Chapter Twelve: Natural and Cultural Resource Management

As Chapters 1 and 2 have suggested, the high valleys immediately north of the Alaska Range have been known, for more than a hundred years, because of their superb habitat for mountain sheep, caribou, and other large mammals. Charles Sheldon, who conducted expeditions into the area in 1906 and again in 1907-08, was a naturalist who, in Theodore Roosevelt's words, was primarily interested in studying "the northern mountain sheep." Sheldon, however, was "passionately devoted to all that is beautiful in nature." Thus he not only learned about "the life history of the sheep from the standpoint of its relations with its foes—the wolf, lynx, wolverine, and war eagle"—but he also wrote copious notes about the area's other megafauna along with its birds, small mammals, and plant species.[1]

Sheldon's enchantment with the area's large mammals is also reflected in the many letters that he wrote in favor of a national park for the area, and his concomitant interest in preserving these animals from extirpation by market hunters. As he noted in a letter to Stephen Mather in December 1915, "The region is a vast reservoir of game: sheep, moose and caribou, bears and the small animals. The building of the railroad will destroy the game for it will be killed to supply the construction camps. The idea of game reservation should also be included." Thomas Riggs of the Alaska Engineering Commission (which was constructing the Seward-to-Fairbanks railroad) gave a "most hearty endorsement" to the park idea. He did not, however, "think that there was much danger of game being killed off in the neighborhood of Mt. McKinley to supply railroad construction camps," and for that reason he stated that "we could take up the idea of game preservation when the idea of the park is thoroughly established."[2]

NPS Interp. Collection, #2710, Denali National Park and Preserve

Congress, however, was more inclined to adopt Sheldon's more protectionist views. The first park bills, which were introduced in April 1916, stated that it was the Interior Secretary's duty to "make and publish ... rules and regulations" that were "primarily aimed at the freest use of the said park for recreation purposes by the public and for the preservation of animals, birds, and fish and for the preservation of the natural curiosities and scenic beauties thereof." The bill also stated that the park was "established as a game refuge, and no person shall kill any game in said park except under an order from the Secretary of the Interior for the protection of persons or to protect or prevent the extermination of other animals or birds." But the bill also stated that "prospectors and miners engaged in prospecting or mining in said park may take and kill therein so much game or birds as may be needed for their actual necessities when short of food; but in no case shall animals or birds be killed in said park for sale or removal therefrom, or wantonly." The bill also stated that the Secretary could "arrange for the removal of such mature or dead or down timber as he may deem necessary and advisable for the protection and improvement of the park."[3]

As noted in Chapter 2, both the House and Senate made minor changes to the bill over the next several months, but they did not tinker with any of the resource provisions as stated above. Therefore, the bill that President Wilson signed into law provided a mixed message as it pertained to resource preservation; it explicitly called for the "preservation of animals, birds, and fish ... and natural curiosities," but it also stated that recreation needs, plus the subsistence needs of miners and prospectors, also needed to be considered in the park's overall goals.[4]

Natural Resource Management: The Early Years

No active park management took place until June 1921, when newly-appointed superintendent Harry Karstens arrived in the area and commenced his first patrols. According to agency policy—which was still being developed in the five-year-old organization—superintendents were instructed to complete a monthly report of conditions in each park and submit them to the director; that report, moreover, needed to include up-to-date information on the various parks' animal life. After his first patrols into the park, Karstens made the following observations about the park's "wild animals:"

> At the forks of some of the streams through which the [proposed] road would run, sheep and caribou mingle in large numbers making a most beautiful sight. The sheep wander down from the higher region in the morning and feed on the bars till well into the after noon then work up again into the rocky cliffs for the night. The caribou wander in most any direction where ever the feed is best. Prospectors who came through the upper passes this spring report having seen large numbers of caribou and sheep mingling

Olaus Murie set up his caribou capture camp in the upper Savage River. Clara Rust Collection, 67-110-500, University of Alaska Fairbanks Archive

> together, principally at the head of the Toklat River and between Savage and Sanctuary rivers. Their estimate was far greater than I have ever seen, but I could vouch for at least 600 sheep and 350 to 400 caribou mingling together on the river bar. This of course is in summer when caribou are scattered all over the park in small and large bands. In the winter the herd is much larger; they band up for protection and keep to the lower slopes on the northern boundary of the park.[5]

In his initial reports, Karstens included wildlife information under a bewildering variety of subject categories. But by the end of 1922, his notes on "game" (and, occasionally, "poaching") gave Washington officials consistent information about park wildlife and the level of its protection. Given the fact that the superintendent had almost the entire burden of park management during his first months on the job, his early wildlife reports were pragmatic rather than scientific. They show that he was primary concerned with the park's sheep and caribou populations: how many there were, their migration patterns, how safe they were from hunters, and their health status. Only occasionally did he make notes about other animals: bears, moose, lynx, or ptarmigan.[6]

The first instance of specific management of the park's wildlife populations took place in 1921 under the auspices of the U.S. Bureau of Biological Survey (BBS). Agency head Edward W. Nelson, in a letter to Stephen Mather of the NPS, stated that the BBS was "collecting specimens of Alaskan big game for the purpose not only of learning definitely the distribution of the various game animals of North America but to serve as material for the monographic of these animals." He therefore wanted permission to "collect skulls of mountain sheep, caribou, big bears, and other game animals which [Karstens] may find scattered about in the park where these animals have been killed." In addition, however, he wanted permission "for Karstens to kill one specimen of large bull caribou each month in the

park for a period of twelve consecutive months ... for the purpose of showing the changes in the pelage which take place and which cause these animals to appear differently colored at different times." Mather readily acceded to Nelson's request, and in May 1922 Karstens informed Nelson, "with some relief and pleasure," that in April he obtained his first specimen, from the Sable Mountain area.[7] Several more skulls and hides were procured and shipped later that year, and perhaps during 1923 as well; and in July 1923, biologists Adolph and Olaus Murie—acting on Karstens's instructions—shot a sheep inside the park's boundaries and hauled it to the McKinley Park railroad depot in order to feed President Harding's touring party.[8]

A similar, though less lethal, management action took place during this same period, again at the BBS's behest. In 1920, Nelson had hired Olaus Murie as an "Assistant Biologist and Federal Fur Warden" in order to map the Alaska caribou's migratory routes, estimate their numbers and study their habits.[9] Given the major importance of Alaska's reindeer industry at the time, Nelson in early 1922 asked Murie to find a place where some of the wild caribou could be trapped alive to be transported to the coast of the Bering Sea, where they could be bred with the reindeer of the Eskimo herds in order to improve the reindeer stock. (Dressed reindeer carcasses typically weighed "about 150 pounds each," while woodland caribou reportedly weighed "between three and four hundred pounds," and because "there is no question but that they would breed readily and the offspring would be fertile," Nelson hoped that the capturing program would help "in building up one of the great resources of the Territory.") Murie felt that the newly-established national park would be a suitable place for the caribou trapping; this was because the Alaska Range (according to Nelson) offered large-sized caribou and because portions of the park were close to the railroad.[10] By June, Murie had written to Karstens, hoping that the two could travel into the park "to look over [the] possibility of capturing young bull caribou." Murie arrived at the park headquarters on July 3, and in August he and his crew "practically built" the corral at the Savage River's headwaters.[11] Adolph Murie, a recent college graduate, joined his brother as an assistant soon afterward, and the two field biologists spent the next five weeks collecting "some bird and floral specimens" as well as gathering general information on the park's birds and animals. The following summer, they returned to the park and successfully continued their scientific work. Their caribou-capturing program, however, failed; one source states that the one young bull they caught managed to escape from them on the way from the Savage River corral to the McKinley Park railroad station, while another source suggests that five caribou made it as far as Fairbanks, although none made it to their intended target along the Bering Sea coast.[12]

Also in 1922, park officials were called on to manage a new action involving reindeer and caribou. Biological Survey officials, on the one hand, had assisted the Western Alaska reindeer industry during the early 1920s; they were, however, reluctant to bring reindeer east into caribou country, fearing that crossbreeding would produce inferior caribou stock. Territorial Bureau of Education William Lopp, however, felt that major new reindeer markets could be realized if a herd could be established along the Alaska Railroad's right-of-way, so in October 1921, six herders began escorting 1,162 reindeer from Goodnews Bay (in southwestern Alaska) up the Kuskokwim River drainage to the Tonzona River, where they remained throughout the spring and early summer.[13] Much to the chagrin of both Biological Survey and NPS officials, caribou entered the park in the summer of 1922, and by mid-August a herd numbering 1,600 was "resting just within the [eastern] park boundaries." A month later, the herd reached its destination in the Broad Pass area southwest of Cantwell.[14] Park officials during this period were doubtless alarmed at the herd's nearby presence, but given the lack of staff they had no ability to either monitor or control its movements.

Knowledge of, and publicity about, the park's biological diversity improved substantially over the next few years, primarily due to cooperation between Karstens and Olaus Murie. In the fall of 1924, for example, Karstens began preparing a statement on park game for Murie's agency that went well beyond his regular monthly updates. Based on that statement, plus Murie's work dating back to 1922, Murie in late 1925 sent a package of information to Washington on the "flora, fauna, and natural phenomena" of the park. An article extolling the park's wildlife, based on an August 1925 visit, appeared in the nationally-popular *Saturday Evening Post*.[15] Also, beginning in December 1925, Karstens broadened his zoological coverage—which had previously been based on sheep, caribou, poaching incidents and such animals as had been commonly seen near camps—to include scientific notes on such diverse species as moose, bear, birds, porcupines, fox, and rabbits.[16]

Park staff also monitored the health of the various animals they observed. In October 1924, a ranger on a patrol near Cantwell observed a large bull caribou stagger and fall dead, and when he

In 1926 Joseph Dixon and George Wright conducted natural history investigations in Mt. McKinley National Park, identifying 86 species of birds and 25 species of mammals. This photo of a young wandering tattler was one of 350 photographs taken during their 72 days of fieldwork. Joseph Dixon, #5296, Museum of Vertebrate Zoology, University of California Berkeley

discovered that his hind leg, hoof, and "whole left side was bloated and swollen," the situation was considered sufficiently serious that a Washington-based agency official penned a word of warning to his counterpart at the Bureau of Biological Survey.[17] The following summer, a guide reported that "large numbers of park caribou are dying of some disease." Geologist Stephen Capps, however, quashed the rumor by stating that during his extended wanderings he had observed only six dead animals. No subsequent disease-related deaths, moreover, came to light.[18]

During the summer of 1926, the park received its most extensive wildlife survey to date. Joseph Dixon, who had been one of Joseph Grinnell's students at the University of California Museum of Vertebrate Zoology, arrived at the park in mid-May "collecting specimens of this park's mammal life." Accompanying the recent graduate was his assistant, George M. Wright, who was still a University of California student. The study, which was financed by John E. Thayer and the Museum of Vertebrate Zoology, was done under the NPS's auspices because Grinnell, according to historian Richard Sellars, "may have been the most consistently vocal advocate for managing the parks on a more scientific basis," and because the agency, just a year earlier, had established its "Education Division" (which served a natural history function) on the Berkeley campus. Dixon and Wright remained in the park until the end of July and, according to Karstens, "returned to the States very favorably impressed with the large variety of wild animal and bird life existent here," and Wright distinguished himself by locating the nest and eggs of the elusive surfbird.[19] Wright, who was independently wealthy, was so impressed by the venture that he joined the Park Service, at Yosemite, and in 1928 he proposed that the NPS undertake a national survey of park fauna using much the same methodology that he and Dixon had employed at Mount McKinley.[20]

By 1926, the area's reindeer herd—which had been brought to the Broad Pass area four years earlier—was dwindling. Poor herding practices and wolf predation were partly to blame, but of greater concern to Park Service officials was a tendency for these animals to interbreed with migrating caribou herds. Karstens, by this time, finally had sufficient staff to monitor the various park caribou herds. Because he wanted to "keep the caribou stock free from contamination with reindeer," he asked his rangers to keep "strict watch ... for stray reindeer ... especially the white reindeer" and to eradicate any reindeer found within the park's boundaries. Their scrutiny continued through the fall of 1927. So far as is known, park staff neither identified nor shot any reindeer among the park's caribou herds.[21]

There was also an ongoing threat to the park's caribou and sheep from miners and prospectors,

The male willow ptarmigan in breeding plumage can be seen in spring. Joseph Dixon took several pages to describe this park resident in his 1938 publication, Fauna of the National Parks of the United States: Birds & Mammals of Mount McKinley National Park , Fauna Series No. 3. Adolph Murie Photo, Harpers Ferry Center, NPS

primarily those based in the Kantishna area. As noted in Chapters 2 and 4, the original park bill had explicitly condoned the harvesting of such "game or birds as may be needed for their actual necessities when short of food," but Karstens and his rangers found it nearly impossible to enforce this provision in the field. The annual number of park animals harvested during the 1920s will never be known, and as late as 1927, Karstens noted that due to extensive patrols, the "illegal slaughter of caribou and mountain sheep was held down to a minimum." Park officials, however, continued to press for a prohibition of hunting. President Hoover finally signed a hunting provision into law in May 1928, and later that year, NPS officials expressed their gratitude for its passage inasmuch as "much killing was done illegally which could not be controlled."[22]

During the remainder of the 1920s, park staff did their best to monitor the park's animal populations. Beyond the usual concerns about caribou and sheep, they took note about the park's fluctuating "snow-shoe rabbit" and ptarmigan numbers; a late-1927 crash in the park's rabbit population, which was widely perceived to take place every seven years, brought attempts at an explanation and detailed observations of the crash's impact on other park animals. A similar concern—unfounded, it turned out—was also expressed about the park's ptarmigan population.[23] No attempts were made to scientifically tabulate any of the park's animal species, and estimates from this period are wildly inaccurate, in all probability.[24]

During the 1930s and early 1940s (see next section), most wildlife-related interest at the park was devoted to wolves, sheep, and caribou. Some attention, however, was also given to rabbits and ptarmigan[25] along with occasional notes on unusual observations (initial discoveries or large numbers) of specific mammals (mice, weasels, and black bears) and bird species (seagulls, Canadian geese, etc.).[26] Given the agency's continuing needs to collect and provide wildlife-related information, Superintendent Liek in 1932 appointed David Kaye to be the park's first ranger-naturalist. This position remained, on either a seasonal or permanent basis, until early 1938, when Liek appointed Aubrey F. Houston as the park's first wildlife ranger. This position remained until the outbreak of World War II, with its consequent staff reductions; in 1944, the agency's directorate abolished the "wildlife ranger" designation.[27]

In June 1928, the park received a major boost when two women—Ynez Mexia accompanied by her assistant, Frances Payne—arrived at the park to collect "wild flowers and plants for the University of California and other institutions." The 58-year-old Ms. Mexia had been born in Washington, D.C. but had later moved to the Bay

Dr. Aven Nelson and his wife Ruth arrived at McKinley Park on June 23, 1939 and by the end of the summer had collected and pressed over 500 floral specimens. DENA 28-91, Denali National Park and Preserve Museum Collection

This grizzly bear was photographed near the Alaska Road Commission cabin and camp at Toklat during the late 1930s when the ARC performed all road maintenance for the park. Beatrice Herning Collection

Area; at age 51, she began taking natural science courses at the university. In 1926 and 1927 she took a botanical expedition to Mexico, where she had identified 50 new plant species, and at the suggestion of Joseph Dixon she took a similar trip to Mount McKinley. Mexia and Payne spent several weeks in the park, collected 6,000 plant specimens, and brought them back to the university's herbarium. Karstens noted that their venture was "the first careful study" of the park's botany.[28] Their efforts were supplemented in 1932, when ranger David Kaye amassed a large wildflower collection, and the following summer, when Ella Scott arrived at the park from New York and spent the summer "gathering a collection of wild flowers and plant life." Other early collectors included W. A. Setchell (1932), Fritz Went (1934), and Edith Scammon (1936).[29] In 1939, Dr. Aven Nelson (a longtime botany professor at the University of Wyoming) and his wife Ruth Nelson spent the summer "actively engaged in their botanical mission of collecting and cataloguing the plants of the park," and beginning in 1939, Louise Murie assembled a "thorough collection of the park's flora."[30]

Throughout the prewar period, staff made numerous notes on the effect of human activities on the park's animal populations. As early as 1925, Karstens noted that sheep "seem to be getting more accustomed to the human activities in the park. The great amount of blasting and noise along the park road has not affected them in the least. If anything, they are more tame than ever." Similar comments were echoed the following spring, when he noted that sheep "do not seem to be afraid of visitors and their camera 'guns.'" A driver of a concessioner's vehicle, in fact, noted that "If they get any tamer, they will be butting our cars off the road." During the winter of 1928-29, ranger Bill Myers noted that he and Fritz Nyberg kept several sheep as pets while staying at the Igloo and Toklat cabins. And in 1933, truck drivers west of Igloo reported that the sheep were "getting so tame that they will hardly move out of the road to let the trucks pass, and often the truck will have to be brought to a complete stop to keep from hitting some of them."[31] In 1928, park staff observed that various moose "don't seem to pay much attention to cars passing along the highway." In 1940, several wolves were seen feeding from the kitchen waste at the dump adjacent to the ARC camp at Mile 49. Caribou occasionally brushed close to traffic along the park road; in general, however, park staff noted that they "have a wild roving disposition and it is very seldom that you can get within one hundred yards of them."[32]

Bears could also be a problem. As noted above, park hunting was sanctioned under certain conditions between 1917 and 1928. During this period, agency staff observed relatively few bears; Karstens seldom noted them in his reports, and George Wright and Joseph Dixon had noted just three bears (a sow and two cubs) during their 72-day visit to the park in 1926.[33] But just a few months after the Congress passed the bill prohibiting hunting in the park, "two or three large grizzlies" showed "no fear of road crews," and "on one occasion, while the crew were eating lunch in the lunch tent, ... a large grizzly coming up the trail headed directly for the tent." The crew, in response, "beat on dish pans and pails. The bear seemed astonished at the noise but not at all frightened." Dixon, during his 1932 sojourn in the park, noted "eighteen grizzly bears and one brown bear in the same area that we covered

in 1926." That same summer, "five park cabins were ravaged by bruin before he decided to hibernate for the winter." Rangers, as a result, put new shutters and doors on all twelve of the park's northern and eastern boundary-line cabins.[34] But the problems continued. A bear broke into a Toklat cabin in 1934, and in mid-September 1937 a grizzly bear became so habituated to food at the Mile 29 ARC camp that Supt. Liek was forced to shoot it.[35] In 1938, two bears spent "considerable time around the cache" at the East Fork ARC camp, and two years later grizzlies were seen at both Camp Eielson and at the dump adjacent to the Mile 49 ARC camp. Additional cabin break-ins, caused by bears, took place in 1942 and 1944.[36]

People along the road—park staff, concessions personnel, road crews, and visitors—sometimes played a fairly direct role in managing the park's animals. Foxes, in particular, were "very tame." In 1928, a staffer noted that "one red fox has been teasing the dogs at the kennels," another frequented the Igloo road camp's garbage dump, and a year later "some of the construction camps had fox so tame that they would eat from your hand." And for the remainder of the prewar years, such behavior was noticed from time to time at the shelter cabins, road construction camps, and at headquarters.[37] The park's bird life was likewise affected; during the summer of 1929, staff noted that "birds of all kinds are apparently becoming more numerous each year as more camps are established and as a consequence more feed is thrown out for them." In 1932, ptarmigan were reported as being "quite tame" near the railroad depot. A 1925 visitor reportedly had "a ground squirrel eating out of his hand and a family of ptarmigan feeding around his feet." Karstens, commenting on the incident, noted "It is interesting how wild life will respond to those who love them."[38]

Under certain circumstances, rangers tried to assist the park's large mammals. In February 1924, for example, rangers on a patrol just east of the park boundary "observed a caribou which had fallen through the ice about eight feet deep and [was] unable to get out." In response, the rangers—with Karstens's permission—"pulled him out, tied his feet together, hauled him to camp on a dog sled and turned him loose in the rear end of the barn." Karstens offered the animal to the agricultural college in Fairbanks, the offer was accepted, and in early March the caribou was crated up and placed on a northbound train.[39] In 1927, ranger Fritz Nyberg rescued a ewe "caught in the deep snows of Sable Pass." He hauled the animal all the way to headquarters and fed it "milk and soft mash," but it died six days later. In May 1928, Nyberg "picked up a lamb away from its mother that had only been born a few hours before." Feeding it with a "bottle and powdered milk," the lamb lived at Savage Camp for a month

Much like today's visitors, park guests at Savage Tourist Camp in the 1920s and 1930s were tempted to feed the friendly Arctic ground squirrels. Beatrice Herning Collection

In May 1928, Ranger Lee Swisher and Chief Ranger Fritz Nyberg rescued a recently-born lamb, which they named Minn. They are pictured here bottle feeding the lamb along the trail. Frances Erickson Collection, Denali National Park and Preserve Museum Collection

before it "got wet in a glacier stream while overheated and died of pneumonia."[40] And in April 1929, the experience of 1924 was repeated, but on a larger scale: at the end of a particularly hard winter, "rangers picked up three rams and three ewes with lamb" near Igloo. A short time later, a "McKinley Parklets" news item reported that the sheep "seem to be getting along alright on Chechoker [sic] grub. They seem to prefer most of all potatoe peeling [sic], flapjacks and tobacco." To accommodate them, rangers built a "temporary shelter pen" near the Sanctuary cabin, but soon afterward the sheep were moved to headquarters, where they remained until early August. They were shipped north to College, where officials attempted "to cross breed them with domestic sheep and endeavor to produce a sturdy wool bearing sheep that will be able to winter in Alaska."[41] Efforts to consciously assist the park's megafauna largely disappeared after the 1920s, although on at least one later occasion, park staff established a salt lick to assist mountain sheep.[42]

During the 1930s, NPS rangers paid considerable attention to the park's wolf population (see next section). In 1931, rangers captured three wolves and hauled them to park headquarters, where they were placed in one of the dog kennels. They soon attracted "considerable attention from the tourists." Supt. Liek hoped "to raise them for breeding purposes" by "crossing them with malamute dogs." He doubted, however, "if a satisfactory result can be attained, owing to the wildness and ferocity of the breed." Nine years later, another wolf arrived at headquarters; the week-old female pup was brought there by biologist Adolph Murie, where it became a "rambunctious play partner" for his six-year-old daughter Gail. The pup, named Wags, remained at headquarters until 1943, when the park staff—having no other choices in the matter—reluctantly shot her.[43] Other animals also were brought to headquarters. Rangers, in 1940, also briefly cared for a young golden eagle that had been trapped nearby. It was fed raw meat for several days until it regained its strength and was liberated. Three years later, the presence of thousands of Army troops convinced park staff to bring three young caribou to headquarters. Acting Superintendent Grant Pearson noted that "the calves are well cared for and afford a unique opportunity to many of the boys who are unable to go into the park." They, too, were freed a short time afterward.[44]

More radical ideas were considered but eventually rejected. In 1928, park officials gave "some thought" to "transferring a few beaver and marten from the west end of the park to the eastern end, where they can be more closely protected and may be seen by the tourists," but the plan was never implemented. Also rejected was the idea, suggested by agricultural college officials, of using

In order to study wolf behavior more closely, Adolph Murie removed a wolf pup from its den in May 1940. The wolf pup, Wags, was raised in the park by the Murie family, pictured above. Harpers Ferry Center, NPS

the park as a grazing area for either the yak or the galoyak, the latter being a newly-developed hybrid of Galloway cattle and the Tibetan yak. The college, on two occasions during the 1930s, showed an interest in capturing live sheep to take to Fairbanks, but nothing came of these plans.[45]

The management of the park's forests followed general agency guidelines, which prohibited the "cutting of trees except where timber is needed in the construction of buildings or other improvements within the park" or for other specific purposes.[46] At Mount McKinley, Karstens told his superiors in Washington that "as there is not much timber within the park boundaries ... the trees will especially have to be protected." Given that scarcity, he and his rangers did their best—through both notices and word of mouth—to tell prospectors, mining claimants, and others to avoid "cutting timber promiscuously. Rangers also tried to keep an eye out for possible insect infestation.[47]

But the greatest threat to the park's timber was fire. In July 1923 a "very large forest fire" raged just east of the Nenana River near the McKinley

In July 1924, a wildland fire threatened the McKinley Station community and the first park headquarters on Riley Creek. During that tense time, all area residents turned out to help save structures in the area. This photograph shows the fire on the hillside beyond the south end of the Riley Creek railroad bridge and approaching the former railroad construction camp. DENA 8-0.5, Denali National Park and Preserve Museum Collection

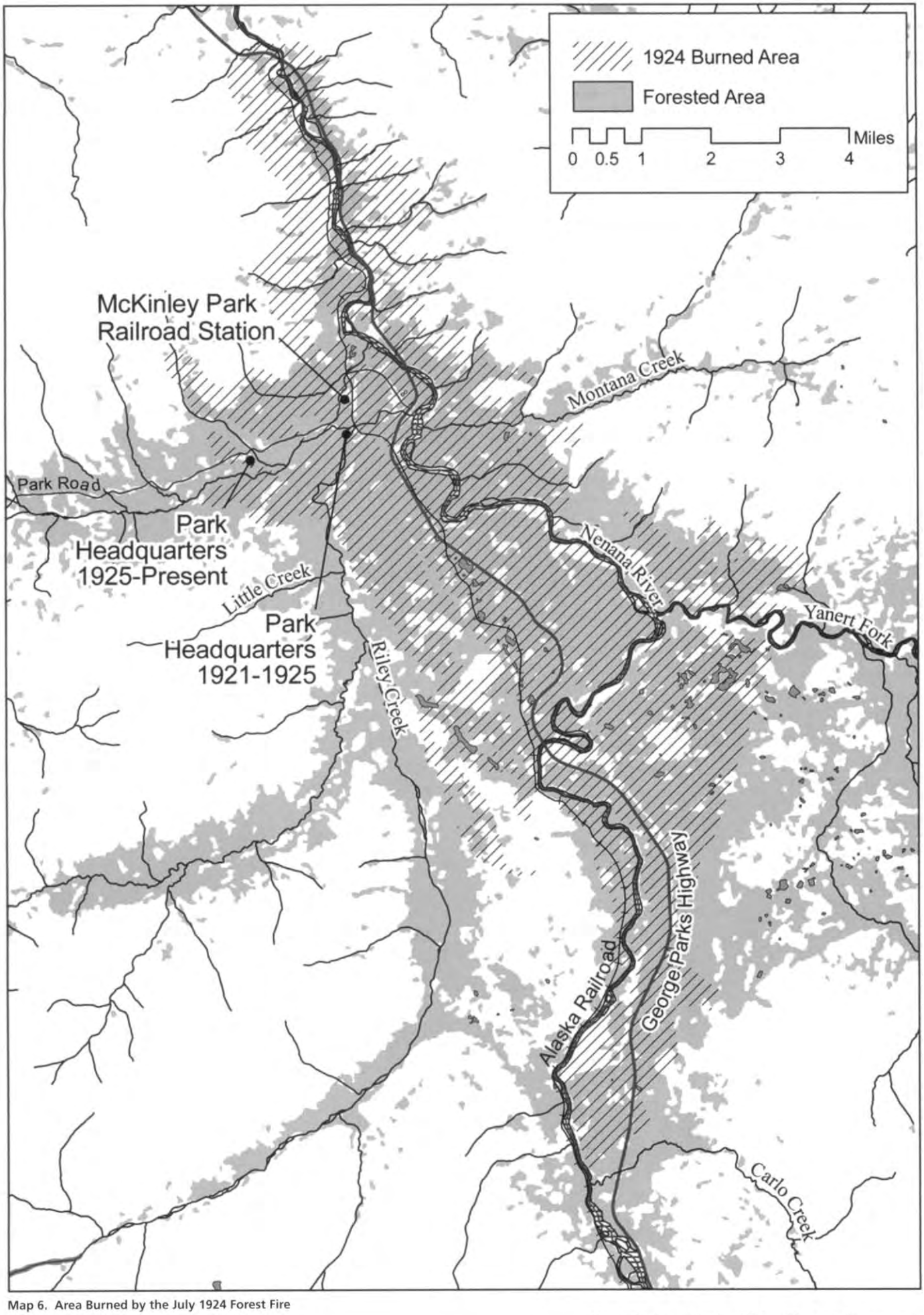
Effects of the 1924 wildland fire can been seen in this 1929 photo taken from the park road, looking toward McKinley Station and the Alaska Railroad bridge on the right. Many of the fire-killed trees adjacent to the park road were cut in the early 1930s. Herbert Heller Collection, 79-44-1316, University of Alaska Fairbanks Archives

Park railroad depot, and in June 1924 additional fires broke out "in the flats to the north" of the park as well as along the Alaska Railroad right-of-way less than three miles south of the park's Riley Creek headquarters. In early July 1924, a "large forest fire immediately south of headquarters" forced the park's three-man staff to spend all day and "long into the night" fighting it. The trio's efforts, plus the following day's rain, apparently eliminated the worst of the fire danger. But on July 14, Karstens noted that "the fire south of headquarters has broken out worse than ever," and for the next six days there was "a continual grind night and day fighting fire." On July 15, "a raging furnace of flame and smoke" came "within a hundred feet or so of Ranger McFarland's quarters," and the following day "the fire came around from the west and jumped Riley and Hines creeks and was raging on all sides of us." The fire forced the men to move "Horses, Household goods and office out on the bars of Riley creek" for two days. No buildings were lost. But when park staff on July 20 drove west from the railroad depot, they discovered that "the first half mile of country ... is a black scar, completely burned over. The next half mile is burned in patches and is still burning, working in the direction of the Park line and over a large scope of country." And the Fairbanks press, describing the area surrounding "the entrance to the National Park ... estimated that around 30 square miles have been burned over and but little good timber remains alive."[48] (See Map 6.)

