

PART TWO

THE CLEARWATER VALLEY

The following pages are excerpted from the 2nd edition of Nature Wells Gray: A Visitors' Guide to the Park, by Trevor Goward © & Cathie Hickson (1995). Most of the text is current, though a few important changes should be noted:

p. 34: Spahats Creek Provincial is now included in Wells Gray Provincial Park. The campground has been closed.

p. 38: The trail to the Shadden is now closed, owing to a washout triggered by high-elevation logging on the Trophies (p. 40).

Note: Road and trail conditions in the Clearwater Valley are subject to change. Please check with the Wells Gray information Centre (250-674-3334) for current conditions. The authors cannot accept responsibility for any inconvenience or damages incurred through the use of this posting.

10.3 km
(6.4 miles)

- SWALLOWING
- LICHEN
LOOKING
- MISTLETOEING
- WATERFALLING
- CANYONING

SPAHATS CREEK PROVINCIAL PARK

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AT Spahats Creek Park, you'll find a 20-unit campground, complete with good drinking water, firewood, outhouses and a short, self-guiding nature trail (alias the Forest Loop Walk). You'll also find one of British Columbia's better-kept secrets: Spahats Falls. To view the falls, bear left off the Clearwater Valley Road to the viewpoint parking lot, then stroll ten minutes along the canyon edge.

The Spahats viewing platform is a good place to linger awhile. Seventy-five m Spahats Falls pours off the edge of the same volcanic bench over which the park road has passed since leaving the North Thompson Valley. The lava flows here were erupted about 600,000 years ago; more recently, Spahats Creek has sculpted this 120 m canyon.

Spahats Creek Canyon dates from the end of the last Ice Age, about 11,000 years ago. As the Ice Age glaciers melted, they released enormous quantities of silt-laden water into Spahats Creek. This water poured off the edge of the plateau into the already-existing canyon of the Clearwater River. The falling water began to erode backward into the unconsolidated gravels that underlie the lava. Because the lava itself is composed of vertical columns, it soon began breaking off and falling inward in large slabs – like slices of bread. Spahats Canyon is the end result of this process.

Once the glaciers had melted, Spahats Creek shrank to a mere whisper of its former power and fury. Today the creek continues to down-cut a mini-canyon into the headwalls of the older canyon: a canyon within a canyon within the Clearwater Valley.

Revealed in the canyon walls opposite are about a dozen layers of lava. These probably built up quickly, as pulse after pulse of lava issued from the parent volcano. Beneath the bottom layer, notice a deposit of sand and gravel; this marks the place of a prehistoric



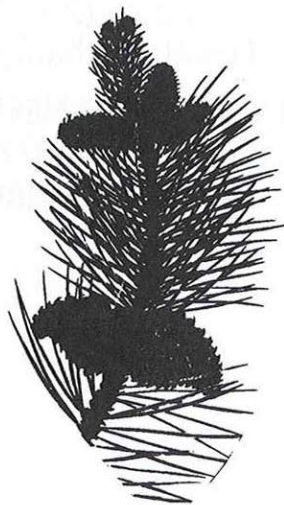
The Spahats Falls viewing platform is perched atop multiple layers of basaltic lava flows. (TC)

Clearwater River. Where did the lavas come from? No one knows. Erosion has removed any sign of a volcano.

From the colour of the canyon walls, it would be easy to suppose that the rock here is orange. Actually what you are looking at is the colour of three species of orange peel lichens (*Xanthoria* spp.) which colonize the rock surface. These lichens are literally the “patina of age”; much of the recent history of Spahats Canyon can be read in their patterning over the canyon walls. Because the orange peels require several decades to establish once an cliff face has fallen away, the youngest (uncolonized) surfaces typically have a grey, rather than orange, appearance. Once established, they still require scores, if not hundreds, of years to form the continuous colonies now covering parts of the canyon.

Near the viewing platform, check the branches of Lodgepole Pine for Dwarf Mistletoe (*Arceuthobium americanum*). Mistletoe is a diminutive, leafless parasite which derives its nutrients from the living wood of the host tree. In late summer, watch for its fruits; when ripe, these explode, scattering the tiny seeds. The presence of Mistletoe here has spurred more than one visiting couple on to shameless acts of public romance – blissfully unaware that *that* tradition celebrates the European Mistletoe (*Viscum album*), a species not even remotely related to the species here.

From the viewing platform, you may wish to follow the trail that loops north to the Clearwater Valley Lookout. If so, set aside about 90 minutes for a pleasant, canyon-edge ramble through middle-aged conifer forests. Here listen for Townsend Warblers sweetly singing “Siddle-siddle-siddle-see” or “Great big bumblebee.”



Lodgepole Pine has needles in bundles of two. (RBCM)



The Clearwater River once occupied the centre of this valley, but was later pinned against the western wall by lava flows pouring down off the Trophy Mountains, to the right of the photo. Now the river has carved a canyon into the lava. (CH)

SPAHATS PLUNGE POOL TRAIL

2.5 hours (2 km) return.

Elevation change: 250 m.

- RIVER BEDDING
- ROCK BREAKING
- WATER FALLING

EYE-OF-THE-NEEDLE TRAIL

5 hours (6 km) return.

Elevation change: 300 m.

- RIDGE WALKING
- WILD GINGERING
- DRY GULCHING
- NATURAL BRIDGING

Both these trails are canyon-threaders: Arizona, Wells Gray style. Explore them at your own risk.

The Spahats viewing platform provides a convenient starting point for both hikes. From the platform, follow the canyon rim downstream past the safety fence to a fork in the trail. Here turn left onto a foot-worn path that descends steeply over a mossy basalt escarpment, and then over a grassy talus cone. Descending, watch for numerous “swayback” trees: testament to instability.

