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Martin W. Grodzinski/Alaska Photo

Tom Bean

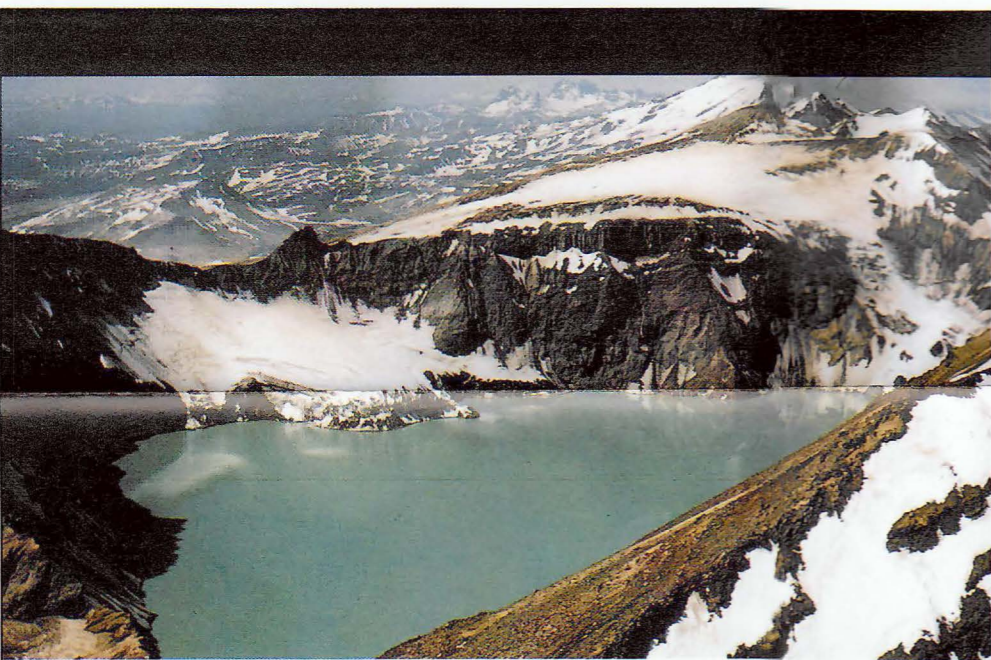
Cover photo: Brown bear on shore of Naknek Lake, by Tom Bean

Katmai was declared a national monument in 1918 to preserve the living laboratory of its cataclysmic 1912 volcanic eruption, particularly the Valley of Ten Thousand Smokes. The intervening years have seen most of the geothermal features die out. But there has welled up an equally compelling interest: to safeguard the area's awesome brown bears. To protect this magnificent animal and its varied habitat, the boundaries were extended over the years, and in 1980 the area was designated a national park and preserve. Katmai looms so vast that the bulk of it must elude all but a very few persistent travelers. To boat its enormous lakes and their island-studded bays, to float its rushing waterways, to backpack

the wind-whipped passes of its imposing mountains, or to explore its Shelikof Strait coastline require great effort and logistical planning. This unseen Katmai lurks beyond our usual experiences here of fishing from Brooks Camp, walking up to Brooks Falls, and riding the van out to the Valley of Ten Thousand Smokes. We come to Katmai to sample but an edge of this enormity of raw natural forces, a sampling that itself constitutes a rare and endangered opportunity. Katmai's awe-inducing natural powers confront us most visibly in its volcanics and its brown bears: In summer North America's largest land predators gather along streams to feast on the salmon runs, those annual disgorgings of oceanic

protein-wealth into the upper freshwater world. Alaska's brown bears and grizzlies are now considered one species. People commonly consider grizzlies to be those that live 160 kilometers (100 miles) or more inland. Browns are bigger than grizzlies because of their high-protein diet, thanks primarily to the salmon that make a headlong rendezvous with death near the stream-bottom gravels of their birth. Kodiak brown bears are a different subspecies that is geographically isolated on Kodiak Island in the Gulf of Alaska. Mature male bears in Katmai may weigh up to 400 kilograms (900 pounds). Mating occurs from May to mid-July, with the cubs born in dens in mid-winter. Up to four cubs may

be born, at a mere half-kilo (1 pound) each. Cubs stay with the mother for two years, during which time she does not reproduce. The interval between litters is usually at least three years. Brown bears dig a new den each year, entering it in November and emerging in April. About half of their lifetimes is spent in their dens. Because each bear possesses individual characteristics and behavior, no formulas can predict how a given bear will act in a given situation. These awe-inspiring bears symbolize the wildness of Katmai today.