Immediately after the fire, park staff redoubled their efforts to remove brush piles and other potential threats. Little was accomplished immediately afterward because of the lack of park staff. But beginning in the winter of 1929-30, Supt. Liek gave rangers (and later a hired man) the task of "cutting down and clearing up the old dead trees that were along the road leading from the depot to park headquarters." Clearing out the "unsightly" timber had two purposes: it "present[ed] a much better appearance" to visitors heading up the park road, and it provided park offices and residences with a ready supply of firewood. After the 1924 fire, park staff reported no further wildfires for years afterward.[49]

Predator Control and the Emergence of the Wolf-Sheep Controversy[50]

Throughout the nineteenth century and well into the twentieth, Americans in general—and Alaskans in particular—were firm believers in predator control. Prior to 1900, as the tides of settlement surged westward, there was a societal emphasis on the elimination of any species that impeded crop cultivation or ranching pursuits, and during the early twentieth century, public attention was increasingly directed toward the preservation of the major species that captured the interests of sport hunters. Americans thus targeted a number of species over the years, and perhaps the most public campaigns were directed against wolves, coyotes, bears, "chicken hawks" and other raptors, plus beavers, rabbits, and prairie dogs.[51] For wolves, and perhaps for other species as well, state and territorial governments assisted these efforts by offering bounties to successful hunters.[52] In the lower 48 states, the vehemence in public attitudes against predators had waned somewhat by the 1920s, due in part to a rise in conservationist sentiment, and in addition because wolves and other predators were declining in numbers and thus causing less of an impact to more economically-



Map 6. Area Burned by the July 1924 Forest Fire

beneficial plants and animals. Federal government agencies, however, were still ardent defenders of predator control in all its forms, and the Bureau of Biological Survey—the primary agency which carried out those policies—championed predator control because of its popularity among western residents and legislators.[53]

In Alaska, traditional attitudes toward predators were in full flower well into the twentieth century, primarily because most residents, Native and non-Native alike, depended heavily on local game and fish species for their everyday diet. In order to ensure a plentiful, ongoing supply of these products, the Alaska Legislature—which was established as a result of a 1912 Congressional act—provided bounties for wolves beginning in 1915. But despite the bounty, which was raised in 1917 from $10 to $15, Alaska Governor Thomas Riggs in 1919 noted that wolves were "becoming a great menace to game," and during the mid-1920s, Governor George Parks stated that wolf numbers were "increasing in spite of the bounty [and] doing much damage to fur and game." Wolves, more specifically, were perceived by Alaskans as having a major, negative impact on Western Alaska reindeer herds, although scientific evidence for this relationship has not been established. Coyotes, which had long been perceived as a threat to game populations, became a bounty target beginning in 1929. Other species, such as the bald eagle, hair seal, and various trout species were thought to threaten Alaska's commercially-valuable salmon industry, so the territorial legislature slapped bounties on these species in 1917, 1927, and 1931, respectively.[54]

The fact that Mount McKinley National Park, established in early 1917, was under National Park Service jurisdiction provided little protection for wolves, coyotes, and other non-game animals. Although the so-called "Lane letter" of May 1918 stated that "the national parks must be maintained in absolutely unimpaired form for the use of future generations," it gave no specific direction on animal management save hunting and sheep grazing (both of which would not be permitted) and cattle grazing (which was prohibited only at Yellowstone).[55] But because NPS managers such as Stephen Mather and Horace Albright recognized "the public appeal of visible wildlife" (according to historian Timothy Rawson), they likewise decided that "predators did not receive protection in national parks." Despite Director Mather's admonition that "it is contrary to the policy of the Service to exterminate any species native to a park area," wolves during the 1920s were eliminated from many of the major western parks including Crater Lake, Grand Canyon, Mount Rainier, Rocky Mountain, Sequoia, and Yosemite, and they were effectively eliminated at Glacier and Yellowstone.[56]

The Bureau of Biological Survey played a key role in these eradication efforts, several of which were instigated to protect livestock and hunting ranges in adjacent areas. But at Yellowstone and Grand Canyon, and perhaps elsewhere, predator control backfired. At Yellowstone, managers had to contend with an overabundance of elk, antelope and bison; huge elk dieoffs resulted, and the agency eventually chose to ship excess animals to nearby areas and to institute a feeding program. At Grand Canyon and in the surrounding national forest, the overabundance of Kaibab deer forced officials to learn "the greatest lesson of their lives" in animal mismanagement; a massive dieoff was followed by extended public hand-wringing on how to proceed and a controversial government-sanctioned deer hunt.[57]

As noted above, Mount McKinley National Park was established as a game refuge, but as in other western parks, that status provided no protection for predators. And proposals to reduce the number of predators were not long in coming. During the summer and fall of 1922, Superintendent Karstens made the first such suggestion; noting that "porcupine are very thick throughout the park and ... are chewing the bark off large numbers of trees and thereby killing them," he recommended exterminating them. In 1926 and again in 1927, Karstens complained that porcupines had "ruined acres of spruce trees," and after a particularly ugly encounter with the park dogs, he vowed that "porcupine have now been declared outlaws and 'open season' exists on them." But park staff, acting on orders from Washington, killed none of these animals.[58]

Beginning in September 1925, wolves—which had been "extremely scarce" in the park prior to that time—began to appear in greater numbers. Karstens, upon hearing reports about wolves in the park, immediately contacted his superiors and broached the idea of killing "some of them." Wolves were not the only worrisome animals that year; two coyotes were also spotted, causing Karstens to comment, "It is hoped that these animals do not get a hold on this country." He further noted that

> it is to be feared that eventually those present in the hills will breed and will become a menace to travelers. A strict watch will be kept and the killing of both coyotes and wolves will be kept in abeyance until such a time as they become dangerous – then a drastic action will be taken by all concerned.[59]

Winter patrols by dog team were regularly conducted in the park by rangers to observe wildlife activities, resource conditions and any indication of illegal hunting activities. This patrol was traveling on the East Fork of the Toklat River in 1929. DENA 3880, Denali National Park and Preserve Museum Collection

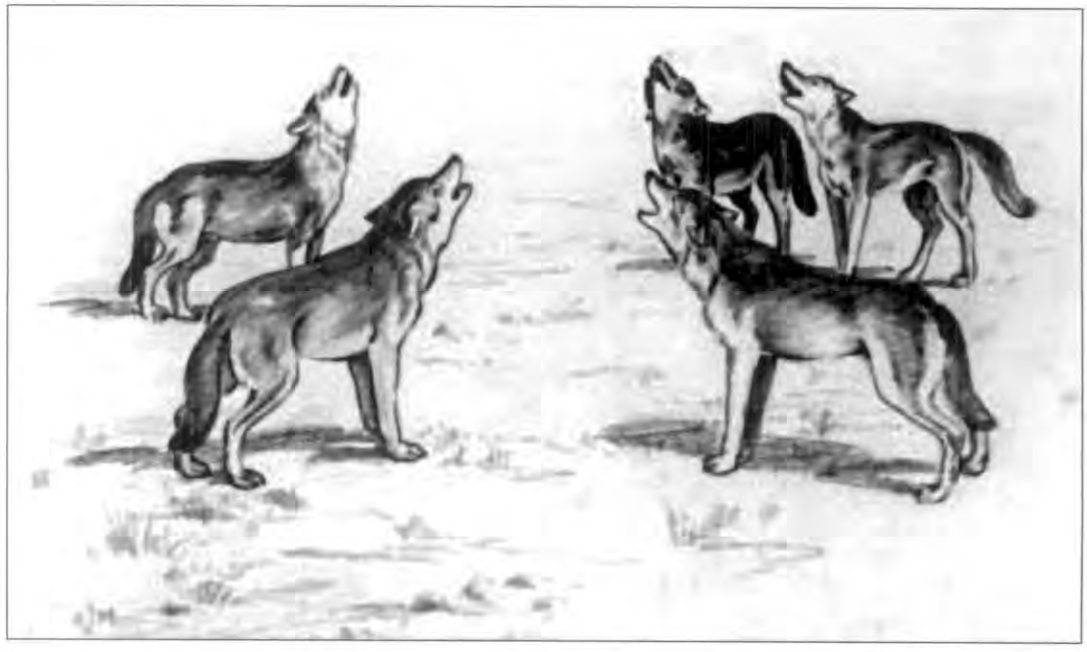
These animals continued to spread, and in 1928 a concerned Karstens noted that "since 1927 wolves are becoming alarmingly plentiful and causing considerable havoc among our game, also the coyote is multiplying fast." At the head of the Savage River, where the concessioner had a small camp for "Big Game Drive" patrons, he remarked that wolves were "actually driving the game out ... If something is not done to curb the wolf, our game is going to suffer tremendously." Managers during the late 1920s expressed some worries about the destructive impacts of lynx and wolverines.[60] Most of their concern, however, was directed toward wolves. The Bureau of Biological Survey, in 1927, helped organize a multi-agency effort to kill Alaska wolves. The following year the agency's head, Paul Redington, visited the park, after which he wrote a follow-up report stating that wolves had scattered the Dall sheep population to the point that it was "more and more difficult for tourists to observe them." He then asked the NPS to contribute $5,000 to aid in territorial wolf control efforts. Acting Director Arthur Demaray, the person to whom Redington's report was directed, had no philosophical qualms with the report, but he offered the BBS no funds, probably because wolf depredations did not constitute a crisis. A similar BBS request, sent in 1929, elicited the same negative response. Despite the NPS's reluctance, the BBS hired a wolf trapper and four assistants, who plied their craft during 1929 and 1930. But perhaps because of Demaray's lack of enthusiasm for the project, none of the trappers set foot within Mount McKinley National Park during either of these years.[61]

Redington wrote to NPS officials again in March 1932. Stating that "wolves and other animals" were "destroying the beneficial wild life of the Park," he again offered the BBS's assistance in the matter. By this time, ten or more wolves had been killed in the park: some by concessions employees, others by NPS staff.[62] Inasmuch as the park's sheep population was in the midst of its second destructive winter in four years—winters in which many sheep deaths were blamed on wolves—local NPS staff would no doubt have welcomed the BBS's assistance.[63] But new currents of thinking were making themselves heard by this time. In 1916, Joseph Grinnell had published a then-daring paper in which he declared that "predaceous animals should be left unmolested and allowed to retain their primitive relation to the rest of the fauna." By 1924, several prominent members of the American Society of Mammalogists were also going on record about the scientific value of predators, and the organization passed a resolution condemning the indiscriminate poisoning of predators. Gradually, NPS officials began to listen to the scientists; the agency banned steel traps in 1928 and poisons in 1930, and in May 1931 an agencywide policy—signed by Director Horace Albright—stated that "predatory animals are to be considered an

integral part of the wild life protected within national parks and no widespread campaigns of destruction are to be countenanced."[64]

Albright's policy statement, however, did not necessarily translate into specific park policy (historian Richard Sellars notes that it "reflected pressure from outside the Service"), and as late as 1929 Albright had written that wolves were "rapidly increasing in northern Alaska ... and overrunning Mt. McKinley Park," a state of affairs that diminished the health of "species of animals desirable for public observation and enjoyment."[65] In July 1931—just two months after the predator policy was issued—Albright arrived at the park and learned that the wolves were not threatening the park's sheep population. Despite that assessment, he backed Supt. Liek's dictum of having park rangers kill wolves on sight; in his annual report, however, Liek diplomatically noted that rangers were "watching this situation carefully and control measures will be taken as necessary." The NPS, as before, did not invite BBS personnel into the park for wolf control purposes.[66]

McKinley-specific information in these reports were primarily limited to Dixon's observations from 1926, but based on Dixon's new findings in 1932, he wrote a new volume (published in 1938) devoted solely to Mount McKinley's fauna. Much of what Dixon gathered in 1932 was a general description of park animals and habitat.[68] But given the wildlife losses that the park had incurred during the winter of 1931-32, Dixon—who was often accompanied by park ranger David Kaye—spent "much time studying conditions among the wild animals with the view of determining the cause for our great losses in sheep," and more particularly whether "this loss was caused by the predatory animals or the deep snows." Dixon, during the late 1920s, had spoken out against the agency's wolf control policies, and in addition, he stated that "there are probably no wolves today in the National Parks of the United States outside of Alaska. The loss is lamentable and there is little likelihood that it can be remedied." Even so, he apparently had little interest in overturning current rules at Mount McKinley. The pragmatic Dixon noted that the wolf's importance was "thoroughly appreciated by the



Adolph Murie, in The Wolves of Mount McKinley, noted that wolves howled in a group before departing from the den for hunting. His brother, Olaus, produced this sketch to illustrate the behavior. Olaus Murie, Harpers Ferry Center/NPS

On the heels of Albright's visit—and perhaps as a result of the director's concerns—Joseph Dixon returned to the park in 1932 and spent two and a half months on a wildlife survey.[67] Dixon, as noted above, had visited the park in 1926 with George Wright. In 1928, Wright had convinced NPS leaders that a survey should be undertaken of fauna in all of the country's national parks. Soon afterward, Wright hired Dixon for the massive project, and fieldwork had begun in 1930. The findings of their work first appeared in publications dated 1933 to 1935; Mount

NPS, even though the necessity of some control ... was admitted on the basis that the mountain sheep of the park were in need of relief." And as Superintendent Liek noted in June 1932 during Dixon's visit to the park, "Mr. Dixon has suggested that the rangers make a little more effort to kill off some of the wolves and coyotes."[69]

The big sheep die-off that took place during the winter of 1931-32, and the rising tenor of predator-based debate that loomed as a result, brought about an increasingly narrow focus that agency

April 1929 was a very hard month for sheep as a result of heavy snows and few places blown clear of snow. Sheep ranged onto the flats and many starved. Near Igloo Creek rangers on patrol picked up five exhausted, starving sheep and took them to park headquarters for rehabilitation, shown here in June 1929. Peggy Talerio Collection

staff paid to sheep, caribou, and wolves at the expense of other animal species. In March 1930, rangers had taken an informal census of nine animal species; beginning with the most common, they tabulated the number of caribou, sheep, ptarmigan, foxes, moose, wolves, porcupines, wolverines, and coyotes. In late 1931, however, they counted only four species (sheep, moose, wolves, and foxes, although it was also noted that "ptarmigan are returning to the park in great numbers").[70] After the winter's sheep disaster, agency staff continued to make an annual census, and in 1934 the NPS teamed with the Alaska Game Commission to conduct the park's first aerial wildlife census. Most counts after 1931 were limited to sheep, wolf, and caribou populations, although efforts in both 1936 and 1938 resulted in tallies for five of the park's most prominent mammal species.[71]

NPS Assistant Director Harold Bryant, who was in charge of the agency's wildlife policies, made it known in March 1932 that he wanted the agency's new (1931) predator policy carried out at Mount McKinley National Park. This meant a cessation of all wolf control efforts. He and Albright carried on a spirited correspondence over the issue, which ceased only when Albright stepped down as the NPS chief in August 1933 and was replaced by Arno Cammerer. Throughout this period, rangers and other government personnel continued to hunt down wolves: at least 2 in 1932, 9 in 1933, and 3 in 1934. Altogether, 24 park wolves were reportedly killed between 1929 and 1934.[72]

On February 25, 1935, Cammerer—apparently acceding to ideas that Bryant and others in the scientific community had long been advocating—issued a new park-specific predator policy. "Effective this date," he noted, "the killing of wolves within the park area is prohibited."[73] Cammerer's ruling put agency policy at the park squarely against the anti-predator attitudes which prevailed in Alaska, an attitude that, on an official level, had been expressed two years earlier in a legislative memorial that requested "that the Federal Government take steps to control the breeding and propagation of predatory animals" in the park. And on an unofficial level, territorial attitudes toward wolves were encapsulated by a photo caption in the first (January 1935) issue of the *Alaska Sportsman*: "A dead wolf is a good wolf."[74] Park staff, moreover, was as dead-set against Cammerer's policy as other Alaskans. Supt. Liek, in 1935, had just participated in the first in a series of annual animal censuses; these consistently showed that at least 15,000 caribou and 3,000 sheep inhabited the park, as opposed to a wolf population of less than 80. Despite those disproportionate numbers, however, both Liek and his rangers made no attempt to hide their antipathy toward wolves; they made drastic reports that the park was "infested" with wolves, which were becoming "a menace to the sheep." They dutifully refrained from any wolf harvesting, however.[75]

Toward the end of 1936, the pendulum of the Park Service's policy toward wolves at the park swayed back toward its earlier (pre-1935) position. In June of that year, Assistant Director Arthur Demaray arrived at the park as part of a month-long Alaska sojourn. That visit, however, exposed him to the depth of local opinion on the wolf-control issue, so in late August, after he returned to Washington, he issued a new policy that gave rangers permission—for research purposes—to "kill a moderate number" of wolves.[76]

Given that dictum, Liek assigned specific rangers in both 1937 and 1938 to undertake "predatory animal control" tasks. Rangers killed a total of fourteen wolves after the ban was lifted: one in 1936, three in 1937, and ten in 1938.[77]

Wolf Management: the Role of Science, Congress, and Advocacy Groups

The NPS, during this time, was torn in its attitudes toward predators. The agency, following its 1931 policy statement, prohibited coyote control at Yellowstone at about the same time that it stopped wolf control at Mount McKinley. But in response to those decisions, it was attacked by a host of advocacy groups: cattlemen's associations, sportsman's groups, the Camp Fire Club, and others. Also weighing in on the issue was former director Horace Albright, who wrote impassioned letters to Cammerer questioning the agency's policies toward coyotes and wolves. The NPS director, in response, sought help from the scientific community. In the spring of 1937, Adolph Murie—who was once again with the U.S. Bureau of Biological Survey—initiated a study of Yellowstone's coyotes. Murie's research concluded that because coyotes had a "negligible" effect on the park's elk populations, the park's flora and fauna should be subjected to "minimal disturbance," and more specifically that coyote control was "not advisable under present conditions." Cammerer backed Murie and resisted further control efforts because, as he noted, the coyote was a "natural and desirable component of the primitive biotic picture."[78]

Wildlife Biologist Adolph Murie began his investigations of predator-prey relationships in Mt. McKinley National Park in April 1939, based at the Sanctuary River ranger cabin. DENA 28-11, Denali National Park and Preserve Museum Collection

As early as 1936, Murie had expressed an interest in returning to Alaska and conducting a similar study on the Mount McKinley National Park wolf population. Funding, however, was a problem, and by January 1939 Cammerer had written to the Camp Fire Club and asked if it would be willing to fund a year-long research project. The Club turned him down, so soon afterward, agency officials recognized the need to "solve its own wildlife problems and thus avoid pressure for control measures by other agencies." After first considering Joseph Dixon for the job (who opted out for medical reasons), they asked Murie to undertake "a study of predators and their relation to other [park] wildlife" as soon as he completed his work at Yellowstone. He eagerly accepted and left Jackson, Wyoming, for Alaska in March 1939. He sailed north with a contingent of Civilian Conservation Corps workers that were bound for the park, and by April 17 he was comfortably sequestered at the park's Sanctuary River ranger cabin.[79]

Murie, who was officially on loan between the NPS's Region II and Region IV (these were later known as the Rocky Mountain Region and the Western Region, respectively), had been appointed to the park only for a seven-month assignment, so he wasted no time beginning his work, which specifically involved locating and analyzing sheep skulls. By the end of June, park officials were able to report "very satisfactory progress in his study ... he states that indications point to a favorable report to support the NPS policy of protecting all species of native animals. However, it is too early to make commitments."[80] Murie got a significant boost shortly after he arrived, because Supt. Liek—whose tenure went back to the late 1920s and whose support of predators ranged from lukewarm to hostile—was replaced by Frank Been, a forestry-school graduate and former Sequoia National Park naturalist. In late July, an approving Murie wrote that "Been's attitude toward the [predator] problem is in accord" with his own. Been asked Murie to remain at the park until late that fall, and he asked his superiors in Washington to fund the biologist for "several years of observations" because of "the agitation of the people toward wolves and because the conclusions here will be a guide for solving problems in other parks of the territory." When he left the park that fall, he was uncertain whether he would return. He soon learned, however, that thanks to the support of both Cammerer and officials in the BBS's reorganized Wildlife Division, there were now new principles

of park wildlife management. These stated that "every species shall be left to carry on its struggle for existence unaided," and predators would not be killed unless a prey species was threatened with extermination.[81]

Murie's primary research interest was establishing a cause for the park sheep mortality and to ascertain a causal link, if any, between sheep mortality and predators. Murie, as a result of that research, quickly dismissed most predators (such as coyotes, lynx, bears, wolverines, or golden eagles) as being responsible for significant sheep losses. Far more significant contributors were environmental stressors such as snowpack and disease. Wolves, he freely admitted, were "the chief factor limiting the sheep population" in the park, but they did so by harvesting the old, the young, and the sick. But wolves, as a species, were no threat to the overall health of the park's sheep population. Murie, working out of his Jackson home, completed his manuscript in early 1942, but given the country's abrupt entrance into World War II, Murie's research remained in draft form until 1944, when the Government Printing Office published it as *The Wolves of Mount McKinley*. Included with the text were a number of Olaus Murie's sketches.[84]

During his early work Adolph Murie, left, along with Ranger John Rumohr, were photographed here by Harold Herning on the Muldrow Glacier during their extensive hiking field surveys. Beatrice Herning Collection

NPS officials, after a winter of stalling, finally agreed in early April 1940 to send Murie back to the park for further research; he and his family quickly headed west to Seattle, and by April 28 they were "already established at a cabin on the East Fork of the Toklat River." He soon joined Frank Glaser, a BBS "predator hunter," and park ranger Harold Herning on a census of wolves and wolf dens in the park. In May, Glaser located three dens containing wolf pups, and by the end of the month, six park wolves had been killed "for specimens and for control."[82] Glaser finished his inventory in July and left the park, and in October he issued a report on his work. Ranger Herning, however, issued a separate report during the same month, and as Been candidly noted, "The divergence of interpretation of the two men is interesting." Murie, meanwhile, spent most of the summer observing (and occasionally filming) wolves and wolf behavior, interviewing longtime trappers and hunters, collecting sheep skulls, and analyzing wolf scat. Murie and his family (who adopted a week-old wolf puppy, which they named Wags) retreated to park headquarters that fall, but resumed work at the East Fork cabin the following May. By August 1941 his work was complete, and the family left the park.[83]

Throughout this period, opposition to the Park Service's *laissez faire* wildlife philosophy remained strong, and particularly so in Alaska. Numerous articles, both in sportsman's magazines and Alaska newspapers, chanted that the park was a "breeding ground" for wolves and coyotes, while overlooking the fact that the park also bred caribou, sheep, and other game animals. According to Murie, "the wolf controversy is in the nature of a religion with many and

Frank Glaser, a U. S. Biological Survey predator control agent, worked in the park with wildlife biologist Adolph Murie and park ranger Harold Herning to conduct a census of wolves and wolf dens in 1940. Glaser worked with Olaus Murie on the caribou capture project in 1922 and 1923, and later was a trapper on the lower Savage River, north of the park boundary, for more than 10 years. Beatrice Herning Collection

therefore can not be won by logic or fact." But Been, Murie, and others did what they could. They spoke to business, civic, and sportsman's groups in Fairbanks, made a presentation at an Alaska Game Commission meeting, greeted VIPs during their park visits, assigned rangers to accompany bus tours and give natural-science talks, showed Murie's wildlife films, and carried on correspondence with those who published anti-wolf articles. By doing so they won many converts, but due to the sheer scale of those with opposing viewpoints, both men recognized the folly in trying to either implement or retain an absolute ban on wolf control.[85] Been, therefore, made it known that rangers still shot wolves from time to time; and as a result, wolves did not enjoy complete protection at the park. Rangers, in fact, killed one wolf in 1941 and another in 1944; more wolves would doubtless have been killed if the ranger ranks during the war had not been so depleted (see Chapter 5).[86]

During World War II, Alaskans became even more antithetical toward wolves than they had previously, a condition brought on by a loss of long-term hunters to the war effort, a flood of new (and untutored) hunters from the United States, the decimation of the Western Alaska reindeer herds, and poor Interior game harvests. Looking for a way to vent their frustration, the territorial legislature in mid-March 1945 passed a joint memorial blaming the Park Service for Alaska's wildlife woes. The memorial stated that "wolves and coyotes have already caused reindeer to decrease from about 641,000 to 90,000 since 1932;" the chief culprit for the crash, furthermore, was the NPS, which was "breeding these destructive creatures in great refuges." The memorial, which was in some ways similar to what had been passed in 1933 and 1935, asked Congress to remove all restrictions to wolf hunting in parks and to fund an aerial hunting program.[87]

Grant Pearson, who had been Mount McKinley's acting superintendent since Been's departure in early 1943, was called on to rebut the legislature's charges. His superiors told him to cease all wolf-control efforts because of the lack of staff; Pearson, however, had a traditional attitude toward wolves, and being a longtime local resident, his best defense was to suggest that out-of-state interests were responsible for the agency's wolf policy.

Other Interior Department officials, who were well aware of the virulence of local opinion on the issue, continued to recommend that NPS regulations pertaining to wolves should be interpreted less strictly at Mount McKinley than in stateside parks. An Indian Service biologist stated that Alaskans were "in virtual mutiny against" NPS policies, Murie stated that "Alaskans would howl more than the wolves" if a ban were laid down, and NPS Regional Director Owen Tomlinson stated that an annual harvest

In addition to his wolf studies, Adolph Murie also studied Dall sheep behavior. He photographed this band of ewes with lambs crossing a small stream in Mt. McKinley National Park. Adolph Murie, Harpers Ferry Center

of three to five wolves would be sufficient to quiet Alaskan concerns without diminishing the park's wolf population. Pearson himself, who had been the focus of so much criticism, warned his superiors that "nothing short of extreme measures will regain the good will and confidence of Alaskans." Otherwise, Congressional action was sure to follow.[88]

Washington-based NPS officials, well aware of the growing fervor against the park's wolf control policy, asked Murie—who was then working for the U.S. Fish and Wildlife Service in Arizona—to return to Alaska and conduct a brief sheep inventory. He stayed in the park from mid-August to mid-September 1945. During his quick reconnaissance, he concluded that the park's sheep population had drastically declined, to the point that their continued existence could be in jeopardy. He therefore recommended—perhaps for entirely political reasons—that rangers should kill from ten to fifteen wolves, with continued control until the sheep population regained its former strength. NPS Director Newton Drury accepted Murie's recommendation "without question," and a news release explaining the new park policy was released on October 31. Three months later, the agency issued a second release, stating that it had authorized "an experienced trapper under the direction of the superintendent" to trap 15 park wolves.[89]

But the Camp Fire Club, whose roots at the park extended back to the pre-World War I days, was not mollified by the Park Service's action. Led by Belmore Browne, who had made three attempts to climb Mount McKinley, all prior to the park's establishment, the club called the agency's philosophy a "fallacious doctrine" and Murie's book "An Eulogy to the Wolf." Browne, furthermore, had played a key role in establishing the park, and vowed that the park's creators never intended to protect wolves as part of the park's "game refuge" concept. Soon afterward, Camp Fire Club advocates opted for a Congressional resolution of the matter, and on December 14, Rep. Homer Angell (R-Ore.) introduced a bill calling for the "rigid control of wolves and other predatory animals" in the park "to the end that said [game] refuge be made safe, and so maintained, for the Dall sheep, caribou, and other wildlife native to the area." Angell submitted a slightly revised bill the following February, and in March 1946, Wallace White (R-Maine) introduced a similar bill in the Senate.[90]

The House's Interior Committee on Public Lands held two hearings on Angell's revised bill, on April 3 and May 22. The first hearing, hastily arranged, was dominated by Camp Fire Club representatives, and the only speaker with an opposing viewpoint was Devereux Butcher from the National Parks Association. At the second hearing, Director Drury was able to refute a number

of points made by previous speakers, and after the meeting concluded, the committee tabled the bill for the year because its members concluded that, in most cases, agencies (which possessed the expertise) rather than Congress (which didn't) should be free to decide agency-specific wildlife management issues.[91]

With the looming specter of Congressional interference now removed, rangers at Mount McKinley National Park were now free to follow Drury's October 1945 dictum and conduct small-scale wolf harvesting. Pearson begged off at first, citing budgetary woes, but in February 1946 the Service hired John A. Colvin, an "experienced wolf hunter." Colvin, working out of the Sanctuary cabin and armed with both traps and a rifle, began searching for wolves. He had scant success, however, and on April 2 he left the park after concluding that there were not sufficient wolves in the Park to warrant the expense of hunting them."[92]

During the summer of 1946, however, caribou migrated back into the park, and with them came wolves. Rangers, following Drury's policy, harvested five wolves between July and October. Murie, hoping to lend some science to the continuing debate, stayed at the park during August and September and concluded that the park still contained only about five hundred sheep, and the wolf population was only about fifteen. Despite those low numbers, Murie recommended a continuation of the agency's wolf-control program. But zealots in the Camp Fire Club, who wanted to preserve the park's sheep at all costs, tried once again to change the agency's policy through legislation. In March 1947, both Senator White and Rep. Arthur Miller (R-Nebr.) introduced bills that largely repeated those that had been seen and debated between December 1945 and May 1946. But this time around, the Camp Fire Club found few allies, and neither bill received a hearing.[93]

The agency, meanwhile, continued to monitor the park's wolf and sheep populations, primarily through the efforts of Dr. Murie—now an NPS employee—who stayed at the park for most of 1947 and many succeeding years as well. Park staff, during this period, continued their wolf control campaign, and in 1948 they harvested seven wolves. Been, hoping to quell negative publicity about the agency's policy, displayed four of these wolves—all of them killed in February—to a group of labor delegates convened at the park hotel.[94] And in August 1948 agency staff, wolf-control advocates, and defenders of the agency's policies gathered at the park and engaged in a vigorous, drawn-out debate. The idea, fostered by NPS Director Newton Drury, brought together Belmore Browne of the Camp Fire Club, who had last visited central Alaska in 1912; Harold Anthony, who was a member of both the Boone and Crockett Club and the NPS Advisory Board; Ralph Friedman, a New York businessman and big-game hunter; NPS biologist Adolph Murie; and park superintendent Frank Been. The men spent ten days together walking, hiking, riding up and down the park road, and conversing. Just a few hours before the three visitors were to depart, Been produced a joint statement that he hoped all would be able to sign. After several hours of debate, all five "reluctantly" signed a final draft stating, among other provisions, that the agency's wolf control program would continue, at least for the short term; that the NPS policies were not to blame for the reduced sheep population; that predator control legislation was a dangerous precedent; that the continuing services of a biologist were needed to monitor park wildlife; and that the public needed to be further educated about the park's predator situation. All three visitors submitted lengthy evaluations of their sojourn at the park, and based on those reports, Drury—primarily as a public relations gesture—decided in January 1949 to remove any limits on the number of park wolves to be harvested.[95]

Shortly after Drury's decision, Been was transferred to a position in Oregon and was replaced by Grant Pearson, who had been working in the park for most of the last twenty-three years. Pearson, a longtime predator-control advocate, wanted all of his rangers involved in the wolf reduction effort, but a more cautious Murie (in the words of historian Tim Rawson) wanted "to be selective about which wolves would be sacrificed to the politics of wildlife management." During the winter of 1949-50, one park wolf was killed, and another (near Igloo Creek) was seen dragging a trap. But in later years, park staff targeted only a small part of the park for wolf harvesting. Wolves in the hotel and headquarters areas, specifically, could be harvested, but no efforts were made to cull wolves in the Toklat drainage or elsewhere in the park's interior.[96] To that end, traps were placed near the park dump (which was located just east of the McKinley Park airstrip) during the winter months, and as a result, most of the eleven wolves that were caught and killed between 1949 and 1952 fell victim to snares at the park dump.[97]

Events both inside and outside of the park's boundaries conspired to eliminate the need, and reduce the political pressure, for further wolf control. The park's caribou herds typically wintered on grounds north of the park, and the

In order to comply with the mandated wolf control program, park rangers placed snares at the park dump in 1951 and caught three young wolves, one of which is pictured above with ranger Bill Nancarrow. The pelts from these wolves were utilized for interpretation at the park museum. DENA 18-11, Denali National Park and Preserve Museum Collection

wolves, who followed them, often fell victim to poison bait that was scattered about by U.S. Fish and Wildlife Service agents. In addition, the park's sheep numbers began to rebound, from a 1945-46 population of 500 to an estimated 1,200 in 1951. And on a political level, Camp Fire Club activist Marshall McLean died in 1952, and Belmore Browne followed soon afterward.[98]

The circumstances that ended the agency's wolf control efforts at the park were brought about by a request from a husband-and-wife film crew. Herb and Lois Crisler, who worked for Walt Disney Productions, wanted to make a film showing the home life of a wolf family, so they asked the NPS for permission to film a wolf den in the park. Pearson was cool to the idea and claimed that there had been no known wolf dens in the park since 1946. But the new NPS director, Conrad Wirth, overruled Pearson. He stated, in a February 1953 memo, that because the park's sheep were no longer threatened, the couple was free to proceed with their film project; and to assist the filmmakers, he enacted a temporary ban on wolf control. Later that year, Murie tallied at least 1,500 sheep and an increasing number of caribou migrating into the park. So given the expanding numbers of park game animals, Wirth in March 1954 decided that wolf control in the park would "be suspended immediately and until change in the relationship of the wolf and its prey species makes resumption of control advisable."[99] Few public protests followed Wirth's decision, the park's game populations remained healthy in the years following the decision, and since that time, agitation for wolf control has not been resurrected as a serious threat to NPS policy.