Having dropped 150 m, the path intercepts a more heavily used trail running left and right. If the Spahats Plunge Pool is your destination, turn left here. Otherwise turn right and continue downhill: the next left fork leads south to Eye-of-the-Needle (described on page 37), whereas the next right-hand fork – at river level – leads north to First Canyon (not described, but indicated on the accompanying map).

Spahats Plunge Pool Trail

First stop en route to the plunge pool is an outcropping of granitic Raft Batholith: an enormous protrusion of intrusive rock (rock formed deep within the earth’s crust), hereabouts mostly buried by lava. Notice the consolidated sands and gravels sandwiched between granitic rock below and the basaltic rock above. These are the remains of an ancient riverbed.

As you continue uptrail, you can hardly fail to be impressed by this bottoms-up view of Spahats Canyon. Layered vertical walls tower above you. The sky is a narrow slit. And at your feet, a thousand broken boulders remind you that your life, cosmically speaking, is of tenuous purchase at the moment.

Check among the rubble for various crannied flowers, including Spotted Saxifrage (*Saxifraga bronchialis*), with its low, prickly mats of tiny, overlapping leaves,



Spotted Saxifrage demands a second look. (NONC)

and its delicately spotted white petals. Bend low to observe how the spots of each petal grade outward from paler to darker. Saxifrage is from Latin, meaning “rock breaker.”

As you negotiate the talus en route to the base of the falls, take care not to slip on the blue-green algae (mostly *Nostoc*) covering the rocks. This is raincoat country: notice how the force of the spray organizes algae, mosses, grasses, shrubs and trees in more or less concentric bands outward from the falls. Trail end is a narrow ledge just beyond the falls, fronted quite literally by a tower of water falling from the sky. Assuming you live to remember it, this is a prospect you are unlikely soon to forget.

Eye-of-the-Needle Trail

This hike forms part of a more extensive trail system constructed by the B.C. Ministry of Forests along the east bank of the Clearwater River, south from Camp Creek (km 17.8) to the village of Clearwater. Contact the local Forest Service office at 604-587-6700 for more information.

At the Eye-of-the-Needle, the Clearwater Valley is a constricted gap 500 m wide. The canyon here is defined east and west by basalt and granite. To the east, an unbroken basalt wall towers 175 m above you. To the west the valley walls consist of steep granitic slopes rising nearly 700 m.

Occupying the north end of the canyon is a narrow ridge along which the trail passes. Today this ridge rises to the east of the river. A half million years ago it would have stood to the west. How is this? In the beginning, the Clearwater used to flow down the centre of the Clearwater Valley, somewhat east of its present position. An outpouring of lava later pinned it tight against the valley’s west wall. The cleft the river has cut since then now defines the western flank of the ridge.

South of the ridge, the trail enters a small valley occupied by a small creek and, beyond the creek, a sizable patch of Wild Ginger (*Asarum caudatum*), with its hairy, valentine’s-shaped leaves and unforgettable aftertaste. A short distance beyond, the trail passes close to the east wall of the valley, and here gives curious glimpses of former waterfalls now gone dry. Growing from cracks in the canyon walls, watch for Pellitory (*Parietaria pensylvanica*): a delicate, petal-less member of the Stinging



Pellitory (TG)

Nettle Family, but without the sting.

Ninety minutes south of Spahats Creek, and having reached the lower end of the Canyon, the trail veers eastward, and climbs steeply to the upper surface of the Spahats Plateau. Be prepared to negotiate both an unsteady talus slope and, above it, an unsteady basalt outcrop. Some distance past the talus, watch (where eagles dare) for a natural rock bridge ten m below the trail. This was once the lip of one of the dry waterfalls earlier seen from below. The "bridge" is what remained when the creek that used to waterfall here was diverted through a crack just upstream of the lip. Erosion took care of the rest.

Back on level ground again, the trail forks. Here take the left fork back to the park road, ten minutes distant, then walk two km north to Spahats Creek Park and your waiting vehicle.

CLEARWATER VALLEY LOOKOUT

The Clearwater Valley Lookout offers a first impression of southern Wells Gray, and is well worth the ten minute stopover.

Reach the Lookout by vehicle from the turnoff to Spahats Creek Park. To do so, simply follow the road marked "Picnicking" to a parking area two minutes ahead. (The Lookout road rejoins the Wells Gray Road at km 11.5.) Here you'll find picnic tables and out-houses, but no water.

Dominating the distant skyline to the north is 2900 m Garnet Peak – one of the tallest of Wells Gray's mountains. Garnet's Matterhorn-like profile will turn up again and again, each time a little nearer, as you approach the park.

From this vantage, it is easy to get a sense that lava flows once filled this valley. The lava benches along the valley walls are the last remnants of these flows. At the base of the benches are heaps of broken rock called "talus slopes," indicating that the cliffs continue to break away at intervals. The same, of course, is happening in Spahats Canyon, but there you'll see little talus because the water continually washes it away.

The dark recess in the canyon walls just north of here is called the Shadden. A trail to this enormous grotto leaves the park road at km 12.7.

The road on the far side of the river leaves from Clearwater Village.

TROPHY MOUNTAINS ROAD

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88 RIDGE TRAIL.....	PAGE 53

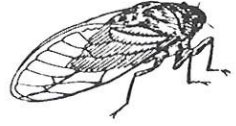
VISIBLE from the Yellowhead Highway south of Clearwater, and again from several places along the Wells Gray road, the Trophy Mountains form an impressive crown of nine peaks, the highest of which, at 2577 m, rises far above treeline. Below the peaks themselves stretches a three km lap of rolling plateau – the upper surface of the Shuswap Highlands.

