

THE KENAI NATIONAL MOOSE RANGE

By: Claus-M Naske
Department of History
University of Alaska

Geologic History

Alaska's oldest geological history is very complex and obscure, and therefore difficult to summarize. On the Kenai Peninsula, the oldest identifiable materials consist of some surface and underwater lava flows dating back to the early Triassic period, in the Mesozoic era, approximately some 180 million years ago. In time volcanic action ceased; and the Kenai Peninsula submerged during the Cretaceous period, a time span of approximately seventy million years ending about sixty million years ago. While layers of debris accumulated, the sea bottom slowly sank until over five thousand feet of sedimentary materials had accumulated beneath the waters. Over the ages, great weight compressed these materials into slate and graywacke.

After a long period of quietude, the earth heaved and folded and lifted the sea beds above the waters to form the mountains now occupying the eastern half of the peninsula. Volcanic action also occurred in the Turnagain Arm area, and the ancient lava flows formed greenstone tuff, later found along Turnagain Arm and in the Prince William Sound region. Some of the greenstone carried copper ore, and prospectors found substantial deposits on Latouche and Knight Islands off the east side of the peninsula. In the same period, intrusions of granitic materials pushed into the upfolded sedimentary rocks of the mountains. Gold was trapped in these intrusions.

Eventually, all of Alaska emerged from the sea with the general physical relief it has today. About 50 million years ago in the Eocene epoch, the climate was warm for a ten million-year period. Plants no longer found in this latitude, left their remains in the soil. Many of these plant deposits in the Kenai lowlands eventually were transformed into the lignite coal beds of Kachemak and the western Kenai Peninsula. Later gravel overlays covered the lignite beds.

During the next forty million years, winds and temperature changes modified the face of the land. The coastline of the Kenai Peninsula was probably smooth and regular. A very large river flowed into Cook Inlet, probably draining the Copper River basin and parts of the southern Alaska range.

During the Pleistocene epoch, about one million years ago, temperatures gradually decreased. Snows accumulated on mountain tops and eventually compressed into glaciers. As the glaciers increased in size they flowed into the valleys, merged, and gradually buried most of the peninsula under a vast, slowly-moving icesheet hundreds and even thousands of feet thick.

Eventually the climate warmed again and the ice masses diminished, although some sizeable glaciers remained. The advance and retreat of glaciers scoured the land, altered the passes, broadened the valleys and deeply indented the coasts. Vegetation eventually grew back and once again covered the peninsula.¹

Early Settlement

It is not known when man first occupied the peninsula. Although relatively little archaeological work has been performed, that little has shown Eskimos originally occupied the region well before 1,000 B.C. These first arrivals lived primarily in the coastal and riverine areas of the peninsula existing by fishing and hunting. Eventually the Eskimos disappeared with the arrival of the Tanaina Athapaskans in the western part of the peninsula. Whether the first inhabitants died, were driven out, or merged with the newcomers is not known. The Eskimos, however, did continue to live on the eastern side of the peninsula up to historic times.²

Although evidence of Tanaina occupation is widespread, little is known about them from their time of arrival until their contact with the Russians in the late eighteenth century.

It was Captain-Commander Vitus Bering, a Dane in Russian service, on board the St. Peter, who on July 24, 1741, first sighted the Kenai Peninsula. At the end of May 1778, the famous British explorer and navigator, Captain James Cook, in search of the Northwest Passage, sailed up the inlet later named in his honor. His report recounted the sale of sea otter skins at Canton for an astronomical profit. These skins had been gathered in the North. Captain Cook's report encouraged the Russian merchant, Gregory Shelikov, to establish a permanent settlement on Kodiak in Russian America at a place he named Three Saints Bay. As early as the spring of 1785, men of the Shelikov-Golikov Company investigated the islands near the mainland as well as Kenai and Chugach bays. Before Shelikov departed Russian America in 1786, he had directed the establishment of twelve other outposts. One of them, Fort Alexander on Cook Inlet, is the present-day English Bay near Kachemak Bay. Manned by twenty men under the leadership of Vassili Molokov, it was the first Russian settlement on the mainland. In 1786 the rival merchant, Pavel Lebedev-Lastochkin, dispatched a vessel with thirty-eight men under the leadership of Kolomin who sailed up Cook Inlet and built an outpost at the mouth of the Kasilof River. Named Fort St.

George, it occupied the present site of Kasilof. A few years later, in 1791, Gregory Konovalov and Amos Baluskin, in the employ of the Lebedev-Lastochkin Company, sailed for Russian America, and with the help of GZ promyshleniki, or fur hunters, built Fort St. Nicholas on the Kenai River at the present site of Kenai.³

There were various disputes between the rival Russian companies which ended in 1799 when the Shelikov-Yolikov Company received its long-desired monopoly in Russian America. On the Kenai Peninsula in the early 1790's, Baranov mined coal which he used to smelt iron while building the ship Phoenix. Two other settlements in the region were established much later: One in 1835, Ninilchik, an agricultural settlement; and the other, Port Graham, where some coal was mined.⁴

After years of deliberation, the Russians decided to sell their colony to the United States. The sale took place in 1867 and American troops took possession on October 18 of that year. For the inhabitants of the Kenai Peninsula, the change in ownership did not mean very much. They continued to hunt and trade. Their first contact with representatives of the new government probably occurred when the Revenue Cutter Wayanda under the command of Captain J.W. White of the United States Revenue Marine (a predecessor of the Coast Guard), cast anchor in the inlet off English Bay (now known as Port Graham) on June 4, 1868. The Wayanda then went to what today is known as the Homer Spit. There a party from the ship examined and loaded a ton of coal from the seams on shore. The Wayanda proceeded up Cook Inlet, stopped at Ninilchik, and then steamed on to the mouth of the Kenai River. On the way, the revenue cutter passed the trading schooner Langley, out of Sitka. After taking a pilot on board, the Wayanda entered the river and anchored off Fort St. Nicholas, (the Russian fur trading post soon to change its name to Kenai). After a week, the Wayanda left Cook Inlet.⁵

Enterprising Americans soon discovered the rich salmon fisheries of the area, and in 1878 the Alaska Commercial Company established the first commercial fishery on the Kenai River where the company had a fur-trading station. Captain James Wilson, the trader, also directed the fishing efforts. The men caught king and red salmon with dip and gill nets as well as weirs. Only fish bellies were salted, packed in barrels, and shipped to market in San Francisco. It was a small operation and the company packed only 150 barrels in 1880.