The Growing Popularity of Fishing

Congress, when it established Mount McKinley National Park, drew boundaries that encompassed the high peaks of the Alaska Range and the rich wildlife habitat immediately to the north. Despite language in the park bill calling for the "preservation of animals, birds, and fish," little if any information has surfaced in hearings or correspondence to suggest that fish populations within the proposed park boundary were either well known or highly valued. Karstens, a longtime resident of interior Alaska, was doubtless well aware of the area's primary fish species, but his knowledge of the fish habitat patterns within the park boundaries was probably fairly limited.

Karstens began a staff presence in 1921, and by 1923 he had gained both rangers and a concessioner. These individuals, plus the trappers and prospectors who had inhabited the area

since the earliest years of the twentieth century, collectively had considerable knowledge of the best local fishing holes. But George Wright and Joseph Dixon, during their 1926 biological study, made no mention of the park's fish populations. To provide additional knowledge, Karstens in August 1927 headed out on a month-long patrol, one object of which was to locate the park's "good fishing streams or lakes and the species of fish to be caught." That trip took him westward to Copper Mountain, and later down the Clearwater Creek drainage. He returned from that trip stating that the park offered grayling and Dolly Varden trout. Grayling, measuring from 5 to 14 inches long, were plentiful ("as many as 200 have been seen in a small hole") and were found in most of the clear water streams, while some streams carried Dolly Varden, the larger sizes of this species invariably being found near the headwaters. One of the richest grayling pools was located at the northern end of Savage River Canyon, and to ease access to the site a trail was constructed there from the park road in 1928.[100]

This group of Civilian Conservation Corps enrollees were quite successful at fishing in Wonder Lake. John Ehly Collection, Denali National Park and Preserve

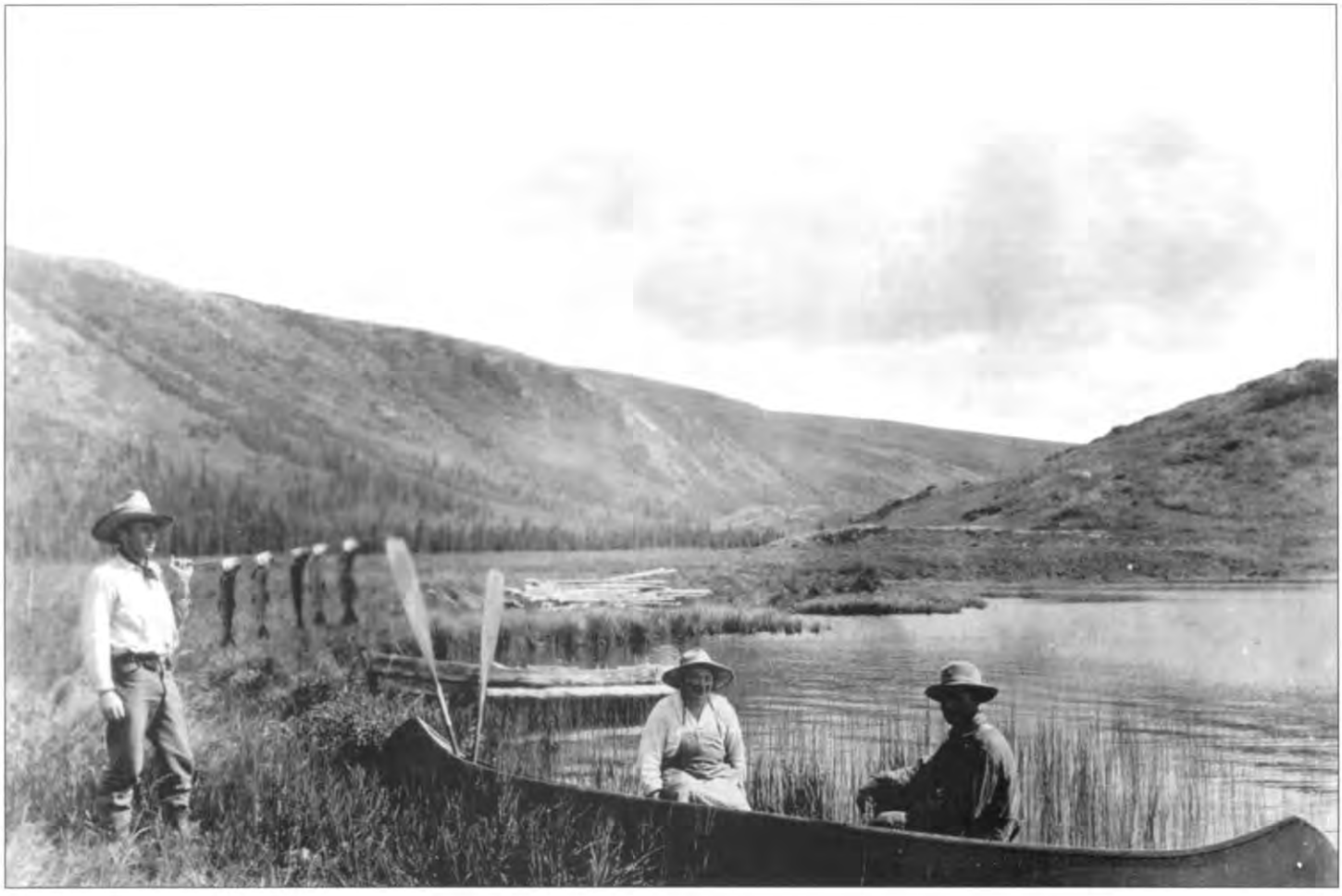
One of the park's first information circulars, published in 1929, stated that there were no park-specific fishing regulations; here, as in most other NPS units, only hook-and-line fishing was allowed, and fish could not be harvested "for merchandise or profit." It offered the following descriptive information:

> The grayling, a very hardy species of the trout family ... are sporty and playful, and of an average weight of 1 to 2 pounds. Large schools of these fish may be seen swimming in the waters of Savage River, at the north entrance to Savage Canyon. The angler may also try his luck in Riley Creek, about a mile from the [1922] park entrance, where grayling abound. There are also trout in the park streams which are classified locally as Dolly Varden. Their weight is in the neighborhood of 1 pound. Outside the park ... at Wonder Lake ... there is a variety of trout, some weighing as much as 35 pounds.[101]

Wonder Lake, as noted in Chapter 4, had been eyed as a potential hotel site as early as 1930, and the agency's interest in constructing such a facility had resulted in the Congressional passage of a bill (in May 1932) that brought Wonder Lake into the park. Interior Department official Ernest W. Sawyer, at the time, was fully aware that clouds in the area often obscured tourists' views of Mount McKinley. He noted that the visitors' time, therefore, "could be well spent fishing as well as enjoying the scenery nearby."[102] Grant Pearson and other rangers, at the time, were aware of the lake's fish resources, because they had doubtless eaten trout caught by homesteaders John and Paula Anderson, who lived on the lake's northern edge. They likewise knew about the grayling in nearby Moose Creek from Kantishna miners such as Johnny Busia.[103]

The federal government showed an increased interest in the lake beginning in the mid-1930s. The NPS, in 1935, decided to build a hotel just south of the lake, and the following year the Alaska Road Commission extended the park road to the proposed hotel site. The government's decision, in 1937, to finance and build a hotel near the railroad depot temporarily put any plans for a Wonder Lake Hotel on the back burner. But many Alaskans and some in Congress still supported the idea. During a park tour in August 1939, Rep. Schuyler Bland (D-Va.), a member of the Subcommittee on Alaskan Fisheries, suggested that the lake be thoroughly studied "with the idea of stocking it for future use when a lodge for tourists is constructed" nearby. A Bureau of Fisheries official, who accompanied the congressional party, quickly seconded Bland's motion, and a month later, a Bureau specialist spent several days at the lake and reported that the lake was "amply supplied with fish food and could support many more lake trout than it now contains."[104]

The completion of the McKinley Park Hotel, in June 1939, made the area surrounding the train depot a more significant visitor node than it had



John and Paula Anderson lived on the north shore of Wonder Lake and enjoyed fishing there, as evidenced by this photograph of them in their canoe. Jay Hathaway Collection

previously been (when accommodations had been limited to the Morino roadhouse, which had been sparingly used after the mid-1920s). In 1940, an ARC crew built a 1.5-mile trail to Horseshoe Lake, and by July of that year, park superintendent Frank Been was noting that the new trail was "proving very popular with tourists," in part "due to the excellent fishing in Horseshoe Lake.[105]

Horseshoe Lake, as it turned out, was just one of many Alaskan lakes and streams that had recently become popular with recreational fishermen. In order to regulate this increasingly important activity in a territory that had traditionally been dominated by commercial fishing interests, the Bureau of Fisheries had issued its first territorial sport fishing regulations in March 1936; these initial rules pertained to trout only (although not to Dolly Varden trout), and they imposed a daily catch limit of 40 fish and a possession limit of 80 fish.[106] Four years later, slightly tighter rules were implemented; in the new rules, "game fish" included grayling as well as four types of trout: rainbow, steelhead, eastern brook and cutthroat. The regulations offered a number of general prohibitions against the wanton waste or destruction of game fish, the commercial harvest of game fish, and the use of nets, traps, set lines, and explosives to catch fish.[107]

The 1940 regulations also provided the first limitations on the number and size of fish that could legally be harvested. The bag limits were certainly generous by modern standards, and they were also generous when compared with general NPS regulations, which called for a ten-fish limit.[108] The 1940 Bureau of Fisheries regulations stated that

> No one shall take in any one day ... more than a combined total of 25 game fish or more than 25 pounds and 1 game fish of all species, and no person shall have in his possession at any one time more than a combined total of 50 game fish of all species or more than 50 pounds and 1 game fish of all species.[109]

Been and other park officials were apparently unaware of the issuance of these regulations until April 1941. Shortly afterward, officials announced that they would issue agency-specific regulations, identical to the Alaska regulations as they pertained to fishing bag limits, in order to give park personnel enforcement powers.[110]

The 1941 NPS regulations skirted the issue of fish stocking. This practice was both common and uncontroversial during this period, both in Alaska and in many other NPS units.[111] However, news reports that announced the 1941 regulations stated that NPS officials were "requesting that no fish be planted in the lakes, ponds and streams of Mount McKinley National Park. The NPS is responsible for that [stocking] work and desires to have park officers do it in order that records and observations can be made."[112] This announcement was a logical extension of a 1936 agency policy "to prohibit the wider distribution of exotic species of fish within the national parks and monuments," and to that end, that policy had stated that "no introductions of exotic species of fish shall be made in national park or monument waters now containing only native species."[113] The 1941 announcement, therefore, may have been aimed at federal or territorial fisheries officials, who may have wanted to stock Horseshoe Lake or other park waters with species (such as rainbow trout) that were native to Alaska but not to park waters. It may also have been Washington's response to park superintendent Frank Been, who in July 1940 had told his superiors that sport fishing's growing popularity "may make restocking of [Horseshoe] lake necessary. Some desirable species such as rainbow trout might be introduced."[114]

The spring 1943 conversion of the McKinley Park Hotel from a civilian hostelry to a military recreation camp meant that the park was suddenly hosting hundreds of young men each week, many of whom loved to fish. NPS officials saw the influx as an opportunity, and that May, Pearson noted that "grayling are now being caught in all clear streams [and] Dolly Varden trout are being caught in Riley Creek." By June, fishing pressure had increased to the point that Pearson told Army officials that anglers should take no more than 10 grayling per day and, at Wonder Lake, take a maximum of 2-3 lake trout per day.[115]

Soon afterward, the U.S. Fish and Wildlife Service (which was the successor to the Bureau of Fisheries) temporarily interfered with park fishing. On July 1, 1943, Congress had passed a revised version of the Alaska Game Law; that law, which applied to sport fishing as well, defined "game fishes" to include Dolly Varden trout as well as grayling and other trout species.[116] Based on that law, the Fish and Wildlife Service issued regulations on July 16 that—perhaps inadvertently—closed all Alaska NPS units to game fishing.[117] On the heels of that regulation, NPS Director Drury sent a July 20 radiogram to Pearson telling him that all park waters were immediately closed to fishing. Pearson, responding with his own radiogram, pleaded that the action "imposes drastic hardship on Army recreation program" because "fishing is most popular soldiers sport" and asked to "have this regulation rescinded." Perhaps as a consequence, this and other irregularities in the July 16 regulations were addressed in a revised series of regulations, and fishing in the park was legally able to resume on August 24.[118]

The summer of 1943 also witnessed the first discussions about fishing licenses. Prior to 1943, no fishing licenses had ever been issued in the territory. This changed on July 1, 1943, when Congress passed the revised Alaska Game Law, which required residents, nonresidents, and aliens (non-U.S. residents) to obtain fishing licenses.[119] Pearson, in response, argued that because "neither the Territory of Alaska nor the Alaska Game Commission has ever aided in the stocking of the streams within the park, ... it is difficult for us to understand why they should exact a license fee from our visiting soldiers." He therefore suspended the license requirement for the time being. Washington officials, perhaps in deference to the many soldiers who were staying at the park for much-needed rest and recreation, backed Pearson.[120] Thereafter, Alaska Game Commission regulations consistently required all adult residents who wanted to fish in territorial waters to have a territorial fishing license. NPS regulations, however, overruled those regulations. At no time since 1943 have park anglers been required to possess an Alaska fishing license.[121]

Pearson's June 1943 ruling regarding bag limits on grayling and lake trout apparently held sway only so long as military personnel were the primary park users, and in late August a new territorial regulation was put in place, stricter than the rules set forth in 1940-41. The new limit was "20 fishes singly or in the aggregate, but not to exceed 15 pounds and 1 fish daily[;] two daily bag limits in possession."[122] These regulations remained until 1947, when Frank Been—who had been in the Army since 1943—returned as the park superintendent. Given a rising number of visitors, and the expectation of even more visitors in the future, Been recommended that park regulations regarding bag limits match those for most parks located outside of Alaska. As a result, the Interior Department issued an August 1947 regulation that eliminated the special regulations that had been in force since May 1941. For the next several years, there were no special regulations regarding fishing in the park; instead, park fishing would be guided by general NPS regulations, which stated that "the number of fish that may be taken in any one day from the various lakes and streams shall be limited to 10 fish" and that fishermen could possess only two days' catch at any one time.[123]

As the number of visitors increased, park managers had specific concerns about the park's fish populations. In July 1950, for example, they closed Horseshoe Lake for the remainder of the season because it had been "excessively over fished preventing any stabilization and reproduction to take place." As early as 1948, Been had stated that due to an increase in private-car traffic and the consequent increase in fishing pressure, a "reduced limit" of lake trout at Wonder Lake "might be required." In 1952, Pearson agreed. He recommended the issuance of a new regulation that limited the Wonder Lake fish catch to just two fish per person per day. The regulation, which was implemented in late May 1952—just two years before the agency established its Wonder Lake Campground—stated that "the limit of catch of lake trout (mackinaw) per person per day shall be two fish, including those hooked and released." The regulation also made two revisions to general park fishing rules. First, instead of mandating a simple ten-fish limit, it stated that a single day's catch "shall be 10 fish but not to exceed 10 pounds and one fish." Second, it restricted the total possession limit from a two-day catch to a single-day catch.[124] This regulation has continued, unchanged, to the present day.[125]

Meanwhile, rangers during the postwar period were paying increased attention to the park's fish resources. They noted newly-discovered species such as ling cod (burbot) in both Horseshoe Lake and Wonder Lake.[126] They conducted periodic patrols that specifically sought out fishermen, and in August 1958 rangers issued what may have been their first fish-related citation, to a Bureau of Public Roads construction worker for possessing "an overlimit of fish."[127] In the mid-1960s, Wonder Lake-based rangers conducted surveys of fishing success in that area. Science also entered the equation. In 1964, rangers were sufficiently worried about unknown fish parasites that they asked a University of Alaska professor for assistance (these turned out to be leeches that "probably do little damage to the fish"), and in 1966 preliminary work began on a dietary study of Wonder Lake's lake trout (which concluded that their primary food was insect larvae, supplemented by mollusks).[128]

Postwar Natural Resource Issues

As noted above, biologist Adolph Murie had first spent time at the park in 1922 and 1923 with his brother Olaus. He had returned to Mount McKinley in early 1939 as a Bureau of Biological Survey employee, and he remained there as either a seasonal or permanent employee until August 1941. During that 2½-year period, he had become thoroughly familiar with the park as he compiled information on its wolves, sheep, caribou and other large animals. Given a resurging and continuing interest in the role of wolves and other predators in the park's ecosystem, Murie returned to the park in the late summer of 1945. In 1946, he became an NPS employee, and although his job assignments were directed out of the regional office in San Francisco, he lived and worked at the park seasonally through 1947, then permanently from April 1948 through October 1950. During this period, he complemented his wolf-sheep duties by writing about other wildlife such as the tundra vole, grizzly bear, and wolverine.[129]

Given the quality of his work, his superiors clamored for his participation in other projects, so in 1950 he headed off to Grand Teton National Park to study the local elk herd, and the following year he took part in Alaska Recreation Survey work in southeastern Alaska, Prince William Sound, and the Kenai Peninsula. He was also encouraged to take part in a study about cougars in Olympic National Park, but as Linda Franklin has noted, he "wanted to continue his McKinley studies instead, and that passion made him unenthusiastic about new opportunities." Murie, who served as the park's only biologist throughout this period, declared an interest in preparing "a new faunal series publication on the mammals" of the park." Part of his work during the summer of 1951 related to the still-active wolf-sheep issue, but the summers of 1953, 1955, and 1956 involved research into park birds and to other park mammals, such as the lynx. That research involved the compilation of an increasing amount of film footage as well as written documentation, and—perhaps because of his brother's leadership position with the Wilderness Society—he also began to advocate for the protection of the park's wilderness and wildlife. Projects outside of Alaska also commanded his attention, most notably as they pertained to the Grand Teton elk population.[130]

Park staff during the postwar period benefited greatly from Murie's tutelage, and several rangers have noted that their interactions with the biologist were both educational and inspirational.[131] Park leaders, moreover, lobbied for a staff naturalist. In response to Washington's demands, beginning in 1947, for a monthly wildlife report, Supt. Frank Been complained that "there are four rangers who do all the jobs of protection, maintenance, construction, and public contact that is divided among specialized staffs in other national parks. ... There should...be a naturalist staff for public relations as this is an important function of park purposes and serves to indoctrinate visitors with the appreciation for wildlife values."[132] Finally, in June 1950, the superintendent designated University of Alaska botany student Elton

Adolph Murie is shown here in 1940 photographing wolf tracks on the East Fork of the Toklat River. Harpers Ferry Center #10582, NPS

S. Thayer as a seasonal naturalist; he was the first since the early 1940s. A year later, as noted in Chapter 11, William Nancarrow (who had been a park ranger since 1948) was appointed as the park's first permanent naturalist. After that date, a full-time naturalist was a fixture on the park staff, and beginning in 1954, at least one seasonal naturalist joined the ranks each summer.[133] Much of the naturalist's workload was educational or interpretive in scope, but he also helped coordinate the efforts of non-NPS researchers, and he conducted such research as time allowed.

The park's role in science was spotlighted by two high-level conferences held during the early 1950s. In May 1949, an Alaska geologist announced that "a group of scientists based in and out of Juneau have been discussing the possibility of forming an organization of scientists in the Territory." Given that level of interest, the first Alaska Science Conference, which was organized under the auspices of the National Academy of Sciences, was held in Washington, D.C. in November 1950.[134] The following year, officials decided to hold the conference in Alaska, and they chose the McKinley Park Hotel as its venue. This conference, which was organized by the American Association for the Advancement of Science, was held for the five-day period following Labor Day, and in the words of Superintendent Pearson, "the greatest group of prominent natural history scientists to ever gather together in Alaska

This view of Bergh Lake was taken from near the park road, looking north down Stony Creek. The lake was named for Knute Bergh, a recently-deceased U.S. Coast and Geodetic Survey contract pilot. DENA 3533, Denali National Park and Preserve Museum Collection

attended this conference." The meeting proved so successful that it was repeated at the hotel in late September 1952. These two meetings attracted not only scientists but also federal agency heads, planners, and territorial politicians. The park superintendent played the role of host and local organizer, and he also conducted trips out the park road. Most of the papers at the conference were not thematically related to specific NPS concerns, but park employees contributed in various ways. In 1951, "many of the scientists went on field trips which were directed by Park Biologist Adolph Murie," while in 1952, "lectures and papers were presented on land with regard to moose and caribou" and employees attended "a most interesting forum discussion upon predation and predator control."[135] After 1952, the Alaska Science Conference typically met in either Anchorage, Fairbanks, or Juneau, and not at the park; NPS staff, however, were able to attend a number of these meetings.[136]

Issues related to the park's landforms first became prominent during this period. Given the extraordinary efforts of U.S. Geological Survey personnel, who had published reports about the park area beginning in 1907, park staff could easily access a substantial amount of information about the park's geology, glaciology, and hydrology.[137] But given the easy visibility and the dynamism of many glaciers that spilled out from the high Alaska Range, staff beginning in 1932 sought specific glacial data by "taking pictures and measurements of Muldrow, Peters, Hanna and Herron Glaciers."[138] Rangers established large stone monuments near the faces of many park glaciers and, for the remainder of the decade, returned to make comparative photos and measurements.[139] By 1939, however, rangers had glumly concluded that "established monuments were frequently washed away," which underscored the need "for definitely permanent reference points." A new method, instituted in 1940, appeared more promising, but World War II forced a cessation of these studies.[140] Bradford Washburn, the mountaineer, stated that cosmic ray research, not glaciological research, helped justify the need for the 1947 "White Tower" expedition. (See Chapter 13.) Once on the mountain, however, he also gathered data about the Muldrow Glacier's movements. Washburn was helpful in other ways, too; the meticulous photographs he took of the area—aerial footage beginning in 1936, ground photography beginning with his 1942 expedition—served as valuable baseline data for future research.[141]

Heightened awareness of the park's landforms did not take place until July 1953, when an earthquake, combined with heavy rainstorms, caused a major landslide in Stony Creek Canyon, between Highway Pass and Stony Hill overlook. The slide, approximately one mile north of the park road, dammed the creek bed with a 200-foot berm, and within a month, a mile-long lake had formed—complete with a thriving grayling population—that reached to within 150 feet of the park road. But erosion soon began to wear down the huge earthen dam, and during the next three years the newly-designated "Bergh Lake" diminished to about half a mile in length. On July 2, 1986, thirty-three years after the lake was formed, rain-swollen waters dug through the berm and the lake disappeared.[142]

Mission 66: The Promise and the Reality

In February 1956, NPS Director Conrad Wirth announced the beginning of Mission 66, a program that promised a new infusion of cash to an agency that had been suffering from a postwar crush of visitation. The prospectus that park staff developed in response to Wirth's announcement (see Chapter 7) recognized that the park's two primary purposes (based on the 1917 legislation) were Mount McKinley (and the scenery that surrounded it) and the area's biological diversity. In addition, "highest ranking among the intangible values of the park is its distinct wilderness feel." Based on those values, staff noted that "of utmost importance ... is the continuation of scientific research within the area." The two most prominent "scientific research" needs, however, were pragmatic to the extreme; one project called for a study to eliminate "glaciering" or road icing along the park road, while another called for "biological and geological research" near the western end of the park road "to obtain factual material for the opposition or support" of new road building activities. The prospectus also declared the need for "continual investigations of the ecological relationships of the flora and fauna ... in the maintenance of indigenous forms." Specific biological projects included "studies of range carrying capacities in regard to large herbivores; altitudinal distribution of plants and animals; and physiological studies of special adaptations for arctic existence," while landform-related studies included additional "research concerning the formation of the Alaska Range and its complex lithology" and a renewal of studies of the "origin, growth, and movement" of the park's glaciers, as well as new work on the "location and effect of permafrost" in the park.[143] The prospectus envisioned almost $7 million in new spending at the park; virtually all of it, however, would go toward improved roads, buildings, and utilities. Resource protection, by contrast, would get short shrift; the plan's only nod in this area was the eventual addition of new naturalists (primarily seasonal) to the park staff. No funds would be directed toward scientific research.[144]

The final park Mission 66 plan, released in May 1957, was even less sensitive to resource protection that the previous year's prospectus. While the final plan acknowledged that "it is the combination of superlative mountain scenery and wildlife along with the palpable wilderness aspect of McKinley Park that make it deserving of preservation for this and future generations of Americans," it also stated that "McKinley is still in its embryonic development stages" and that "the McKinley Mission 66 program was formulated to correct present day deficiencies and to prepare for the increase in visitation and its attendant problems due to the opening of the park to automobile travel." It stated, somewhat ironically, that "the key to the development theme of the park is the maintenance of wilderness integrity," but like the preceding prospectus, it recommended money solely for construction and improvements: for roads and trails ($7.2 million), structures and utilities ($2.5 million), and campgrounds and signs ($0.1 million).[145]

Adolph Murie, who had been at the park when the Mission 66 team visited the park in July 1956 (though absent during the winter of 1955-56, when the initial prospectus was prepared), was

Adolph Murie (left) spent more of his summers based at the Igloo Cabin than any other location in the park. He is pictured here with Joe Hankins in front of the Igloo Cabin. Wallace A. Cole Collection

In the summer of 1957 graduate student Jack Gross was hired by the U. S. Fish and Wildlife Service to conduct a ground-based sheep survey in Mt. McKinley National Park, accompanied by horse packer Willy Miller. The purpose of the survey was to obtain more accurate sex and age information to augment aerial surveys. DENA 18-58, Denali National Park and Preserve Museum Collection

unhappy with the park's Mission 66 plans. He felt that "because McKinley is considered by many to be our outstanding wildlife park, outstanding even by Alaska standards, it behooves us to give the most careful consideration to all intrusions before approving any of them." He, unlike others at the park, sought to preserve the park's "wilderness character." He made no specific recommendations for additional natural resource studies; he did, however, urge the agency to expand the park boundary northward in the Wonder Lake area, both to eliminate a threat to hunting but also on aesthetic grounds, "to preserve a proper setting at Wonder Lake from which to enjoy this sublime region."[146]

Meanwhile, park wildlife research in the wake of the Mission 66 program continued much as it had before. The wolf-sheep controversy by now had receded as a public issue, but in recognition of the continuing importance of the park's most prominent wildlife species, most attention continued to be directed toward the park's sheep and caribou populations. The Fish and Wildlife Service, in cooperation with the NPS, conducted aerial and ground sheep surveys at least once per year from 1957 to 1959; these were supplemented by additional aerial surveys in 1961 and 1962.[147] Murie, who had spent the summers of 1955 and 1956 at the park, returned in May 1959 and remained there each summer for more than a decade—well past his December 1964 retirement.[148] He spent most of those summers, home-based at the Igloo Creek cabin, studying the park's caribou, sheep, and other wildlife, although in 1961 he helped conduct a wildlife study of the Windy Creek and Foggy Pass areas. This latter work was apparently a response to various plans to excavate limestone along the West Fork of Windy Creek and to build a cement plant nearby (see Chapter 14). In addition, he completed books on the park's mammals and birds in 1962 and 1963, respectively.[149]

The park attracted several outside researchers during this period. Ted Lachelt, a University of Alaska graduate student, spent several months in the field on a wolverine study, while Richard

To keep bears from breaking into unattended cabins, "bear shutters" with nails driven through the wood were fashioned to fit over cabin doors and windows. These were removed when the cabin was occupied and replaced when the cabin was vacated. Charles Ott Photo, Denali National Park and Preserve

Coleman, from the Bureau of Public Health, obtained a permit to collect invertebrates.[150] In June 1957, several scientists arrived at the park to study the park's bird and insect populations, and throughout the summer of 1957, scientists from both the U.S. Geological Survey and the American Geographical Society descended on Muldrow Glacier to investigate its recent surge.[151] Les Viereck, from the University of Colorado, spent the summers of 1956 and 1958 collecting mosses, lichens, and vascular plants near Mount Eielson, and Eleanor Viereck (Les's wife) studied the park's small mammal populations.[152] The summer of 1959 brought two scientists to the park to make further studies of Muldrow Glacier. Napier Shelton, from Duke University, spent the summer of 1961 studying the plant distribution in the Toklat and Teklanika river basins, and Ray Davis, a University of Idaho professor, arrived in 1962 to study the Claytonia, or spring beauty.[153] In 1963, British ecologist Frank Fraser Darling spent a week with Murie and participated in his field research, and in 1964 two researchers visited: Wallace Grange from Wisconsin, who spent much of the summer studying the park's snowshoe hare population, and Eric Hultén, the well-known Swedish botanist, who undertook a plant collecting project with Adolph and Louise Murie's assistance.[154]

Postwar Bear Management: Avoidance, Protection, and Study

Bears, which had first emerged as a management problem during the late 1920s (see above), continued to cause problems through the mid-1940s,

Ranger John Rumohr is shown here releasing a grizzly bear from the park's mobile culvert bear trap. Denali National Park and Preserve Museum Collection

primarily by damaging the park's patrol cabins. In response, rangers spent considerable time and effort to prevent new depredations, and during the spring of 1946 the park reported that these cabins all sported nails on the door casing, on the door itself, and on the window shutters. Damage continued, however, particularly near the western end of the park road. In June 1946, rangers reported that a bear had entered the McKinley Bar patrol cabin and "literally wrecked the place," and the following year one of the Camp Eielson buildings was "mauled by a grizzly."[155] The most vulnerable building, however, was the Wonder Lake Ranger Station. A "marauding she-bear" damaged the facility on numerous occasions during the summer of 1948, causing so much fear among park staff that repairs did not commence until November, "to be sure that the bear was hibernating."[156] The year 1949 brought more grim news. Park staff noted that it was "the worst in the history of the park for bear trouble. They have broken into most of our patrol cabins along the park road." Two years later, a 650-pound grizzly bear damaged the mess hall and bunkhouse at the long-abandoned Savage River concessions camp.[157] On two occasions, bears attacked people; in July 1949, a U.S. Geological Survey employee working in the Ewe Creek vicinity "got claw marks on his back," and in June 1951 an ARC worker was "badly bitten and mauled" by a Toklat grizzly.[158]

Employees, during this period, initially used a three-pronged approach toward bears. First, both NPS and Alaska Road Commission staff tried to minimize the amount of food kept at their cabins and camps. If bears lingered nearby, they fired various warning shots, hoping to frighten them away; or, in the case of the Horseshoe Lake Trail, rangers simply closed it for several weeks. If warning measures failed, however, personnel were authorized to shoot habituated bears. Thus several incidents of avoidance behavior were noted in the park records, both at the ARC's Toklat road camp and the Wonder Lake Ranger Station.[159] But in July 1946 a Camp Eielson bear "became mean, even chasing people on three different occasions," and it "finally had to be destroyed to prevent a serious accident." And in September 1948, a maimed bear was killed by rangers about two miles north of the railroad depot "to avoid possibility of going berserk from pain and rage and becoming a hazard to people."[160]

In June 1949, grizzlies were seen prowling around both the park headquarters and the Toklat road camp. So to minimize future incidents, park mechanic John E. Williams devised a live bear trap from a section of road culvert and mounted it on a two-wheeled trailer. By August the trap was complete, and two troublesome Toklat-area bears were trapped, then released elsewhere in the park.[161] Additional relocations, or attempted relocations, took place at least once per year for several years thereafter.[162] Bears, attracted by food odors, also emerged as a problem during the summer of 1951 at the park's garbage dump, just east of the McKinley Park airstrip.