It is here that the famed Trophy Meadows open for inspection every summer, to the delight of thousands. In 1987 these mountains – Wells Gray’s answer to Julie Andrews – were added to the park as the Trophy Mountain Recreation Area.

The Trophies offer unlimited opportunities for day hiking and overnight backpacking. Most of the best hiking is accessed by two separate trailheads, both of which can be reached via the gravel road which branches east (uphill) off the Wells Gray Road at this point. The road is clearly signposted, and is generally passable even to low clearance vehicles; motorhomes, however, should proceed with caution, owing to the steep grades. But do check with B.C. Parks for current road conditions.

At km 4.0 the Trophy Mountain road divides: here veer left if you wish to explore the western Trophies (i.e., the Trophy Meadows and Trophy Mountain Skyline); if your destination is Silvertip Falls or 88 Ridge, continue straight ahead.

11.4 km
(7.1 miles)



As long as the sun shines, the cicada sings its shrill song in the tops of trees. (BCP)

Trophy Mountains: Wells Gray's southern skyline. (BCP)



- CLEARCUTTING
- FLOWER
LOOKING
- TREE PROBING
- SNOW MOULDING
- HOVER FLYING
- BIRD SINGING

TROPHY MEADOWS TRAIL

3 hr (6 km) return.

Elevation change: 200 m.

Every summer, millions of flowers open in the Trophy Meadows. Their blossoms cover whole square kilometres of rolling subalpine: a flower festival unsurpassed in British Columbia. And beyond the Meadows rises the Trophy Skyline, offering the finest possible view of Wells Gray Park.

The 13.3 km drive to the trailhead involves an elevation gain of 1000 m. For every 100 m gained, the temperature drops (on average) 0.5°C. As you climb, the growing season becomes shorter and the winter snows more lasting; forest species drop out one by one.

By km 7.0, at 1400 m, most of the deciduous species have disappeared. The only ones left are a few scraggly Trembling Aspen and Black Cottonwood. Even the conifers are now less diverse.

Eventually the road levels off onto a narrow lava plateau called "Sheep Track Bench." The lava here is much younger than in the valley bottom; it was erupted about 300,000 years ago, at a time when glacial ice filled the Clearwater Valley. The ice hemmed in the

Clearing in the Forest

The enormous clearcut through which the road passes en route to the trailhead was formerly a virgin stand of Subalpine Fir and Engelmann Spruce.

The first trees to be cut were felled in 1978, though at that time the logging was confined to several small cut blocks, with "leave strips" between them. Soon, however, the strong winds at this elevation began to topple the standing trees at the edges of the leave strips.

The fallen logs provided excellent habitat for the Spruce Bark Beetle (*Dendroctonus rufipennis*), and before long these wood-hungry insects were spreading into the adjacent forest, where they caused considerable damage to the standing trees. For this reason, the leave strips were eventually also cut, and the 550 ha cutblock you see before you is the result.

The clearcut is now growing up to Fireweed (*Epilobium angustifolium*) and various shrubs. These are the vanguard of natural forest regeneration; their ecological function is to prepare the soil for the eventual establishment of the forest trees.

But modern silvicultural practices dictate that conifers should appear sooner rather than later, and already thousands of young spruce seedlings have been planted on this site. Unfortunately, the seedlings are now being shaded out by the natural regeneration. To save the seedlings, chances are good that this cut block may in time be sprayed with herbicides, thus continuing the chain of ecological disruption that began more than a decade earlier. So much for high elevation logging.



Contrast the clean, spire-like outline of the Subalpine Fir (left) with the branchy profile of the Engelmann Spruce. (TC)



The Black-felt Snowmould (*Herpotrichia juniperi*) feeds not only parasitically on tree needles, but also on algae – somewhat in the manner of a lichen. (TC)

lava flows against the valley wall, thus forming a vertical pie-shaped wedge composed of pillow lava and pillow breccia. The upper surface of that wedge is Sheep Track Bench.

To reach the Trophy Meadows trail, turn right off Sheep Track Bench at km 7.8, and continue another 5.5 km through a clearcut to the posted trailhead [see: CLEARING IN THE FOREST, page 40].

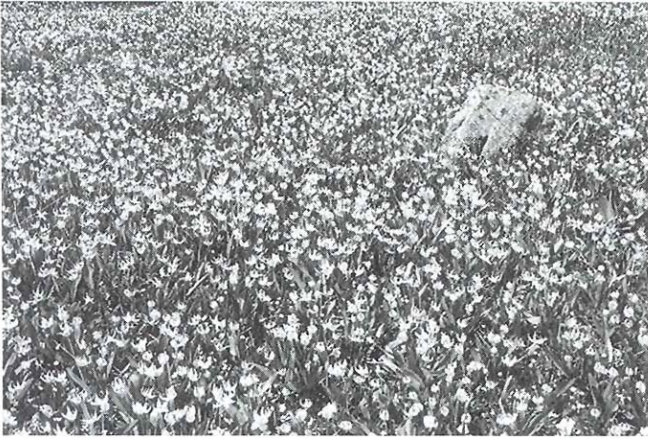
From the trailhead, the trail passes through the top end of the clearcut, and then into the forest. The grades are relatively easy throughout, and should be manageable to stout hearts of all ages. Water is available in several places along the trail.

As you climb through the subalpine forest to the meadows, listen for the Hermit Thrush – the finest of a family of fine singers. Its song is unmistakable: a series of delicious phrases, each introduced by a single flute-like note, and each separated by a deliberate pause. The first phrase is low in pitch, the second a little higher, and the third so thin and ethereal that you may not even hear it unless the bird is close at hand. A more moving song could hardly be imagined. One naturalist has rendered it thus: “Oh, holy, holy. Ah, purity, purity. Eeh, sweetly, sweetly.” Enjoy.