In 1879 the Western Fur and Trading Company, another of such groups operating on Cook Inlet, established the second salmon saltery in the region, this one on the Kasilof River a few miles south of Kenai. Under the direction of Captain H. R. Bowen, the operation began in 1879. In 1880, the company packed 169 barrels of king salmon bellies and 185 barrels of silver salmon. As with the Kenai operation, the product found a ready market in San Francisco.⁶

Other resources of the Kenai Peninsula such as coal and gold, gained attention late in the 19th century. In the summer of 1886, miners met at the claim of J. M. Cooper, located on the north side of Chugachik Bay on Cook Inlet and organized a mining district called "The Cleveland Mining.

District." This was to include all of the Kenai Peninsula with its well-known lignite coal deposits. Two years later, in August of 1888, miners met again at the same location to decide on the most convenient method of filing locations on coal lands in the district. The men made arrangements to draw up a plat showing 160-acre lots of coal lands north of Kachemak Bay, and positions of wharf and bunker sites on Coal Point (now known as the Homer Spit). In the same year, the Alaska Coal Company began mining, driving a tunnel into the Bradley Coal Seam near Fritz Creek on Kachemak Bay.⁷

In subsequent years, miners staked many 160-acre coal land claims in the region and performed much development work. However, production was always small and principally served the local market needs. As late as 1959, two strip mines near Homer operated on occasion to meet local demands.⁸

Restless miners also discovered gold on the Kenai Peninsula, and much individual prospecting took place in various locations. In 1896 a modest gold stampede occurred to the Sunrise and Hope areas on the peninsula; by 1905 the northern peninsula gold placers produced an estimated \$200,000 in gold.⁹

Game Resources

The traders, prospectors, miners, and adventurers who flocked to the Kenai Peninsula brought with them basic food staples. They quickly discovered they could enrich their monotonous diet of beans and bacon with salmon and moose meat. Moose, the largest member of the deer family, had long been utilized by natives of the region. Archaeological evidence suggests that moose were found as early as 748 BC in the area. Furthermore, the language of the Tanaina Indians on the Kenai Peninsula included words for both moose and caribou, and reports by Russian explorers and others who visited the area, confirmed the presence of these animals.¹⁰

Soon the extraordinary size of the peninsula moose attracted trophy hunters from the continental United States. As early as the 1890's Wm. H. Hart and Company of New York announced the receipt of "a remarkable shipment of game heads. . ." including "the heads, horns, and scalps of twenty-two moose. . . The moose were all very old bulls. The horns are unusually massive and range in spread from 4 feet to 70 inches." In October of 1897, W.F. Sheard, a dealer in trophy heads from Tacoma, Washington, wrote to the editor of Forest and Streams as follows:

"In your issue of March 6, 1897, you showed cut of a pair of moose horns belonging to me that spread 73 1/4 inches--at that time the largest moose head on record."

Sheard now reported his pleasure by sending a photograph:

". . . of a set of moose horns that break all previous records, and stand today the largest and most massive moose head

on record. Spread of horns is 78-1/2 inches; width of blades following the curve 18 inches with 40 prongs, four of the prongs on the underside not showing in photograph. . ."

In spite of having handled hundreds of moose heads, Sheard concluded this was the most massive he had ever seen.¹¹

Dall de Weese, a hunter from Canon City, Colorado, spent three hunting seasons on the Kenai Peninsula between 1897 and 1899. After killing his first bull moose on his 1897 expedition with antlers measuring 69 inches, he exulted "Oh, what a carcass," and had his picture taken with his trophy to back up his claim that the Kenai Peninsula must be "the home of the largest moose in the world." Other sportsmen agreed. E. Marshall Scull, hunting in Alaska in 1913, stated that "The great pride of the Kenai Peninsula as a game country rests upon the moose." Here it attained its greatest size and developed the largest antlers. The Kenai moose were even described as a separate variety and called the "giant moose." Scull related that two of the largest moose ever taken had been killed on the Kenai Peninsula, "the antlers measuring in width 78-1/2 and 77-1/2 inches, respectively." Scull, undoubtedly referred to one of the trophy heads belonging to W. F. Sheard of Tacoma.¹²

Not only was the Kenai Peninsula famous for its giant moose, but also for its caribou, brown and black bear, sheep, and goat populations. Obviously, interest in the Kenai Peninsula was high among sportsmen and conservationists in addition to prospectors and miners.

Early Conservation Interests

One of Alaska's first major conservationists was Willaim A. Langille. The Langille family, immigrants from Nova Scotia, managed Cloud Cap Inn on Mt. Hood in Oregon. William Langille received a good education, studying botany and ecology under the tutelage of California scientists. When gold was discovered in the Klondike in Canada's Yukon Territory, Langille joined thousands of other argonauts and rushed north. He prospected in the Klondike and at Nome for five years, but unlike other argonauts who came and went without making a lasting impression on the country, Langille remained. In 1902 President Theodore Roosevelt appointed Langille as the first federal forest officer in Alaska. His achievements at this post were phenomenal. Among other things, Langille at the behest of Gifford Pinchot, the nation's chief forester, undertook a series of reconnaissance studies. On his recommendations, the President created the Chugach National Forest as well as the Panhandle addition to the Tongass. Langille played a large role in the establishment of the Old Kasaan and the Sitka National Monuments, was involved in the famous Glavis-Ballinger dispute, and took an important part in the administrative and judicial decisions arising out of the affair. Very importantly, he also recommended the establishment of the Kenai Moose Range thirty-eight years before its final creation.¹³

In September of 1904 Langille examined the Prince William Sound area. Late in the month he traveled from Valdez to Seward on the steam launch Annie and from there to Kenai Lake where he purchased a dory and proceeded to Kenai. Langille interrupted his boat trip for an overland detour to the mining towns of Hope and Sunrise on Turnagain Arm. In Kenai, the energetic Langille loaded his dory and outfit on the steamship Tyonek bound for Seldovia. From there, with the help of a guide and packer, he explored Coal Bay in Kachemak Bay and then went overland to Kasilof Lake (Tustumena Lake). His report on the reconnaissance trip was thorough. Langille described the topography of the region, its timber and mineral resources, and its agricultural possibilities. Next he described the game of the Peninsula, noting that the region had "the distinction of being the home of the largest moose and . . . some of the largest and fiercest bears known to the world," while "the rock-ribbed, ice-bound fastnesses of its mountains are the home of the mountain sheep. . ." Langille pointed out that the fur and game resources helped sustain the scattered mining communities, and permits for killing game brought a fair number of trophy hunters to the peninsula each year. Employing guides and packers, these hunters "spent a liberal amount of money in any community they were in." He complained that the permit system was abused from time to time since hunters allowed "too short a time to obtain their trophies and kill all good specimens, taking away the best." White residents of the area rarely committed wanton slaughter of game and seldom wasted any meat. Unhappily, Langille continued, this was not the case with the natives "to whom the game means so much." They were "the only wanton destroyers, and so strong is the inherent blood lust within them that they are unable to resist the temptation to kill when chance affords." Still another problem observed was the practice of traders, who at times, grubstaked natives to hunt trophy heads. These, no doubt, were then sold to companies in the continental United States for resale to collectors. In conclusion, Langille recommended the creation of a Kenai Forest Reserve despite the marginal commercial value of the timber stands, and within its boundaries the creation of game preserves for moose and sheep.¹⁴ The U.S. Forest Service had the authority to designate game reserves in national forests, and over the years, many were established.