Given the growing number of bear problems at the park—to the patrol cabins, at the ARC camps, and the hotel-area garbage dump—NPS Regional Director Lawrence Merriam in September 1951 requested "the recommendations of Dr. Murie on the bear management problem." Murie's cabin recommendations did *not* include spiked doors and shutters (he declared them "atrocious in appearance and inefficient"); instead, he suggested "proper bear-exclusion shutters ... and a bear-proof door," and the need for all stored food to be kept in a nearby cache, not in the cabin itself. At the ARC camps, the solution to the garbage problem lay in insisting that personnel empty their garbage cans each evening and that "some kind of fencing" was needed to surround the refuse piles. And at the hotel-area garbage dump, the best long-term solution "would be a bear-proof fence that does not depend upon electricity." Pending the construction of such a fence, however, he suggested that "all the bears ... be live-trapped and hauled westward to the Wonder Lake or Red Top mine areas."[163]

Murie's recommendations had mixed results. Attacks on cabins continued; in 1952, for example, a bear inflicted "minor depredations" on the Sanctuary patrol cabin. A year later, a ranger on an extended dogsled trip reported that "many of the outlying cabins were in poor condition due to lack of maintenance and depredation from bear," and in July 1955 a grizzly "ripped up" a house trailer located at Wonder Lake.[164] Attacks at the ARC camps, however, ceased. Park personnel continued to trap and relocate bears for the next several years; the practice, however, was apparently abandoned after the summer of 1954.[165] At the dump, 1951 was the first year in what turned out to be a five-year management effort, the process of which is detailed in Chapter 6.

Bear problems of another sort brought about changes in the Sable Pass area. Soon after the park road was completed to this area, park officials recognized the area's outstanding wildlife; in a June 1930 report, Supt. Liek noted that "the game in this section is very tame and countless thousands of sheep and caribou can be seen on the hill sides."[166] In 1940, however, Supt. Been noted a new phenomenon: "A large Toklat grizzly bear and her cub ranged through the Sable Pass section all summer." And after that date, most Sable Pass visitors noted the area's bears to the exclusion of other large animals. By the early 1950s, grizzlies in the area "were reported almost daily by tourists and park personnel alike."[167] This predictability, however, brought problems, because in July 1955, the park noted that "several persistent photographers" had been leaving the road right-of-way and "photographing the bears in that area day after day and have caused the animals to move away from the roadside." As a result, "visitors have had difficulty in locating the bears on the feeding grounds." Aware that the impending completion of the Denali Highway would bring thousands of privately-owned automobiles to the area, park and regional officials initiated "a discussion on restricting the Sable Pass to roadside photography to permit the Toklat grizzly to graze undisturbed." The following February, park officials recommended a special regulation to that effect, which stated that between mileposts 37 and 42 (roughly for two miles on either side of Sable Pass) and one mile on either side of the park road, the agency would prohibit entry to "photographers and hikers."[168] This prohibition was later broadened to include "other Park visitors except as may be specifically authorized by the Superintendent," and it became effective on June 20, 1956, when it was published in the *Federal Register*. The regulation evidently worked; in 1959, Adolph Murie noted that "increased traffic over the park road [since the Denali Highway opened in August 1957] has not as yet forced the grizzly out of its habitat in the vicinity of Sable Pass."[169] The regulation remained until October 1983, when it was eliminated in favor of a more broadly-applicable language in the "closures and public limits" section of the agency's general regulations. The area today remains closed to general public entry.[170]

Soon after the Sable Pass protection zone was implemented, new studies began about the park's grizzlies. Dr. Frederick Dean, a University of Alaska wildlife biology professor and the ad hoc head of the Alaska Cooperative Wildlife Research Unit, received an Arctic Institute of North America grant for a long-term study of the Toklat grizzly.[171] He arrived at the park in June 1957, settled into the patrol cabin at Igloo, and spent the remainder of the summer observing the bears' distribution, abundance, and habits. He returned the following June, and each summer until 1960 saw him making either extended visits to the park or, on occasion, making aerial bear censuses.[172] But his inability to obtain funding for additional field work prematurely curtailed his study, and few tangible recommendations from his work were forwarded to park staff.[173]

The park, meanwhile, continued to manage its bear population much as it had during the late 1940s and early 1950s. Bears had not been much of a management problem for several years after 1955, but during the summer of 1960 at least five grizzly bears, attracted by food, caused trouble up and down the park road. (One bear, according to an NPS report, "took exception to [an NPS] house trailer near the Wonder Lake Ranger

The 5-mile-long Sable Pass closure, in effect continuously since 1956, provides a limited area along the park road where visitors have an opportunity to view wildlife undisturbed, in a natural setting. NPS Interp. Collection, #4103, Denali National Park and Preserve

Station and demolished the unit.") In each case, the bears were live-trapped and "removed to a remote area in the park." Rangers, in 1961, did much the same to at least six more bears.[174] But between then and 1966, only two nuisance bears were recorded: in October 1963, a "rogue black bear" tried to break into several buildings and cars at headquarters and had to be destroyed, and in September 1965 an immature grizzly was live-trapped and removed after tearing the siding from a staff residence.[175] And one bear-caused injury was reported; in 1961, graduate student Napier Shelton, who was working on the south slope of Igloo Mountain, received puncture wounds to his thigh and a deep laceration to his leg. The injury put him in a Fairbanks hospital for several days, but three weeks later he was back in the field.[176]

The park, by necessity, also managed other animals during the postwar period. Beavers, along the railroad corridor, were an occasional problem during the late 1940s, and in both 1961 and 1962 several were live-trapped and removed (to upper Hines Creek) because their damming activities were threatening the railroad crossing near Milepost 345.[177] Porcupines, as noted above, had been reported as nuisances since the 1920s, and the damage they created caused additional concern during the early 1950s. Managers did not intervene during these periods. But when a porcupine, in the spring of 1965, attacked several birch trees in the headquarters area, staff reacted by placing "protective coverings" on the trees and removing the offending animal.[178] Smaller animals could be intrusive, too; foxes, along with arctic weasels, often lingered near residences and occasionally ransacked food sources. But after the mid-1950s, a greater emphasis on secure food storage brought a stop to this activity.[179]

Park Wildlife Planning and Its Ramifications, 1961-1971

Stewart Udall, who was President Kennedy's Interior Secretary, was well aware of a growing national awareness of ecology and the interrelatedness of nature. In 1962, therefore, he appointed a committee headed by A. Starker Leopold, and he asked the committee to write a report that applied these themes to wildlife management. The result of that effort, released in March 1963, had an immediate impact on NPS resource management. The committee's findings, known informally as the Leopold Report, called on NPS managers to "recognize the enormous complexity of ecologic communities and the diversity of management procedures required to preserve them." The report further stated that scientific research should "form the basis for all management programs" and that a broad range of agency decision making should fall under the "full jurisdiction of biologically trained personnel." To adopt these recommendations, as the report noted, would be a "major policy change" for a bureau that—particularly since the commencement of the Mission 66 program—had primarily focused on accommodating tourism.[180]

In reaction to the Leopold Report and a similar National Academy of Sciences report, issued later that year, NPS Director George Hartzog established a new Division of Natural Sciences. Before long, staff from the various park units was asked to compile planning documents that laid out their particular research requirements.[181] At Mount McKinley, Superintendent Oscar Dick spearheaded the compilation of the park's first natural resource planning document. The so-called *Long-Range Wildlife and Range Management Plan* was drafted in early 1964. After revisions from regional and Washington officials, the final plan was approved in March 1965. The plan, which covered the 1964-1969 period, stated that "wildlife management in the immediate future will accentuate the protection of Park wildlife from human influence" and that "ecological research will be encouraged."

To carry out those objectives, the park staff urged a three-pronged approach. First, the aerial Dall sheep censuses which had been carried out since the 1940s needed to be continued "in order to provide long term information on population fluctuations of this important species." Second, in order to eliminate the "quasi-domestication of bear, fox, and other animals," staff needed "consistent enforcement of existing regulations, prompt action in removing addicted (rogue) animals, [and] adequate sanitation in campgrounds, residential areas, dumps, etc." Finally, staff recognized that "increased use of the lands near the Park may eventually have a marked deleterious effect on the natural balance" of caribou and Dall sheep, so they recommended "boundary extensions as well as firm agreements with agencies administering adjacent lands."[182]

During the five years after the plan was approved, some aspects of the plan were implemented to a greater degree than others. In part, this mixed record was due to a lack of staff. Adolph Murie, the park's longtime biologist, had retired in December 1964, and although he continued as a summertime resident at the park until 1970, he observed wildlife primarily as an avocation; he also continued his long-running role as an ardent defender of the park's natural values. More specifically, he played a key role in the long-running controversy over the park road (see Chapter 7), and he also served as a consultant to two different master planning studies.[183] In late 1965 officials selected Richard Prasil, the agency's regional naturalist, to replace Murie as biologist. Prasil, however, did not move to Alaska until June 1966, and he was based in the newly-established Anchorage office, not at the park. Prasil, given the agency's expanding role in the state, juggled a variety of roles.[184] Even so, he completed several wildlife censuses and other brief biological reports between 1967 and 1973.[185]

Perhaps because of this lack of staff, the park did not continue its aerial sheep counts during the mid-to-late 1960s. This may have been because park staff, aided by the Murie's summertime observations, concluded that the sheep population was relatively healthy.[186] The park continued to have occasional problems with animal "quasi-domestication." These problems led to

This mountainside exhibits well-worn and numerous caribou trails along routes to calving areas on the south side of the Alaska Range in Mt. McKinley National Park. John Dalle-Molle Photo, NPS, Denali National Park and Preserve

the relocations of several problem bears and, on a more tragic note, an August 1967 bear assault on a park employee just west of Toklat Campground.[187] The NPS, during this period, also mulled over the need for a boundary extension in order to preserve the year-round habitat of the park's sheep and caribou populations. As noted in Chapter 7, this idea was initially considered on a modest scale in 1965, while in 1966 and 1968, internally-circulated master plans recommended the acquisition of an increasingly large tract of land north of the park boundary.

In the meantime, scientific studies were advanced by both NPS employees and outside researchers. In the spring of 1967, graduate student Gordon Haber (who had served as a seasonal ranger-naturalist the previous summer) geared up to begin his own study of wolves in the park. That study, which became Haber's master's thesis, was completed in 1968. Also in 1967, NPS biologist Richard Prasil conducted two aerial wolf censuses.[188] The following year, Prasil published additional observations about the park's wolves, caribou, and grizzly bear populations, and he continued to pay attention to the wolf and caribou situation through the early 1970s.[189]

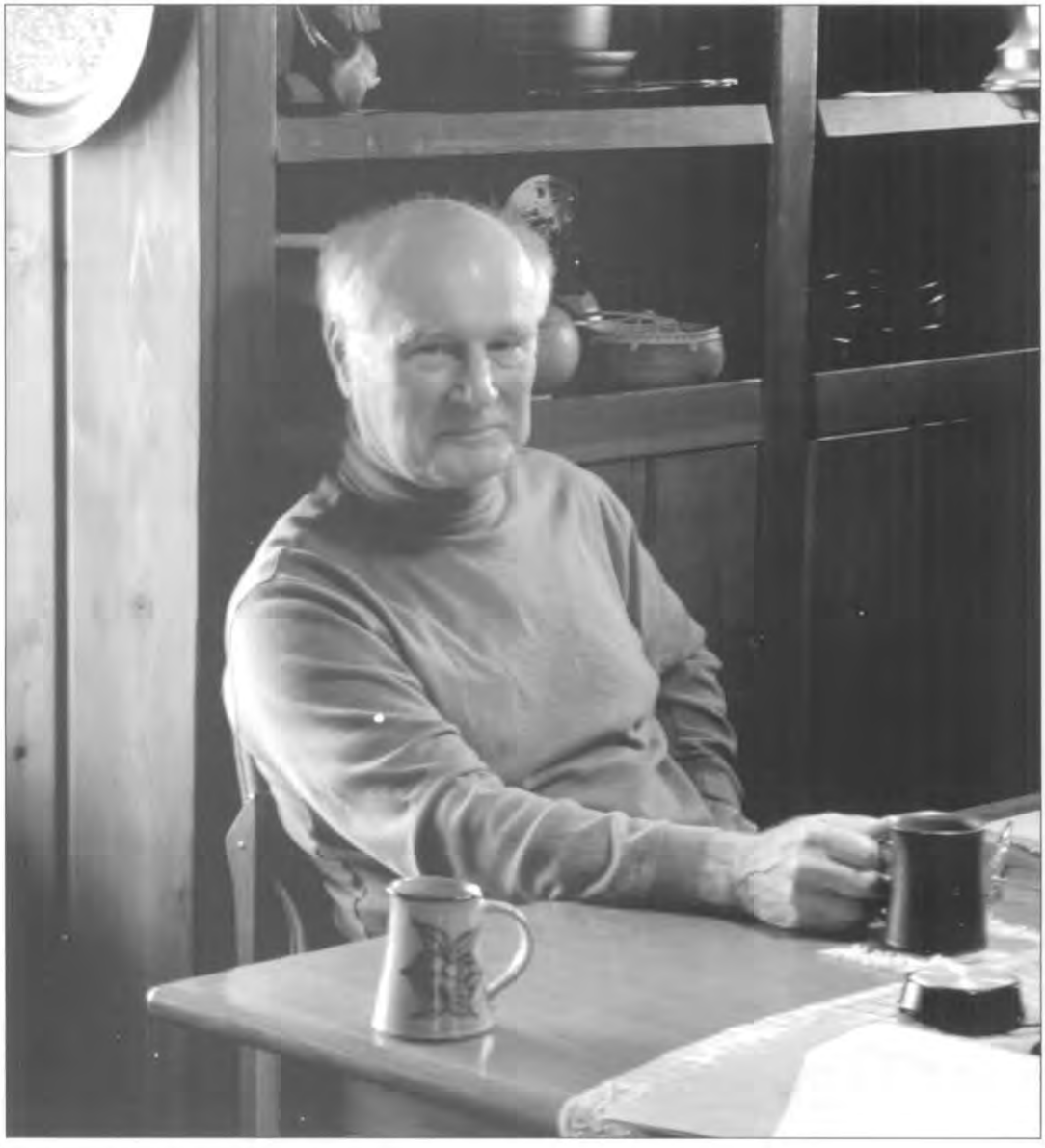
In 1969, as a follow-up to agency policy that had been set in motion by the Leopold Report, park staff prepared a second, five-year long range wildlife management plan. That report stated that "the goal of McKinley wildlife management should be a continued research approach and a hands-off management policy unless the resource is being changed by human activities." Control efforts would "be directed towards alleviating or minimizing the effect of man's presence" and included "consistent enforcement of regulations, adequate sanitation in areas of human occupancy, and public educational programs." The only reduction program envisioned, in fact, was "the occasional removal of animals that endanger human life." The "foundation for Park wildlife management" would continue to be based on "accurate documentation of pertinent data by Park personnel" along with "formal projects conducted by scientific specialists." In response to a problem of "wolf poaching from the air," the plan recommended "more intensive aerial patrol of the Park," and it continued its earlier suggestion that the only way to truly protect the park's large mammal populations was "through extensive boundary changes or ... cooperative agreements with federal and state land management agencies."[190]

Establishing a Park Resource Management Program, 1972-1980

During the winter of 1971-1972, park visitation patterns were changed dramatically because of a decision, by NPS Director George Hartzog, to rationalize the number of passenger vehicles traveling along most of the park road. (See Chapter 8.) Hartzog, in making his decision, recognized that because of the completion of the new Anchorage-Fairbanks highway, the summer of 1972 would bring a dramatic increase in park visitation. He also knew that park staff had been concerned since the late 1960s about the effect of existing automobile traffic on park wildlife, and as early as 1968, park superintendent George Hall had urged the implementation of some viable alternative to increased passenger car

traffic. Because of Hartzog's decision, the agency instituted a new system of shuttle buses, which complemented the concessioner's long-established tour buses. The new system successfully operated in 1972, although not without problems, and by that fall, many were concerned about the impact of the new transportation system on the park's animal populations and vegetation. The NPS, by this time, had already begun working with the University of Alaska on a new, ad hoc organization called the Alaska Cooperative Park Studies Unit (CPSU). Dr. Fred Dean, the professor who headed the unit, was familiar with the park, and knowing the park's interest in the subject, he asked graduate student Diane Tracy to undertake the project. Tracy spent much of the summers of 1973 and 1974 in the field, often riding park buses, and by late 1975, a progress report of her research findings had been published.[191]

Tracy's efforts turned out to the first of many CPSU studies about the park's natural resources that would be undertaken during the 1970s and early 1980s. Unlike the unit's Anthropology and Historic Preservation Program, which was primarily concerned with the resources in proposed park units, the Biology and Resource Management Program focused most of its projects on Mount McKinley National Park and the other three Alaska park units. The relative close distance between Fairbanks and the park, and the relatively high sophistication of Mount McKinley's resource problems in comparison with other park units, attracted many researchers to the park. The CPSU, as a result, sponsored park-based projects related to grizzly bear ecology, human disturbance impacts on wolves, animals' use of the park's dump sites, Dall sheep feeding ecology, moose winter survival rates, moose-wolf habitat interactions, vegetation mapping, vegetation trampling impacts, and similar topics.[192] These projects, which were partly or wholly financed by the NPS, were usually framed so as to resolve specific resource-related problems, and they



Fred Dean, shown here in 2005, began his long-term grizzly bear research in Mt. McKinley National Park in 1957. He later directed the activities of the Cooperative Park Studies Unit, a cooperative effort between the National Park Service and the University of Alaska, promoting research to answer management questions and provide an understanding of park ecosystems. NPS Photo

benefited not only the agency, but several also became the subject of students' master's theses.[193]

CPSU-affiliated personnel, however, were not the only scientists conducting studies at the park during this period. NPS personnel, either at the park or area-office levels, conducted a number of aerial sheep censuses as well as caribou population and movement studies. Other wildlife studies were conducted by the Alaska Cooperative Wildlife Research Unit, the organization with which Frederick Dean had been affiliated during his 1957-60 grizzly bear studies.[194]

The large number of non-NPS researchers that descended on the park demanded the establishment of a staff liaison, so during the summer of 1973—shortly after Diane Tracy, the first CPSU researcher began working on her Mount McKinley study—the agency decided to hire Steve Buskirk, a master's-level biologist who had been a full-time park ranger since May 1972. (Buskirk, upon being selected, was known as a ranger with a resource specialty, but by the end of the year his title had shifted to resource management specialist.) In his new role, he was asked to develop a list of research priorities (this list, forwarded on to CPSU personnel, helped influence the types of research that took place in the park), and he was also told to "develop a plan to deal with the explosive growth in backcountry use."[195] This task, during the winter of 1973-1974, led to his compilation of the park's first backcountry management plan (see Chapter 8). Buskirk remained at the park until 1977, and the following August he was succeeded by John Dalle-Molle. Interest in resources was sufficiently great that Dalle-Molle, in April of 1979, hired an assistant, Joe Van Horn.

At the park from 1972 to 1977, Steve Buskirk developed a list of research priorities and created a plan to deal with increasing backcountry use. NPS Interp. Collection, #2845, Denali National Park and Preserve

Dalle-Molle continued in his position until he stepped down in the late 1980s; Van Horn continued to work in the park's resources division for almost twenty years.[196]

One resource-related problem area that ballooned into importance during the 1970s was bear management. Bear-human encounters, as noted above, had been a nagging problem ever since the 1920s, but in the half-century of park management prior to 1972, so-called "incidents"[197] had been few (less than one per year), and there had been just four injuries from bear attacks. But the year 1972 brought a doubling of park visitation from the year before, and visitation in 1980 was more than seven times that of 1971. Given this population explosion, incidents and injuries grew apace. Between 1972 and 1980, inclusively, rangers recorded 138 incidents; this averaged approximately 15 incidents, and several hundred dollars in property damage, each year. In addition, there were nine bear-caused injuries (one per year), several of them serious. Backcountry campers, though numerically small when compared to other park visitors, accounted for well over half of these incidents and injuries.[198]

In order to manage this increasingly complex problem, the park in 1972 published and distributed a bear warning folder (entitled *Grizzly Bear – Friend or Foe?*), and a year later there was an ongoing program to educate the public to the hazards of bear encounters and how to avoid them. A card for this purpose was distributed to all visitors, and a backcountry use folder that

As a Cooperative Park Studies Unit researcher for 2 years, Ken Whitten studied the habitat relationships and population dynamics of Dall sheep in Mt. McKinley National Park, gathering data for his 1975 Master of Science thesis. Ken Whitten Photo

During his tenure as resource manager, John Dalle-Molle initiated an inventory of park resources, drafted the first resource management plan, and emphasized protection of the park's wilderness character. DENA 9024, Denali National Park and Preserve Museum Collection

explained bear hazards was distributed to all backcountry users.[199] In 1974, the park began requiring backcountry users to obtain access permits, and as part of the permit-distribution process, rangers educated campers about proper behavior toward bears and food storage methods. In 1978, park staff installed bear proof garbage cans at the Riley Creek campground—the first in a process that, within five years, resulted in such cans throughout the park—and that same year, park staff closed backcountry units for the first time due to bear activity. Also, by this time, staff had developed a bear incident reporting form, equipped rangers with immobilizing drugs, and prepared their first bear-human conflict management plan. And in order to standardize the collection of data about bear-human incidents, the park in 1980 instituted the Bear Information Management System, a management tool that had been pioneered at Glacier National Park during the 1970s.[200] Park staff, during this period, continued to manage problem bears much the same way they had since Murie, in 1951, had weighed in with his recommendations: 1) by attempting to separate bears from potential human-related food sources, 2) by relocating bears who were associating either people or structures with those food sources, and 3) destroying bears who continued to be problems to people or structures. Between 1972 and 1980, inclusively, 17 bears had to be relocated. Some of these relocations were apparently successful, but at least four park bears had to be destroyed.[201]

Park staff, during this period, closed an increasing number of backcountry areas in order to protect specific species. The first known closure decisions were public safety responses to bear activity; in May 1952, for example, staff closed the park's garbage dump to visitors, and three years later, visitors were blocked from using the Horseshoe Lake trail.[202] In early 1957, the land on either side of the park road at Sable Pass was permanently closed (as noted above) in order to ensure the continuation of high-quality bear viewing opportunities. Then, in 1973, the park brass accepted biologist Gordon Haber's recommendation to close, for the entire summer, several "prime visitor use areas" totaling 42,456 acres in order to protect wolf dens and denning areas. Closures to protect the park's wolves continue to the present time.[203] In 1976, park staff opted for the first time to close an area surrounding an active gyrfalcon nest, and in 1978 an area was closed in the vicinity of a fox den.[204]

Resource Planning for the Newly-Expanded Park Unit

As noted in Chapter 8, much of the 1970s was spent in a major administrative and legislative battle over the fate of the so-called Alaska National Interest Lands. Some of the most coveted lands surrounded Mount McKinley National Park, so in December 1978, President Carter signed a proclamation which established 3,890,000-acre Denali National Monument. The proclamation language extolled primarily natural resource values: the protection of various "glaciers on the south face," the "geologically unique Cathedral Spires," "significant habitat for the McKinley caribou herd" and "other scientifically important mammals such as grizzly bear, wolf,

In 1974, bears regularly visited the park garbage dump, located south of the George Parks Highway railroad crossing. Chip Downing Photo, NPS Photo, Denali National Park and Preserve

By 1975 this electric fence prevented bears from obtaining human food at the park garbage dump. Chip Downing Photo, NPS Photo, Denali National Park and Preserve

and wolverine," the Toklat River warm springs with its "unusual run of Chum salmon," and "the entirety of this, the highest peak on the North American continent."[205]

Given the fact that Carter, on the same day, had established 16 other national monuments (most of which were not adjacent to existing park units), and given the additional fact that neither Congress nor the agency was willing to expend more than a token amount to protect these areas, agency officials were primarily concerned with the protection of areas fairly distant from the Mount McKinley and Denali park units.

But on at least two occasions, NPS personnel were actively deployed to protect park resources. The first was in response to the mid-January 1979 "Great Denali Trespass" (see Chapter 8), while the other was the stationing of four Alaska Task Force rangers who spent ten days at Lake Minchumina (just west of the national monument boundaries) at the beginning of the 1979 hunting season.[206]

The lands battle of the 1970s culminated with President Carter's signing of the Alaska National Interest Lands Conservation Act in December 1980. That bill called for the expansion of

During the late 1970s, in an effort to quantify backcountry use impacts, park staff initiated studies on the effects of hikers and horses on park vegetation. Joe Van Horn, above, collected data from an experimental trampling plot near park headquarters. NPS Interp. Collection, #2823, Denali National Park and Preserve

Denali National Park and the establishment of a new Denali National Preserve, with most of the newly-designated acreage included in the former Denali National Monument. Congress stated that the park additions and preserve would "be managed largely with natural resource values in mind." Congress asked the NPS, among its goals, "to protect and interpret the entire mountain massif, and additional scenic mountain peaks and formations; and to protect habitat for, and populations of fish and wildlife including, but not limited to, brown/grizzly bears, moose, caribou, Dall sheep, wolves, swans and other waterfowl."[207]

Resource personnel were in no position to reach out to the new national monument lands during the 1978-1980 period, but after President Carter signed ANILCA into law, Dalle-Molle recognized the need to expand the park's knowledge base, both of longstanding "old park" issues and, in addition, a broad range of natural resource issues in the new park and preserve.

These needs were addressed in the park's first resource management plan, which was issued in draft form in April 1982. The plan, directed by Resource Management Specialist John Dalle-Molle, recommended 14 natural resource projects for completion during the 1983 to 1987 fiscal years, inclusive. Foremost among the park's needs was a bear-human conflict management study, followed by a study of the impact of traffic on the park road to adjacent wildlife populations. Additional project statements called for studies of the decline of the Denali caribou herd, for the monitoring and protection of the park's wolf population, and for continued large mammal surveys.[208]

Less than a year after the completion of the resource management plan, Denver Service Center staff "began in earnest" to work on a Congressionally-designated general management plan (GMP) for the park and preserve. (See Chapter 9). The draft GMP, released in March 1985, stated that the agency was "continuously expanding its resource management program," the intent of which was "to understand the natural forces that shape Denali's environment and to avoid or eliminate activities that significantly interfere with natural processes." Recognizing that there was "a growing concern about the impacts of increasing visitor use," the draft plan spotlighted one resource study—which showed the impact of road traffic on the park's wildlife (see below)—and used it to propose a change in overall park access policy. Other natural resource studies that were "currently underway" included annual wildlife surveys, a declining caribou herd study, wolf pack monitoring, two different bear studies, a vegetation trampling study, and studies of both moose and Dall sheep. The context of those studies was presented in additional discussions, particularly as they related to caribou, bears, and wolves.[209] After the issuance of the draft plan, the public provided an extensive number of comments, resulting in the issuance of a revised draft (in December 1985) and a final plan (in November 1986). The section pertaining to natural resource management, however, was largely unchanged from language that had been presented in the draft plan.[210]

This early 1980s "problem" bear was tranquilized and transported from the backcountry to the park road for relocation by aircraft to a remote area. NPS Interp. Collection, #1815, Denali National Park and Preserve

Two studies that began in the early 1980s brought significant changes to how the park was managed. In 1981, regional personnel asked two biologists, Francis (Frank) Singer and Joan Beattie, to make a new study of the impact of road traffic on the park's wildlife populations. As noted above, Diane Tracy had addressed this topic during the 1973-1975 period, but a 50 percent growth in road traffic since 1972 suggested the need for a renewed effort. The Singer-Beattie study, initially released in March 1984, concluded that traffic increases between 1974 and 1981 had not had a significant impact on wildlife populations observed between the park headquarters and Eielson Visitor Center. Increased traffic, however, had caused many moose and bears to avoid using the road corridor. The authors further noted that additional traffic increases—which would perforce shorten the spacing between vehicles—might eventually disrupt the migrations of caribou and sheep herds. They further recognized that wildlife typically exerted more avoidance behavior for private vehicles (whose occupants often stopped, got out, and approached animals) than for buses (whose occupants remained inside). Based on the results of their study, agency officials who were preparing the general management plan recognized that the best way to allow increased park visitation while also reducing human-caused impacts on park wildlife was to reduce private vehicle traffic but allow a modest increase in bus traffic. These changes proved controversial, but they were implemented in the park's final (November 1986) general management plan.[211]

The other major study focused on how to more effectively manage the park's bear population. As noted above, the boom in park visitation—and more particularly, visitation to the park's backcountry—had resulted in an upsurge in bear incidents, relocations, and deaths, plus with a concomitant growth in bear-caused human injuries and property damage. NPS officials reacted to the problem, as noted above, by educating park visitors, closing backcountry areas as needed, relocating or destroying problem bears, installing bearproof garbage cans, and by fencing and later closing the remaining garbage dump. But as park staff noted, "overall problems did not decline," and problems were particularly acute in the backcountry due to an "inability of campers to secure their food."[212]

To counter the problem, staff recognized that the "total elimination of unnatural food rewards and management of human use" had to be the first priorities. So the park, during the summer of 1982, began hiring biological technicians to address bear-human conflict management. These seasonals stepped up efforts to get backcountry users to apply bear avoidance techniques, and they visited with park inholders and adjacent landowners, both to teach bear-safe practices and to help design bearproof facilities. Park staff in 1982 decided to stop relocating bears; they noted that the technique was not only ineffective but that it altered the bears' social and genetic integrity. And that same year, staff began testing a portable, bearproof plastic food container. Early models required modifications, but improved

Dall sheep are vulnerable to traffic disturbance and predators in areas where their seasonal migration routes cross the park road. This situation provides visitors on buses with an uncommon viewing opportunity. Brad Ebel Photo

models followed soon afterward, and by 1986, Dalle-Molle reported that "containers have proven very effective in reducing problems and visitor acceptance of them has been very high." In 1987 the news was even more optimistic; the superintendent noted that "for the first time since the early 1970s, no backpackers lost food to bears, and the numbers of incidents were the lowest in 12 years." And because the number of incidents decreased, fewer bear-caused area closures were needed.[213] Given the large numbers of both bears and visitors in Denali, the bear-human interaction problem was by no means solved; substantial progress, however, was being made.