Other common birds of the subalpine forests are the Mountain and Boreal Chickadees, Red Crossbill, Pine and Evening Grosbeaks, Blue and Spruce Grouse, Gray Jay, Dark-eyed Junco, Golden-crowned Kinglet, and Red-breasted Nuthatch.

You are now climbing through a climax forest of Subalpine Fir and Engelmann Spruce. These are the only trees left at this elevation. They are easily told apart both by the needles and by the bark. The needles are soft and “furry” in the Fir, and sharp in the Spruce (“When you get all spruced up, you look pretty sharp!”). As to the bark, it is smooth in the former, and flaky in the latter. With practice you can also learn to recognize these (and all of Wells Gray’s other conifer species) by the smell of the crushed needles. Go ahead. No one’s watching.

As you climb, the forest becomes less dense. Yet to judge from the size of the trees, it would appear they grow well once established; apparently the trick is to get established in the first place. Conditions must be just right. Timberline trees put on good cone crops only once in several years, and only then are seeds available. Also, any seeds that do exist must find suit-



able growing places – something not easy to do in herb-dominated forests and meadows. And even if they do manage to germinate, the young seedlings are unlikely to survive the summer frosts and drought characteristic of this elevation.

Along the edge of the meadows, the young trees face another challenge: the Black-felt Snow-mould (*Herpotrichia juniperi*). This remarkable fungus grows in snow at temperatures near freezing. Sending out its hyphae, it sucks the life juices from buried tree branches. Later, after the snow has melted, the dead and dying branches look as though they are covered in black tar. In winters of prolonged snow lie, entire trees may be killed by this fungus.

About an hour from the trailhead, the forest gives way to the Trophy Meadows. Flower meadows are by no means a universal feature of treeline. Even in British Columbia, subalpine flower meadows are essentially restricted to mountains south of about Prince George. Nowhere are they more spectacular than here.

Two waves of flowers occur on these meadows every summer. The first, in late June, is dominated by Glacier Lilies (*Erythronium grandiflorum*), which often begin to push up even before the snow has melted. Imagine millions of clear yellow blossoms crowding the slopes as far as the eye can see. The best of the display lasts only a few days, but because the lower meadows (at 1900 m) bloom up to three weeks earlier than the upper (at 2050 m), you can usually find at least a few Glacier Lilies still flowering in late July.

Glacier Lilies are enjoyed not only by hikers, but also by Grizzly Bears. Early in the season the Grizzly may visit the Trophy Meadows, digging up the lily



(Left) In the Glacier Lily (*Erythronium grandiflorum*), the tassel-like anthers (pollen-bearing organs) are yellow in some plants, but purple in others. (TC)

(Right) Look long enough among the millions of Glacier Lilies that deck the Trophy Meadows each spring, and eventually you'll find a pale-flowered "albino" form. (TC)

The Grizzly usually overwinters in dens above 1000 m, and emerges from hibernation in early or mid May. Food is scarce at this season, so the bear resorts to eating carrion. In its search for food, it may invade the low country. By early summer, it is back at treeline, where Glacier Lily bulbs are its main food. Glacier Lilies appear to be the key to Grizzly distribution during July and August.

summarized from
R.W. Ritcey (1955)

In August, the Trophy Meadows are carpeted with the blossoms of more than two dozen kinds of wildflowers. (TC)

THE TROPHY MEADOWS ARE AMONG THE FEATURE ATTRACTIONS OF WELLS GRAY; PLEASE KEEP TO THE TRAIL AT ALL TIMES – EXCEPT, PERHAPS, TO LUNCH AT THE “SOFT ROCK CAFE”: A BOULDERY AREA LOCATED NEAR THE LOWER END OF THE MEADOWS.

bulbs which provide a much needed source of carbohydrates. Though you're unlikely to see a Grizzly, it isn't hard to find evidence of their diggings: just look for abrupt depressions in the ground.

The second wave of flowers is at its best during the last weeks of July and the first weeks of August. Then the meadows are a rising crescendo of colour: Arnica yellows, Daisy mauves, Lupine blues, Monkeyflower reds and Valerian whites.

Specialties of the season include, for the nose, some impressively large clove-and-cinnamon-scented colonies of White-rein Orchid (*Platanthera dilatata*) and, for the eyes, the multicoloured blossoms of Indian Paintbrush (*Castilleja occidentalis* and others). These range in hue from rich, creamy white, through yellow and orange, to the deepest possible crimson. Worthy of mention, too, are the brightly coloured flowers of Orange Agoseris (*Agoseris aurantiaca*) which come in two distinct colour phases, one orange, and the other a deep pink. The latter was recently named *A. lackschewitzii*.

With all this mass of blossoming flowers, you may wonder where the butterflies are. The answer is: they



are in the valley. Here, at nearly 2000 m, the weather is simply too unpredictable, and cool, for butterflies to really thrive. So their place as pollinators is largely taken over by several species of flies. Especially common are the hover flies [see: MELLOW YELLOW].

With the arrival of the first heavy frosts, generally around the middle of August, the summer flowers have crested, and soon subside. Now in the place of flowers there rises a sweet, melancholy fragrance of decay. Particularly dismal-looking are the great corn-like leaves of the Corn Lily (*Veratrum viride*): green and luscious only days before, now brown and tattered.

On dry, sunny afternoons toward the end of the month, you may be startled by the sudden snap, crackle and pop sounds of exploding Lupine seed pods. By September, the meadows are ready for winter. And a good thing, too, for now the first snow flurries of the season begin.