Volcanics

The 15 active volcanoes that line the Shelikof Strait here make Katmai National Park and Preserve one of the world's most active volcanic centers today. These Aleutian Range volcanoes are pipelines into the fiery cauldron that underlies Alaska's southern coast and extends down both Pacific Ocean shores—the so-called Pacific Ring of Fire. This Ring of Fire boasts more than four times more volcanic eruptions above sea level than any other region in historic times.

Nearly 10 percent of these more than 400 eruptions have occurred in Alaska; less than two percent in the rest of North America. The current theory of plate tectonics attributes this phenomenon to the collision of the series of plates that compose the Earth's crust. The Ring of Fire marks edges where crustal plates bump against each other. Superimposing a map of earthquake activity over a map of active volcanoes creates a massed record of violent earth changes ringing the Pacific Ocean from southern South America around through the Indonesian archipelago.

Major volcanic eruptions have deposited ash throughout the Katmai area at least 10 times during the past 7,000 years. Under the now quiet floor of the expansive Valley of Ten Thousand Smokes, and deep beneath the mountains that rise around it, there is still molten rock

present. Most visible as clues to this are the steam plumes that occasionally rise from Mts. Mageik, Martin, and Trident. These steam plumes show that there is real potential for new eruptions to occur. And, in fact, Mt. Trident has erupted four times in recent decades, its last eruptive episode taking place in 1968.

A volcanic eruption capable of bringing about major change could occur at any time in this truly dynamic landscape. Since the great 1912 eruption, the massive deposits of volcanic ash and sand that resulted have consolidated into tuff, which is a type of rock. In the valley these ash deposits have been rapidly cut through by streams to form steep-walled gorges. The thousands of fantastic smoking fumaroles that greeted the scientists who discovered the Valley of Ten Thousand Smokes after that powerful eruption (see story below) have now all cooled and ceased their ominous smoking. But the fiery cauldron, whose intense heat and pressure can be forcefully released to alter the landscape radically in a matter of hours, still looms close to the surface here in the park's portion of the volcanic Aleutian Range.



Wildlife

A predictable eruption occurs here yearly as salmon burst from the Northern Pacific and into park waters. Sockeye salmon return from the North Pacific where they have spent two or three years. By some homing mechanism they return to the exact freshwater gravel beds of their birth. Their size, an average 2.2 to 3 kilograms (5 to 7 pounds), varies proportionally to how long they spend in saltwater.

The salmon run begins here in late June. By July's end a million fish may have moved from Bristol Bay into the Naknek system of lakes and rivers. Salmon stop feeding on entering freshwater and physiological changes lead to the distinctive red color, humped back, and elongated jaw they develop during spawning. The salmon spawn during August and September. Stream bottoms must have the correct texture of loose gravel for eggs to develop. The stream must flow freely through winter to aerate the eggs. By spring young fish, called smolt, emerge from the gravels and migrate into the larger lakes, living there two years. The salmon then migrate to sea, returning in two or three years to spawn and begin the cycle again. Salmon provide food for the bears, bald eagles, and other creatures that forage along streams during the annual run. They also have been important to Katmai peoples for several thousand years, and com-

mercial fishing—outside the park—remains the mainstay of today's local economy.

Katmai's lake edges and marshes serve as nesting sites for whistling swans, ducks, loons, grebes, and the arctic tern. Sea birds abound along the coast, peregrine falcons nest among coastal cliffs, grouse and ptarmigan inhabit uplands, and some 40 songbird species summer here. Seacoast rock pinnacles and treetops along lakeshores provide nesting sites for bald eagles, hawks, falcons, and owls. Brown bears and moose live throughout the coastal and lake regions, the moose feeding on willows, water plants, and grasses. Smaller mammals include the red fox, wolf, secretive lynx and wolverine, river otter, mink, marten, weasel, and that natural hydro engineer, the beaver. Along the coast are sea lions, sea otters, and hair seals, with beluga and gray whales sometimes cruising the Shelikof Strait.