Biological Research, 1986 to Present

The park's general management plan, released in late 1986, stated that the primary document guiding future research at the park would continue to be the resource management plan, which was "reviewed at least once each year and are updated as necessary." Park staff hoping to expand on their knowledge base tried to stimulate as much research as funds allowed.[214]

During the development of bear resistant food containers for backpackers, park staff field tested different container styles. John Dalle-Molle Photo, NPS, Denali National Park and Preserve

Park Service personnel, at this time, were fortunate that biologists from other agencies were already well underway with long-term studies of the area's megafauna. Beginning in the mid-1970s, Wayne Heimer (later assisted by Sarah Watson) had been studying the Dall sheep populations of the Alaska interior. Both were biologists working for the Alaska Department of Fish and Game.[215] In 1980, U.S. Forest Service biologist Vic Van Ballenberghe began studying the area's moose population, both within the park boundary and in areas to the north and east.[216] The ADF&G efforts continued until the late 1980s; Van Ballenberghe—though now retired—is still an active researcher in the park.[217]

In conjunction with the various long-term megafauna studies, park staff since the 1980s have continued, sometimes in conjunction with state fish and game officials, to take censuses and otherwise monitor the park's wildlife populations. Park records indicate that sheep, wolves, brown and black bears, moose and caribou have been the subject of either ground or aerial monitoring over the years.[222]

For the first time since the 1960s, when Adolph Murie had made pioneering studies, research took place on other park species as well. Beginning in 1984, Phillip Schempf of the U.S. Fish and Wildlife Service, concerned about pesti-

Field experiments with grizzly bears were conducted to test the effectiveness of different types of bear resistant food containers. NPS Interp. Collection, #5445, Denali National Park and Preserve

The Park Service, as noted above, began its own studies in 1984, when it asked biologist Francis Singer to conduct a three-year study of the declining Denali caribou herd. The importance of these animals was sufficiently great, however, that Layne Adams—who replaced Singer in 1986—is still actively engaged in caribou research at the park.[218] In 1986, just a year after major wolf poaching incident at the western end of the park, the agency asked Dr. David Mech, an internationally recognized authority on wolves from Minnesota, to begin a comprehensive wolf research project at the park.[219] And in 1991 the agency began funding a new study, headed by Jeff Keay, about the park's grizzly bear population.[220] Research into all three of these species continued for more than a decade. Regarding most of the park's megafauna species, continued research and monitoring is an ongoing endeavor.[221]

cide contamination, began a study of interior Alaska merlins (a species of Holarctic falcon), and in 1987-88 park staff began to inventory and monitor the park's raptors (golden eagles and gyrfalcons).[223] Both the merlin and raptor studies have continued to the present day, and in 2002, efforts were made to locate the nesting areas of trumpeter swans and other waterfowl.[224] Christmas bird counts, first made in the 1960s, have continued to the present day, although Denali Foundation staff, starting in 1992, have taken a leading role in this effort.[225] Small mammal research took place in 1996 with a study on voles, with much broader studies being undertaken as part of the park's long-term ecological monitoring program (see below).[226] Plant studies, during the 1980s, were primarily related to an analysis of vegetation-trampling impacts and of the Setchell willow, both of which had been first addressed by

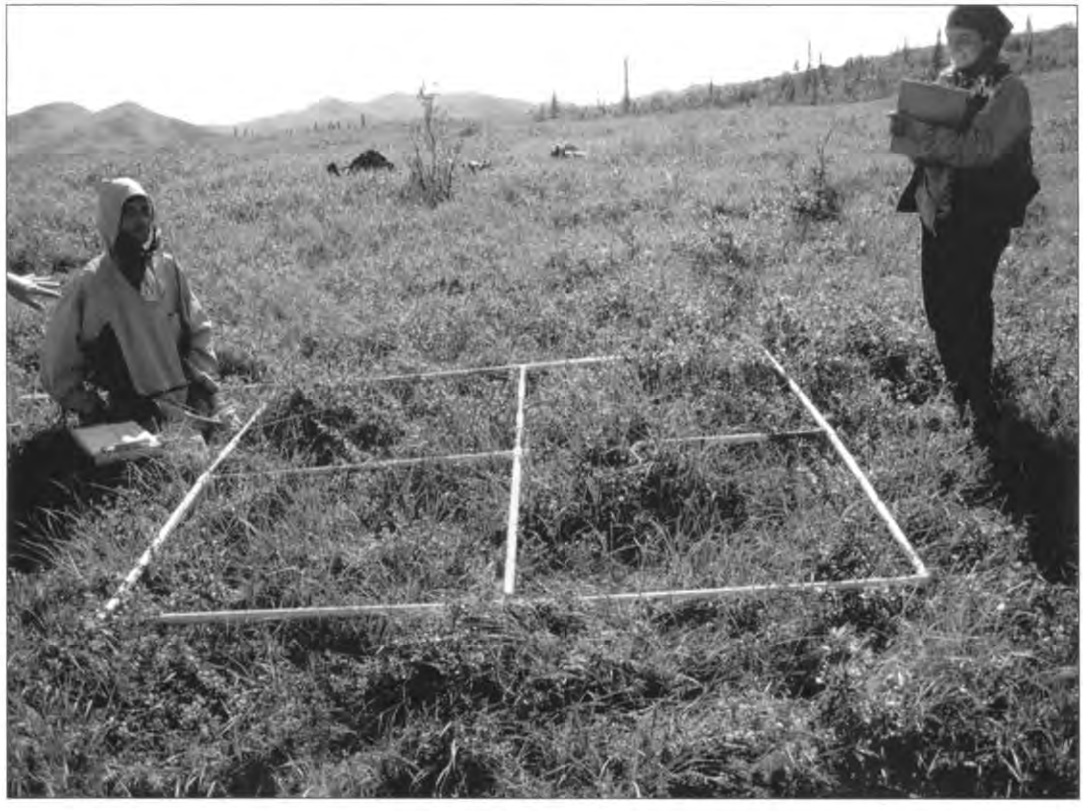
Caribou researcher Layne Adams is shown radiocollaring a mature caribou bull, enclosed in a net sling in preparation for weighing. The overall goal of the caribou study is to understand the population dynamics of a naturally-regulated caribou herd. One aspect of the project studies caribou bulls to gain an understanding of their survival patterns and seasonal distribution. Troy Cambier Photo

CPSU researchers during the 1970s.[227] But in 1991, park staff were able to undertake "base line data gathering of vegetation types and densities," and later that decade, in conjunction with the park's long-term ecological monitoring program, "major strides" were made in expanding the park's floristic inventory.[228]

Creating an Inventory and Monitoring Network

In order to broaden the agency's biological expertise and sustain the park's ecological integrity, managers recognized the necessity to inventory the park's key resources and then, at regular intervals, to monitor the condition of those resources. In 1991, the agency (at the national

Park biologists John Burch (left) and Tom Meier radio-collared this wolf near the Teklanika River in November 2007. Burch and Meier started the wolf research project in 1986 under the direction of L. David Mech and Layne Adams. Monitoring of the Denali wolf population has been continuous for 21 years and the project is now part of the Central Alaska Inventory & Monitoring Network. Troy Cambier Photo



Researchers document plant species composition and structure as part of Denali's long-term vegetation monitoring program. Monitoring sites are re-visited every seven years to allow detection of trends in the vegetation cover. NPS Photo

level) offered a special initiative, with sufficient funding to provide for an inventory and monitoring program at four parks nationwide. Denali was chosen as one of those parks. Park managers recognized the practical impossibility of obtaining a detailed inventory for an entire six-million-acre park unit, so their application specified three watersheds for their long-term environmental monitoring (LTEM) work; within those watersheds, plans called for geology, soils, air, climate, glaciers, vegetation, wildlife, and human use to be monitored on permanent plots that would be established within each watershed. By January 1992, these three watersheds were increased to five, with initial emphasis placed on the South Fork of Moose Creek, but by June 1992, economy and accessibility dictated that the Rock Creek watershed (which was not one of the five initially selected) would be the primary area of interest. Field work in that watershed commenced in the summer of 1992.[229]

During the early-to-mid 1990s, when the park's LTEM program was being established and going through its initial development stages, the park was gaining an increasing number of staff with a resources background. Gordon Olson, during this period, became the park's first Chief of Resources (and prior to his arrival, resources staff had been supervised by the chief ranger or management assistant). At various times either Joe Van Horn or Olson incorporated monitoring program leadership into their other responsibilities. Penny Knuckles, in May 1996, became the program's first full-time coordinator. Other park resource staff that played a key role during this period included Phil Brease, Carol McIntyre, and Pam Sousanes.

Although the various resource management staff had a variety of ongoing projects, the establishment of the LTEM program had the practical effect of concentrating interest geographically in the Rock Creek watershed, and particularly during the program's first three years, most LTEM efforts took place in or near that watershed. In addition, program leaders reached out to a variety of research partners: these included universities (primarily in Fairbanks), federal and state agencies, and privately-funded research groups. And within the NPS, those who helped compile studies for the program included not only full-time staff (both in Anchorage and at the park) but also permanent, seasonal, and volunteer technicians. Sometimes these partners relied on funding supplied by the NPS (and later by the National Biological Survey or the U.S. Geological Survey), but in other cases they supplied funding from their own institutions and worked through cooperative agreements and other partnering arrangements.

As the LTEM program matured, the staff affiliated with the program recognized that a geographical concentration on a single area offered a relatively limited research horizon. This was particularly true for those involved in the studies of glaciers or aquatic invertebrates, neither of

which was well represented in the Rock Creek watershed. During the mid-to-late 1990s, therefore, most research studies broadened their focus and selected monitoring sites that were scattered throughout the park unit.[230]

The program, which had received fairly modest funding ($350,000 or less per year) during the early- to mid-1990s, substantially increased its budget in fiscal year 1998, which allowed a proliferation of new studies. Then, in 1999, the NPS announced a new initiative, called the Natural Resource Challenge, that promised even more funds for the agency's biological programs. The five-year program provided a coordinated, system-wide approach to natural resource management and provided first-year base funding of $14,320,000 (nationally) to help accelerate completion of natural resource inventories, target efforts to eradicate non-native species, and improve current management and expertise of biological and geological resources.[231]

The late 1990s brought increased funding to the park's inventory and monitoring efforts. It also, however, was a period in which park managers became increasingly sensitive to the notion that because the park's ecological issues could not be neatly separated from those of the world beyond park borders, the agency's inventory and monitoring efforts should not be conducted in isolation from those of other, nearby areas. In 1997, the national LTEM program's annual report recognized the need to "enhance national and global monitoring networks." The Natural Resource Challenge, unveiled in 1999, envisioned 32 such networks spread across the country, and by the close of that year, the agency was shifting "from a model of intensive and comprehensive monitoring at the park level to a more extensive effort at the network level." In Alaska, Denali joined the Wrangell-St. Elias and Yukon-Charley Rivers park units to become the Central Alaska Inventory and Monitoring Network (CAKN). After that point, funding of the park's LTEM program was contingent on the fulfillment of goals that emphasized the increased integration of the Denali program into the network concept. By the late summer of 2003, that integration was complete.[232]

New Directions in Natural Resource Management

In recent years, park scientists have undertaken research into a number of fields that had previously been overlooked. No measurements of air quality, for example, had been made prior to the 1980s, but perhaps UNESCO's selection of the park, in 1976 as a biosphere reserve, plus the park's consideration as a World Heritage Site, made the agency more aware that air quality was a valuable park resource. In 1980, the National Atmospheric Deposition Program established its first Alaska monitoring station in the park, and by 1987 park staff were also monitoring particulates, visibility, and criteria pollutants. The park's sole monitoring station, at that time, was located on a ridgeline just above headquarters, but in 1998,

The Permafrost weather station is one of five Long-term Ecological Monitoring (LTEM) weather stations installed in 1994 to record long-term variations in climate at different elevations. The station, which is powered by a deep-cycle battery and charged with a solar panel, measures and records air temperature, relative humidity, wind speed and direction, and solar radiation. The site is located in the Rock Creek drainage adjacent to park headquarters where water and air quality, vegetation, and small mammals are also monitored as part of the Central Alaska Inventory & Monitoring Network. NPS Photo

Fire management program goals include the investigation of vegetation plots focusing on plant succession after a wildland fire. The program is supported during the summer by a contract helicopter, which is also used by other park programs. George Hook Photo

action related to the proposed Healy Clean Coal Project (see Chapter 9) resulted in new temporary monitoring stations both north and south of the park. During the past decade, the quality of air measurements in the park has become increasingly sophisticated.[233]

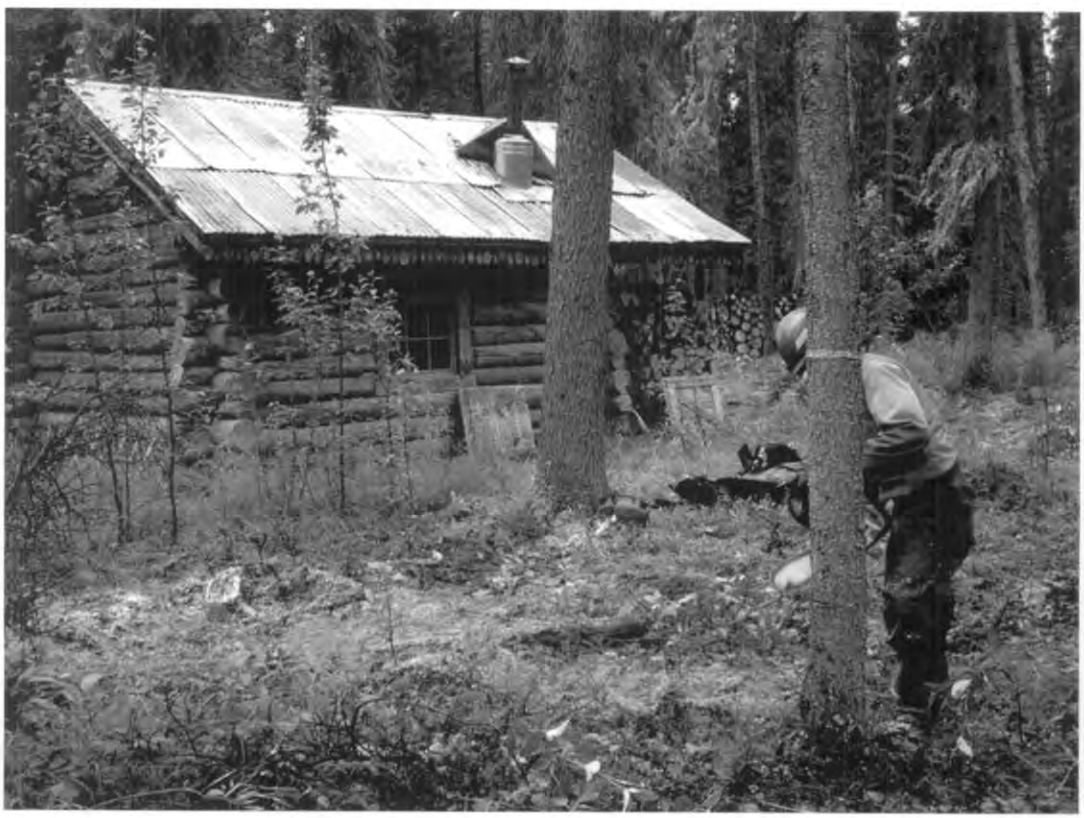
Fire-related issues also assumed prominence. As noted above, fires had been a significant threat during the first few years of park administration, and they had remained a significant source of worry in later years, for two reasons: sparks from passing steam locomotives had a high potential for starting wildland fires, and park residences that were built of wood and heated by wood and coal stoves were vulnerable to destruction by fire. Park records show several instances of fires caused under both circumstances.[234] And as noted in Chapter 8, the September 1972 fire that destroyed the McKinley Park Hotel had impacts on park visitors for years afterward. In general, however, fire was a minor factor in "old park" management; some years witnessed no fires of any consequence, while in other years, wildland fires—some of them covering tens of thousands of acres—burned for days and then died without an impact on visitors, structures, or staff.[235]

Studies of the role of fire in park ecology began with Steve Buskirk's 1976 historical chronicle of park fires. At that time, the NPS still had a decentralized approach to fire management. But just a year later, the agency adopted a new policy that more fully standardized fire policy. In central Alaska, fire policy had long been under the aegis of the Bureau of Land Management's Alaska Fire Control Service, primarily because the BLM controlled the lion's share of the state's rural land. That control remained throughout the 1970s. But in recognition of the increasing complexity of Alaska land ownership, officials recognized that a multi-agency effort was in order. Beginning in the late 1970s, therefore, the park's resource manager worked with the Alaska Interagency Fire Management Council (an ad hoc group of state, Native, and other federal fire managers) on the Tanana-Minchumina Fire Management Plan for areas north of the Alaska Range. This plan was completed in 1982. Soon afterward, the council launched an effort to complete a similar plan for other areas in the state, and in 1986 officials completed an interagency fire management plan for the Mat-Su area. Procedures outlined in these plans marked a significant departure from previous attitudes toward fire. Whereas BLM managers typically had adopted a "hit 'em all, hard and fast" fire philosophy, the plans produced during the 1980s were more nuanced; they established a four-tiered system requiring managers to gauge the intensity of fire response, primarily in response to distance from population centers. Fires in "critical" areas, therefore, would demand an immediate, large-scale response; but at the other end of the spectrum, fires in "limited action" areas, would be assessed and periodically monitored but not actively fought. The vast majority of acreage in the park and preserve was declared a "limited action" area.[236]

By the time ANILCA became law, NPS officials had made it known—both to their BLM counterparts and other Alaska fire management officials—that fire management was much more than mere suppression. Instead, it was (as historian Hal Rothman has noted) "a complete process that included prevention, presuppression, suppression, and prescribed fire, all in the service of larger resource management goals."[237] In practical terms, that meant that the NPS planned to develop prescribed fire management capabilities in all of the newly-designated park units, but for the time being, at least, NPS personnel were not responsible for day-to-day fire fighting responsibilities. But NPS officials recognized that the "larger management goals" demanded the accumulation of data regarding cabin locations (both on inholder properties and on federal land), and it also demanded the capability of gathering vegetation and similar information during a fire event or in its immediate wake. In 1981, therefore, the agency was able to procure helicopter services for these purposes. The craft was deployed that summer at various Interior parks, including Denali, Yukon-Charley, and perhaps elsewhere.[238]

Late in 1981, NPS Director Russ Dickenson committed the Service to a new operations analysis and budget management process called FIREPRO, the agency's fire program management system. This system, which tried to address the financial demands of the new fire management structure, sought to protect cultural and natural resources by assessing the level of risk to each and deploying resources based on that risk. Under that system, park managers obtained a helicopter for the summer of 1982, and for the next several years it continued to be involved in the cabin inventory, in fire-related vegetation mapping, and in creating and maintaining "defensible space" perimeters around cabins through hazardous fuel reduction. But as Rothman has noted, FIREPRO's core funding account "was designed to be used only for emergency funding, but the efforts of adept administrators created a situation in which national parks used these funds in lieu of their regular budgets." At Denali, fire management funds have underwritten park helicopter services each summer since the 1980s. These helicopters have performed a variety of services, the highest priority of which have been direct responses to fire management needs. But from time to time, helicopters have been used for other purposes as time and resources have allowed.[239]

The park continues to provide an active fire management program, although the "FIREPRO" designation disappeared shortly after 2000. In 1998, Alaska's fire managers, who by now were called the Alaska Wildland Fire Coordinating Group, abandoned their previous reliance on the various regional plans that had been prepared during the 1980s; given the need to standardize fire responses throughout the state, they hammered out the *Alaska Interagency Wildland Management Plan*, which has been their primary guiding document



In support of fire management program goals, a fire technician reduces vegetation from around the Sushana Ranger Patrol Cabin to prepare an area that is defensible in the event of wildland fire. NPS Photo

ever since. Within the National Park Service, fire management in Alaska is guided by three separate teams; the Western Alaska Area Fire Management Team, which guides operations for six park units, is headquartered at Denali. Park-specific fire management is guided by the park's fire management plan, which was completed in October 2004.[240]

Another new management area concerned exotic plant removal. In 1922, Horace Albright had noted that "foreign plant and animal life are not to be brought in" to the parks, and the agency's *Fauna No. 1*, published in 1933, recommended the reduction or eradication of exotic plant and animal species in the parks. Managers, however, recognized that, at least in some park areas, "exotic plants ... have been carried to practically every corner of the park."[241] Various prewar botanical compilations at Mount McKinley (including Ynez Mexia, Aven and Ruth Nelson, Louise Murie, etc.) made no special mention of exotic species. In the late 1940s, staff who were asked about exotics in the park noted that Squirreltail grass, or foxtail barley (*Hordeum jubatum*), which had been identified earlier, was "showing evidence of rapid spread" at park headquarters, near the park hotel, and along the park highway. In response to the park's complaint, the agency's assistant chief forester cautioned that the grass, while weedy, was "a native species apparently indigenous to Alaska." He nevertheless suggested several control options, foremost of which was "seeding with any of the perennial wheatgrasses (*Agropyron* spp.), which are often sufficiently aggressive to gradually kill out the Squirreltail grass."[242]

In the years that followed, exotic plants spread in many of the nation's park units. By 1967, thirty parks had active programs to eradicate or control exotic plant species, and an agency policy handbook published in 1970 declared that nonnative plants and animals would be "eliminated where it is possible to do so by approved methods." An NPS scientist with extensive Alaska experience declared, in 1980, that most parks had exotic species.[243] Park officials, however, made no move to combat exotic species until the winter of 1998-99, when vegetation technician Jean Balay launched "Operation Dead Dandelion," a volunteer-based effort to eradicate dandelions from the park road corridor. Balay, and those that followed in later years, recognized that dandelion seeds spread with the movement of automobile tires. Because they had the potential to crowd out native plants, an orchestrated effort was needed to prevent "a yellow line continually from the park entrance to Kantishna."[244] Activity subsided after 1999, but since 2002 crews have been an annual phenomenon. Most efforts have been focused near the east end of the park road (although a 2002 crew went all the way west to the Kantishna Airstrip), and volunteers have also concentrated on areas recently disturbed by construction activities. Dandelions have been the primary target species in recent years, although in 2003 and 2004, crews removed sweet clover (*Melilotus albus*), tufted vetch (*Vicia cracca*), narrow-leaved hawksbeard (*Crepis tectorum*), and smooth hawksbeard (*Crepis capillaries*) from the park's sewage lagoon and Riley Creek campground.[245]

Led by Vegetation Technician Wendy Mahovlic, right, this crew of volunteers in the Kantishna area eradicated dandelion plants by hand pulling. Exotic species such as these dandelions are not native to the park and can dominate the revegetation of disturbed areas, increasing the difficulty for native species to become established in an area. NPS Photo

Susi Tomsich, a University of Alaska Fairbanks geology undergraduate, found the first dinosaur track in Denali National Park and Preserve, a theropod footprint in the Cantwell Formation. Tomsich, above, sits near two hadrosaur tracks, one on each side of the rock hammer. These represent a second type of dinosaur found in the park, the prey of theropods, providing evidence of past ecosystems. NPS Photo

Recent years have also brought forth a new focus on the park's paleontological resources. Paleontological specimens were first collected by early USGS investigators, such as Alfred Brooks and Stephen Capps, and researchers during the 1950s found additional evidence. The park museum received its first paleontological accessions in 1959 and by 1987, 117 items (plants, mammals, corals, invertebrates, and petrified wood) had been accessioned into the park museum.[246] Few elicited much notice. But in the late 1990s, a Bucknell University geology professor, Jeff Trop, located fossilized, prehistoric pollen grains in the Cantwell Formation, and an analysis of that pollen (by Art Sweet of the Geological Survey of Canada) reconfirmed earlier reports that the formation was laid down prior to the dinosaur extinction, and not from the more recent Cretaceous period as had once been hypothesized.

In June 2005, new evidence surfaced. The University of Alaska Fairbanks Department of Geology and Geophysics was in the field as part of its undergraduate field mapping course, and on June 27 Susi Tomsich, a student under the guidance of UAF professor Paul McCarthy, discovered the track of a theropod (a large, bird-like meat eater) near Sable Pass. And later that summer, a second theropod footprint, along with the tracks of various prehistoric wading birds, was discovered on Double Mountain by a team from the NPS, the Dallas Museum of Natural History, and the University of Wyoming.[247] Researchers returned to the park in 2007, and in the Sable Mountain area discovered additional theropod prints, hadrosaur prints, and bird tracks, plus preserved worm burrows and insect-fish trace fossils.[248]

Continuing scientific efforts have also been mustered to provide answers to the long-term issue of the road's impacts on park wildlife. During the 1973-75 period (see above), Diane Tracy had first analyzed this problem, and during the early 1980s research by Frank Singer and Joan Beattie revisited this problem and made recommendations that became a key component of the park's general management plan. In 1988, agency biologist Dale Taylor began working with the park's bus drivers on a project to collect data "on the effects of park road traffic on the visibility of park wildlife;" this data collection has continued each summer since that time. (Volunteer drivers recorded the number of the various megafauna species on their westbound trips, after which they summarized their data and compared them to those of previous years.)[249] Later, in 1995, park staff compiled a pilot study on interactions between traffic and wildlife. This was also the first year of a three-year study showing the effect of vehicle traffic on Dall sheep migrations in the park. Later, in 2003, the park's bus drivers were enlisted to gather data on this topic.[250]

In 2005, park staff began to plan a large, multidisciplinary study of the impacts of traffic levels of the Denali park road on wildlife, visitor experience, road maintenance and the physical and biological environment of the road corridor. The

Buses on the Denali Park road stop to allow visitors a chance to observe wildlife. Traffic stops, like the one pictured, occur frequently on the park road, and the current park road capacity study is working to determine how congestion associated with these stops might affect wildlife behavior and a visitor's experience. NPS Photo

study began the following year and will continue beyond 2007. Its goal is to determine the road's carrying capacity based on traffic flow, visitor experience and wildlife movements and observations. Officials, recognizing the need to address any anticipated impacts if road traffic were to be increased, plan to write an environmental impact statement about the issue. Pending funding decisions, however, that document has yet to be written. Plans call for experimental increases in traffic on alternate days to determine adverse effects if the evaluation in the document anticipates acceptable impacts.[251]

Mount McKinley's Height: New Studies, Greater Accuracy

Scientific inquiry during the 1980s attempted to provide the most accurate possible answer to the question, "How high is North America's tallest peak?" Given the growing sophistication of measurement technology, this elevation has changed considerably over the years.

As noted in Chapter 1, prospector William A. Dickey named Mount McKinley in 1896. The following January, a New York newspaper story stated that Dickey had estimated the mountain's elevation to be "over 20,000 feet." In 1898, topographer Robert Muldrow of the U.S. Geological Survey ascended the Susitna River with George H. Eldridge. Using a stadia line and transit, he calculated the mountain's height from six different locations. Using a weighted mean of those measurements, he stated that the peak's "adopted height" was 20,464 feet.[252]

Four years later, geologist Alfred H. Brooks and topographer De Witt L. Reaburn led an expedition to areas south, west, and north of Mount McKinley. Reaburn made four additional vertical-angle measurements, with the mean height of 20,155 feet; he then averaged his figures with those of Muldrow's six measurements from 1898 and determined a new mountain elevation of 20,309 feet. Seven years later, H. W. Rhodes from the U.S. Coast and Geodetic Survey took two additional measurements of the mountain from Cook Inlet. Although both of his observation points were more than 125 miles from Mount McKinley, his instruments were more accurate than those available to USGS field personnel. In a 1910 report, agency official William Bowie noted that the two measurements were 20, 274 feet and 20,322 feet. He concluded that the weighted mean was 20,300 feet, and that this value was "correct within 150 feet." Brooks and other USGS

Bradford Washburn conducted extensive surveying and mapping during the "Operation White Tower" expedition that climbed Mt. McKinley. He spent an unprecedented ninety days on the mountain in 1947. Operation White Tower Collection, Denali National Park and Preserve Museum Collection

officials, in a 1911 publication, accepted Bowie's 20,300-foot elevation as being correct.[253]

For the next 45 years, the mountain's official height remained 20,300 feet. But as noted in Chapter 13, Bradford Washburn began showing an interest in the mountain during the mid-1930s, and he first climbed it in 1942. Five years later, he returned to the mountain and conducted extensive survey work, including tripod measurements made at the summit, and in 1951, he and his crew surveyed much of the West Buttress route. Based on those efforts, and additional measurements in 1954, the National Geographic Society (which had been sponsoring Washburn, off and on, for twenty years) announced in August 1956 that "based on more than ten years of surveys of the mountain ... the United States Geological Survey had officially declared McKinley to be 20,320 feet."[254] Perhaps in response to this announcement, a number of publications adopted this new height. But the USGS did not, and government officials for another twenty years, perhaps longer, reiterated that "the official height of the mountain is still 20,300 feet."[255]

In June 1977, the National Outdoor Leadership School launched an expedition up the mountain with the express purpose of determining the mountain's height. Expedition members hauled 33 prisms up the mountain. They reached the summit on July 11, and shortly afterward, Brad Washburn—who worked from Eielson Visitor Center and several nearby sites—shot a series of laser beams at the prisms and recorded the results. A week later, Washburn announced that the new measurement showed that the peak's altitude was "within a foot or so" of the accepted 20,300-foot figure. He stated that "we may come up with a slight change in altitude, but I think it's very close." The USGS made no changes as a result of these measurements; this may have been because (as later reported), "McKinley exerts enough gravitational pull to distort standard surveying techniques."[256] Shortly afterward, however, USGS personnel apparently concluded that Mount McKinley's official height was 20,320 feet (as Washburn had indicated in the mid-1950s) rather than 20,300 feet.