Birds are also common, though not particularly diverse. Listen especially for the songs of sparrows: the Fox Sparrow ("Oh dear me-oh, mimimimi"), the Chipping Sparrow (a dry, continuous trill); the Savannah Sparrow (an absent-minded "Tsit-tsit-tsit, tseeee-tsaay"); the Lincoln's Sparrow (a sweet operatic gurgle: "her her her he he he, mimimimi"); and the Golden-crowned Sparrow (a mournful, descending "Oh dear me").

After mid July, the sparrows are joined by the Rufous Hummingbird. Though this species nests pri-



Hover flies come in many shapes and sizes. Most, however, resemble wasps and bees, but none are harmful. (BCP)

Mellow Yellow

Visiting the flowers at this season are various species of hover flies (syrphid flies): wasp-like creatures whose bodies are cross-banded with an ominous patterning of yellow and black. Because these harmless flies so closely resemble wasps, most predators are content to leave them alone. And so do most people, the power of mimicry being what it is.

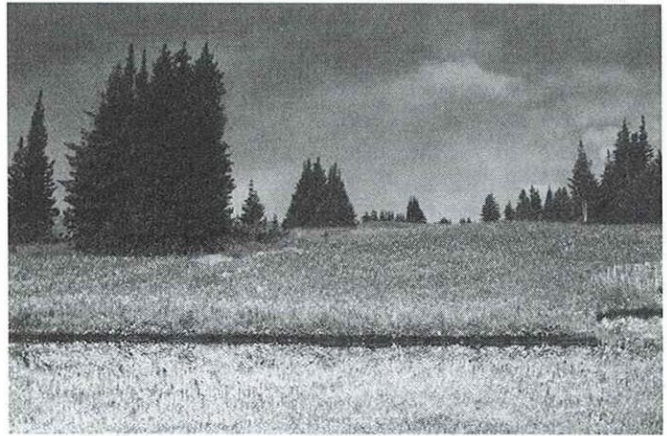
Wells Gray is home to dozens of species of hover flies, though not all resemble wasps. Some, like the drone fly (*Eristalis tenax*), resemble Honeybees, and others, including species of *Criorhina*, are Bumblebee mimics. All these insects feed on flower nectar and pollen.

Telling hover flies from wasps is usually easy. Wasps have narrow waists and long, thread-like antennae. In hover flies, by contrast, the waists are broad, and the antennae very short, almost horn-like.

Once you've learned to recognize hover flies with certainty, you might like to "befriend" one. Do so by slowly placing your hand close to a flower where a hover fly is feeding. After a time, the fly should lose interest in the flower, and begin to fix its attention on you. Once it lands, you may gently stroke it without it flying away.

Syd Cannings and Rob Cannings

Subalpine tree islands are reflected in the still waters of a mountain tarn, here wrong way up. (TC)



marily in the lowlands, later it removes to treeline to sip nectar from the flowers now in bloom. Tiniest of all birds, hummingbirds are unmistakable. They show a distinct preference for red flowers, and will often "buzz" you if you're wearing clothing of that colour.

After mid August, hawks begin to migrate out of the

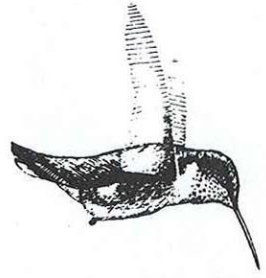
Trophy Meadows Flower Calendar

LEGEND: xxxx = flowering; . . . = seed dispersal

Note: Flowering times may vary as much as two weeks, depending on weather.

Common Name	Scientific Name	June	July	August
Western Anemone	<i>Pulsatilla occidentalis</i>	xxx	
Marsh Marigold	<i>Caltha biflora</i>	xxxxxxx	
Spring Beauty	<i>Claytonia lanceolata</i>	xxxxxx		
Glacier Lily	<i>Erythronium grandiflorum</i>	xxxxxx		...
Snow Buttercup	<i>Ranunculus eschscholtzii</i>	xxxxxx	
Globeflower	<i>Trollius laxus</i>	xxxxxx		...
Indian Paintbrush	<i>Castilleja occidentalis</i>		xxxxxxxxxx	
Arctic Lupine	<i>Lupinus arcticus</i>		xxxxxxxxxx	..
Alpine Veronica	<i>Veronica wormskjoldii</i>		xxxxxxx	
Meadow Rue	<i>Thalictrum occidentale</i>		xxxxxxx	...
Broad-leaved Arnica	<i>Arnica latifolia</i>		xxxxxxxxxxx	...
Hairy Arnica	<i>Arnica mollis</i>		xxxxxxxxxxx	..
White-rein Orchid	<i>Platanthera dilatata</i>		xxxxxxx	
Slender Bog Orchid	<i>Habenaria saccata</i>		xxxxxxx	
Wood Betony	<i>Pedicularis bracteosa</i>		xxxxxx	...
Mountain Valerian	<i>Valeriana sitchensis</i>		xxxxxxx	..
Mountain Daisy	<i>Erigeron peregrinus</i>		xxxxxxx	.
Triangle-leaved Ragwort	<i>Senecio triangularis</i>		xxxxx	...
Corn Lily	<i>Veratrum viride</i>		xxxxxxx	
Mountain Sage	<i>Artemisia norvegica</i>		xxxxxx	
Cow Parsnip	<i>Heracleum lanatum</i>		xxxxxxx	
Pink Monkeyflower	<i>Mimulus lewisii</i>		xxxxxx	
Orange Agoseris	<i>Agoseris aurantiaca</i>		xxxxx	
Showy Aster	<i>Aster foliaceus</i>		xxxxxxxx	

north country. Flying southward, they keep to the high open ridges and meadows. In the Trophy Meadows, it is then easy to see as many as a dozen raptors in an afternoon, and sometimes many more. The most common are the Red-tailed Hawk, the Cooper's Hawk, the American Kestrel and the Northern Harrier. Later in the season, after the first snows, watch also for the Rough-legged Hawk, en route from the arctic to its wintering grounds in the Okanagan and points south.