Unseen Katmai

Flying into Katmai from nearby King Salmon you cross over expansive Naknek Lake, your first clue to the extensive system of lakes and rivers, streams and marshes that is just one aspect of the unseen Katmai. Katmai is so large and imposing of access that its contrasting faces do not reveal themselves to the usual itinerary. The vast systems of elongated lakes nestle in valleys gouged out by glaciers. The lower slopes of interior mountains are covered with birch, poplar, and spruce forest. In the alpine tundra of the higher slopes wildflowers abound in the brief summer season. The lake country, which accounts for substantial additions to the park in 1980, offers brown bear habitat and boasts extensive salmon spawning and nursery areas. These homing salmon are critical here to the bears, and elsewhere to commercial fishing.

The interior mountains rise to about 900 meters (3,000 feet), but the coastal mountains, the ice-shrouded backbone of the park and peninsula, reach above 2,100 meters (7,000 feet). Deep bays, rock shoals, sheer cliffs, and narrow beaches dot a rugged, indented coast. This choppy coast provides habitat for marine mammals and birds and for moose, bald eagles, and brown bears. Wide valleys reach inland like corridors into this rugged range of wild and imposing coastal mountains.

Katmai's coastal mountains are part of the Aleutian Range. These snow-clad mountains arc down the Alaska Peninsula and culminate in the Aleutian Islands, which are crests of a string of submarine volcanoes. Katmai's high mountain passes are forbidding because of their foul weather and the intense winds that result when major weather systems from the Gulf of Alaska and from Siberia meet. The interior backcountry of many national parks is relatively little seen by most travelers. All but the most minute fragments of Katmai are backcountry wilderness, hence the unseen Katmai.



Leader Griggs (left) calls a rest halt



Novarupta vents steam



Hefting pumice



Crossing Martin Creek



Pack train crosses the Valley of Smokes

Historic photos copyright by National Geographic Society

Eruption! And the Valley of Ten Thousand Smokes

The June 1912 eruption of Novarupta Volcano altered the Katmai area dramatically. Severe earthquakes rocked the area for a week before Novarupta exploded with cataclysmic force (see diagram). Enormous quantities of hot, glowing pumice and ash were ejected from Novarupta and nearby fissures. This material flowed over the terrain, destroying all life in its path. Trees upslope were snapped off and carbonized by the blasts of hot wind and gas. For several days ash, pumice, and gas were ejected and a haze darkened the sky over most of the Northern Hemisphere.

When it was over, more than 65 square kilometers (40 square miles) of lush green land lay buried beneath volcanic deposits as much as 200 meters (700 feet) deep. At nearby Kodiak, for two days a person could not see a lantern held at arm's length. Acid rain caused clothes to disintegrate on clotheslines in distant Vancouver, Canada. The eruption was 10 times more forceful than the 1980 eruption of Mount Saint Helens. Eventually Novarupta became dormant. In the valleys of Knife Creek and the Ukak River, innumerable small holes and cracks devel-

oped in the volcanic ash deposits, permitting gas and steam from the heated ground water to escape.

It was an apparently unnamed valley when the 20th century's most dramatic volcanic episode took place. Robert Griggs, exploring the volcano's aftermath for the National Geographic Society in 1916, stared awestruck off Katmai Pass across the valley's roaring landscape riddled by thousands of steam vents. The Valley of Ten Thousand Smokes, Griggs named it.

"The whole valley as far as the eye could reach was full of hundreds, no thousands—literally, tens of thousands—of smokes curling up from its fissured floor," Griggs would write. One thousand steam vents reached 150 meters (500 feet) in the air, some more than 300 meters (1,000 feet). Such marvels inspired explorers on the next year's expedition:

"I felt like a boy at a circus, for I couldn't take time to study the attraction

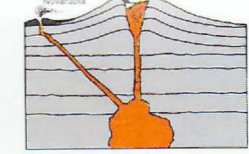
before me because I suspected something more captivating farther on."

"The meager pictures of the previous year . . . had not prepared me to face such a spectacle of awesome magnitude. I had pictured the Valley as large; the actual view dwarfed my wildest imagery to insignificance."

"You may build in memory, but never reproduce the scenes which lie beyond the Katmai Pass. They seem too big to be a part of the rest of the world. They do not connect up with the little things which are built into our lives."

The expedition's surveyor did not concur with such glowing assessments of natural wonders that seriously reduced visibility: "The smokes did not impress me with their grandeur. . . . Their ability to make surveying next to impossible did . . . A wool comfort placed on the ground which is 110°F . . . will steam beautifully. It is a natural phenomenon, but it is not a good bed." Nature can't please everyone.