Until he resigned as supervisor in 1911, Langille performed a prodigious amount of useful work in Alaska. Among other things, he pointed out that agriculture faced a marginal future in Alaska. He also pointed out repeatedly the unique value of the Kenai Peninsula as a wildlife and hunting preserve. As late as 1911 he wrote that: "there is room for the frontier settler and fishermen on the shore land; there let them abide in peace and prosper, but keep out the fire and wanton game destroyers."¹⁵

Many territorial residents shared Langille's concerns about the protection and propagation of Alaska's game resources. Most northern residents hunted, generally not for trophies, but rather to fill their larders before the onset of winter. And although many obeyed the rules and regulations promulgated by the Bureau of Biological Survey (responsible for game management), there were abuses as well. One angry resident of the Kenai Peninsula, for example, complained about the flagrant disregard for the law by the market hunters and both native and white residents. Although there was a limit of two moose per season, "the moose butchers kill when and as many as they please. Our restaurants are

serving moose and other wild game meat, both in and out of season. One can find moose meat at almost all times of the year at the roadhouses, tie camps, and restaurants in and around Anchorage, Seward, and Sel-dovia." Most of the time, only the hind quarters were brought to town while the rest of the carcass was left to rot in the field. Although Kenai had a population of only three hundred, both native and white, "the people there kill about 450 moose every year, of which 90 percent are cows." If the indiscriminate butchering of moose, particularly cows continued; "our large moose herds along Kenai Peninsula will be no more."¹⁶

Alaska politicians and residents alike had complained for years about the fact, that unlike any other territory, game management functions had been retained by the federal government. Successive delegates to Congress had introduced legislation to transfer this responsibility to Alaska-- always unsuccessfully. In 1921 for example, the Alaska Fish and Game Club endorsed a proposed bill transferring the game and fur-bearing animals to Territorial control. The measure provided for three game commissioners who would promulgate rules and regulations. The advantage of such a plan, proponents argued, was that Alaska residents would cooperate more readily with Territorial rather than federal wardens.¹⁷

In 1922 Donald A. Sutherland, Alaska's delegate to Congress, introduced a measure designed to establish a game commission of five members. Four of these were to be residents of the Territory not serving in any branch of the federal government. The fifth member, serving as the executive officer of the commission, was to represent the Bureau of Biological Survey. Sutherland's bill had been drawn after extensive consultations with Alaskans from varied walks of life. The bill had been checked and rechecked by "the most experienced lawyers and other experts in game conservation in the United States." E. W. Nelson, the chief of the Bureau of Biological Survey promised "to make the administration absolutely free from politics."¹⁸

At the urging of E. W. Nelson, Congress finally passed a similar measure which became law on January 13, 1925. The act established the Alaska Game Commission which has been described previously in this report.¹⁹

On June 1, 1927, Hugh W. Terhune, as chief representative of the Bureau of Biological Survey in Alaska, assumed the post of executive officer of the Alaska Game Commission. Terhune had worked for the Bureau in Alaska since 1924 as a game protection officer. His new duties involved the administration of the Alaska Game Commission, the enforcement of the Alaska game laws, supervision of ten game wardens, the preparation of estimates, collection of license fees and their disposition in accordance with the provisions of the Alaska Game Law, and the administration of the Aleutian Islands and other bird reservations.²⁰

The Alaska Game Commission and its executive director faced herculean tasks. The sheer size of the Territory, its various regions, climates, and varieties of wildlife, presented many management problems. Supervising wardens, setting season and bag limits and transplanting game animals were among the responsibilities that occupied the Commission's

time. For example, as early as 1928, the Alaska Game Commission and the Bureau of Biological Survey transplanted a herd of twenty-three buffalo from Montana to the Jarvis Creek flats area southeast of Fairbanks.²¹

During its regular meeting in 1931, the Alaska Game Commission recommended the establishment, by executive proclamation, of a moose sanctuary of approximately 1,230 square miles in the northwestern part of the Kenai Peninsula. At the same time, the commission decided to investigate the conditions of the moose on the Kenai, and hired registered guide, Henry Lucas to carry out the field work. Due to a shortage of funds, the project almost folded before it began. After an appeal for additional money, two eastern conservationists contributed the necessary funds and the investigation got underway during the spring and summer of 1932. Lucas spent sixty-eight days in the field, studying the area between Skilak and Tustumena Lakes embracing the drainages of Killey and Funny Rivers. The guide and his assistant counted a total of five hundred twenty-one moose, two hundred eleven of which were bulls, two hundred fifteen cows, sixty-one calves, and thirty-four of undetermined sex. Lucas noted that there was a lack of feed between May 7 and 28, and that only one-half of the cows of breeding age were with calves. He reported that, contrary to various reports, neither black nor brown bears menaced the Kenai moose herd. Fire, however, posed a hazard. Every few years some portion of the Kenai Peninsula was burned, causing a shift of range. With successive burning, a change in the type of cover occurred. It appeared that the Hudson Bay or Labrador tea, not utilized as food by the moose, gradually crowded out new birch and willow growth in the burned-out areas, thus restricting the favorable moose range. Lucas recommended further studies because not enough information was available to reach any concrete conclusions as to why the moose herd had declined. He speculated that a sexual imbalance, disease, and a change in cover brought about by the frequent fires, might be partially responsible for this decline. Market hunting which had been so injurious to the moose herd, he concluded, had been greatly curtailed between 1918 and 1925 with the passage of the Alaska Game Law resulting in more effective enforcement. The practice of market hunting had totally disappeared by 1932.²²