The Rufous Hummingbird (RBCM)

TROPHY SKYLINE TRAIL

7 hr (12 km) return.

Elevation change: 600 m.

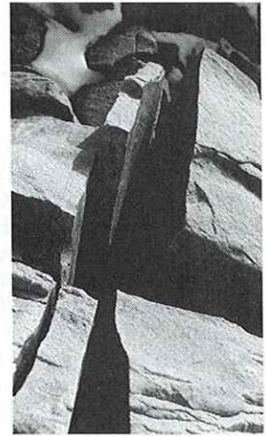
The nine peaks of the Trophy Mountains are really just more resistant points in a long, forking ridge which has been dissected by erosion. The ridge, however, is still easy to make out and, seen from above, resembles the letter "Y." It is to the stem of the Y that the following account will lead you. Be ready for a most impressive view over southern Wells Gray.

To reach the Skyline, continue north along the Trophy Meadows trail, passing en route an old, dilapidated shepherd's cabin. Beyond the cabin the trail becomes a narrow footpath which soon forks; here keep left.

Not far north of the cabin, the trees begin to dwarf. Probably you'll have noticed that conifers at this elevation tend to be clustered as smallish "tree islands." The clustering increases the trees' chances of survival by providing better shelter from the wind, mutual mechanical support, warmer temperatures (the clumped trees absorb the sun's warmth), and a longer growing season. Apparently the operating principle is "United we stand. . . ."

Because tree growth is favoured at the perimeter of the tree islands, young trees readily become established here, and the islands continue to enlarge. In time, the parent trees in the centre succumb to old age, and the tree island develops a hollow centre; it is now called a "tree atoll." Tree atolls are fine places to wait out a summer rainstorm.

- TREE CLUMPING
- HEATHER PROBING
- GLACIER GAZING
- WILLOW WATCHING
- PIKA BOOING



Freeze, thaw, crack and crumble: so the process of erosion works on solid rock, producing boulders, then cobbles and ultimately soil. (HK)



The nodding, urn-shaped flowers of White Moss Heather (*Cassiope mertensiana*) are characteristic of the Heather Family (*Ericaceae*). Look for similar flowers among the blueberries. (TC)

At length the trail descends to the shores of Sheila Lake where you'll find the only designated camping area on the mountain. If that's your destination, fine; otherwise make your way onto the crest of the ridge rising east above the lake. The Skyline is now in full view; no trail is needed. Simply continue north to the low saddle directly ahead.

Among the mountains of Wells Gray, the Trophies are distinctive for their many lakes and tarns – at a conservative estimate, more than 50. Most owe their existence to mountain glaciers which once clung to the faces of these slopes. Blue Ice Tarn, at 2100 m, is the highest body of water in Wells Gray. On average, its surface remains ice-covered until about the second week of July. Watch for it along the route to the Skyline.

As you climb, watch for permanent snowfields with a strangely pink hue. The colouring agent is a tiny green alga sometimes called the Watermelon Alga (*Chlamydomonas nivalis*). This is actually a tiny, single-celled organism which, perhaps surprisingly, contains green chlorophyll, just as other plants do. Here, however, the green is masked by a red pigment that probably helps to preserve the alga from the harmful effects of intense ultraviolet radiation. And, to help it continue photosynthesizing at temperatures below freezing, each algal cell contains a small shot of mineral "antifreeze." What does it feed on? Sunlight and dust.

Heather Weather

Above treeline, the herb meadows give way to shrubby heaths. Here grow White Moss Heather (*Cassiope mertensiana*), White Mountain Heather (*Cassiope tetragona*), Pink Mountain Heather (*Phyllodoce empetrififormis*) and Yellow Mountain Heather (*Phyllodoce glanduliflora*). To tell these shrubs apart, pay attention to the flower colour. Pink and yellow ones are no problem, but if the flower is white, you'll have to pay attention to the backs of the needly leaves: if each of them bears a fine, narrow groove, you are looking at a White Mountain Heather; if not, it is the White Moss Heather that has caught your eye.

All the heathers have evergreen leaves, for deciduous leaves are at a disadvantage here. In the first place, summer is brief in the alpine, and most

plants simply have not enough time to put on a new set of leaves each year. It is much better, if you can manage it, to use the same leaves year after year.

In the second place, deciduous leaves are poor water-retainers. Strange as it may seem, drought is a real threat to plants of the high country – both in summer and in winter, but especially in winter. Because these ridges often blow clear of snow, the shrubs are exposed to extreme drying by the wind. The needles have evolved as moisture-preservers in which the breathing pores (or stomata) are recessed in the lower surface of the needle, thus creating a dead air space which reduces evaporation. Also, the outer surface of the needles is covered in a thick, waxy coating not unlike that of a desert cactus.



The view from the Trophy Skyline (at 2350 m) is breathtaking. In good weather, you can look 75 km north to the Matterhorn-like profile of Garnet Peak; everything you see in that direction lies within Wells Gray. On rare occasions it is possible to see even farther – to the summit of 3954 m Mount Robson, grandest of the Canadian Rockies, towering like a cumulus cloud above the northeast horizon.

Below the summit of Trophy Peak clings the southernmost glacier in Wells Gray. The crevasses at its head (the bergschrund) mark the point at which the ice begins to flow. (TG)

The Little Ice Age

Glaciers in the high mountains of Wells Gray have fluctuated during the Holocene (the past 11,000 years) in response to climatic changes. Shortly after the close of the Fraser Glaciation (the last Ice Age), the climate was warmer than it is today, and the glaciers probably were smaller.

