/Stream
	<input type="checkbox"/>	Snowfield

Species/Observation	Date of Observation
Location	Area Name (Check One) <input type="checkbox"/> North Cascades NP <input type="checkbox"/> Ross Lake NRA <input type="checkbox"/> Lake Chelan NRA <input type="checkbox"/> Other
Observer/Affiliation/Phone	County (Check One) <input type="checkbox"/> Chelan <input type="checkbox"/> Whatcom <input type="checkbox"/> Skagit <input type="checkbox"/> Other
Description, Behavior, Nesting, Plumage, Age, Sex, Time, Etc.	Topo Quad
	Optional Elevation
	UTM

Helping Hand Extended to North Cascades N.P.



History is being made in Washington State. The Mount Rainier, North Cascades & Olympic Fund is a friends group established to support National Parks in the northwest. This spring, with the addition of North Cascades National Park, the Fund will proudly represent and aid all three National Parks in Washington.

For the citizens of Washington State, the Mount Rainier, North Cascades, and Olympic National Parks are uniquely beautiful public sanctuaries. Preserved as national treasures, these Parks draw millions of visitors from all over the world and offer a personal connection with a natural wonderland. Unfortunately, their very popularity has placed these Parks in jeopardy. Since 1983, Washington's National Parks have struggled with increasingly tight budgets.

The Fund was founded in March of 1993 to unite and lead a private, independent conservation effort to support and enhance the Mount Rainier and Olympic National Parks. With the addition of North Cascades NP, this non-profit organization will continue its mission to support Park Service goals of preservation and protection. Expanding upon these goals, the Fund tries to ensure that each visitor has a high quality, memorable experience through sponsoring educational projects, trail improvements, vegetation restoration, vegetation theft prevention, wildlife projects, and fisheries projects.

The Mount Rainier, North Cascades & Olympic Fund works with corporations, foundations, businesses, and individuals to secure needed financial contributions. Volunteers support the Fund and administer projects suggested by Park Superintendents.

If future visitors to our great National Parks are going to experience the beauty and diversity that originally set Mount Rainier, North Cascades, and Olympic apart, we must actively work together for their restoration and protection today. For more information on how you can help give nature a helping hand, call (206) 621-6565 or, look for the Fund's brochure in any of the visitor centers located at all three Washington National Parks.

-Jan Gibson

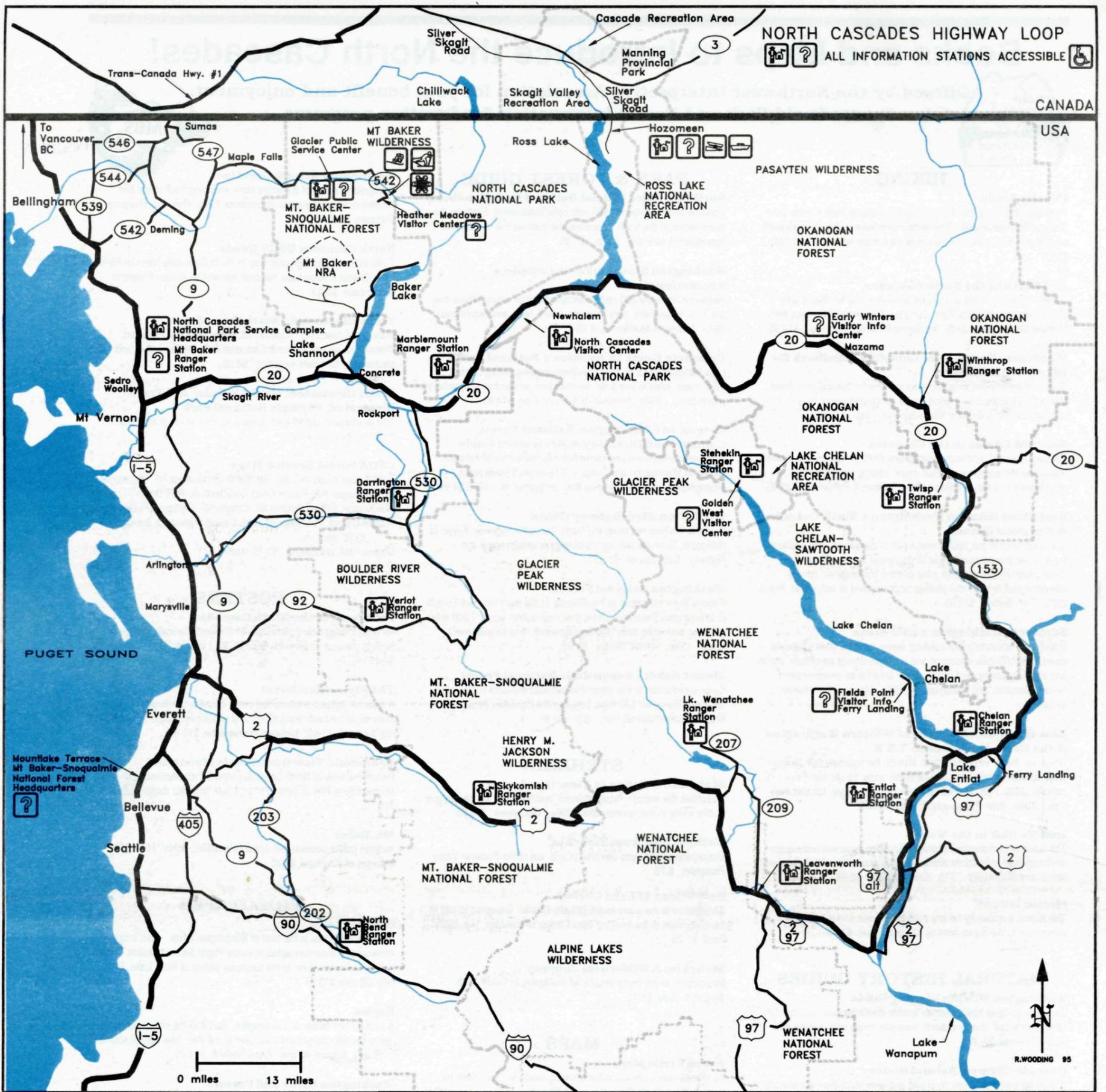
The Mount Rainier,
North Cascades & Olympic Fund