Kenai National Moose Range Established

Residents of the Kenai Peninsula favored the establishment of a moose sanctuary. Late in 1931 the Seward Gateway editorially supported the scheme; and in 1932, thirty-seven citizens of Ninilchik petitioned the Secretary of Agriculture to establish such a preserve. Residents of Kenai were divided on the issue. W. J. Brown urged his fellow townspeople to support the creation of a sanctuary, while C.W. Mae Harrington spoke for those in opposition. The enactment of additional laws at the "present state of lax law enforcement. . . would only result in more lawlessness." Furthermore, she asserted, "the number of game animals

killed on this Peninsula by outside sportsmen is negligible and that the benefits derived at present therefrom will show (a) favorable balance." Mrs. Harrington and her group particularly opposed any closed area for big game hunting in the northern part of the Peninsula. If a sanctuary was necessary at all, it should be located in the interior of the Peninsula where "such regulations could work no undue hardships on anyone."²³

The Indians living on the Moquawkie Reservation at Tyonek on Cook Inlet also protested the proposed sanctuary, claiming that for generations they had hunted moose along Swanson Creek on the Kenai Peninsula. This area was now included in the proposed reserve. Although the Indians supported the creation of a sanctuary for both moose and sheep, they believed that "the territory should be chosen with consideration of the needs of the Native inhabitants of Alaska, and their interests be protected, so they would not starve and lose their health." The logical area for such a sanctuary was south of the Kenai River up to Tustumena Lake--but since this was the region where sportsmen hunted, the proposal would undoubtedly be opposed by the Alaska Guides Association.²⁴

The Alaska Game Commission had earlier taken steps to protect moose and sheep when issuing hunting regulations for 1932. In these regulations, the commissioners had closed the area north of the Kenai River and Skilak Lake to moose hunting, and reduced the bag limit on sheep from two to one. By February 1932 the Bureau of Biological Survey had also drafted an executive order for circulation and discussion. The order proposed to withdraw the northern part of the Peninsula from public use. The hunting of birds and trapping of fur-bearing animals was to be permitted, as was the location of mining claims. Alaska's governor, George A. Parks, approved of the proposal but insisted that homesteading be allowed as well. The proposed withdrawal contained approximately seven hundred square miles with a coastline of sixty-five miles. Much of the area along the coast was suitable for homesteading, the governor argued. "In fact, part of it has been subdivided by the General Land Office with this in view." Furthermore, several places along the beach were already utilized by natives and whites alike as fishing sites during certain seasons of the year. The Governor concluded that it would not "be inconsistent with the purposes for which the area is desired to permit the location of bonafide homesteads."²⁵

Hugh Terhune met with the Governor on a number of occasions thereafter, and attempted to persuade him to withdraw his reservations; however, he was unsuccessful. In fact, Parks thought that closing the area to moose hunting through game regulations would be more than sufficient. Terhune recounted that "it was only after presenting every argument I could that he reluctantly agreed it should be under some form of Executive Order to assure its permanency." Officials of the Bureau were unhappy with Park's demands, and some thought "that after the modification and exceptions desired by the Governor there would be so little left that it would hardly be worthwhile to issue an order establishing the refuge." In the end, however, the Bureau reluctantly submitted the revised order complying with the Governor's demands. While protecting the moose, it permitted fish trap sites along the Inlet, mineral claims, leasing of

coal lands, and homesteading. It prohibited trade and manufacturing sites, the sale of land under "script" and the leasing of lands for grazing and fur farming.²⁶

In its initial recommendation, the Alaska Game Commission had located the eastern limits of the refuge along the western bank of Thurman Creek and the Chickaloon River. During discussions in Washington, D.C., Senator Norbeck and his committee insisted that this be expanded to run along the Chugach National Forest boundary along the 150th Meridian. Residents of the little mining communities of Hope and Sunrise hunted the newly included area extensively and were quick to protest. The Alaska Game Commission responded quickly and asked the Bureau of Biological Survey to lobby for a boundary change excluding the newly added region. Alaska's governor supported the change, Bureau personnel were uncertain, and the General Land Office opposed a withdrawal with so many exceptions. In fact, the latter argued, practically everything that would be accomplished by the withdrawal could be taken care of under closed area regulations under Alaska's game laws. Furthermore, if requested to do so by the Alaska Game Commission, the General Land Office would not issue fur farming or grazing permits since these would interfere with the protection of moose.²⁷ With the various complications, the proposed executive order for withdrawal of a Kenai Moose Refuge was shelved, at least temporarily, and instead the Alaska Game Commission used its authority to close a portion of the area to hunting.

In the interim, the Bureau of Biological Survey was transferred from the Department of Agriculture to the Department of the Interior on July 1, 1939, in accordance with the President's Reorganization Plan II under the Reorganization Act of April 3, 1939.²⁸ A year later, on July 1, 1940, as part of President Franklin D. Roosevelt's Reorganization Plan III under the Act of June 30, 1940, the Bureau of Fisheries and the Bureau of Biological Survey were merged to form the Fish and Wildlife Service, and the administrative and management functions of the two bureaus were consolidated.²⁹ By 1940 the federal government had also begun to construct military installations ranging, from leases for seaplanes and submarines on Kodiak Island and at Dutch Harbor at the eastern extremity of the Aleutians, to leases at Anchorage and Fairbanks. In conjunction with this construction boom, the military requested various land withdrawals for national defense purposes. Often these actual and proposed withdrawals conflicted with the management programs of other governmental agencies as well as with the normal economic development of the Territory.

For example, two proposals were pending for land withdrawals on the Kenai Peninsula previously selected by the Fish and Wildlife Service for a proposed moose refuge. One of these contemplated the resettlement of sizable numbers of European refugees from Naziism, and the army had requested the same area for use as a bombing refuge. Ira N. Gabrielson, the director of the Fish and Wildlife Service and a leading conservationist, opposed both schemes. While the first died in Congress, Gabrielson persuaded the army to select an alternative area for its use. To a friend, Gabrielson remarked that "this Kenai thing is like many others--it moves slowly but I think I have it well in hand and that it will come through in course of time." On December 16, 1941, President

Franklin D. Roosevelt signed the executive order establishing the Kenai National Moose Range--Gabrielson had been very effective and persuasive indeed.³⁰

The Kenai National Moose Range, encompassing some 2,000,000 acres, represented a unique and ecologically diverse area of snow-capped mountains, massive glaciers, forests, miles of streams and lakes, and a wide variety of wildlife. All of the lands within the Range were reserved from settlement, location, lease for fur farming, grazing, sale or entry, or any other disposition except for fish trap sites under any of the public land laws applicable to Alaska, except a strip six miles wide bordering on the shores of the Cook Inlet and Kachemak Bay from a point six miles east of Boulder Point to the Kasilof River. Hunting and trapping, not prohibited within the Range, were controlled by the provisions of the Alaska Game Law.³¹