A renewed attempt to measure the mountain's height took place in early June 1989, when a scientific team, sponsored by the U.S. Geological Survey and the University of Alaska Anchorage, headed toward the summit carrying a Global Positioning System receiver. The researchers and support climbers reached the top on June 21 and used the receiver in conjunction with a Global Positioning Satellite. The technology could purportedly "convert satellite signals into measurements to the nearest 5 millimeters" (or one-fifth of an inch). By late July, the scientists had determined that Mount McKinley's summit elevation was 20,306 feet, plus or minus six inches. But

USGS officials, noting inconsistencies in their gravitational measurements, did not officially accept the new figure because it was insufficiently comprehensive to warrant a change. Given the inconclusive results of the data collection effort, the peak's official height remains 20,320 feet.[257]

Cultural Resource Issues at Mount McKinley National Park

The Congressional bill that established Mount McKinley National Park, in 1917, made no specific identification of the park's cultural resources nor of any particular need to protect them. This, combined with the fact that the NPS, as an organization, was slow to heed the language in the Organic Act that called for the agency "to conserve the ... historic objects ... therein," meant that little attention was paid to cultural resource concerns. Practicality prevailed.

Perhaps the first efforts to protect historical values began in 1932, when Supt. Harry Liek headed down the Toklat River and took photographs of the cabin where Charles Sheldon and Harry Karstens had lived during their visit to the area in 1907-08. The following summer, Liek returned to the "old Sheldon cabin," which was still standing, "for the purpose of taking measurements and pictures for use in restoration." Liek continued his interest in later years.[258]

No work was done, however, and when Supt. Been visited in 1941, he noted "the crumbling condition of Charles Sheldon's cabin ... If restoration work is desirable, it must be done soon." But Adolph Murie, who became familiar with the cabin during his 1939-41 field work, expressed a different point of view. In a 1942 article, he noted that

> The cabin he used is now in ruins and the cache is tottering. ... The cabin is deteriorating, a swing of the river may destroy it suddenly, but I have a feeling it should be left alone. I think that Sheldon, with his love for wild places, would like to have his cabin crumble to earth with age.[259]

The cabin, in fact, did "crumble to earth with age," because by 1959 the cabin was in such ruinous shape that in order to rehabilitate the cabin, it "would have had to be completely reconstructed." And in 1969, the park's chief ranger noted that "the only remains are a few decayed logs which are rapidly melting into the soil" and that the winding Toklat River was now eating at the site of the cabin." Wildlife advocates, by this time, were interested in the cabin's "preservation and interpretation," but the cabin's poor condition, combined with its isolation from the park road, precluded any serious rehabilitation efforts.[260]

As noted in Chapters 5 and 6, the recently abandoned buildings on the Morino Tract caught the eye of a visiting New York congressman, who hoped that the buildings could "be preserved as an exhibit of ... early Alaskan development and

When Superintendent Frank Been visited the Sheldon Cabin in June 1941, the 34-year-old original cabin and the 1914 addition were both badly deteriorated. DENA 4-5, Denali National Park and Preserve Museum Collection

building construction." That idea soon faded away. Of more sustained interest, however, were the "many articles" that were acquired from the Army's 1942 test expedition. These, plus scattered items from other sources, constituted the core of the park's museum collection, and shortly after the military (in the spring of 1943) opened up the park hotel as a rest and recreation site, NPS officials converted an "old office building" at headquarters into a small museum. The museum remained open, off and on, until 1950.[261]

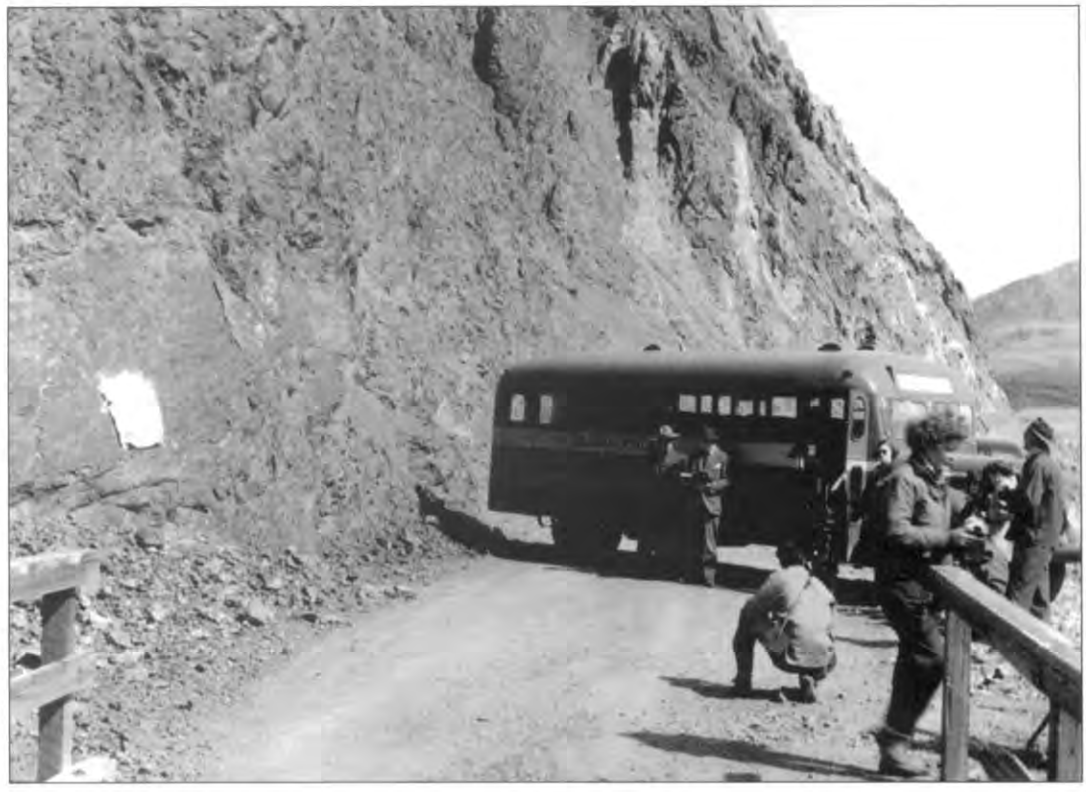
Historical studies commenced at the park during the early 1950s. In May 1951, regional historian Aubrey Neasham visited the park. Perhaps as a result, Supt. Grant Pearson—who by now had been at the park for more than twenty years—began writing a park history, and by March 1952 he had completed a draft of it. The 91-page book was completed in 1953, and both Director Conrad Wirth and other agency officials congratulated him because "it is an interesting and suggestive compilation of data presented in something of an informal reporter style."[262]

Constructed in 1926, the original Superintendent's Office at park headquarters served as the administrative office until mid-1941, when the one-room building was considered "dilapidated." By the spring of 1943 the building, still in its original location, was adapted for reuse as the park's first museum. DENA 4-2.7, Denali National Park and Preserve Museum Collection

The 1950s also featured the placing of several bronze plaques that memorialized people who had made prominent contributions to the park. In early 1951, the Boone and Crockett Club sent the park a marker commemorating Charles Sheldon, who played such a critical role in the park's establishment. Park staff reacted by installing it that spring on a rock wall on the east side of the Toklat River bridge, 3.5 miles upstream from Sheldon's deteriorating cabin. On June 22 a dedication ceremony was held at the plaque; Robert Reeve, the Alaska aviation pioneer, gave a speech to an audience that included NPS Director Arthur Demaray, Regional Director Lawrence Merriam, and Sheldon's widow, Louisa.[263] A year later, in July 1952, park staff decided to move the plaque honoring Stephen T. Mather—which had been located near the ranger dormitory since being installed in 1934—to "a more prominent position near the Naturalist office."[264] And in 1958, the Pioneers of Alaska members, probably from the Fairbanks Igloo, sponsored the casting of a plaque in memory of Harry Karstens, the pioneering park superintendent who had died in November 1955. On July 27, 1958, a small crowd gathered near the Toklat River bridge, at the same rock wall where the Sheldon marker had been erected eight years earlier. Attending the brief dedication ceremony were several major figures from the park's early history including concessioner Robert Sheldon, who had been involved in park affairs from the mid-1920s to the early 1940s; former Supt. Grant Pearson, whose work at the park had spanned the years from 1926 to 1956; and Karstens' widow, Louise, who in the mid-1920s had worked at the park as a $1-per-month park ranger.[265]

Interest in the park's archeological resources began in late 1958, when regional NPS officials wrote to University of Alaska professor Ivan Skarland and invited him to submit bids for a parkwide archeological survey. Skarland, in response, estimated that such a survey would take two field seasons and cost $18,400. The NPS then sent its regional archeologist, Paul Schumacher, to the park for further consultation, but nothing specific resulted from that visit.[266]

The first archeological survey work in the park took place in the summer of 1960, after a geological field party stumbled upon two prehistoric sites just north of Teklanika Campground. These



This photograph shows the June 22, 1951 dedication of the plaque commemorating the achievements of Charles Sheldon. In 1958 a plaque was added in memory of Henry (Harry) Karstens. Both plaques are now on display at the Toklat Contact Station, on the west side of the Toklat River. National Archives & Records Administration

sites, later designated Teklanika West and Teklanika East, were soon visited by a University of Alaska anthropology professor, Frederick Hadleigh West, and they were of sufficient interest that the NPS sponsored a field camp for the following summer in which two UA archeologists, Ronald Boyce and Beryl Beard, excavated pits at each of those sites. Additional sites found that summer were located in the vicinity of Double Mountain, Sanctuary River, and Sable Mountain. West, or crews working under his direction, continued to work at Teklanika for the next several years.[267]

In 1963, UA geographer H. Morris Morgan obtained an NPS contract "to locate additional sites in order to lay the ground work for continuing evaluation of the park's archeological resources." In response, he conducted a reconnaissance or preliminary survey which focused on selected high ground areas along the park road corridor between the park hotel and Teklanika Campground. After locating 11 new prehistoric sites, he reported that "for the present, it seems that sufficient archeological surveys have been done in the Park."[268] To follow up on Morgan's work, UA archeologist Adan Treganza, accompanied by two assistants, arrived at the park in June. Under an NPS contract, Treganza revisited each of Morgan's 11 sites and located five additional sites, all near the park road and primarily east of Sanctuary River. Treganza, like Morgan, applied less-than-rigorous methodology to his field work; and he similarly concluded that "no further work is recommended for Mount McKinley National Park as human prehistory appears not to be one of its attributes." Reports such as these discouraged further investigations, and for more than a decade, the agency sponsored no further survey efforts.[269]

Preservation values became important in the late 1960s. By 1966, park staff had recognized the need to restore the old Upper Toklat patrol cabin (Pearson Cabin), which rangers Grant Pearson and Lee Swisher had built in 1927. Accordingly, staff hoped that the cabin, along with the nearby dog houses and cache, could be "preserved as a permanent interpretive exhibit typical of those used by protection personnel during the early history of the park." After some delay, agency architects prepared a historic structures report for the various structures at the site; it called for a restoration of the cabin to its 1928 condition, a rehabilitation of the cache, and a reconstruction of the dog kennels. The cabin work was completed by 1973, and the remainder of the project soon afterward.[270] In 1976, the cabin served as a "bicentennial living history demonstration" in which seasonal employees Frank Buono and Steve Carwile played the role of ranger Grant Pearson. An agency report noted that "the Toklat Historic Cabin was lived in and manned daily this summer. ... Visitors viewing these operations and the historic living conditions thoroughly enjoyed it."[271]

Archeological research resumed during the mid-1970s with two studies conducted just north of

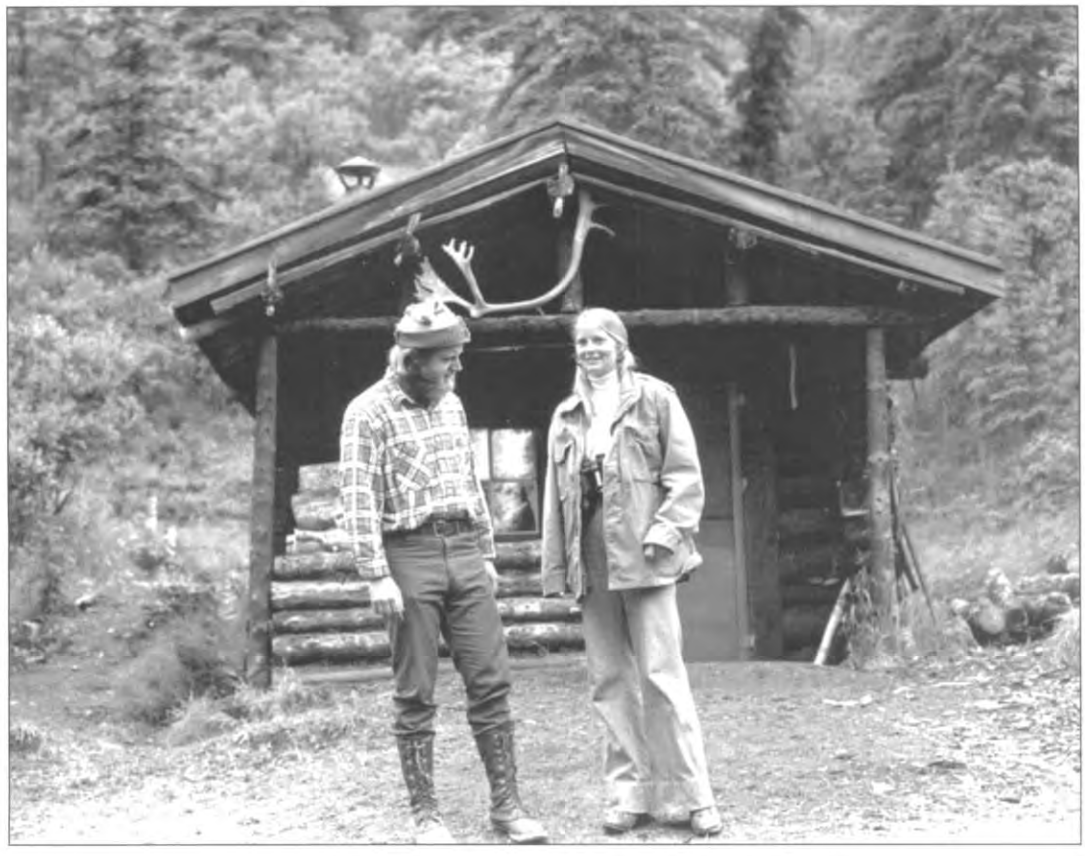
The Teklanika West archeological site is located on a rocky bluff overlooking the wide braided gravel bars of the Teklanika River, a classic lookout site for hunters to observe the movements of game animals. DENA 19-17, Denali National Park and Preserve Museum Collection

the park (and on land that would soon become park of the expanded park and preserve). Meanwhile, federal officials moved to protect archeological sites in the park vicinity. Initial cultural resource overviews of the state, which had been conducted in the early 1960s, had failed to identify any nationally-significant archeological or historical sites in or near the park. But in September 1974 the Dry Creek early-man site, located just north of the park, was declared a National Historic Landmark, and in January 1976, the Teklanika Archeological District (an area that included both of the sites discovered in 1960) became the park's first entry into the National Register of Historic Places.[272]

Cultural Resource Management at Denali National Park and Preserve

In 1980, Alaska Area Office archeologist Craig Davis, recognizing the almost total dearth of extant archeological knowledge about the areas enclosed within the newly-proclaimed Denali National Monument, spent 25 days in the park and conducted a brief archeological reconnaissance. He recorded 16 new prehistoric sites, primarily lithic scatters on high ground in the Teklanika, Sanctuary, and Savage River drainages. The primary goal of his fieldwork was to gather data for upcoming management plans. Perhaps as a result of that survey, the park's first resource management plan, in April 1982, stated that the park's top cultural resource goal was the compilation of a four-year, $500,000 cultural resource inventory; more specifically, it stated that "an immediate need is to complete essentially preliminary site studies and architectural evaluations for critical area resources" such as the Teklanika Archeological District, the headquarters area, and other historic structures. The plan also called for the completion of a historic resources study, which would be primarily based on the results of the first year's inventory work, plus an administrative history, which would be a year-long project to update Pearson's 1953 history.[273]

The agency showed no immediate interest in funding any of the park's cultural resource priorities. The approval of a number of smaller projects over several years, however, was a positive response to the park's needs. Beginning in 1982, for example, crews working in the park's fire management program (see above) compiled a remarkable inventory of cabins, both historic and contemporary, and by 1984 information on well over 200 cabins and ruins was available, not only to fire managers but to cultural resource specialists as well. Then, in the spring of 1985, the region's historical architect, Dave Snow, prepared design guidelines for the so-called "Headquarters Historic District." Meanwhile, the agency hired a University of California Santa Barbara graduate student, Gail Evans, for two historical research projects. The first involved the park's older patrol cabins, while the second called for an investigation into the various headquarters buildings. The goal of both efforts was the preparation of



NPS seasonal interpreter Steve Carwile lived and worked at the Pearson Cabin beginning the summer of 1976 and for the full summers of 1977 through 1979, providing site interpretation for park visitors arriving by tour bus. This living history demonstration included two sled dogs at the historic duplex dog houses. DENA 2254, Denali National Park and Preserve Museum Collection

National Register of Historic Places nomination forms. Evans's work, remarkably, brought quick results. Her patrol cabins nomination, which included five cabins along the "old park's" northern boundary, five others along the park road, and three near the park's southeastern corner, was accepted in November 1986, while her headquarters-area nomination was entered onto the National Register in October 1987.[274]

Meanwhile, other projects were being pursued. Given Evans's substantial historical information, Snow worked with archeologist Paul Gleeson and historian Robert Spude on a three-volume historic structure report (HSR), for both the headquarters area and Wonder Lake buildings, which was completed in January 1987. By this time, historian Bill Brown was well underway with a historic resource study. Brown, recognizing

Projects to inventory Denali's cultural resources included the documentation of sites such as this Kantishna Mining District historic lode mining site, referred to as DENA #154, the Alpha Ridge site, consisting of this cabin, a shed, adits, tailings and artifacts. NPS Photo

William E. "Bill" Brown, NPS historian for more than 30 years, spent several years researching and writing Denali's historic resource study, published in 1991. That document was later published as *Denali – Symbol of the Alaskan Wild*, a comprehensive, illustrated history of the park. NPS Photo

the broad research opportunities available in the various park collections, moved to the park for the duration of his study, which was completed in draft form in 1989. The study was published by the NPS in 1991, and it proved so popular that in 1993, the Alaska Natural History Association produced a reformatted version of Brown's book for popular consumption. Brown's research, valuable as it was for the general information it provided, had a practical side, too. From time to time during the 1980s, the NPS sparred with the park concessioner about the road's design, construction, and maintenance, and also with the State of Alaska over the ownership of the park road (see Chapter 9). When court cases arose in these two matters, the documentation that Brown provided helped buttress the federal government's case.[275]

During the 1980s, agency staff learned valuable new information about the park's cultural resources through its compliance investigations. These investigations, which responded to proposed development actions, involved both bibliographic research and on-the-ground field work. They were legally sanctioned by the National Historic Preservation Act of 1966 and first implemented at the park in the late 1970s. The preparation of compliance documents, by regional office personnel, remained fairly sporadic until the mid-1980s. After that point, however, the region's Archeological Resources Management Unit applied compliance more intensely at the park, and hundreds of documents have been generated since that time, and on the basis of that amassed data, Kristen Griffin in 1990 wrote a park archeological overview and assessment. In the mid-1990s, the responsibility for Denali's compliance program shifted from the regional office to the park.[276]

Given the results of Gail Evans's cabin histories, the agency's architectural staff during the early 1990s began compiling a series of historic structure reports. In 1992, Gail teamed with David Evans on at least two cabin HSRs, and the following year Randall Skeirik worked with Steven Peterson on an HSR for a headquarters-area building. Perhaps six to eight of these reports have been completed to date. And in response to these reports, several historic cabins have been rehabilitated by the park's maintenance staff.[277] Because of the structural similarity of the various early patrol cabins, and because of strong working relationships between the regional historical architect's staff and the park's preservation crew, the various initial HSRs have served as an effective template for historic cabin rehabilitation efforts throughout the park. Additional HSRs will be completed as the need arises.[278]

Frank Norris served as a historian in the NPS's Alaska Regional Office for 17 years. NPS Photo

The Herning cabin, located between Thorofare River and Mount Eielson, received considerable attention from agency staff during this period. This cabin, easily visible from the Eielson Visitor Center, had been part of Harold Herning's claims and had been moved to the site, from Fairbanks, in 1954 (see Chapter 14). But in 1983, Herning's claims had been declared null and void, and in June 1992 park employee Sandra Kogl noted that the cabin was "in extreme disrepair" and "unauthorized use [was] taking place." On that basis, she recommended that the "cabin and its associated junk should be removed from the viewshed of Eielson Visitor Center. Suggest this be a project for a Sierra Club type of work group." The park's resource chief and the superintendent approved the proposed action, and in response, the January/February 1993 issue of *Sierra Magazine* advertised a Sierra Club "service trip," scheduled for late August 1993, in which the participants would "dismantle an old miner's cabin." But Sandra Faulkner, who served as the agency's Regional Historic Preservation Officer, noted that "this site was associated with several

An NPS employee in Alaska since 1990, Ann Kain served as Denali's first Cultural Resource Manager from 1997 to January, 2008. She facilitated programs in museum collections, archeology, ethnography and historic preservation. NPS Photo

In the early 1920s a small lode mining camp was located at the base of Copper Mountain, later renamed Mt. Eielson. Harold Herning built this cabin on his claims in 1954. This cabin and the remains of the 1920s camp, to the right of the cabin, stand as reminders of historical activities in the Mt. Eielson Mining District. William Weber Collection, Cultural Resources, Denali National Park and Preserve

historic mining claims and both historic and modern tools and equipment are scattered about the area." Thus, in order to comply with provisions in the National Historic Preservation Act of 1966, she asked that the site "be surveyed by our mining inventory crew for cultural resources." Based on that recommendation, a four-person NPS crew spent two days at the site in June 1993. After receiving the crew's report, the agency's regional archeologist recommended that no action be taken to the cabin itself; he did, however, suggest the removal of hazardous materials and recent trash from the site. Given that recommendation, the Herning cabin still stands today, although in severely deteriorated condition. Despite a mid-1990s cleanup effort, some debris remains in the cabin's vicinity.[279]

Throughout this period, the park's cultural resources had been managed by personnel who had no specialized background or expertise in a cultural resource field. That need, which had been identified as early as the park's 1982 resource management plan, was initially addressed with the hiring of Jennifer Wolk as the park's first museum curator. In 1997 Ann Kain, formerly a historian in the agency's regional office, was added to the park staff. Kain spent the next decade on the job and played a major role in incorporating cultural resource concerns into overall park management. During that period, two employees have joined her staff: cultural anthropologist Jane Bryant (who has worked at the park, off and on, since 1967) and museum curator Jane Lakeman, who succeeded Wolk in 2006. Recent cultural resource projects have included an ethnographic overview and assessment, a headquarters-area cultural landscape report, and various culturally-focused exhibits.

Subsistence Issues

As noted in Chapter 8, both Interior Department officials and Congress recognized during the 1970s that most of the new lands that were being considered as NPS units in an Alaska lands bill needed to be open to subsistence uses. Accordingly, the proclamation that President Carter signed in December 1978 to establish Denali National Monument stated that "the opportunity for the local residents to engage in subsistence hunting is a value to be protected and will continue under the administration of the monument." Consistent with that statement, the Alaska National Interest Lands Conservation Act likewise provided that subsistence uses would be sanctioned in all so-called "new park" lands as well as within Denali National Preserve. The bill, however, made no move to sanction subsistence

In January 2007 Florence Collins, center, received the 2006 NPS Summit Award for Lifetime Achievement for her nearly 25 years of guidance and leadership on Denali's Subsistence Resource Commission. The award was presented by Alaska Regional Director Marcia Blaszak, left, and Florence's daughter Julie. NPS Photo

uses within the "old park," and subsistence uses there remained off limits.

Soon after ANILCA was signed, the Interior Department moved to establish regulations that specified the structure of subsistence activities at Denali and other Alaska park units (see Chapter 9). These regulations were in place by June 1981. What was lacking, however, was a federally-sanctioned commission that could represent local subsistence users. Congress mandated that the members for such a commission needed to be chosen by December 1981 and that, by June 1982, the assembled commission needed to "devise and recommend to the Secretary and the Governor a program for subsistence hunting within the park or park monument." But for various reasons, the Denali National Park Subsistence Resource Commission was unable to hold its initial meeting until May 1984. Since that time, meetings of this advisory body have been held every six months or so. Florence Collins, a Lake Minchumina (later Fairbanks) resident, guided the SRC from its inception until August 2007; since that time, Ray Collins of McGrath has served as the SRC chair.[280]

When park officials, during the hectic days following the passage of the Alaska Native Claims Settlement Act, recognized that millions of acres might be added onto Mount McKinley National Park, they tried to gather substantial baseline information about the nature of ongoing subsistence activities. Some of these data were gathered by field examiners during the 1972-74 period, and a brief (four-page) section on subsistence appeared in the October 1974 *Final Environmental Statement*. To learn more, however, officials contacted Cooperative Park Studies Unit personnel in Fairbanks, and Richard Bishop agreed to investigate subsistence patterns in the areas proposed for inclusion north of the Alaska Range. That study included site visits to, or communications with, residents of Telida, Lake Minchumina, Kantishna, Bearpaw, Nikolai, and Nenana. The study was completed in late 1977 and published a year later.[281] Just a year later, Dianne Gudgel-Holmes, in a state-sponsored navigability study, provided extensive historical data about the historic use of the Kantishna, Upper Kuskokwim, and Nenana river drainages. On the basis of that expertise, Ms. Gudgel-Holmes then teamed up with William Schneider (from UAF) and park employee John Dalle-Molle on an NPS-sponsored study, published in 1984, that examined historical land use patterns in the "new park" and preserve areas north of the Alaska Range.[282]

In the twenty-plus years since the park's subsistence resource commission began meeting, it has dealt with a welter of issues. Many of its decisions, particularly since the mid-1990s, have been recommendations related to hunting and fishing regulations. To lend perspective to those recommendations, NPS and other agency staff have analyzed the proposal and, at times, conducted research that has either buttressed or

The Fish Lake cabin, seen in this 1995 photograph, played a prominent role in the long history of trapping in the north additions of the park. This site represents the activities and subsistence lifestyle of trappers who made their living in this area. NPS Photo

The NPS monitors the condition of historic resources such as the Fish Lake cabin, pictured here in 2007. NPS Photo

mitigated the SRC's recommendations. Each of these recommendations, in turn, has been voted on by regional advisory council, and later by the Federal Subsistence Board.[283]

Beyond this regular round of harvest recommendations, other researchers have completed studies—funded partially or entirely by the NPS—that lend further background to the park's present and historical subsistence patterns. Gudgel-Holmes, for example, spent many years on the Kantishna Oral History Project; this included a series of transcribed interviews with elders that took place during both 1982-83 and 1988, and the project also included a history, published in 1991, of Native place names in the Kantishna watershed.[284] In 1999, Gudgel-Holmes and two others completed a study examining the traditional use of various structures in the park unit's north additions; that same year, linguist James Kari

produced a draft Native place names mapping study of the park.[285]

In 2000, the NPS sponsored several community histories under a cooperative agreement with the Alaska Department of Fish and Game's Division of Subsistence. Longtime SRC member Ray Collins, in September 2000, completed a history of Nikolai and Telida, and three months later, Cantwell resident Brenda Rebne completed a brief history of Cantwell's Native village. That same year, the students and teachers of Minchumina Community School produced a history of Lake Minchumina, and the Tanana Tribal Council produced *A Short History of the Native Village of Tanana*. The park's ethnographic overview and assessment, completed in 2001 by a trio of ethnographers, was also written in response to the state-federal cooperative agreement.[286]

In order to manage the park subsistence activities, Superintendent Cunningham during the 1980s, asked Ralph Tingey, the park's management assistant, to serve as the NPS liaison to the Denali Subsistence Resource Commission. Tingey retained that role until 1991, when Hollis Twitchell became the park's first specifically-designated subsistence specialist. Twitchell remained on the job for more than a decade. Amy Craver presently manages park subsistence matters.[287]

A major subsistence-related matter in recent years has concerned the extent to which subsistence ORV access would be allowed in the Windy Creek, Cantwell Creek, and Bull River drainages. Another major subsistence issue has been the proposal to develop a resort along Spruce Creek in the Kantishna Hills, a proposal that would have had severe impacts on the area's subsistence hunting opportunities. These issues are discussed in chapters 10 and 14, respectively.