North Cascades Challenger

Produced and published cooperatively by North Cascades National Park (USDI), and Mt. Baker Ranger District of Mt. Baker-Snoqualmie National Forest (USDA). Funded by the Northwest Interpretive Association.

Editor: Barbara A. Borst,
Intern, Huxley College, WWU
Production Coordinator:
Cindy Björklund, NPS
Maps: Cathie Mehler, USFS
Ruth Wooding-Raymer, NPS
Articles and graphics by National Park,
Forest Service and NCI Staff

Printed by: Snohomish Publishing



Park & Forest Information Stations Cascade Loop--Summer Hours



**North Cascades National Park;
Mt. Baker Ranger District;
Mt. Baker-Snoqualmie National Forest
SEDRO WOOLLEY**
2105 State Route 20, 98284
Sat. - Thurs., 8:00am-4:30pm
Fri., 8:00am-6:00pm
(360) 856-5700

MARBLEMOUNT
Skagit District/Wilderness District
Ross Lake National Recreation Area (NPS)
Backcountry Information/Permits
*Fri. - Sun., 7:00am-8:00pm
Mon. - Thurs., 7:00am-6:00pm
(360) 873-4590 (ext. 37 or 39)

NEWHALEM
North Cascades Visitor Center (NPS)
*Mon. - Fri., 8:30am-6:00pm
*Sat. & Sun., 8:00am-7:00pm
(206) 386-4495

STEHKIN
Lake Chelan National Recreation Area (NPS)
Golden West Visitor Center
Daily, 8:00am-4:30pm
(360) 856-5703 ext. 14

**Okanogan National Forest;
Methow Valley Ranger District
EARLY WINTERS**
Daily, 9:00am-5:00pm (509) 996-2534

WINTHROP Office
Mon. - Fri., 7:45am-5pm
(509) 996-2266
Sat., 9:00am-5:00pm (Methow Valley VC)
(509) 996-3194

TWISP Office
Mon. - Fri., 7:45am-5pm
Sat., 8:00am-5:00pm; Closed Sunday
(509) 997-2131

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

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

LAKE WENATCHEE Ranger District
Mon. - Sat., 8:00am-4:30pm; Closed Sun.
(509) 763-3103

**Mt. Baker-Snoqualmie National Forest
1-800-627-0062 or TDD 1-800-272-1215
GLACIER PUBLIC SERVICE CENTER**
Daily, 8:30am-4:30pm (360) 599-2714

HEATHER MEADOWS Visitor Center
*Daily, 10:00am-5:00pm

DARRINGTON Ranger District
Daily, 8:00am-4:30pm (360) 436-1155

VERLOT (Darrington Ranger District)
Daily 8:00am-4:30pm (360) 691-7791

SKYKOMISH Ranger District
Daily, 8:00am-4:30pm
(360) 677-2414 or (206) 744-3260

NORTH BEND Ranger District
Mon. - Fri., 8:00am-4:30pm (206) 888-1421

SNOQUALMIE PASS Visitor Center
Thurs. - Sun., 8:30am-4:45pm
(206) 434-6111

**WHITE RIVER Ranger District
& Mt. Rainier National Park**
Mon. - Fri., 8:00am-4:30pm
Sat., 8:00am-3:30pm
(360) 825-6585

* July & August