Robert Griggs thought Mt. Katmai had blown—he found its new crater lake. Novarupta Volcano subsequently proved the source, although much of the ejected magma was

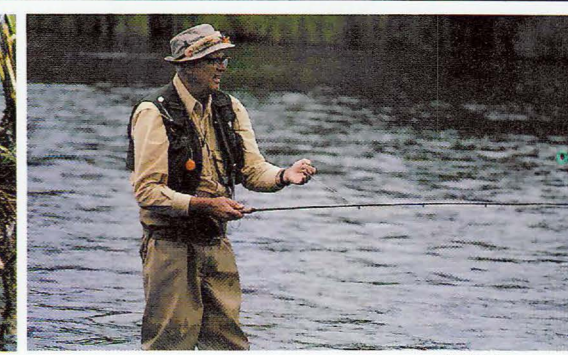
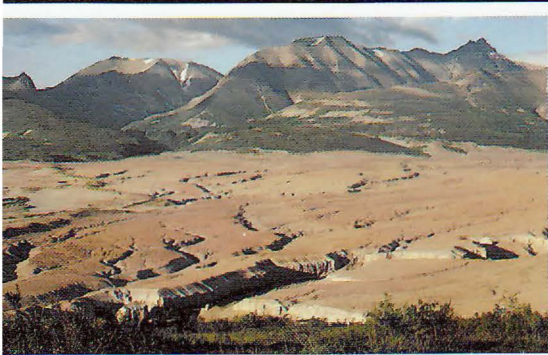


drained from beneath Mt. Katmai. As Mt. Katmai's foundation was drawn away, its summit subsided, leaving a caldera in which a crater lake formed. The ash flows that spewed out over the valley held their heat for years. Surface water percolating through them was heated and vented to the surface as fumaroles.

Only one eruption in historic times—Greece's Santorini in 1500 B.C.—displaced more volcanic matter than Novarupta. The terrible 1883 eruption of Indonesia's Krakatoa belched out little more than half as much, yet killed 35,000 people. Vastly isolated Novarupta killed no one. If the eruption occurred on Manhattan Island in New York City, Robert Griggs calculated, residents of Chicago would hear it plainly. The fumes would tarnish brass in Denver. Acid raindrops would burn your skin in Toronto. In Philadelphia the ash would lie nearly as deep as this folder is wide. Manhattan would have no survivors.

Today you can take the trip from Brooks Camp out to the Valley of Ten Thousand Smokes, where the turbulent Ukak River and its tributaries cut deep gorges in the accumulated ash. The landscape slowly recovers: In nature, each destruction is somewhere's new creation.

Katmai



At Three Forks, in the Valley of Ten Thousand Smokes, Knife and Windy Creeks join the River Lethe, headed for the

Ukak River. The streams cut steep gorges in the volcanic debris.

Porcupines eat bark, twigs, leaves, buds, and an occasional piece of camping gear.

The Native American pit house, used effective sod insulation.

Rock ptarmigan wear white in winter, brown in summer, and "mottled" in between.

A skier surveys Katmai's wintry backcountry from a ridge on Baked Mountain.

Red-necked grebes build floating nests in vegetation along shallow lake margins.

Catch-and-release fishing is encouraged in these trophy waters. Follow the suggestions above for avoiding prob-

lems with bears while fishing.

Access and Information

Katmai National Park and Preserve lies on the Alaska Peninsula 470 kilometers (290 miles) southwest of Anchorage. Daily commercial flights connect Anchorage with King Salmon, about 10

kilometers (6 miles) from the park's west boundary. Boat service between Lake Camp and Brooks Camp and elsewhere on Naknek Lake is available from late June through September. Year-round air charter services are available in King Salmon.

A 14-kilometer (9-mile) dirt road connects King Salmon with Lake Camp, inside the park's west



99613. Maps and books about Katmai may be purchased by mail from the nonprofit Alaska Natural History Association at the same address.

Weather and Clothing.

Be prepared for stormy weather and some sunshine. Summer daytime temperatures range from about 12° to 18° C (mid- 50s to mid- 60s F), the average low is 7° C (44 F). Strong winds and sudden gusts—williwaws—frequently sweep the area. Skies are clear about 20 percent of the summer. Light rain can last for days.

Bring comfortable outdoor clothes. Include a warm sweater, wind-

breaker or lightweight fiberfill jacket, footgear that provides good support, wool socks, and a wool hat. Rain gear should include raincoat and pants, parka, and hat.