The creation of the Kenai National Moose Range satisfied its proponents. It also allowed the initiation of scientific management and extensive studies. As early as 1932 the Bureau of Biological Survey and the Alaska Game Commission had commissioned a special investigation of the Peninsula moose herds which was undertaken by registered guide Henry Lucas. In the summer of 1933 Frank Dufresne and Lucas undertook a study of the moose in the vicinity of Skilak and Tustumena Lakes, where they were joined in late summer by L.J. Palmer, the senior biologist in charge of reindeer grazing investigation in Alaska. The 1933 investigation was designed to check the observations Lucas had made a year earlier and to determine if there existed a uniformity in the spring and summer habits of the moose from one year to another. Further, the men were to try to determine what led to the decline of the moose herds. The investigations yielded some interesting results. In talking with residents of the Peninsula, they found that moose had been relatively scarce in the 1890's but became plentiful by 1907-08. The peak year for the moose probably occurred in 1913; however, the following winter the rabbit cycle also attained its peak. The rabbits devoured the willow, resulting in the starvation of moose whose carcasses dotted the countryside in the spring of 1914. In 1920, the moose again recovered to their 1913 record numbers. Since that year, there had been a gradual decline in their numbers in the area between Skilak and Tustumena Lakes. The investigators concluded that further studies were needed.³²

In the spring of 1938, Palmer returned to the Skilak and Tustumena Lakes area for a new study. He collected much valuable historical information from a number of guides living in the study area. His informants verified the information on moose cycles obtained in the 1933 study. Andrew Berg, a trapper and guide who made his home in the Tustumena Lake country in 1890 and had lived there since, recalled that there were practically no moose in the Kenai area when he arrived. Woodland caribou, however, were plentiful and wolves numerous. In 1898 a group of miners (fifty-two strong) came into the country and scattered poison. This killed most of the fur-bearers, including lynx and wolf. Following this, the moose arrived and multiplied abundantly. Berg related that he observed the last wolf in 1909. The old trapper and guide also speculated that forest fires were closely linked with the moose population by removing the heavy forest cover and permitting the growth of shrub and other forage species palatable to moose. There had been three large fires. The first occurred in 1871, the second in 1891, and the third in 1910.

The first of these left so many fallen trees that hiking across country became exceedingly difficult. The 1910 fire cleaned the downed material. Moose rapidly increased thereafter. During the winter of 1921-22 with feed low, large numbers of moose migrated east across steep ridges resulting in the natural restocking of moose in the Resurrection River area along the Alaska Railroad, which had been depleted of moose for years.³³

The decline of the moose still continued, and Palmer attributed this trend to a combination of factors such as overgrazing, poaching, increased hunting pressure, easier accessibility, calves killed by black and brown bear and coyotes, drowning while crossing streams in winter, and diseases of an undetermined nature.³⁴ Palmer recommended that the area be set aside as a moose and mountain sheep reserve open to limited hunting and closed to homesteading or other land location without special permits. He also urged continued and extended investigations of the Kenai moose and the establishment of a branch field station for wildlife research at Anchorage.³⁵

Palmer returned in the late fall for another study in which he checked moose numbers between Skilak and Tustumena Lakes and observed the herd during rutting season. He again urged that increased research be undertaken, and stressed the importance of maintaining the Kenai moose herd both as a unique wildlife feature, and because of its local economic values. He reiterated his opinion that the area be set aside as a wildlife range "chiefly for the maintenance and production of moose as a crop."³⁶ In 1939, the investigator once again studied the herd in the spring and strongly urged the establishment of a range. Undoubtedly the pioneering research performed by Palmer and others in the 1930's provided in part the needed information to persuade the executive branch of the government to establish the Kenai National Moose Range in late 1941.

From 1941 on, the Fish and Wildlife Service closely adhered to the directives and provisions contained in the Executive Order in its administration of the Kenai National Moose Range. It tried to preserve, as far as possible, the natural conditions of the area for the management of moose and other wildlife. Initially, a six-mile strip along Cook Inlet and several townships along the Sterling Highway (included in the Range), were open to settlement under the public land laws. Particularly after World War II, increasing numbers of settlers came to the Kenai Peninsula and patented a large percentage of these lands which were then excluded from the Range.³⁷

By 1947 contractors were in the process of building a new road, extending from Kenai, paralleling the Kenai River north of Skilak Lake, then to Kenai Lake, Seward, and northward along Turnagain Arm to Chickaloon Bay. In that same year, a rather substantial fire, associated with road construction, burned a portion of the Range. The fire originated along the highway approximately sixteen miles west of Kenai Lake, but fortunately did little damage to the moose herd and/or browse.

The Fish and Wildlife Service certainly was aware that 1947 was a crucial year for the future of the Range. Already, the road under construction was passable to Seward and would soon extend to Anchorage,

the Territory's largest city. Obviously, the completion of the road would result in increasing pressure on the Range. Skilak Lake and the Kenai River offered excellent fishing opportunities, while moose hunting appealed to many. Clearly there were problems as well as opportunities. Already squatters had built cabins on the Range, and with the postwar influx of settlers, it could be anticipated that increasing pressure would be exerted to open more land for homesteading on the Peninsula. Therefore, the Service proposed to assign a refuge manager and assistant to the Kenai National Moose Range for the first time. It also intended to manage the Range for controlled hunting. Any delay in placing the Kenai under active administration and management, the Service warned, would increase the difficulties caused by increasing population pressure.³⁸

Less than a year later, in August of 1948, the first manager and his assistant assumed their duties at the Kenai field station. Two years later, the refuge manager had developed an extensive research program for the Range. In order to manage the Range for maximum moose production, intensive investigations were needed. Sample plots and transects were to be established for analyzing plant succession and evaluating how moose used the available browse. A rough map needed to be prepared delineating the major vegetative types of the area. In addition, field observations of the moose herd were needed to determine composition, seasonal movements, and mortality factors. Clearly, the Kenai employees had much work to accomplish.³⁹

The first results of their work program appeared in David L. Spencer's September - December narrative report which contained important information basic to the management of the Kenai Moose Herd, including the most comprehensive information ever gathered on the herd, calf crop, sex ratio, harvest figures, research needs, and browse survey. Acting regional director W. A. Elkins commented that Spencer's report represented "the fundamental and the first step requirements for the proper management of the moose range."⁴⁰