Notes - Chapter 12

[1] Theodore Roosevelt, "The American Hunter-Naturalist," *The Outlook* 99 (December 9, 1911), 856; William E. Brown, *Denali, Symbol of the Alaskan Wild* (Anchorage, Alaska Natural History Association, 1993), 81-86.
[2] Sheldon to Mather, December 15, 1915; Thomas Riggs, Jr. to Mather, December 17, 1915;both in "Proposed National Parks: Mt. McKinley" folder, Box 111, General Records, Central Files, RG 79, NARA CP.
[3] 64th Congress, 1st Session; H.R. 14775 (April 18, 1916) and S. 5716 (April 22, 1916).
[4] 64th Congress, Public No. 353 (February 26, 1917), in *United States Statutes at Large* 39, p. 938.
[5] Superintendent's Monthly Reports, Mount McKinley National Park (hereafter known as SMR, MOMC), June 1921, 2.
[6] SMR, MOMC, July 1921 through December 1922.
[7] Nelson to Mather, May 7, 1921; Mather to Nelson, June 6, 1921; Karstens to Nelson, May 13, 1922; all in "Wild Animals, Part 1 and 2" file, Box 112 (MOMC), RG 79, NARA CP; SMR, April 1922, 5.
[8] SMR, July 1922, 6, and October 1922, 4; Timothy Rawson, *Changing Tracks; Predators and Politics in Mt. McKinley National Park* (Fairbanks, University of Alaska Press, 2001), 37.
[9] Linda S. Franklin, *Adolph Murie: Denali's Wilderness Conscience* (unpublished M.A. Thesis, University of Alaska Fairbanks, May 2004), 21; Rawson, *Changing Tracks*, 34.
[10] Nelson to Mather, April 13, 1922, in "Wild Animals, Part 1 and 2" file, see above; Margaret E. Murie, *Two in the Far North* (Anchorage, Alaska Northwest, 1978), 78, 80; Jim Rearden, *Alaska's Wolf Man: the 1915-55 Wilderness Adventures of Frank Glaser* (Missoula, Pictorial Histories Publishing, 1998), 83.
[11] SMR, May 1922, 3; June 1922, 2; July 1922, 2; August 1922, 2, 4.
[12] SMR, July 1922, 2, and September 1922, 2; Franklin, *Adolph Murie*, 22, 24, 26; Murie, *Two in the Far North*, 80; Brown, *Denali, Symbol of the Alaskan Wild*, 148-49.
[13] According to the *Fairbanks Daily News-Miner*, August 17, 1922, 1, "a large number of caribou mixed with the herd at different times" during the 1921-22 reindeer drive, "but no harm was done. In the Iditarod region," for example, herders "resorted to lassoing the caribou and tying them up until they had driven the herd on, when they released them."
[14] Rawson, *Changing Tracks*, 92; SMR, August 1922, 2; September 1922, 2; *Fairbanks Daily News-Miner*, October 13, 1923, 2.
[15] SMR, October 1924, 3; August 1925, 3, 8-9; Hal G. Evarts, "Game in the Foreground," *Saturday Evening Post* 198 (May 22, 1926), 30-31, 225-30. Karstens, in his December 1925 superintendent's report (p. 4), stated that a "publication" of the park's natural attributes was "now on record at Washington, D.C." No known record of such a publication exists, however.
[16] See, for example, SMRs for December 1925, 4-5; April 1926, 4-5; and July 1926, 4-5.
[17] A.E. Demaray to T.S. Palmer, December 5, 1924, in "Wild Animals, Part 1 and 2" file, see above.
[18] SMR, September 1925, 2; January 1926, 4.
[19] Adolph Murie discussed the surfbird in "Wildlife of Mount McKinley National Park," *National Geographic* 104 (August 1953), 252, 269. Supt. Liek, upon hearing of Wright's untimely death in February 1936, noted that scientists had "searched for the surf bird nests for over 150 years and the only one on record is the one found by George Wright." SMR, February 1936, 1.
[20] Richard West Sellars, *Preserving Nature in the National Parks: A History* (New Haven, Yale, 1997), 86-87; Russ Olsen, *Administrative History: Organizational Structures of the National Park Service, 1917 to 1985* (Washington?, NPS?, September 1985), 36-37; George M. Wright, Joseph S. Dixon, and Ben H. Thompson, *Fauna of the National Parks of the United States: A Preliminary Survey of Faunal Relations in National Parks*, Fauna Series No. 1 (Washington, GPO, 1933), iv; U.S. Department of the Interior, *Annual Report* (Washington, GPO, 1933), 177; Rawson, *Changing Tracks*, 67; SMR, May 1926, 4; SMR, July 1926, 6.
[21] Rawson, *Changing Tracks*, 92-93; SMR, January 1926, 4; October 1926, 4; October 1927, 2, 7.
[22] USDI, *Annual Report* for 1927 (p. 145) and 1928 (p.182).
[23] SMR, August 1927, 3; SMR, October 1927, 5, 6; February 1928, 3; January 1929, 3.
[24] Rawson, *Changing Tracks*, pp. 53, 85, and 158 notes that estimates of the park's major animal populations during the 1920s were either poorly-designed or done retrospectively.
[25] SMR, February 1931, 2 October 1931, 3; February 1933, 3; October 1933, 3; November 1933, 3; September 1936, 5; September 1937, 6; February 1938, 4; October 1938, 4.
[26] SMR, May 1933, 1; August 1937, 5; September 1937, 6; June 1939, 4; May 1940, 6; June 1940, 5; November 1940, 4; June 1941, 3.
[27] Acting Director NPS to RD/R4, May 16, 1947, in File 700.01 (Nature Study, 1940-53), Box 82, CCF, RG 79, NARA SB. Also see Appendix C in the first volume of this study.
[28] SMR, June 1928, 4-5; Sylvia Mendoza, *The Book of Latina Women; 150 Vidas of Passion, Strength, and Success* (Avon, Mass., Adams Media, 2004), 85-86; A.E. Haley-Oliphant, "Ynez Mexia, Botanist, 1870-1938," in M.L. Matyas and A.E. Haley-Oliphant, editors, *Women Life Scientists: Past, Present, and Future: Connecting*

Role Models to the Classroom Curriculum (Bethesda, Md., American Physiological Society, 1997), 203-16; J.D. Coffman to Supt. MOMC, January 16, 1939, in File 701 (Flora), Box 82, CCF, RG 79, NARA SB.

[29] SMR, July 1932, 3; June 1933, 3; September 1933, 5; Harry J. Liek to Herbert L. Mason, September 19, 1933, and A.E. Demaray to Lorin T. Oldroyd, June 2, 1939; both in File 701, see above; Carl Roland, *The Vascular Plant Floristics of Denali National Park and Preserve: A Summary, Including the Results of Plant Inventory Fieldwork 1998-2001*, NPS Central Alaska Network Inventory and Monitoring Program, Final Technical Report CAKN-04-01 (Denali Park, AK, NPS, March 2004), Chapter 3.

[30] SMR, June 1939, 3; July 1939, 4; August 1939, 3; September 1939, 4; April 1940, 4; Rawson, *Changing Tracks*, 160. In 1942, Dr. Nelson completed a 65-page *Report on the Study of the Plants on Mount McKinley National Park with a List of the Plants Collected in 1939*; see Technical Information Center report number 184/D-230.

[31] SMR, November 1925, 8; May 1926, 3; October 1933, 4; Bill Myers, "White Trails," *American Forests* 35 (August 1929), 478, 541.

[32] SMR, June 1928, 4; September 1929, 3; July 1940, 4.

[33] In 1923, a prospector named Zimmerman told Supt. Karstens that "he would kill any bear he met with in the Park or elsewhere and that the other prospectors would do the same, claiming that bears destroyed their caches." SMR, September 1923, 5; Dixon to Director NPS, October 28, 1932, in File 715-02 (Bears), MOMC, Entry 6, RG 79, NARA CP.

[34] SMR, August 1928, 3; September 1932, 2; March 1933, 1; Dixon to Director NPS, October 28, 1932, see above.

[35] SMR, July 1934, 6; September 1937, 6.

[36] SMR, October 1938, 4; June 1940, 5; July 1940, 4; June 1942, 3; June 1944, 2. Supt. Been, in his July 1940 report, was unsurprised at the wolf and bear activity at the ARC camp but regarding Camp Eielson, he surmised that the bears "must be attracted by food odors as garbage is carefully disposed of."

[37] SMR, September 1928, 4; February 1930, 2; October 1931, 4; October 1933, 4; November 1934, 5; February 1938, 5; December 1939, 4; December 1940, 4.

[38] SMR, August 1925, 9; February 1929, 4; November 1929, 3; December 1932, 3. In December 1942 (p. 2), the superintendent noted that "feeding trays for the chick-a-dees" were located adjacent to each headquarters residence, but whether they also existed in earlier years is not known.

[39] SMR, February 1924, 5-7; March 1924, 2-3.

[40] SMR, April 1927, 3; June 1928, 4.

[41] SMR, April 1929, 3; May 1929, 3; June 1929, 4; July 1929, 3; *Seward Daily Gateway*, May 8, 1929, 6.

[42] Supt. Liek, assisted by Chief Ranger Lou Corbley, placed a salt lick in the Sable Pass area. SMR, June 1936, 2.

[43] Rawson, *Changing Tracks*, 161, 182-83; SMR, May 1940, 5; October 1940, 5; Adolph Murie, "Wildlife of Mount McKinley National Park," *National Geographic Magazine* 104 (August 1953), 252.

[44] SMR, October 1940, 5; May 1943, 2.

[45] SMR, June 1928, 4-5; February 1932, 1; August 1932, 3; May 1932, 2; Terrence Cole, *The Cornerstone on College Hill* (Fairbanks, University of Alaska Press, 1994), 97.

[46] "Secretary Lane's Letter on National Park Management," May 13, 1918, in Lary M. Dilsaver, ed., *America's National Park System: the Critical Documents* (Lanham, Md., Rowman and Littlefield, 1994), 49.

[47] SMR, October 1922, 6; February 1924, 5; January 1926, 3; February 1926, 1, 5.

[48] SMR, July 1923, 10; June 1924, 5-6; July 1924, 1-4; *Fairbanks Daily News-Miner*, July 17, 1924, 8; July 31, 1924, 1.

[49] Steve Buskirk, *A History of Wildfires in Mount McKinley National Park and Adjacent Lands*, December 1976, Item 1189, DENA Resource Management Library (RML); January 1930, 2; December 1930, 2; January 1931, 3; November 1931, 3; March 1933, 2; February 1934, 2.

[50] Timothy Rawson is the acknowledged expert on this subject. In 1994, his M.A. thesis from the University of Alaska Fairbanks was entitled *Alaska's First Wolf Controversy: Predator and Prey in Mount McKinley National Park, 1930-1953*, and seven years later, an expanded version of this study was published through the University of Alaska Press as *Changing Tracks: Predators and Politics in Mt. McKinley National Park*. This section, and the section that follows, are a synopsis of the controversy; those interested in additional information may wish to consult one or both of Rawson's studies.

[51] Rawson, *Changing Tracks*, 47-51.

[52] *Ibid.*, 51, 94, 99-100.

[53] *Ibid.*, 49-52.

[54] *Ibid.*, 94-96, 100-01; Territory of Alaska, *Session Laws, Resolutions, and Memorials*, 1931, Chapter 117, p. 232; Calvin J. Lensink, "Predator Control with the Bounty System," in Alaska Fish and Game Commission and Alaska Department of Fish and Game, 1958 *Annual Report*, 94.

[55] "An Act to Protect the Birds and Animals in Yellowstone Park," in Dilsaver, ed., *American's National Park System*, 36-39; "Secretary Lane's Letter," in Dilsaver, ed., *America's National Park System*, 48, 50; Rawson, *Changing Tracks*, 58.

[56] Rawson, *Changing Tracks*, 59-60.

[57] *Ibid.*, 58-61.

[58] SMR, July 1922, 7; October 1922, 6; March 1926, 6; April 1926, 4; May 1927, 3; George M. Wright and Ben H. Thompson, *Fauna of the National Parks of the United States: Wildlife Management in the National Parks*, Fauna Series No. 2 (Washington, NPS, 1935), 72.

[59] Adolph Murie, "Wolf-Mountain Sheep Relationships in Mount McKinley National Park, Alaska – 1946," in File 719 (Predatory Animals), Box 85, CCF, RG 79, NARA SB; SMR, September 1925, 2, 7; November 1925, 8; December 1925, 4, 6, 7. In December 1925, Karsten killed a wolf at headquarters (just east of the park boundary), and a Sanctuary-based park ranger shot twice at a wolf but missed.

[60] SMR, February 1928, 4; July 1928, 3; March 1929, 2; November 1929, 3.

[61] Rawson, *Changing Tracks*, 52-56; SMR, July 1928, 3; August 1928, 4-5.

[62] See, for example, the following SMR entries: June 1929, 5; July 1929, 4; June 1930, 4; July 1930, 4; August 1930, 4; November 1930, 3; April 1931, 3; June 1931, 3.

[63] Rawson, *Changing Tracks*, 84-85; SMR, March 1929, 3; April 1929, 1, 3; July 1929, 3; February 1932, 1, 4; March 1932, 2; April 1932, 3; and Newton B. Drury, *The Wolf Problem in Mount McKinley National Park*, January 4, 1946, in File 719 (Predatory Animals), Box 85, CCF, RG 79, NARA SB, notes that the two destructive winters were 1928-29 and 1931-32. But other sources—such as Charles A. Trundy to Alaska Game Commission, January 12, 1931, in File 719, Entry 7, RG 79, NARA CP; Rawson, *Changing Tracks*, 97; SMR, April 1931, 3; and SMR, November 1932, 3—suggest that the winters of 1929-30 and 1930-31 may have also been costly to park animals.

[64] Rawson, *Changing Tracks*, 61, 69-70; Albright, "The National Park Service's Policy on Predatory Animals," *Journal of Mammalogy* 12 (May 1931), 185-86, reprinted in Dilsaver, *America's National Park System*, 87-88.

[65] Albright, "Our National Parks as Wild Life Sanctuaries," American Forests 35 (August 1929), 536; Sellars, *Preserving Nature in the National Parks*, 98.

[66] Rawson, *Changing Tracks*, 70-71.

[67] SMR, May 1932, 2; August 1932, 3; Dixon, "Meeting the Wild Life of Denali," *American Forests* 38 (December 1932), 644-45, 672.

[68] Rawson, *Changing Tracks*, 67, 69, 150; Sellars, *Preserving Nature in the National Parks*, 94-99, 114-17; Joseph Dixon, *Fauna of the National Parks of the United States: Birds and Mammals of Mount McKinley National Park, Alaska*, Fauna Series No. 3 (Washington, GPO), 1938.

[69] SMR, June 1932, 3; July 1932, 3; Wright and Thompson, *Fauna of the National Parks*, Fauna Series No. 2, 71.

[70] SMR, March 1930, 2; December 1931, 3.

[71] Rawson, *Changing Tracks*, 85, 118, 128, 196; March 1933, 3; September 1933, 4; June 1936, 5; September 1938, 4; October 1939, 4.

[72] Rawson, *Changing Tracks*, 66-67, 71-72; SMR, September 1932, 4; May 1933, 2, 4; July 1933, 3; May 1934, 4; June 1934, 5.

[73] SMR, March 1935, addendum; Rawson, *Changing Tracks*, 45, 72. Cammerer, in his memo, also stated that "The control of coyotes is in force. Coyotes are an exotic specie and it is the desire of the Service to exterminate them if possible."

[74] House Joint Memorial No. 10, April 27, 1933, in Territory of Alaska, *Session Laws, Resolutions, and Memorials*, 1933, 307-08; *Alaska Sportsman* 1 (January 1935), 17; Rawson, *Changing Tracks*, 123, 126-29.

[75] SMR, April 1935, 2, 5; December 1935, 4; February 1936, 2; July 1936, 5-6; Rawson, *Changing Tracks*, 118, 128.

[76] Rawson, *Changing Tracks*, 131; SMR, September 1936, 5-6.

[77] SMR, April 1937, 3; June 1937, 2; July 1937, 5; April 1938, 4; June 1938, 5; July 1938, 5; August 1938, 5; September 1938, 4; October 1938, 4; Rawson, *Changing Tracks*, 150.

[78] Sellars, *Preserving Nature in the National Parks*, 120-23; Rawson, *Changing Tracks*, 148-51.

[79] Rawson, *Changing Tracks*, 151-52; Sellars, *Preserving Nature in the National Parks*, 122; SMR, April 1939, 2.

[80] SMR, May 1939, 2; June 1939, 4; Rawson, *Changing Tracks*, 153-54.

[81] Rawson, *Changing Tracks*, 152-55; SMR, September 1939, 5; October 1939, 2; November 1939, 5.

[82] Rawson, *Changing Tracks*, 157; SMR, February 1940, 2; April 1940, 1, 4; May 1940, 2, 5.

[83] Rawson, *Changing Tracks*, 157-64; SMR, July 1940, 1; September 1940, 4; October 1940, 4, 5; May 1941, 3; July 1941, 4.

[84] Rawson, *Changing Tracks*, 161-62, 164, 182-84; Sellars, *Preserving Nature in the National Parks*, 122-23; Murie, *The Wolves of Mount McKinley*, Fauna Series No. 5 (Washington, GPO, 1944), 84-87, 95-128, 138-43.

[85] Rawson, *Changing Tracks*, 156, 159, 162-64; SMR, February 1940, 2; October 1940, 3; *Fairbanks Daily News-Miner*, November 7, 1938, 1, 5.
[86] Rawson, *Changing Tracks*, 163, 173, 182-83; SMR, June 1941, 4; August 1942, 3; May 1944, 2.
[87] Rawson, *Changing Tracks*, 180; SMR, February 1945, 1; March 1945, 1; Senate Joint Memorial No. 5, March 15, 1945, in Territory of *Alaska, Session Laws, Resolutions, and Memorials*, 1945, 193-94.
[88] Rawson, *Changing Tracks*, 180, 185-88; SMR, August 1945, 2; September 1945, 2.
[89] Franklin, *Adolph Murie*, 45, 48; Rawson, *Changing Tracks*, 195-99; Sellars, *Preserving Nature in the National Parks*, 159; SMR, August 1945, 2; NPS, "Advance Release," January 21, 1946, in DENA Box 1, HFC; "Reduce Wolf Population," *Nature Magazine* 39 (April 1946), 220. Murie's conclusions may have been politically expedient, and they also may have been a reflection of Pearson's observations taken several months earlier. See Pearson to RD/R4, April 11, 1945, in File 719, Box 82, CCF, RG 79, NARA SB.
[90] H.R. 5004, in *Congressional Record* 91 (December 14, 1945), 12101; H.R. 5401, in *Congressional Record* 92 (February 6, 1946), 1030; and S. 1999, in *Congressional Record* 92 (March 29, 1946), 2783; Rawson, *Changing Tracks*, 202.
[91] Rawson, *Changing Tracks*, 201-06.
[92] *Ibid.*, 207; SMR, December 1945, 1; February 1946, 1, 3; March 1946, 3; April 1946, 4.
[93] Rawson, *Changing Tracks*, 207-17; S. 891, in *Congressional Record* 93 (March 14, 1947), 2054; H.R. 2863, in *Congressional Record* 93 (March 31, 1947), 2931.
[94] Rawson, *Changing Tracks*, 209; SMR, February 1948, 4; March 1948, 1, 3, 4; September 1948, 5; November 1948, 3. Linda Franklin, *Adolph Murie*, p. 50, notes that Murie was in charge of the park's wolf reduction effort. Park ranger William Nancarrow, who worked with Murie during this period, noted that "Ade knocked off a couple of wolves just so they wouldn't send Fish and Wildlife to start killing them. But they were old decrepit wolves." Louise Murie agreed; in a 1991 article, she noted that Adolph "never was pro-predator control, and if he recommended wolf control, it was because of political pressure and also so that he could have control of the effort." Tom Walker, "Crimson Tundra," *Alaska* 57 (May 1991), 27.
[95] Rawson, *Changing Tracks*, 223-35; SMR, August 1948, 2, 4, 5.
[96] Rawson, *Changing Tracks*, 236-38; SMR, February 1950, 1.
[97] SMR, March 1950, 2; April 1950, 3; January 1952, 5; March 1952, 2; April 1952, 2; Rawson, *Changing Tracks*, 242.
[98] Rawson, *Changing Tracks*, 238, 242-43.
[99] *Ibid.*, 243-45. Herb Crisler later filmed considerable wolf footage for Walt Disney Productions, and his wife wrote a chronicle of their experience (*Arctic Wild*, New York, Harper and Brothers, 1958), but their field work took place on the north side of the Brooks Range. Bill Nancarrow, who served as the park naturalist during this period, states (according to an October 31, 2007 Jane Bryant interview) that "as far as he knew, they [the Crislers] never did any work in MOMC and there was no film produced that he was aware of."
[100] SMR, August 1927, 1, 3, 4; Frank Norris, "Sport Fishing in Early Alaska," in *Fisheries in Alaska's Past: A Symposium*, Alaska Historical Commission Studies in History No. 227 (Anchorage, 1986), 52.
[101] NPS, *Circular of General Information Regarding Mount McKinley National Park*, Alaska (Washington, GPO, 1929), 11, 19.
[102] John Kauffmann, *Mount McKinley National Park, Alaska; a History of its Establishment and Revision of Its Boundaries* (Washington, NPS, July 1954), 28.
[103] Grant Pearson, *My Life of High Adventure*, 48-49; Morgan Sherwood, "Polly's Denali," *Alaska History* 8 (Fall 1993), 38.
[104] SMR, August 1939, 2, 3; September 1939, 4. The Subcommittee on Alaskan Fisheries was part of the House Committee on Merchant Marine and Fisheries. The Bureau of Fisheries Study, by James L. Wilding, was entitled *A Partial Survey of Wonder Lake, Mt. McKinley National Park*, 1940; Item 1481 in DENA RML.
[105] SMR, July 1940, 2. Regarding the Morino roadhouse, a 1931 visitor noted that "with the completion of the railroad, and the building of Mt. McKinley Park cabins, there was no longer patronage for the roadhouse. But the beds were still made – or unmade – just as they were years ago." Either Maurice Morino or his nephew Joe ran the roadhouse (with an adjacent grocery store and post office) until Maurice died in March 1937. Maud Hosler then operated the grocery store and post office, along with several nearby cabins, for several years thereafter. Jean (Mrs. Lyman) Wear to Supt. DENA, July 18, 1986, in DENA Museum Collection; SMR, July 1939, photo caption.
[106] Norris, "Sport Fishing in Early Alaska," 45-46; *Federal Register* 1 (March 28, 1936), 69. The Bureau of Fisheries, at the time, did not consider Dolly Varden trout to be a game fish; the Alaska Legislature, in fact, appropriated funds "for the cleaning of salmon spawning streams and for the destruction of trout and other predatory enemies of the salmon" beginning in 1931. The bounty, which was specifically targeted at Dolly Varden trout, was removed in 1941 when it was discovered that many salmon tails were being passed off as trout. Territory of Alaska, *Session Laws, Resolutions, and Memorials*, 1931, Chapter 117, p. 232; Lensink, "Predator Control with the Bounty System," 91, 94-95.

[107] *Federal Register* 5 (June 6, 1940), 2140-41.
[108] *Federal Register* 1 (June 27, 1936), 674.
[109] *Federal Register* 5 (June 6, 1940), 2140.
[110] *Federal Register* 6 (May 15, 1941), 2433; SMR, April 1941, 5; Been to Director NPS, April 16, 1941, in File 208-06 (Fishing, Hunting, Trapping), Box 1407, Entry 7, RG 79, NARA CP.
[111] Norris, "Sport Fishing in Early Alaska," 45, 57; Sellars, *Preserving Nature in the National Parks*, 123-24.
[112] *Fairbanks Daily News-Miner*, May 5, 1941, 4; *Federal Register* 6 (May 15, 1941), 2433.
[113] This policy, which was "almost certainly" written by NPS biologist David Madsen, was a logical response to language contained in *Fauna No. 1*, which was published in 1933. Arno Cammerer, "Office Order No. 323, Fish Policy," April 13, 1936, in Lary M. Dilsaver, ed., *America's National Park System: The Critical Documents*, 149-50; Sellars, *Preserving Nature in the National Parks*, 124-25.
[114] SMR, July 1940, 2. Park biologist Tom Meier (November 13, 2007 email) notes that rainbow trout are exotic to Denali.
[115] SMR, May 1943, 2; June 1943, 2. Pearson's directive was apparently not issued as a federal regulation.
[116] Public Law 78-106 (July 1, 1943), Sec. 2, as noted in *U.S. Statutes at Large* 57 (Chapter 183), 301-12.
[117] SMR, July 1943, 2; *Federal Register* 8 (July 16, 1943), pp. 9842 (Sec. 91.5) and 9848 (Appendix A).
[118] SMR, August 1943, 1; *Federal Register* 8 (August 24, 1943), 11692; Hillory Tolson to Supt. MOMC, July 20, 1943; Pearson to Director NPS, July 26, 1943; "Vetter" to Cahalane and Stevenson, August 21, 1943; all in File 208-06, noted above.
[119] Public Law 78-106 (see above), Sections 3 and 10.
[120] Pearson to Director NPS, July 13, 1943; Tolson to Supt. MOMC, July 20, 1943; both in File 208-06, see above.
[121] *Code of Federal Regulations*, Title 50, Chapter I, Sec. 91.2, in *Federal Register* 8 (July 16, 1943), 9842; *Code of Federal Regulations*, Title 36, Chapter I, Sec. 2.4, in *36 CFR, 1943 Cumulative Supplement*, 9815.
[122] *Code of Federal Regulations*, Title 50, Sec. 91.38, in *Federal Register* 8 (July 16, 1943), 9848.
[123] *Federal Register* 12 (August 28, 1947), 5779; *Federal Register* 13 (December 29, 1948), 8652.
[124] Been to Director NPS, June 20, 1948, in Box 1404 (MOMC), Entry 7, RG 79, NARA CP; SMR, July 1950, 6; April 1952, 3; May 1952, 3; *Federal Register* 17 (May 22, 1952), 4655.
[125] This regulation, located in Title 36 of the *Code of Federal Regulations*, was originally in Section 20.44. In December 1959, Interior Department officials moved this and other special park regulations to Section 7, and in June 1983, three years after ANILCA, they moved the two Denali-specific regulations remaining from Section 7.44 to Section 13.63. These are presently located in Part 13, Subpart L.
[126] SMR, May 1949, 2; June 1966, 3.
[127] SMR, June 1952, 6; August 1958, 4.
[128] SMR, June 1964, 5; July 1964, 7; February 1965, 4; June 1965, 3; June 1966, 3. An informal study of the dietary intake of the park's Dolly Varden trout had taken place during the spring of 1946, when "an examination of stomach contents indicated their feed at this time of the year is principally what appears to be fresh water shrimp." SMR, April 1946, 3.
[129] SMR, various dates, 1945 through 1950; Franklin, *Adolph Murie*, 51, 122.
[130] Franklin, *Adolph Murie*, 51-56, 122; SMR, October 1950, 4; July 1951, 2. 1950; Hillory Tolson to RD/R4, October 17, 1952, in File 845 ("Research"), Entry 7, RG 79, NARA SB.
[131] Franklin, *Adolph Murie*, 80-83.
[132] Acting Director NPS to RD/R4, May 16, 1947; Been to RD/R4, December 13, 1948; both in File 700.01 (Nature Study, 1940-53), Box 82, CCF, RG 79, NARA SB.
[133] SMR, June 1950, 2; July 1951, 2.
[134] Ade E. Jaskar to Alfred Kuehl, May 6, 1949, in File 600 (Alaska Development Programs, Part III), Box 237, CCF, RG 79, NARA SB; Henry B. Collins, ed., *Science in Alaska: Selected Papers of the [1950] Alaskan Science Conference of the National Academy of Sciences-National Research Council* (Washington, Arctic Institute of North America), 1952.
[135] SMR, September 1951, 1-2; September 1952, 1-2, 6; Kirk H. Stone, "Geographical Record," *Geographical Review* 42 (January 1952), 151.
[136] SMR, June 1955, 2; September 1957, 2; September 1958, 3. The annual Alaska Science Conference continued until 1983; after that time, it was called the Arctic Science Conference. It is still being held each fall. Since the 1950s, the only time the conference has met at the park was in September 1999.
[137] Key early USGS reports about the park area included Bulletin 314 (1907), Professional Paper 70 (1911), Bulletin 608 (1915), Bulletin 662-E (1916), Bulletin 687 (1919), Bulletin 755-C (1922), Bulletin 836-D (1930), and Bulletin 849-D (1931). See U.S. Department of the Interior, *List of U.S. Geological Survey Geologic and Water-Supply Reports and Maps for Alaska* (Washington?, the author), December 1986.
[138] Hanna Glacier was James Wickersham's name for Peters Glacier.

[139] SMR, August 1932, 2; September 1934, 2, 5-6; September 1936, 2; August 1937, 3, 6; August 1939, 3; NPS, *Annual Report on Glaciers, MOMC* for 1935 and 1936 (TIC reports D-184/157 and 157-A, respectively).
[140] SMR, December 1939, 4; July 1940, 4; September 1941, 3; NPS, "Annual Report on Glaciers" for 1938-1940, TIC reports 184/157B through 184/157D.
[141] SMR, April 1947, 4; May 1947, 2; A. E. Harrison, "Alaskan Glacier Surges," *Alaska Sportsman* 43 (July 1967), 14.
[142] *Anchorage Daily Times*, August 15, 1953, 9; Grant Pearson, "An Alaskan Lake is Born," *Alaska Sportsman* 26 (February 1960), 28-29, 35; Jane Bryant email, October 9, 2007; Steve Carwile interview, December 4, 2007. U.S. Coast and Geodetic Survey contract pilot Knute Bergh, for whom the lake is named, had been killed in a nearby airplane crash just a month before the landslide.
[143] NPS, *Mission 66 Prospectus, Mount McKinley National Park*, April 1956, pp. 2-3, 3a, 49-50.
[144] USDI press release, April 21, 1956, in NPS/Box 1, Bartlett Collection, UAF; NPS, *Mission 66 Prospectus*, April 1956, 37-38.
[145] NPS, *Mission 66 for Mount McKinley National Park*, May 1957, 1, 5, 9, 10.
[146] Murie to Supt. MOMC, November 8, 1956, in Folder H14 ("Historical Notes, 1964-70"), Box 7, ARCC-00183 (DENA 00378), AKRO.
[147] SMR, January 1957, 3; July 1957, 3; August 1957, 5; September 1958, 3; August 1959, 6; June 1961, 7; April 1962, 3.
[148] Franklin, *Adolph Murie*, 90-92; SMR, September 1965, 3.
[149] SMR, June 1959, 4-5; October 1959, 3; July 1960, 4; May 1961, 5; September 1961, 4; April 1962, 3; May 1963, 2-3; May 1964, 2; June 1964, 4; Franklin, *Adolph Murie*, 90.
[150] SMR, August 1952, 7; January 1953, 2-3; July 1954, 4.
[151] SMR; June 1957, 6; July 1957, 3-4; August 1957, 4; September 1957, 3; Harrison, "Alaskan Glacier Surges," 14-16, 50.
[152] SMR, January 1958, 2; June 1958, 3; September 1960, 4; January 1961, 4.
[153] SMR, August 1959, 5; April 1961, 3; August 1961, 4; September 1961, 5; July 1962, 6. Davis, in all likelihood, was studying Scamman's spring beauty (*Claytonia scammaniana*) which, in North America, grows only in Alaska and the Yukon.
[154] SMR, May 1963, 2; June 1964, 4; July 1964, 4-5.
[155] SMR, May 1946, photo caption; June 1946, 3; May 1947, 2.
[156] SMR, June 1948, 3, 5; August 1948, 4; September 1948, 5; November 1948, 3; June 1949, 3; July 1949, 5. Adolph Murie, in the early 1950s, noted that "the little frame building had an unhappy reputation" because of the bear attacks, perhaps because "huge paw marks, printed in mashed chocolate, still formed patterns on the floor, and perfect noseprints showed on window glass." Murie, "Wildlife of Mount McKinley National Park," 249, 251.
[157] SMR, July 1949, 2; September 1951, 2.
[158] SMR, July 1949, 2; June 1951, 5.
[159] SMR, July 1948, 4; August 1948, 4; September 1948, 5; June 1955, 2; June 1956, 3.
[160] SMR, July 1946, 3; September 1948, 5.
[161] SMR, June 1949, 2; August 1949, 2. Kerry Gunther, with Yellowstone National Park's Bear Management Office, noted in an October 22, 2007 email that Mount McKinley's bear-trap design was not new; mobile culvert traps had been used at Yellowstone since 1945, if not before, and log-built live traps were in use prior to the 1920s.
[162] SMR, May 1950, 1; June 1951, 5.
[163] Merriam to Supt. MOMC, September 19, 1951; Murie to Pearson, October 22, 1951; both in File 715.02 (Bears, 1941-53), Box 82, CCF, RG 79, NARA SB.
[164] SMR, November 1952, 4; December 1953, 4; July 1955, 5.
[165] SMR, July 1952, 2; August 1952, 6; September 1953, 5; July 1954, 4.
[166] SMR, June 1930, 3. Also see the following SMRs: June 1931, 3; July 1931, 4; and June 1933, 3.
[167] SMR, July 1940, 4; August 1945, 2; June 1950, 1-2; July 1952, 3.
[168] SMR, July 1955, 2-3; February 1956, 2; Pearson to RD/R4, February 24, 1956, in File W42 (Special Regulations), Box 26, Accession Number 9NNS 79 87 006, NARA SB.
[169] *Federal Register* 21 (June 20, 1956), 4315-16; SMR, October 1959, 3; Warren E. Garst to Conrad Wirth, September 18, 1959, in File A3815 (Public Relations, 1958-60), Box 6, Accession Number 9NNS 79 90 002, NARA SB.
[170] *Code of Federal Regulations*, Title 36; 1982, p. 8 (Sec. 2.6) and 1983, p. 125 (Sec. 7.44); *Federal Register* 47 (March 17, 1982), 11612-13; *Federal Register* 48 (June 30, 1983), 30291-92, 30295.
[171] SMR, June 1957, 6; Frederick C. Dean, interview by Jane Bryant and Frank Norris, April 14, 2005.
[172] SMR, June 1958, 3; July 1958, 4; April 1959, 3; May 1959, 2, 4; June 1959, 5; April 1960, 4.
[173] SMR, November 1960, 3; January 1961, 3; February 1961, 4; August 1964, 4.

