



# O'Hara '93

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## Ten Thousand Years of Environmental Change

A remarkable long-term record of environmental change can be found in core samples of lake-bottom sediments. During the winter of 1985 a number of sediment core samples were recovered from O'Hara, Mary and Opabin Lakes as part of a M.Sc. thesis by University of Alberta geologist, Mel Reasoner. The sediment cores were recovered through the lake ice and as much as 42 m of water. The cores measure from 1.1 to 2.6 m in length and 8 cm in diameter and provide a continuous sedimentary record of vegetation and climate change that spans the present interglacial period, the last 10,100 years. Large valley glaciers associated with the last "ice-age" had receded from the Lake O'Hara basin prior to this.

During the summer months, plumes of glacial sediment are often visible where streams enter Lake O'Hara resulting in the typical turquoise colouration of the lake waters. These sediments are ultimately deposited on the lake bottom along with the organic sediments. The nature of sediment and the type of organic material preserved in sediment will, to a large extent, reflect environmental conditions in the vicinity of a lake basin at any given time. The cores contain a variety of organic materials including fossil pollen, algae, conifer needles and wood fragments, as well as volcanic ash layers and other inorganic sediments originating from up-valley glaciers.

Recognizing the age of sedimentary layers in core samples is essential

for establishing the time scale for environmental records. Two radiocarbon dates of about 10,100 years B.P. (before present) were derived from the first occurrence of conifer needles in Lake O'Hara cores.

Several volcanic ash layers have been identified in Western Canada and, when present in core samples, provide accurate time horizons. The volcanic ash layers in the O'Hara area cores are between 1.5 and 12 cm in thickness and represent two eruptions that occurred 2350 and 6800 years ago. The older of the two ashes originated from an ancient volcano called Mt. Mazama which is now Crater Lake in Southern Oregon. When Mt. Mazama erupted much of western North America was covered with ash. The younger ash is from a smaller eruption that originated in the Coast Ranges of B.C.

The results of this study have provided a history of vegetation change in the area and demonstrated that the elevation of timberline and the extent of alpine glaciers have varied considerably during the last 10,100 years. The earliest post glacial vegetation at Lake O'Hara was a colonizing shrub herb community dominated by sedge, grass and alder. Pioneering forests replaced this tundra-like vegetation at about 10,100 years B.P. The early forest was composed of whitebark pine (possibly limber pine as well) and fir with lesser spruce and lodgepole pine. Between about 9000 and 3000 years ago, timberline elevations were up to 90 m

above present levels and alpine glaciers were greatly reduced in extent or completely withdrawn. Forest compositions resembling the modern subalpine spruce-fir forest had developed by the end of this period. During the last 2000 years, the elevations of timberline dropped to below present elevations and alpine glaciers increased in size to the "Little Ice Age" maximum near the turn of the century. The last 80 years have seen a dramatic reduction in ice extent as well as an increase in timberline elevation. At present recession rates, the Lake O'Hara area will very likely be ice-free before the end of the 21st century.

These changes in timberline elevation and ice extent are the result of past climatic variations that have profoundly influenced the alpine and subalpine environment. This sensitivity to climatic change makes areas like Lake O'Hara ideal for studying the magnitude and timing of past climatic change which is fundamental for understanding how Earth's climate system may respond to the effects of "greenhouse gases" in the near future. Unfortunately, this climatic sensitivity of alpine and subalpine environments also suggests that the O'Hara area, and similar environments in the region, may be dramatically affected by the anticipated greenhouse warming.

How did the distribution and composition of vegetation vary over the last 10,100 years? Did alpine

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# Bears and Humans

Lush green valleys, cow parsnip dotted avalanche slopes, cold, fish filled mountain streams. Yoho National Park is a landscape that is attractive to both humans and bears. Offering an idyllic hiking backdrop, Yoho is also vital bear habitat.

As bears and humans frequent the same area it is inevitable that the two will meet. What happens when the wild animal that we are protecting threatens humans who enter the park? Does human safety come first? The Parks mandate states that ecological integrity must come first, so bears, as part of that complex ecological web, must be protected from humans.