While successful research efforts had begun, people problems threatened to undermine the integrity of the Range. In June of 1950, the Department of the Interior recommended a group settlement in the Kenai-Kasilof area. This was to be on parts of land reserved for settlement and entry when the Range was established in 1941. Furthermore, some squatters had settled on the Range, and repeated attempts to eliminate small chunks of acreage here and there for purposes of incompatibility to Range objectives had occurred. One example involved a petition signed by Oscar H. Vogel and others, for restoration of a one-half mile strip along Cook Inlet from Point Possession to Boulder Point. Although the petition was denied, the Fish and Wildlife Service realized pressure to release portions of land would probably continue. If possible, occupancy should be confined to the designated settlement area. If that did not suffice, settlement should then be confined to one selected locality "by marking off lot sites and issuing permits for cabin construction." The chief of the branch of wildlife refuges emphatically stated that the final alternative should only be used "if all else fails."⁴¹

Early in 1952, the Methodist Church requested E. L. "Bob" Bartlett, Alaska's delegate to Congress, to introduce a measure requesting the sale of a parcel of land for its Home Mission in Alaska. The acreage in question was located within the Kenai National Moose Range. Service personnel considered this request another example of the continued efforts to exclude lands from the Range, and requested its chief legal counsel to report adversely on the proposed legislation. William T. Krummes, the acting chief of the branch of wildlife refuges, reiterated the position of the Service:

"We cannot afford to relinquish control of any of the land under our primary jurisdiction on the Kenai Moose Range, either by legislative action or otherwise. If we are to have a successful project, we must retain all of the control which we now have."

The matter was eventually settled to the satisfaction of all concerned when the Methodist Church obtained a use permit for a 40-acre parcel of land on Kenai Lake within the Chugach National Forest, but outside of the moose refuge. While the Methodist Church's request was very modest, that of the U.S. Army in 1953 was not. The Army's request involved twenty-seven thousand five hundred acres. Originally, the Department of Defense had intended to add this area to its Turnagain Arm Firing Range which covered a good portion of the Susitna Flats. Numerous Anchorage businessmen, however, anxious to have the flats opened to oil leasing, persuaded the Army to withdraw needed land in the upper Kenai Peninsula. After lengthy negotiations, the Army settled for a use permit rather than a withdrawal on the Range.⁴²

It was the promise of oil which was to pose the greatest threat to the integrity of the Kenai National Moose Range. Initial oil discoveries were made early in the nineteenth century by the Russians in the vicinity of Chinitna Bay on the Alaska Peninsula, and Thomas Simpson, an employee of the Hudson's Bay Company, first observed oil deposits along the Canadian Arctic shore while engaged in his coastal survey of 1836-37. In 1921, representatives of the Standard Oil Company of California and General Petroleum Company examined seepages near Barrow, Alaska, and the Chilkat Oil Company developed a small oilfield in the Katalla district on the coast east of the mouth of the Copper River in the early part of the twentieth century. In 1923, President Warren G. Harding created Naval Petroleum Reserve No. 4 by executive order on Alaska's North Slope, comprising approximately 37,000 square miles. From time to time, companies drilled exploratory wells in various parts of the Territory. One of the oil companies interested in the North Slope was Richfield Oil Corporation. The corporation's vice-president in charge of exploration rated the North Slope as its first choice for exploratory work, followed by the Kenai Peninsula. Richfield's evaluations of exploration in Alaska followed the 1954 ruling of the Secretary of the Interior, Douglas McKay, that multiple use of withdrawn federal lands was in the best interest of the United States and the citizens of Alaska. However, since the federal government had not yet opened the North Slope for leasing, Richfield turned its attention to the Kenai Peninsula.⁴³

Undoubtedly it was the group of Anchorage businessmen hoping for Alaska oil development who aided and pushed Richfield into Kenai Peninsula development work. As late as 1949, there had been only one 2,560-acre oil lease in force on public lands in the Territory. By 1952, sporadic exploratory efforts had increased the number of leases to one hundred thirty-nine,

and the Anchorage group took out oil leases in the Swanson River area amounting to 300,000 acres. When Richfield appeared to hesitate, the Anchorage businessmen offered a gratis option on their leases to the corporation. Richfield then prepared to drill on both its own leases and those of the Anchorage group. Richfield suddenly discovered its lease was located on the Kenai National Moose Range. Leases could be filed on such ranges, but the Fish and Wildlife Service had the right to impose restrictions on the way geophysical exploration and oil development was carried out. This would insure the least inconvenience to wildlife on the Range. However, at approximately the same time, controversy had been sparked regarding leases filed on a wildlife range in Louisiana. In response to this controversy, filing had been halted until Congress had an opportunity to hold hearings for review of the situation.⁴⁴

According to the Anchorage entrepreneurs and their spokesman Robert B. Atwood, the publisher and editor of the Anchorage Daily Times, the group convinced local conservation societies and sportsmen that drilling would not hurt the moose. Testimony at congressional hearings, however, had established that while drilling would not harm the moose, it probably would disturb the nesting of the rare migrating trumpeter swans which settled annually on the lakes in the area. In view of this, the new Secretary of the Interior, Fred Seaton, refused to issue the necessary permit. Their hopes stymied, the Anchorage group prepared a lengthy report designed to demonstrate that national security necessitated the availability of local oil supplies. Armed with their report, Atwood and one of his colleagues went to Washington to pay a visit to General Nathan Twining, the chief of staff. Both men knew the general from his tour of duty in Alaska. Twining received the men in a room filled with big game trophies and other memorabilia from Alaska. The Anchorage men apparently had no difficulty persuading the general to endorse their report. Atwood and his companion were cheered because Seaton had previously stated that Twining's endorsement was necessary for obtaining the required permits.⁴⁵

According to Richfield, Seaton resolved the issue when he arranged a conference between corporation oil men and conservationists (whom he had selected). Richfield's president is reputed to have stated that the conferees soon discovered they had no basic differences. Soon after, the corporation proceeded with oil development in the Kenai area, but were sure to observe the precautions recommended by conservationists.⁴⁶ Whatever the reasons, the Department of the Interior granted the permit. Exploration, however, was not allowed near the lakes where the rare trumpeter swans nested. Other companies quickly realized that Alaska offered the next big oil bonanza. Standard Oil of California, Atlantic Refining, Union Oil, Marathon, and Phillips Petroleum soon filed for leases in the area, and by early 1957, more than three thousand leases were held in the Territory; but not all in southcentral Alaska. On July 23, 1957 Richfield's wildcat well (fifty-five miles southwest of Anchorage) on the banks of the Swanson River, struck a fairly large oil deposit at eleven thousand one hundred thirty-one feet. This was the first major oil discovery in the Territory, and by the end of the year, the number of leases held in Alaska increased to over 9,000, covering almost twenty million acres.⁴⁷