[174] SMR, June 1960, 6; August 1960, 6; September 1960, 4; July 1961, 7; August 1961, 7; September 1961, 2.

[175] SMR, October 1963, 3; September 1965, 3.

[176] SMR, August 1961, 4; "From Ketchikan to Barrow," *Alaska Sportsman* 27 (October 1961), 28; NPS, *DENA Bear-Human Conflict Management Plan* (Denali Park, the author, June 2003), 123-24.

[177] SMR, September 1947, 3; July 1961, 7; June 1962, 7.

[178] SMR, June 1951, 2; April 1952, 3; March 1965, 4.

[179] SMR, April 1946, 2; February 1949, 3; November 1949, 2; November 1951, 2; January 1952, 3; September 1957, 5.

[180] Sellars, *Preserving Nature in the National Parks*, 214-15.

[181] *Ibid.*, 215, 220.

[182] NPS, *Long Range Wildlife Management Plan for Mount McKinley National Park*, March 1, 1965, in File N16, Resource Management Operating Papers, Box 2, Cabinet S-15, DENA Archives.

[183] Franklin, *Adolph Murie*, 87-88, 90-92; SMR, July 1966, 6.

[184] In 1967, for example, Prasil invested considerable time in the national natural landmark program, and he also penned a report weighing whether Lake George should be considered as an NPS unit.

[185] SMR, September 1965, 1; December 1965, 2; June 1966, 2; March 1967, 1-3; April 1967, 1; Williss, *"Do Things Right the First Time,"* 2005, 14, 17.

[186] Franklin, *Adolph Murie*, 91-92; NPS, *Long Range Wildlife Management Plan, Mount McKinley National Park*, January 14, 1970, 3, in File N16, Resource Management Operating Papers, Box 2, Cabinet S-15, DENA Archives.

[187] NPS, DENA *Bear-Human Conflict Management Plan*, 124.

[188] Richard G. Prasil, *Aerial Wolf Survey: March 1 to 11 and April 20 to 23, 1967* (McKinley Park, Alaska, NPS, 1967), Item 578, DENA RML; Gordon C. Haber, *The Social Structure and Behavior of an Alaskan Wolf Population* (Master's Thesis, Northern Michigan University), 1968, Item 40, DENA RML.

[189] See the following reports, all by Richard G. Prasil: *Aerial Wolf Survey, March 3-7 and April 29-May 2, 1968* (McKinley Park, NPS), Item 579, RML; *Summary Report on Stone's Caribou Observations in Mount McKinley National Park, 1967-1968* (NPS, Alaska Natural Resources Survey and Inventory Report), 1968; *Mount McKinley Caribou* (NPS, Alaska Natural Resources Survey and Inventory Report), 1968; *Grizzly Bear Observations, Mount McKinley National Park*, 1968; *Analysis of Wolf Caribou Situation Along the North Boundary of Mount McKinley National Park, Alaska*, unpublished report to Director PNRO, 1971.

[190] NPS, *Long Range Wildlife Management Plan, Mount McKinley National Park*, 1970, 1, 3-5.

[191] Diane Tracy, "Human-Wildlife Interactions Along Mt. McKinley Park Road," in Alaska Cooperative Park Studies Unit (CPSU), *Final Report: Fiscal Year 1975*, pp. T-1 to T-83. A more comprehensive report on Tracy's work is found in her 1977 UAF master's thesis, entitled *Reactions of Wildlife to Human Activity along Mount McKinley National Park Road*.

[192] Alaska CPSU, *Final Report [for] Fiscal Year 1975* (pp. 8, 11-20), 1976 (pp. 9-10), 1978 (p. 8), 1979 (pp. 7-8), 1980 (pp. 7-8), and 1981 (pp. 6-7). The problem of bears at the park dump (which since 1964 had been located two miles southeast of the park hotel) was described by Harold R. "Chip" Downing in a 1975 study (see Supt. MOMC to State Director, Alaska, June 2, 1975, in MOMC Box 18, ATF Collection, RG 79, NARA ANC), and the park's response—to close the dump and replace it with a large holding container—is summarized in Chapter 8.

[193] See, for example, the following UAF master's theses: Richard Charles Chapman, *The Effects of Human Disturbance on Wolves (Canis lupus l.)* (1977) and Jim J. Stelmock, *Seasonal Activities and Habitat Use Patterns of Brown Bears in Denali National Park, 1980* (1981).

[194] Prasil, Richard G., *Wolf-Caribou Winter Range; Investigator's Annual Report*, 1973; SAR for 1974 (p. 4), 1975 (p. 4), and 1978 (p. 6). The Alaska Cooperative Wildlife Research Unit reported its results in a series of quarterly reports; see, for example, Rodney Boertje, *Range Ecology of the McKinley Caribou Herd; Quarterly Report*, July 1979, Item 480, DENA RML.

[195] Steve Buskirk email, October 26, 2004.

[196] Van Horn, in 1998, became the park's wilderness program coordinator, part of the Ranger Division.

[197] The park's first *Bear-Human Conflict Management Plan*, published in 1984, defined an incident (p. B-2) as "when a bear causes injury, damage or behaves so that people feel threatened, such as if a bear approaches even if only curious." More recently, bear management officials have defined two terms to cover this behavior: "injury" and "incident." Therefore, the current (2003) *Bear-Human Conflict Management Plan* defines an incident (p. 39) more specifically as "any interaction during which a bear makes minimal physical contact with a human that does not result in injury." Over the years, rangers and visitors have had differing perceptions regarding what constitutes a bear incident; this was particularly true during the early-to-mid 1970s, before the park established its Bear Information Management System.

[198] John L. Dalle-Molle and Joseph C. Van Horn, "Bear-People Conflict Management in Denali National Park, Alaska," in *Bear-People Conflicts; Proceedings of a Symposium on Management Strategies* (Yellowknife, N.W.T. Department of Renewable Resources, 1987), 122; SARs for 1972 (p. 4), 1973 (p. 5), 1974 (p. 4), 1975 (p. 4), 1976 (p. 3), 1977 (p. 3), 1978 (p. 6), and 1980 (p.3).

[199] SAR, 1972, 2; SAR, 1973, 5.

[200] SAR, 1978, 4, 6; SAR, 1980, 3; Dalle-Molle and Van Horn, "Bear-People Conflict Management," 122; Joe Van Horn interview, October 24, 2007.

[201] Dalle-Molle and Van Horn, "Bear-People Conflict Management," 122; SARs for 1972 (p. 4), 1973 (p. 5), 1974 (p. 4), 1975 (p. 4), 1976 (p. 3), 1977 (p. 3), 1978 (p. 6), and 1980 (p. 3). Articles about hikers injured in the park appeared in the *Anchorage Daily Times*, July 24, 1972, 1, and July 27, 1977, 2 and *Anchorage Daily News*, July 24, 1972, 2; July 28, 1977, 2; June 12, 1980, A-3. The downside of bear feeding is illustrated in James Brickey and Catherine Brickey, "Only Two Gumdrops," *Alaska* 39 (June 1973), 33, 57, and Rick McIntyre, "A Cub Named Stony," *Alaska* 58 (May 1992), 31-33.

[202] SMR, May 1952, 6; June 1955, 2.

[203] SAR for 1973 (pp. 5-6), 1974 (p. 4), 1975 (p. 4), 1976 (p. 3), 1977 (p. 3), 1978 (p. 6), and 1980 (p. 3).

[204] SAR, 1976, 3; SAR, 1978, 6.

[205] Proclamation 4616 (December 1, 1978), in *Federal Register* 43 (December 5, 1978), 57035-41.

[206] Williss, *"Do Things Right the First Time,"* revised edition, 139.

[207] Public Law 96-487, Sec. 202(3)(a), in *U.S. Statutes at Large* 94 (1980), 2382-83. No mention was made of the Toklat River and its chum run, because this area had not been included in the expanded park unit.

[208] NPS, *Draft Natural and Cultural Resource Management Plan and Environmental Assessment, DENA*, April 1982, pp. II-4 to II-13, Item 300, DENA RML. In 1986, an abbreviated form of the RMP was finalized; see Item 301, DENA RML.

[209] NPS, *Draft General Management Plan/Environmental Assessment, Land Protection Plan, Wilderness Suitability Review* (Denver, the author, March 1985), 28.

[210] NPS, *General Management Plan, Land Protection Plan, Wilderness Suitability Review* (Denver, the author, November 1986), 49-57.

[211] NPS, *Draft General Management Plan* (March 1985), 10, 13, 15, 185; NPS, *General Management Plan* (November 1986), 12-17, 229; Francis J. Singer and Joan B. Beattie, *Wildlife Viewing and the Mandatory Public Transportation System in Denali National Park*, Research and Resources Management Report AR-4 (draft), pp. 2-3, Item 1594, DENA RML. Dated March 1, 1984, it was listed as "in preparation" in both the draft and final GMPs.

[212] Dalle-Molle and Van Horn, "Bear-People Conflict Management," 122-23.

[213] Ibid., 123-26; SAR, 1987, 2; NPS, *General Management Plan* (November 1986), 53, 55; *Anchorage Daily News*, March 22, 1986, B-1, B-3.

[214] NPS, *General Management Plan* (November 1986), 49.

[215] Wayne E. Heimer and Arthur C. Smith, *Ram Horn Growth and Population Quality: Their Significance to Dall Sheep Management in Alaska*, Project W-17-R, ADF&G Game Division, 1975, Item #1266, DENA RML; Bob Mauck, "When the Living is Easy," *National Wildlife* 24 (August-September 1986), 10-17.

[216] SAR, 1987, 2; Sherry Simpson, "Seeing Moose," *Alaska* 62 (October 1996), 24.

[217] Van Ballenberghe's moose studies in southcentral Alaska began in 1977. See *Anchorage Daily News*, August 1, 2004, D-1.

[218] SAR for 1984 (p. 2), 1986 (p. 2), 1987 (p. 2), 1989 (p. 2), and 1991 (p. 10); Susan L. Boudreau, *Long-Term Ecological Monitoring Program, Synthesis and Evolution of the Prototype for Monitoring Subarctic Parks: 1991 to 2002 Perspective* (Anchorage?, NPS, 2003), 135.

[219] SAR, 1986, 1-2; L. David Mech, "Stubborn Hunter in a Harsh Land," *National Wildlife* 27 (August-September 1989), 20-24; Mech, et al., *The Wolves of Denali* (Minneapolis, University of Minnesota Press), 1998.

[220] SAR, 1991, 10; *Anchorage Daily News*, July 21, 1995, B-1 and September 15, 1996, M-1.

[221] Park records and scientific contributions suggest that Mech, assisted by Layne Adams, continued his work until 1993, when Adams became the principal investigator, and Keay continued until 2001. Since that time, Adams has continued his research on both caribou and wolf populations. Adams, an Alaska Regional Office (NPS) employee, and Keay, a park employee, were transferred to a new DOI agency, the National Biological Survey, and in late 1996 this agency became the Biological Resources Division within the U.S. Geological Survey.

[222] SAR for 1986 (p. 2), 1988 (p. 2), 1995 (p. 5), 1996 (p. 10), and 2002 (p. 4).

[223] SAR for 1984 (p. 2), 1987 (p. 2), and 1988 (p. 2); Boudreau, *Long-Term Ecological Monitoring*, 156.

[224] SAR for 1995 (p. 6), 1996 (p. 10), and 2002 (p. 5); Boudreau, *Long-Term Ecological Monitoring*, 172.

[225] SMR, December 1966, 2; *Anchorage Daily News*, December 6, 1988, G-3; Carol McIntyre email, October 30, 2007.

[226] SAR for 1996 (p. 10), 2002 (p, 4), and 2003 (p. 25); Boudreau, *Long-Term Ecological Monitoring*, 143-54.
[227] SAR, 1978, 6; Alaska CPSU, *Final Report*, 1979, 7; SAR, 1987, 3; SAR, 1988, 2.
[228] SAR for 1991 (p. 11) and 1998 (p. 3); Boudreau, *Long-Term Ecological Monitoring*, 99-108.
[229] SAR, 1991, 9-10; Boudreau, *Long Term Ecological Monitoring Program*, 9-10.
[230] Boudreau, *Long Term Ecological Monitoring Program*, 32-202, *passim.*; NPS, *Long-Term Ecological Monitoring Program, Annual Administrative Report*, Fiscal Year 1997, 1, 3-4, 12-13.
[231] Boudreau, *Long Term Ecological Monitoring Program*, 12, 20-21.
[232] Ibid., 20-27; Maggie MacCluskie and Karen Oakley, *Central Alaska Network Vital Signs Monitoring Plan* (Fort Collins, Colo., NPS Office of Inventory, Monitoring, and Evaluation, September 2005), 164-67.
[233] SAR for 1980 (p. 4), 1987 (p. 2), 1998 (p. 3), 2002 (p. 2), and 2003 (p. 29); NPS, *Long-Term Ecological Monitoring Program, Annual Administrative Report*, Fiscal Year 1997, 3.
[234] For structural fires, see SMR, March 1931, 3; May 1934, 5; January 1938, 4; October 1939, 1, 5; November 1950, 2-3. For locomotive fires, see SMR, June 1941, 5; May 1942, 2; June 1944, 2; June 1950, 4; February 1951, 2.
[235] Buskirk, *A History of Wildfires in Mount McKinley National Park and Adjacent Lands*, December 1976. The potential for fire in the park changed dramatically in December 1978; whereas fire was a minor factor in "old park" management, much of the acreage added to the park—particularly those areas north and west of the "old park" boundaries—had a high fire potential.
[236] Hal K. Rothman, *A Test of Adversity and Strength; Wildland Fire in the National Park System* (n.p., NPS, 2005), 152, 174-76; SAR for 1980 (p. 4) and 1982 (p. 3); Dan Warthin interview, October 24, 2007; *Anchorage Daily Times*, July 7, 1982, A-3; *Alaska Interagency Fire Management Plan, Tanana/Minchumina Planning Area* (March 1982), 55-65, Appendix E.
[237] Rothman, *A Test of Adversity and Strength*, 177-79; Dan Warthin email, October 25, 2007. NPS officials, while insisting on the right to prescribe fires, have never employed the technique at Denali, primarily because fires in the park have not historically been subject to major suppression efforts.
[238] Joe Van Horn interview, October 24, 2007.
[239] Rothman, *A Test of Adversity and Strength*, 164-65; Joe Van Horn interview, October 24, 2007; SAR for 1983 (p. 2), 1991(p. 11), and 2003 (p. 23).
[240] Dan Warthin email, October 25, 2007; *Alaska Interagency Wildland Fire Management Plan*, October 1998; NPS, *Fire Management Plan*, DENA, October 29, 2004. Both documents are located in the Alaska Fire Management Officer's files, AKRO.
[241] Sellars, *Preserving Nature in the National Parks*, 81, 98, 110.
[242] Frank T. Been to RD/R4, November 8, 1948; L.F. Cook to RD/R4, November 22, 1948; Grant Pearson to RD/R4, June 9, 1950; all in File 701 (Flora), Box 82, CCF, RG 79, NARA SB; Carl Roland email, October 31, 2007.
[243] Sellars, *Preserving Nature in the National Parks*, 258, 353.
[244] "Wanted: Denali Dandelion Hunters!" *Alaska Magazine* 64 (December 1998/January 1999), 14; "Update," *Alaska Magazine* 64 (March 1999), 17; *Anchorage Daily News*, June 14, 2006, G-1.
[245] SAR for 2002 (p. 1), 2003 (p. 22), and 2004 (p.17); *Anchorage Daily News*, August 11, 2002, G-1; *AK2Day* (AKRO electronic newsletter), July 23-24, 2003; *Anchorage Daily News*, June 14, 2006, G-1.
[246] Jane Lakeman email, October 25, 2007; Phil Brease review comments, November 20, 2007 regarding the park's paleontological resources.
[247] *Anchorage Daily News*, July 6, 2005, B-1, B-4; May 24, 2006, G-1, G-10; AK2Day, May 19, 2006. SAR, 2002, p. 3, states that there were 276 "paleontological localities" in the park unit in fiscal year 2000.
[248] Jane Lakeman email, October 25, 2007.
[249] SAR, 1989, 2; SAR, 2003, 24; Pat Owen email, December 7, 2007. Dale L. Taylor, Kenneth D. Vogt, and Janet Warburton, *A System for Monitoring Impact of Denali National Park Road Traffic on Wildlife*, 1997, Item 897, DENA RML.
[250] Karen Fortier, Chuck Tomkiewicz, and Gordon Olson, *Park Road Use/Wildlife Interaction Monitoring, A Pilot Effort, 1995* (1996), Item 840, DENA RML; Judy A. Putera and Jeffrey A. Keay, *Effect of Vehicle Traffic on Dall Sheep Migration in Denali National Park*, annual reports for 1995 (Item 837), 1996 (Item 655), and 1997 (Item 1196), DENA RML.
[251] SAR, 2005, 14; SAR, 2006, 1, 3, 17; Laura Phillips, *An Integrated Study of Park Road Capacity* [online brochure], Summer 2007, at http://www.nps.gov/dena/naturescience/upload/Roadcapacity07Su.pdf.
[252] *New York Sun*, January 24, 1897, 6; Robert Muldrow, "Mount McKinley," *National Geographic Magazine* 12 (August 1901), 312-13.
[253] Alfred H. Brooks, *The Mount McKinley Region, Alaska*, USGS Professional Paper 70 (Washington, GPO, 1911), 32-33.
[254] Michael Sfraga, *Bradford Washburn, A Life of Exploration* (Corvallis, Oregon State Univ. Press, 2004), 160-61, 181-83; *New York Times*, August 14, 1956, 2; *Seattle Times*, July 30, 1989, A-8.

[255] *Anchorage Daily Times*, April 20, 1964, 8; July 16, 1968, 13; Clyde Wahrhaftig, "Quaternary Geology of the Nenana River Valley and Adjacent Parts of the Alaska Range," in *Quaternary and Engineering Geology in the Central Part of the Alaska Range*, U.S. Geological Survey Professional Paper 293 (Washington, GPO, 1958), 6; *New York Times*, July 16, 1977, A-16.

[256] *New York Times*, July 16, 1977, A-16; *Anchorage Times*, July 18, 1977, 43; *Anchorage Daily News*, July 21, 1977, 2; *Seattle Times*, July 30, 1989, A-8; Steve Carwile interview, October 24, 2007.

[257] "Have Slide Rule, Will Climb," *U.S. News and World Report* 106 (June 12, 1989), 14; *Seattle Times*, July 30, 1989, A-8; NPS, *Mountaineering Report*, DENA, 1989, 3; SAR, 1990, 3; *Anchorage Daily News*, July 3, 1991, B-11; Greg Durocher (USGS) interview, November 15, 2007.

[258] SMR, October 1932, 1; July 1933, 1; July 1935, 2.

[259] SMR, June 1941, 2; Adolph Murie, "The Wilds Where the Caribou Roam," *Audubon Magazine* 44 (January-February 1942), 3.

[260] William L. Bowen to Supt. MOMC, January 8, 1969, in "Correspondence, 1952-73" file, DENA Files, WASO History Division; Wayne Merry to Supt. MOMC, January 28, 1969, in "D22, Construction thru ..." File, Box 1, Collection 00495, DENA Archives.

[261] SMR, October 1941, 3; July 1942, 2; June 1943, 2; February 1948, 4; July 1950, 3.

[262] SMR, May 1951, 2; March 1952, 1; October 1952, 1; Wirth to Pearson, June 10, 1954, and Herbert E. Kahler to RD/R4, August 26, 1954, both in "Correspondence, 1952-73," DENA Files, WASO History Division.

[263] SMR, March 1951, 5; June 1951, 3, 5; July 1951, 3. The plaque read "In memory of Charles Sheldon, 1967-1928, Conservationist-Author-Explorer".

[264] SMR, January 1934, 2; July 1952, 2. As Horace Albright noted in *The Birth of the National Park Service; the Founding Years* (p. 249), similar plaques—sponsored by the ad hoc The Stephen T. Mather Appreciation—were installed in the years following Mather's January 1930 death in various "parks and monuments especially dear to the late Director." See U.S. Interior Department, *Annual Report* for 1932 (pp. 106-07) and 1933 (p. 158).

[265] SMR, September 1923, 3; September 1925, 6; July 1958, 3. In the early 1990s, park staff removed the Sheldon and Karstens plaques from the rock wall, placed them on pedestals, and installed them on the west side of the Toklat River bridge.

[266] Ivan Skarland to John Hussey, March 23, 1959, in "Correspondence 1952-73" DENA file, WASO History Division; SMR, June 1959, 2.

[267] Kristen Griffin, *An Overview and Assessment of Archeological Resources, DENA, Alaska*, NPS Research/Resources Management Report AR-16 (Anchorage, NPS, September 1990), 62-63; SMR, September 1960, 2, 3; January 1961, 3; May 1961, 5; June 1961, 7; July 1961, 6; August 1961, 6-7; SAR, 1965, 2; Frederick H. West, "Teklanika West," in West, ed., *American Beginnings: The Prehistory and Palaeoecology of Beringia* (Chicago, University of Chicago Press, 1996), 332-43.

[268] SMR, June 1963, 3; SAR, 1965, 2; Griffin, *Overview and Assessment*, 63; H. Morris Morgan, *An Archeological Survey of Mount McKinley National Park*, May 1965, 10, in AKRO-RCR files; *Anchorage Daily Times*, November 27, 1963, 14.

[269] SMR, June 1964, 3, 7; Griffin, *Overview and Assessment*, 63-65; Warren F. Hamilton to William R. Wood, December 17, 1964, in "Correspondence 1952-73" DENA file, WASO History Division.

[270] SMR, October 1966, 2; Roy Appleman to Chief Historian, February 28, 1968, in "Correspondence 1952-73," DENA files, WASO History Division; NPS, *Historic Structures Report, Part I, Toklat Patrol Cabin Complex, Building Number 4 and Supporting Structures* (San Francisco, Western Service Center, June 1970), 5, 17; SAR for 1973 (p. 6), and 1975 (p. 6).

[271] SAR, 1976, p. 5. A historic furnishings report for the cabin was completed in 1995.

[272] Griffin, *Overview and Assessment*, 65; NPS, *National Survey of Historic Sites and Buildings, Theme XXI, Political and Military Affairs, 1865-1910, Special Study, Alaska History, 1741-1910* (1961), a-b, 222; NPS, *National Survey of Historic Sites and Buildings, Theme XVI, Indigenous Peoples and Cultures, Special Study, Alaska Aboriginal Culture* (1962), d-e, 171; NPS, et al., *National Register of Historic Places, 1966 to 1994* (Washington, Preservation Press, 1994), 21.

[273] Griffin, *Overview and Assessment*, 65-66; NPS, *Draft Natural and Cultural Resource Management Plan and Environmental Assessment, DENA*, April 1982, projects C-1 and C-2. Ernest J. Borgman, of the Alaska Field Office, first broached the idea of an administrative history in November 1969. No funding for such a project was provided in either 1969 or 1982. In the late 1990s, however, two years of funding was provided to a contractor, the results of which preceded the present effort.

[274] SAR, 1986, 3; SAR, 1987, 3; NPS, *National Register of Historic Places*, 21; NPS, *Division of Cultural Resources, 1981-1986, Alaska Regional Office* (Anchorage, NPS, 1987), 81; David E. Snow, *Design Guidelines, Mt. McKinley Park Headquarters Historic District* (Anchorage?, NPS), June 1, 1985. The Savage River patrol cabin, which was built in 1924, moved in 1940, and "improved" during World War II (see Chapter 5), was declared ineligible for the National Register because it "no longer appears to be able to reflect its historic

associations with the history of early patrol cabins" in the park. This cabin was restored in 1987; it was initially used as an employee residence, but beginning in 1995 it was used for interpretive programs (see Chapter 11). Bill Bushong review comments, November 25, 1986, in "Correspondence 1975-on" DENA file, WASO History Division; SAR, 1987, 3; SAR, 1995, 5; Marisa James email, October 31, 2007.

[275] Dave Snow, et al., *Historic Structure Report, Mt. McKinley Park Headquarters Historic District and Wonder Lake* (Anchorage?, NPS), January 1, 1987; SAR, 1987, 6; William E. Brown, *A History of the Denali-Mount McKinley Region, Alaska* (Santa Fe, NPS), 1991; Brown, *Denali, Symbol of the Alaskan Wild* (Denali National Park, ANHA), 1993; NPS, *Division of Cultural Resources*, 81.

[276] Griffin, *Overview and Assessment*, 66-67.

[277] Steve Peterson interview, October 26, 2007; SAR for 1993 (p. 7), 2002 (p. 2), and 2003 (pp. 15, 17).

[278] Mary Tidlow interview, October 30, 2007.

[279] NPS, "Backcountry Patrol Report" (Case Incident Number 920008), June 25, 1992; Faulkner to Supt. DENA, December 23, 1992; Ted Birkedal to Supt. DENA, March 16, 1993 (Survey 016-92-DENA), and Gary Somers to Supt. DENA, October 20, 1993 (Survey 005-93-DENA); all in XXX File ARO-92-114, in NPS *Archeological Compliance/Inventory, DENA Book 2, 1991-1995*, AKRO-RCR Collection; "1993 Sierra Club Outings, Alaska and Arctic Canada," *Sierra* 78 (January-February 1993), 73.

[280] Amy Craver, email to Clarence Summers, November 14, 2007. The initial (May 1984) SRC members were Florence Collins, Ray Collins, Lynn Castle (McKinley Park), Percy Duyck (Nenana), Ruby John (Cantwell), Nick Dennis (Nikolai), Roberta Sheldon (Talkeetna), and Ken Charlie (Minto).

[281] Richard H. Bishop, *Subsistence Resource Use in the Proposed North Addition to Mt. McKinley National Park*, Occasional Paper No. 17 (Fairbanks, Anthropology and Historic Preservation, Cooperative Park Studies Unit, December 1978), 106-07. The nearly-identical December 1977 version is located in the AKRO-RCR files.

[282] Dianne Gudgel-Holmes, *Ethnohistory of Four Interior Alaskan Waterbodies* (Anchorage, Alaska Department of Natural Resources), August 1979; William Schneider, Dianne Gudgel-Holmes, and John Dalle-Molle, *Land Use in the North Addition of Denali National Park and Preserve: An Historical Perspective*, NPS Alaska Region, Research/Resources Management Report AR-9 (Anchorage, NPS), 1984. The 1979 study also investigated the Nowitna drainage, northwest of the park unit.

[283] Norris, *Alaska Subsistence*, 144-45, 209-11.

[284] Dianne Gudgel-Holmes, *Kantishna Oral History Project: Phrase II, Part I, Interviews with Native Elders*, draft (Anchorage, NPS), September 1988; Dianne Gudgel-Holmes, *Native Place Names of the Kantishna Drainage, Alaska, Kantishna Oral History Project* (Anchorage, NPS), 1991.

[285] Darryll R. Johnson, Dianne Gudgel-Holmes, and James Levy, *Traditional Use of Cabins and Other Shelters in the North Additions to Denali National Park and Preserve: Ethno-Historical Context and Background, Ownership and Transfer Norms, and the Choice of Cabins or Tents as Winter Trapline Shelters* (Seattle, University of Washington), 1999; James Kari, *Native Place Names Mapping in Denali National Park and Preserve*, December 1999.

[286] Raymond L. Collins, *Dichinanek' Hwt'ana: A History of the People of the Upper Kuskokwim Who Live in Nikolai and Telida* (McGrath, the author), September 2000, revised January 2004; Brenda Rebne, *Cantwell Native Village History* (Cantwell, the author), December 2000; Minchumina Community School, *Lake Minchumina: Past and Present*, 2000; Tanana Tribal Council, *A Short History of the Native Village of Tanana*, 2000; Terry Haynes, David B. Andersen, and William E. Simeone, *Denali National Park and Preserve: Ethnographic Overview and Assessment* (Fairbanks, ADF&G Division of Subsistence), February 2001.

[287] Norris, *Alaska Subsistence*, 184, 233, 278.