The number of visitors to Yoho, steadily increasing, continues to put pressure on the bears. Evidence of this pressure was felt in Yoho last summer. As Chief Park Warden Paul Kutzer says, "Statistics caught up with us." Yoho Park, including the Lake O'Hara area, is grizzly habitat. Green avalanche slopes in the spring, berries at the end of summer and into fall, and a possible goat kill make for contented grizzlies.

Last fall the bears were particularly hungry. A bad berry crop left bears with low body fat. Perhaps this accounted for the increase in bear/human contact and the seeming loss of fear on the part of the bears. One thing is certain, there are areas around Lake O'Hara that are used on a regular seasonal basis by grizzlies.

The history of bear management in North America's national parks is full of ineffective relocation pro-

grams leading to the disposal of garbage addicted or aggressive bears. Inevitably, conflict between the bear and the park visitor has resulted in the death of the bear. This has been the status quo of bear management.

It is a paradox that something with the capability of such destruction, that creates such fear in humans, is ultimately so fragile. Black bear populations are decreasing and the grizzly is listed as

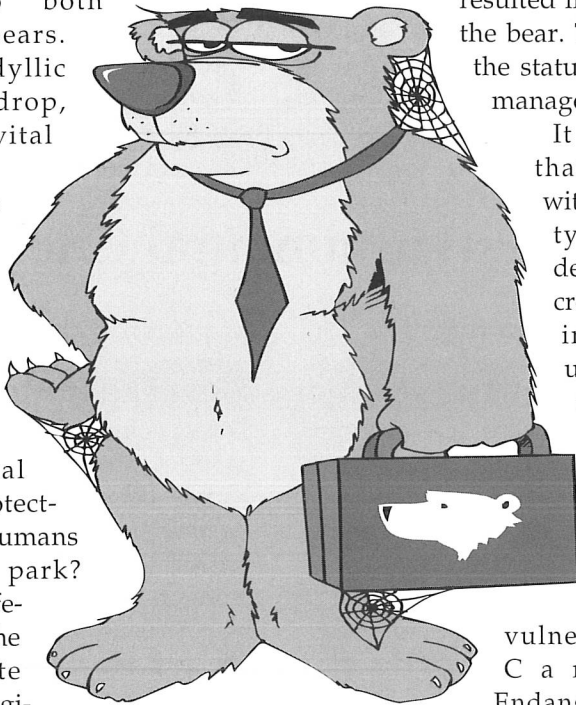
vulnerable on the Canadian Endangered Species

List. In fact, according to the State of Canada's Environment published by Environment Canada, the Four Mountain Parks together with adjacent provincial park lands hold little

more than half the amount of land needed to sustain a viable grizzly population. We can not afford the human induced loss of bear life within our parks.

The Yoho Park Administration is looking into seasonal closures on Odaray Plateau in late summer and fall when grizzly use of the area is more common. This may mean some park visitors will be disgruntled as their hiking options are limited, but changing our expectations and our behaviour is clearly part of the solution to this problem.

Lake O'Hara Lodge and the Lake O'Hara Trails Club have submitted a proposal to the Canadian Parks Service which identifies the need for (and offers assistance for) further study of bear activity, ranges, and migration patterns. Better information is needed in order to make the difficult management decisions required to reduce the conflict between bears and hikers. Such studies are expensive and will likely require financial support from area users, local businesses, and non-profit organizations such as the Lake O'Hara Trails Club.



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## Environmental Change

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glaciers completely vanish during this period? How much climatic change has occurred in the past and when did this happen? What factors were responsible for past climatic variation? These are the questions scien-

tists seek to answer in order to decipher past climatic change. The clues are preserved in the glacial and organic sediments of alpine and sub-alpine lakes like Opabin Lake, Mary Lake and Lake O'Hara. Copies of the M.Sc. thesis by Mel Reasoner and a number of subsequent articles are in the Lake O'Hara Trails Club Library.

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## We Need Your Help!

Your donation to the Lake O'Hara Trails Club will help further the preservation of Lake O'Hara and its trail system. The Trails Club is a registered non-profit organization and will issue a receipt for income tax purposes. You may donate directly to Le Relais, or mail your donation to:

The Lake O'Hara Trails Club  
Box 1677, Banff, AB T0L 0C0

*Thank You!*

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## Would you like to join us?