In April of 1955, the U.S. Geological Service approved the Swanson River unit on the Kenai National Moose Range under applicable regulations which had been issued in 1953. In October of 1955, the Bureau of Land Management advised its field offices that the 1953 provisions still applied to refuge lands; that they had only been suspended to permit the development of the Swanson Unit. Some twenty-nine leases had been issued under these regulations in the Swanson River Unit. Then, in late November of 1955, Secretary of the Interior, Douglas McKay, revised refuge and game range lease applications and developments into three categories. These were to include all of the existing National Wildlife Refuges and Ranges. The Service, alarmed and dissatisfied, appealed to the Secretary and succeeded in eliminating from the new order, thirteen ranges and refuges which contained rare species. All other refuge lands were opened to oil exploration. McKay's action raised such a storm of criticism from the various national wildlife organizations that in January of 1956, the House Committee on Merchant Marine and Fisheries, headed by Representative Herbert Bonner (D., N.C.) decided to hold public hearings on the matter. The Bonner Committee held its hearings in January and February of 1956, critically reviewing the whole history of leasing refuge lands for oil and gas. In the course of the hearings, the Department of the Interior was harshly reprimanded for issuing so many leases on refuge lands. In March of that year, Chairman Bonner requested that Secretary McKay henceforth refer all requests for adverse use of refuge lands to his committee for approval. Shortly thereafter, McKay resigned from office to run for the U.S. Senate seat from Oregon, then held by Wayne Morse. The President appointed Fred A. Seaton from Nebraska as McKay's replacement.⁴⁸

Shortly after Seaton took office, he issued an order halting any oil and gas activities on national wildlife refuges and ranges until studies had determined their impact on these areas.⁴⁹

From the date of Seaton's order until the Kenai lands had been classified for oil and gas development in early 1958, the Department of the Interior was constantly bombarded by petitions and requests from the development-minded public and the oil industry. All wanted the barriers removed so as to permit development. The situation became frantic after Richfield announced its oil discovery on the Swanson Unit in 1957. In essence, the Kenai situation represented typical confrontation between developmental forces and conservationists. The Anchorage Sportsmen's Association unanimously resolved "that continued exploration for oil, and the production thereof, can be carried on in the Kenai Moose Reserve in such a manner as to promote the economic development of Alaska without doing violence to the game management principles underlying the creation of the Reserve." The All Alaska Chamber of Commerce urged the Department of the Interior and Congress to authorize and issue oil leases and "otherwise encourage the full-scale oil development on the Kenai Peninsula. . ." Perhaps it was E. A. Smith, the president of an Anchorage construction firm, who best expressed the strident demands of the development forces. The Territory was in an economic depression, King pointed out, "but the oil strike that has been discovered on the Kenai Peninsula can and certainly would pump life back into our local economy." Smith asserted that the business community desired to "save the people and the h---with the moose."⁵⁰

In short, the oil and gas industry was well represented at the Department of the Interior hearings in Washington on December 9 and 10, 1957. This was not the case with members from wildlife organizations. The few who testified maintained that wildlife refuges and ranges remain dedicated to the goals for which they were originally established. These groups, however, were satisfied with the new regulations proposed by Secretary Seaton for they appeared fair and equitable. C. R. Gutermuth, Vice-President of the Wildlife Management Institute, congratulated the Secretary on safeguarding the federal wildlife lands by requiring the oil and gas industry to comply with realistic provisions protecting the broad public interest in affected areas.⁵¹

In the clamor for leases, all the Service could hope to do was salvage a reasonable portion of the area in order to protect the moose. Half of the Range was subsequently made available for oil and gas leasing. Unhappily, this also included the most intensively used portion of the Range covering the 1947 burn area. By 1967, the Bureau of Sport Fisheries and Wildlife reported the moose range had suffered some damage from oil pollution as well as siltation and erosion resulting from development activities despite the stringent regulations. The Bureau blamed the oil companies for a lack of self-policing and complained about the shortage of enforcement personnel. Perhaps the most serious was the continued clamor for opening the remaining portion of the Range to oil exploration, development and production. The resolution of that problem, an official of the Bureau pointed out, "is almost certain to have to be a political one." Another high official of the Bureau, however, expressed a much more pessimistic viewpoint in 1962. The Bureau had been naive in believing the oil industry would be reasonably satisfied with permission to explore the major portion of the Range wherein experts indicated oil could be found. "We were even innocent enough to believe the field operations of the oil companies would help improve the moose habitat" through the regeneration of young browse species; and that development would scarcely leave a scar. That was not to be the case:

"Not only seismographic people and drillers swarmed all over the area, but this was followed by requests for trailer houses, residences for permanent staff, separators, compressors, plants, and so on. Myraids of 'cat' roads were trailed all over the area. . . the bulldozer blades scraped down to raw glacial gravel completely removing the thin overlying layer of soil and humus. From the air, the area of oil development looks like a site of a major military conflict with cattrails running everywhere, frequent large gravel pits, untreated spoil banks, and sludge pits. Every 80 acres of land has a road on it and in most instances, it is surrounded by roads on all 4 sides. Pipelines and power lines radiate to all points of the compass. Kids, school buses, cats and dogs abound as in any stateside community. The new oil workers have all turned into moose hunters and the moose population has dropped from a high of 4,736 in 1959 to 2,719 in 1961. It is all one hell of a mess."⁵²

The discovery and development of oil brought about a period of rapid growth for the Kenai Peninsula. In 1960, the Kenai-Cook Inlet region had an estimated population of 6,097, and a decade later it had increased to 14,250. By 1975, it had further expanded to 15,621. Not surprisingly, the pressure for land continued, and by 1962, the Bureau of Land Management, the Bureau of Sport Fisheries and Wildlife, and the State of Alaska Division of Lands had agreed on certain boundary revisions for the Range. These changes, soon to be formalized by a public land order, eliminated three hundred ten thousand acres and added forty thousand acres, for a net reduction of 270,000 acres. This left the Range with 1,730,000 acres. In January of 1963, the Alaska congressional delegation proposed the deletion of additional lands from the Range. The areas proposed for elimination included the Chickaloon-Swanson River area comprised of 155,000 acres; Tustumena Lake with forty thousand acres, and Skilak Lake with seventy-five thousand acres.⁵³

It is obvious from the record how difficult it has been for the Fish and Wildlife Service to protect the refuge system from incompatible uses. Not only has the pressure been great from the development-oriented public, but often within the Department of the Interior as well. The Bureau of Land Management, for example, occasionally reinstated its regulations over national refuges which formerly had been a part of the public domain. Since the Bureau has a management responsibility, distinctly different from that of the Service, it often played havoc with refuges. Occasionally, the Bureau also acted independently and unilaterally where it shared joint administration of lands incorporated into the Kenai National Moose Range. One example concerned a six-mile strip of land along the coast and three interior townships in the Range. The Service discovered, much to its surprise, that the Bureau leased many of these lands for oil and gas development without prior consultation. A development-minded secretary, such as Douglas McKay, had in 1955, allowed oil exploration on refuge lands which jeopardized the whole system.