This warmer period lasted until about 5000 to 6000 years ago, and was followed by a period of cooling and glacier expansion. The first well documented Neoglacial advance in the park is called the Battle Mountain advance; it culminated between 3400 and 2400 years ago.

Even more dramatic was the cooling of the past several centuries, which is known locally as the Mammoth Creek advance, and worldwide as the Little Ice Age. At that time, most glaciers were larger than at any other time since the Fraser Glaciation. The fresh, sparsely vegetated morainal ridges adjacent to most existing glaciers were produced at this time.

Glaciers began to recede from their maximum Little Ice Age positions at various times during the 18th, 19th and 20th centuries. Since then they have undergone sporadic retreat interrupted by standstills and readvances.

John Clague

The Northwest Territories? No, the Trophy Mountain Skyline. Where frost comes early and snow lies late, ice-shattered rocks form boulder fields as far as the eye can see. (TC)



Clinging to the north face of the Trophies are snowfields and, farther east, the only glacier in southern Wells Gray. The latter is a left-over from cooler times.

In the high mountains, temperatures are close to freezing for much of the year, and the climate is said to be periglacial. Not surprisingly, the freezing and thawing of water plays an important role in geological

Rocks in Turmoil

The rocks that form the Trophies are quite unlike the volcanic rocks in the valley. They form part of what geologists call the Shuswap Metamorphic Complex which is, in turn, part of a much larger zone of rock known as the Omineca Crystalline Terrane. This terrane runs the length of British Columbia, and actually records a collision that occurred between the former North American continent to the east, and several smaller land masses to the west. The collision lasted about 40 million years, starting some 200 million years ago when the dinosaurs were just entering their heyday.

In the contact, or suture, zone right here, the movements of the earth were particularly powerful. Rock layers were

folded as you might fold pieces of paper, and then folded again in different directions. At the same time crystalline minerals in the rocks were reoriented so that they ran parallel to one another, thus imparting cleavage to the rocks.

All this geologic commotion generated intense pressure and heat. As a result, minerals contained within the original sedimentary and volcanic rocks began to react with one another, and to metamorphose into entirely new minerals. Clay minerals, for example, turned into garnet. So much have these rocks changed, that geologists have a very difficult time deciphering their origins. This is metamorphism at its most extreme.

Paul Metcalfe

processes. When water freezes in the cracks of rocks, it expands, and so gradually wedges the rocks apart. This wedging eventually shatters the rocks to a jumble of small boulders. Such boulderfields are common in the Trophies, and are called *felsenmeers* (rock seas).

Check the crannies between the rocks for as many as 20 different species of flowering plants, some of them more delicate in appearance than would seem possible on this windswept summit. The Alpine Harebell (*Campanula lasiocarpa*) is one of these, with its seven cm stalks, and disproportionately huge sky-blue bells.

Also growing here are the tiniest trees in the world – willows that stand scarcely two cm tall. Watch for two of these: the Snow Willow (*Salix nivalis*) and the Cascade Willow (*Salix cascadiensis*). Tell them apart by the leaves, which are blunt-tipped in the first, and pointed-tipped in the second. Though not evergreen, like the heathers, they survive even more drastic conditions. Their trick is simply to lie flat against the ground, where the sun's warmth is greatest, and the wind's purchase weakest.

Fewer plants to eat means fewer animals. This is especially true of plant-eating mammals, which are represented here by only two species. These, the Hoary Marmot and the Pika, find shelter among the tumbled boulders, and have actually made the alpine tundra their home. Recognize them at a distance by their calls: a shrill whistle in the Beaver-sized Marmot, and a nasal, ventriloquial "Eeep!" in the Guinea-Pig-sized Pika.

Here the big challenge, besides finding food, is to simply stay warm. This the Marmot and Pika accomplish by having thick fur, by spending much of their time sunning, and by having body shapes that minimize heat loss. The most heat-retentive shape of all is a sphere, so it is not surprising that both resemble furry balls with short ears and limbs.

Finally, the birds. Species to watch for include the White-tailed Ptarmigan, the Golden Eagle, the Water Pipit and the Rosy Finch.



The Snow Willow (*Salix nivalis*) comes in two sexes. Pictured here is a female shrub with fruiting capsules. Notice the bright, shiny Canadian penny. (TC)



When you cross a mountain boulderbed, watch for the Pika's little "haystacks," left out to dry in the sun. (BCP)

- WATERFALL
WOWING
- CIRQUE LURKING
- ROADSIDE
GRASSING

SILVERTIP FALLS TRAIL

1 hr (2 km) return.

Elevation change: 75 m.

Silvertip Creek rises in Cwem Cwem Lake, at the foot of Trophy Peak. At Silvertip Falls, five km southwest, the creek cataracts over the headwall of the second of two "glacial armchairs," or cirques, that punctuate its course [see: ICE SCULPTURES, page 53]. At 175 m, the falls are taller even than Helmcken. In freshet they are fulsome indeed, though by mid July they have usually dwindled to a mere silver thread whispering.

Silvertip Falls is now the focus of a Forest Service "Rec Site," offering primitive camping places for about eight tents. To reach the Falls drive east up the Trophy Mountain road to the junction at km 4.0, then continue right for another 2.5 km to the bridge at Silvertip Creek.

Notice how the road verges here have been seeded to grass species alien to the region. Timothy (*Phleum pratense*), with its compact, bottle-brush seed heads, is the most familiar of these, but other genera include Ryegrass (*Lolium*) and Fescue (*Festuca*). If the trail is overgrown, or the campsite strewn with litter, direct your comments to the B.C. Ministry of Forests (604-587-6700).