Life membership in the Lake O'Hara Trails Club is available at Le Relais for a mere \$25. For this you will receive this newsletter annually and help support club activities in the Lake O'Hara area.

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# Recovery of the O'Hara Meadows Produces Rare Flower Species

George W. Scotter, biologist and author of "Wildflowers of the Canadian Rockies" discovered a rare form of Moss Campion while he was doing research on the Alpine Meadow at Lake O'Hara in the summer of 1991. Moss Campion, a plant well adapted to harsh conditions at alpine levels, is easily identified by its bright pink flowers. But Scotter found in the O'Hara meadow a sample of a white flowering Moss Campion. "It was my reward for an early morning hike", said the biologist. He promptly sent a sample to Agriculture Canada whereupon his findings were confirmed. The flower was identified by Bill Cody as the form *Albiflora*. It has been found only twice in the Rockies and is considered rare.

This wonderful find is an indication that the Lake O'Hara Meadow is recovering from the damage it suffered when the area

was used for camping prior to 1973. The creation of the present campground at Lake O'Hara was largely due to the recommendations of a study team from the National and Historic Parks Branch and the Canadian Wildlife Service. George Scotter took part in the initial 1971 study which documented the years of abuse to the area.

According to Scotter, a conclusion of his twenty year study of regeneration of subalpine meadows at Lake O'Hara is "given a reduction in pressure and a sufficient amount of time the meadows will repair themselves." This optimistic conclusion must be tempered, however, with the understanding that 'repair' means vegetation covering a previously overused site, it does not mean a complete return to what the meadow was before overuse by campers.

Scotter underlines the impor-

tance of long-term scientific study in determining that expensive revegetation was not needed at Lake O'Hara to correct overuse. To date, there have not been many such studies done on fragile meadows.

In the case of the O'Hara study, the longer it continues the more value it has. According to Scotter, if it had been cut short, several false assumptions could have been made.

While the meadows that received overuse from camping fared well in the study, regeneration of previously used fire pits was not encouraging. The subalpine forest that was also disturbed by campers has been much slower to regenerate than the meadows themselves. It would seem to indicate that the root systems and the plants in the subalpine meadow are more resistant to being disturbed than those in the forest.

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## Gertrude Benham's Summer in the Rockies

There are so many visitors to Lake O'Hara that history is able to remember but a few of them. One that should be remembered is Gertrude Benham. This tough British mountaineer was already in her thirty-seventh year when she made her only visit to the Canadian West in the summer of 1904. By that time, her mountaineering accomplishments in the Alps had already made her one of the most famous women climbers of her day. When she arrived, only a few of the Swiss guides could appreciate her reputation. By the time she left, however, she had become a local legend.

Gertrude Benham was unstoppable in her mountaineering ambitions. After arriving in Lake Louise in July of 1904, she engaged local guides to assist her in the ascent of Mt. Lefroy, Mt. Whyte, Mt. Temple and Popes Peak. She and her guide

Christian Kaufman then moved to Moraine Lake where they were successful in climbing a number of peaks including the first ascent of Mt. Fay. Mt. Fay is named for Charles Fay, founder of the American Alpine Club. It so happened that Fay was also attempting his namesake peak when Benham arrived. Right before his eyes, she scooped the glory of its first ascent from him. Needless to say, male Edwardian adventurers did not relish being out-manuevered by women, no matter how dedicated and skilled they might have been. Fay was furious. Rumour has it that his guide was fired over the issue.

Though Benham's guides now had a clear understanding of how fit and competent she really was, they still weren't ready for the stunt she wanted to perform next. They were

alerted to the fact that Gertrude was up to something big, when she requested they meet her at Lake Louise at midnight to begin an expedition to Yoho. They set out in total darkness, walked to the end of Lake Louise, over Abbot Pass and past Lake O'Hara to Field, British Columbia in one day. This journey featured an altitudinal gain and loss of 5300 metres - nearly three vertical miles - with a detour to climb Mt. Stephen by a new route along the way. Twenty-seven hours later the two Swiss guides stumbled into Field behind this lady mountaineer wondering, perhaps, if she was a woman or a climbing machine.