Insects.

You will need insect repellent! Firearms. Hunting, or discharging any weapon, is prohibited in the park, and firearms must be unloaded and cased. Hunting—under Alaska State law—and carrying firearms are allowed in the preserve only.

Accommodations and Services

A concessioner provides accommodations and services at five points in the park and preserve from June 1 into early September. For addresses and information, write to the park address.

At Brooks Camp are Brooks Lodge, a campground, and the park's summer headquarters. Brooks Lodge on Naknek Lake offers cabins (with plumbing) that sleep four per unit. The lodge serves family-style meals.

Overnight services by package rates are offered at Grosvenor Lake, Kulik Lodge, Battle Lake, and Nonvianuk Camp. Reservations are necessary. Meals and accommodations are also available in King Salmon.

The National Park Service conducts guided nature walks and evening programs at Brooks Camp from Memorial Day to Labor Day week. Information, maps, and other publications are available at the Brooks Camp Visitor Center and at park headquarters in King Salmon.

Limited camping and food supplies and some fishing tackle are sold at Brooks Lodge. Several commercial operators are authorized to provide air taxi, "flightseeing," backpacking, canoe, and fishing guide services in the park and preserve. Write the park address for a list.

Seeing Katmai. A 37-kilometer (23-mile) dirt road

between Brooks Camp and the Valley of Ten Thousand Smokes offers a view of this wilderness sculpted by glaciers, stream erosion, and volcanism. A foot trail descends to the valley from road's end. Concession-operated vans make daily round-trip excursions to the valley. Park rangers accompany you.

Charter aircraft at King Salmon and Brooks Camp offer scenic flights. In good weather you see the bays, fjords, and waterfalls along the coast, glacier-clad mountains with steaming volcanic peaks, and the island-studded lakes. You may fly over the Valley of Ten Thousand Smokes, seeing the 1912 eruption site.

Backcountry Travel. Katmai's rugged wilderness offers rewarding experiences—with reasonable precautions. Be well prepared and equipped. There are several good short routes and unlimited opportunities for long trips. Katmai has few trails, but passable routes can be found along river bars, lake shores, and gravel ridges. For overnight Valley hikes you can arrange a van drop-off and pick-up. For more information, request the free "Traveling the Katmai Backcountry" brochure.

Hiking Safety. Cold winds and icy waters pose great hazards. Gear must withstand high winds 80-100 kph (50-60

mph) are not unusual—and blowing rain. Carry extra dry clothing, preferably wool. Read up on hypothermia symptoms and their treatment. Be prepared to wait out storms; carry matches, first aid kit, and emergency food. Rains or melting glaciers can make stream crossings impossible. You need sneakers and hiking boots here. Be extremely cautious when crossing muddy waters. Streams rise quickly during rainstorms or heavy glacial melt.

Camping. You may camp anywhere in the park, but for backcountry camping, please obtain a permit from the Brooks Camp Visitor Center or park headquarters in King

Salmon. **Backcountry campers must read the bear safety leaflet!** There is a National Park Service campground with firepits, tables, water, pit toilets, and a food storage cache at Brooks Camp on Naknek Lake. White gas is available from the concessioner. Please use stoves; firewood is limited. *Only dead wood that is down* may be used for firewood. You can arrange in advance for meals at the lodge. Otherwise, bring all food with you.

Fishing. An Alaska fishing license is required in the park. Obtain a license and regulations in King Salmon or at Brooks Camp. Catch-and-release fishing is encouraged. Brooks River is a fly-fishing-only river. The Naknek drainage offers grayling, Dolly Varden, northern pike, and the more abundant rainbow trout and sockeye (red) salmon. Coho (silver) and pink (humpback) salmon are sometimes taken in streams.

Regulations and Safety

Because of bears and other wildlife, please don't bring pets. Check with the park for current aircraft landing regulations. Leave archeological artifacts and historical objects where you find them.

Boating Safety. Katmai waters can become suddenly violent. Know your boat and its operation before setting out. All state and federal boating regulations apply. One Coast Guard-approved personal flotation device is required for each person on a craft. Carry signal equipment. Don't overload your craft; load it low for stability. Beware of underwater rock outcrops. Watch the weather and stay ashore when water is rough.

Wild River. The Alagnak Wild River is managed by the park staff. The upper river is rocky and moderately swift. Lower down it slows, and you can take leisurely floats through expansive tundra.