With a base elevation of only 1400 m, the Silvertip cirque is among the lowest in the southern Clearwater Valley. It is also both a cool place on a hot day and, for campers, a cold place on a warm night, owing to downdrafts from the high Trophies directly above. The cold nights partly explain the presence here of several plant species more typical of subalpine forests: False Azalea (*Menziesia ferruginea*), Mountain Rhododendron (*Rhododendron albiflorum*), Broad-leaved Arnica (*Arnica latifolia*), Lesser Twisted-stalk (*Streptopus roseus*), and Corn Lily (*Veratrum viride*).

The trail to the base of the falls is uphill all the way. The forests are old and sprucey, and the understory lush. After mid August, watch here for the raspberry-like fruits of Trailing Rubus (*Rubus pedatus*). The fruits are tangy, but edible.



The Mountain Rhododendron (*Rhododendron albiflorum*) may not be showy, but it's tough. Look for it near treeline. (RBCM)

88 RIDGE TRAIL

4 hr (8 km) return.

Elevation change: 650 m.

- BIRD WATCHING
- PLANT LOOKING
- ICE SCULPTING
- LICHEN PROBING

88 Ridge is gateway to the southeast corner of the Trophy Mountains. It is also Wells Gray's most direct route into the alpine-tundra. Be ready for steep.

The trailhead is signposted, and will be found at 1600 m at km 12.5 on the Trophy Mountain Road; keep right at km 4.0.

From the trailhead, a 15 minute hike leads you through logging slash to the edge of a virgin forest of Engelmann Spruce and Subalpine Fir. The trail climbs steeply, levelling only some 30 minutes later near the first of several small subalpine glades. En route it penetrates a fairly well-delimited band of False Azalea (*Menziesia ferruginea*) and Mountain Rhododendron (*Rhododendron albiflorum*) thickets.

Thirty minutes farther, and having left the glades behind for a drier understory of heaths and sedges, the trail rounds onto a prominent ridge. A remarkable feature of this ridge is the profusion of Meadow Spiraea

Ice Sculptures

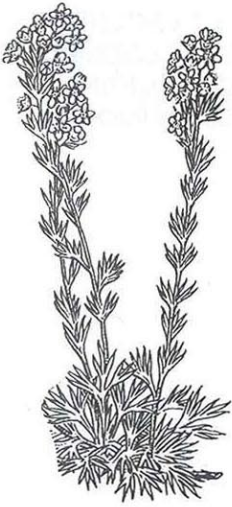
Glaciers have shaped all the mountains of Wells Gray, and in places continue to do so. The views from 88 Ridge are an object lesson in glacial landforms. Much of what you see has resulted from a scouring of the bedrock by loose rocks caught in the undersurface of glaciers.

The scouring is greatest near the head of the glacier, where in time it carves out a deep bowl called a cirque. Several cirques are obvious on the north face of Raft Peak, just across the valley. After the ice melts away, the bottom of the cirque often contains a small lake known as a tarn. The ponds just west and north of 88 Ridge are tarns. That the Trophy Mountains are dotted with more than 50 such tarns testifies to the many glaciers which once clung to these peaks.

When glaciers form on opposite slopes of a mountain, as they they have done here, the cirques erode backward, forming sharp, razorback ridges between them, called arêtes. With just a little more carving, 88 Ridge could be called an arête.

The glacier that once occupied Spahats Valley has deepened the valley and broadened it, carving it to a somewhat U-shaped cross-section. Interestingly, the Spahats glacier was fed by a tributary glacier that filled the small valley immediately west of here. Today, the tributary valley is left hanging above the larger Spahats Valley, and so is known by just that name: a hanging valley. Not far from here, another hanging valley is marked by Silvertip Falls.

Paul Metcalfe



Meadow Spiraea
(RBCM)

(*Luetkea pectinata*) which grows here. You'll recognize this small, but attractive, rock plant by its cluster of tiny, cream-coloured flowers and finely dissected leaves. The Meadow Spiraea, a member of the Rose Family, occurs only in the mountains of western North America.

Another 15 minutes brings you to the summit of the ridge, beyond which the trail passes the Trophy Mountain Chalet: a year-round alpine shelter erected in 1988. (Make reservations by calling 604-587-6444.) Nearby, a small stream may provide a welcome lunch stop.

The chalet stands at treeline; above, the mountain slopes are open and offer easy access. Strike upward to the prominent ridge that rises to the northwest, then keep to the height of land around the head of a small valley. About an hour from the chalet, you should be standing on the summit of 88 Ridge. To the west and north, near-vertical dropoffs separate this height of land from the rest of the Trophy Mountains.

The vista from 88 Ridge is stunning: southward looms the face of Raft Mountain, a great rising wall of rock and snow; eastward lie the rolling Shuswap Highlands and, beyond them, the sawtooth profile of the Monashee Mountains; to the distant north the low summits of Battle Mountain can be discerned; and bunching together in the northwest, like so many storm-tossed waves, are the 2400 m summits of the Trophy Mountains themselves. If the day is young, these latter are invitations to further exploration.

No less spectacular than the scenery is the lichen flora of these wind-ravaged ridges. Curiously, many species are actually favoured by the strong winds here. In winter, the wind blows the ridge crests bare of snow, and so provides excellent growing conditions for many lichens rare or absent in less exposed sites. Particularly favoured are certain dark-coloured species, which absorb the sun's warmth more efficiently than lichens of paler hue.

Among the best represented lichens are the rocktripes (*Umbilicaria* spp.): small, black, papery lichens that generally grow attached to the rock by a central holdfast. About a dozen species of rocktripe can be found on 88 Ridge. If you have some water to spare, sprinkle a little of it over them, and watch (and listen to) what happens!



One of many species of rocktripe to look for on mountain summits is *Umbilicaria hyperborea*. (TC)