In Yoho, Benham made first ascents of new routes on Mt. Gordon, Mt. Balfour and Mt. Collie. Benham then ended her one climb-

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# Remembering Marika

The Lake O'Hara Family was dealt a tragic blow last August when Marika Laub died in a car accident on the way to Banff. She was seventeen.

Marika packed as much life as she could into every day she lived. She was a happy and positive individual who embraced life with the utmost enthusiasm, enriching the lives of all those whose paths crossed with hers. Her first visit to Lake O'Hara was in the summer of 1975, when she was nine months old. Michael and Marsha Laub, her parents, were in the process of purchasing Lake O'Hara Lodge from the

Fords, and this set the stage for Marika's life at O'Hara. Her summers were all spent in the mountains and she hiked and climbed here with her family. Winters were spent in Banff, where she excelled in school, raced with the Alberta Cross Country Ski Team (she was ranked third Junior Girl in Canada in 1992) and took a strong interest in the community. Still, there were regular trips to Lake O'Hara, where Marika loved to get out and telemark whenever she could. She was a beautiful telemark skier. Marika looked after the Lake O'Hara Trails Club Library located in the upper halls of the

lodge, and was a strong supporter of everything the club represents.

The Lake O'Hara Trails Club is grateful for all the contributions it has received in Marika's name. It seems so appropriate that Marika's memory will continue to enhance this area which was so special to her and whose natural beauty and wonder seem to reflect her very spirit. Thank you.

"Her gentle form shines forth in  
remembered glimpses  
Like a mountain flower enshrined  
in ice."

(Marcia Epstein)

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ing season in the Rockies by becoming the first woman to climb Mt. Assiniboine. She then went to Glacier House at the summit of Rogers Pass where she climbed nine more mountains before returning home. Though she was only at Lake

O'Hara fleetingly, Gertrude Benham deserves to be remembered here. History celebrates her not only for her skill and endurance but for a fierce independence through which she advanced her dreams decades beyond the limits of her time.

## Trails Bulletin

The amount of trail work done in the 1992 season was limited by late season closures due to bear activity and inclement weather. Instead of completing the McArthur Cutoff reconstruction and beginning the preparatory work for the second phase of the improvements to the McArthur trail system as planned, the early snow meant that only some of the prep work and materials movement for the first phase was completed. The revised schedule is to complete the first phase of the project this summer and start the second phase in the fall.

Don Gardner is producing a design for the second phase of the project that will re-define the trail approaching Lake McArthur. The plan is to close many of the small branch trails along the lake and to define one trail that meets the needs

of the majority of hikers. Choosing a route through fragile alpine meadows such as those adjacent to McArthur Lake is a difficult task. Don Gardner has had input and assistance from Allan Knowles, the warden at Lake O'Hara, Frank Doolaar, the Back Country Maintenance Co-ordinator, and Bill Coote, the president of the Lake O'Hara Trails Club. Snow melt patterns, view and rest points, drainage, vegetation, wildlife habitat and soil types are all taken into consideration. All the design work and part of the construction cost is funded by the Lake O'Hara Trails Club. This project should be completed by the spring of 1994.

The Canadian Parks Service appreciates the support of Lake O'Hara Trails Club and the efforts and contributions made towards the trail system in the Lake O'Hara area.

## Ours

Up the livelong valley I pursued it  
which left at neat intervals the sign  
grass-green and steaming, so that in fear  
I gave often to voice, unheard if not quite  
alone.

By the scenic highway they found her  
grazing, real as the lenses pressed handily  
to the window, and when she spooked,  
went under  
the mercy of the wheels that could not  
stop,  
could not desire to stop, they too fell to  
silence. (J. Mark Smith)

## Annual Meeting

The 1993 Annual Meeting of the Lake O'Hara Trails Club will be held at Le Relais at 8:30 p.m. on Monday, July 12, 1993.

Produced by the Lake O'Hara Trails Club  
in cooperation with Yoho National Park.

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