The Service fought a rearguard action over the years on the Kenai National Moose Range where strong pressures from the oil industry and its allies forced compromises. As a last resort, the Service was able to formulate tough standards for oil exploration and development which reduced the potential damage to the Range. Above all, the Service repeatedly pointed out its responsibilities of safeguarding the wildlife resources and habitat of the Kenai National Moose Range. These have constituted a valuable public heritage for the present and for the future. They are well worth preserving.

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APPENDIX "A"

From: General Correspondence Relating to Wildlife
Management - Kenai, 1932-43, Record Group 22
National Archives, Washington, DC.
(Draft, July 20, 1932)

EXECUTIVE ORDER

APPENDIX "A"

General Correspondence Relating to Wildlife Management
Kenai, 1932-45, Record Group 22, National Archives
Washington, D. C. (Draft, July 20, 1932)

"EXECUTIVE ORDER

KENAI PENINSULA MOOSE REFUGE

ALASKA

"It is hereby ordered that all that area of land and water of the United States on the northwest portion of the Kenai Peninsula, Alaska, hereinafter described, and lying within the boundary indicated by the heavy broken line upon the diagram hereto attached and made a part of this order, be, and the same is hereby, reserved from settlement, location, sale, or entry, or other acquisition under any of the public-land laws applicable to Alaska, except for fish trap sites, homestead and mineral laws, and from classification and lease under the provisions of the acts of July 3, 1928 (44 Stat. 821; U. S. Code, Supp., title 48, secs. 360-361), entitled "An act to provide for the leasing of public lands in Alaska for fur farming and for the leasing of public lands in Alaska for fur farming and for other purposes," and March 4, 1927 (44 Stat. 1452; U. S. Code, Supp., title 48, secs. 471-471c), entitled "An act to provide for the protection, development, and utilization of public lands in Alaska by establishing an adequate system of grazing livestock thereon," and set apart for the use of the Department of Agriculture as a refuge and breeding ground for moose, subject to existing valid rights:

Seward Meridian

Beginning at the true point for the meander corner of fractional secs. 23 and 26, T. 6.N., R. 12 W., on the east shore of Cook Inlet at the line of mean high tide; the approximate geographic position is in latitude $80^{\circ} 34' 17''$ N., and longitude $151^{\circ} 19' 36''$ W. from Greenwich;

Thence from said initial point,

Easterly, between secs. 23 and 28 and secs. 24 and 25, to the corner of secs. 19, 8, 24, 25, and 30, Tps. 6 N., Rs. 11 and 12 W.;

Thence easterly, in T. 6 N., R. 11 W., along the north boundary of secs. 30, 29, and 28, to the N.E. corner of sec. 28;

Thence southerly, along the east boundary of sec. 28 and sec. 33, to the corner of secs. 3, 4, 33, and 34, Tps. 5 and 6 N., R. 11 W.;

Thence easterly, along the north boundary of secs. 3, 2, and 1, to the NE. corner of T. 6 N., R. 11 W.;

"Thence southerly, along the east boundary of sec. 1 to the meander corner of fractional secs. 1 and 6, on the right bank of the Kenai River;

Thence, up the right bank of the Kenai River, at ordinary high water mark, to the outlet and westerly end of Skilak Lake;

Thence easterly, along and following the northerly shore of Skilak Lake, at ordinary high water mark, to a point on the northeasterly shore of the said lake at the mouth of the Kenai River;

Thence northeasterly, up the right bank of the Kenai River, at ordinary high water mark, to a point opposite the mouth of Russian River; this point falls on the west boundary of the Chugach National Forest as defined by Proclamation No. 1307, dated August 2, 1915;

Thence due north, following the west boundary of the Chugach National Forest as described by Proclamation No. 1741, dated May 29, 1925, to a point on Chickaloon Bay on Turnagain Arm of Cook Inlet, at the line of mean high tide;

Thence southwesterly, westerly, and northwesterly, along the shore of Chickaloon Bay, at the line of mean high tide, to Point Possession, in sec. 17, T. 11 N., R. 6 W.;

Thence southwesterly, southerly, and southwesterly, along the shore of Cook Inlet, at the line of mean high tide, to the true point for the meander corner of fractional secs. 23 and 26, T. 6 N., R. 12 W., the place of beginning.

The provisions of this order are not intended to prohibit hunting, on the area herein withdrawn, of game animals other than moose, or to prevent the hunting of birds or the trapping of fur animals as permitted by the provisions of the Alaska Game Law of January 15, 1925 (45 Stat. 739; U. S. Code, title 48, secs. 191-211), as amended by the act of February 14, 1931 (46 Stat. 1111; U. S. Code, Supp., title 48, secs. 192-227), and of the regulations of the Secretary of Agriculture prescribed pursuant thereto.

It is unlawful within this refuge (a) willfully to set on fire or cause to be set on fire any timber, underbrush, or grass; (b) willfully to leave fire or to suffer it to burn unattended near any forest, timber, or other inflammable material; (c) after building a fire in or near any forest, timber, or other inflammable material, to leave it without totally extinguishing it; (d) willfully to injure, molest, or destroy any property of the United States; (e) to hunt, trap, capture, willfully disturb, or kill any moose except under such rules and regulations as may be prescribed by the Secretary of Agriculture; and (f) to hunt, trap, capture, willfully disturb, or kill any other animal or any bird, or to take or destroy the nest or eggs of any such bird, in violation of the Alaska Game Law or of regulations of the Secretary of Agriculture prescribed pursuant to law.

Warning is hereby given to all persons not to commit any of the acts herein enumerated, under the penalties prescribed by law.

This refuge shall be known as the Kenai Peninsula Moose Refuge.

THE WHITE HOUSE,

1932."