

KEHAI NATIONAL MOOSE RANGE

NARRATIVE REPORT

1974

US FISH & WILDLIFE SERVICE--ALASKA
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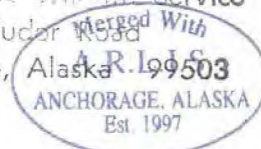


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REFUGE NARRATIVE REPORT

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KENAI NATIONAL MOOSE RANGE

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U.S. DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
Kenai, Alaska 99611

KENAI NATIONAL MOOSE RANGE

Narrative Report

July 1973 - June 1974

I. GENERAL

A. Weather Conditions

July was dry enough to necessitate the ban on open fires. Rains came after mid August. The fall was normal, cloudy and wet. Approximately two feet of snow fell the latter part of November. Temperatures in the forties melted most of the snow during the holidays. Two feet of snow fell in February. Breakup came early, starting with warm sunny days in April which continued through June.

B. Habitat Conditions

Summer habitat conditions were normal. The winter conditions seemed relatively good but a loss of moose in the spring was still evident. Quality of the range may be deteriorating rapidly, as the vegetation on the better sites in the 1947 burn grows out of reach.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl. More than a thousand waterfowl favored the Chickaloon Flats as a brooding area this season, however production surveys were not conducted. A pair of Canada geese frequently observed in past years near Mile 9 of the Marathon Oil access road, within the Beaver Creek drainage, were again sighted this season with several young. Most of the 2,800 lakes on this refuge supported additional waterfowl use in varying degrees.

The southern migration of waterfowl was apparent during late August, however, numbers of migrating birds failed to visit these lands during their southward journey although numerous waterfowl were sighted along tidal flat areas. The continued favorable weather limited normal concentrations of thousands of birds observed during some past seasons.

The waterfowl hunting season again opened September 1, but many of the disturbed birds left the area within a day or two during favorable weather for their continued flight south. It was generally expressed by most seasoned waterfowl hunters that this was a most disappointing and unsatisfactory hunting season. Those hunters who did not take opportunity to hunt on the first or second day, in most cases, experienced poor hunting. The majority of hunters visiting Chickaloon Flats, utilized these tidal flats to land their aircraft at selected hunting areas.

Waterfowl hunting in general was considered poor throughout the season in all traditional waterfowl hunting areas of the refuge.

Normal winter concentrations of ducks, mostly goldeneye with a few mallards, remained at several open water areas on the refuge this winter. The earliest migrants began to appear in early April. On April 5, we sighted our first pair of swan resting and feeding at the outlet of Skilak Lake. By mid April snow geese, Canada geese, in company with a few pintails and mallards, were sighted on the Kenai-Kasilof tidals flats and outlet of Skilak Lake with additional swan families. On April 26, fifty-one migrating swan were observed on the Kenai tidal flats, as well as 2,500 snow geese, Canada geese, and many ducks which included pintails, mallards, and goldeneye. Generally migrant waterfowl passed through the area quickly this spring because in regions further north ice and snow were disappearing quickly.

2. Trumpeter Swans

Spring Breeding Season. There were no wintering swan observed on the refuge this season. It has been several years since small groups of wintering swan could be observed in open water at Skilak Lake outlet on the Kenai River. The first swans were observed April 5 at Skilak Lake outlet. Not until April 19 were swan sighted in numbers on nesting lakes throughout the refuge and major migration routes on the Kenai River, Moose River, and Kenai tidal flats. Early nesting pairs were again observed patiently resting on ice covered lakes near their traditional nesting sites. Groups of swan left open water at Skilak Lake outlet for ice free sections of Moose River just upstream from the Sterling Highway bridge. As more and more lakes became ice free, swan left this river to resume the season's nesting activities at former nesting sites. The Mink Creek trumpeter swan pair, traditionally one of Kenai's earliest nesters, were again observed at their nest site April 26, with one adult on the nest, just downstream from the lake outlet.

Nesting. Refuge records and observations indicate only the trumpeter swan species nest on these lands. Nineteen active nests were located this season; somewhat less than the 26 reported during 1973, although six additional swan pair were sighted at old nest sites without an observed clutch.

Only sixteen nest sites utilized during 1973 were again active this season. New nest locations were established at Brood Lake (1NE), Plover Lake (1NW) and Donkey Lake. The Union Lake pair, formerly of Mackey Lakes, relocated for the third year and re-established at a small pothole lake one mile west of Mackey Lake. This move was undoubtedly due to the disturbance of people both at Mackey Lakes and Union Lake. (See Table III for all 1974 nest locations).

The Mink Creek lake pair again renested at their new 1973 nest location approximately thirty yards below the lake outlet. Four cygnets hatched from a clutch of six, three of which were again observed September 12. The relatively new nest site at Bird Lake was finally abandoned in favor of a small island nest location at Angler Lake. The Campfire Lake nest site established in 1973 was again utilized this season, a bald eagle nest located nearby apparently posed no threat to this trumpeter pair. A new nest constructed on the north end of Donkey Lake contained seven eggs. Six cygnets were observed early June and all reached flight stage. A new site one mile northeast of Brood Lake was established on a small bushy island but apparently some predator reached the island and destroyed this four egg clutch.

Nesting Period and Incubation. One of the earlier trumpeter pair observed on the Kenai this season were sighted on Tony's Lake April 11. The Mink Creek pair, traditionally early nesters, were not observed until April 26 at their old nest site located in the small outlet stream at Mink Creek Lake. By May 1, most nesting pair on the Kenai were observed near their traditional nesting locations. Most nests were reconstructed or newly constructed during the first week of May and by mid May the majority of clutches layed. Incubating birds generally remained on the nest the balance of the month and through the third week of June.

Clutch Size. The clutch size of twelve nests was recorded this year as shown in Table II. The largest clutch observed this season contained 7 eggs at the Donkey Lake site. This mean clutch size for the 12 nests was 5.33 eggs per nest. This figure was somewhat higher than the 1973 mean of 5.16 eggs per nest, 4.44 for the 1972 season, and that mean of 5.21 eggs during 1971.

Hatching Success. The earliest hatch recorded this season was June 10 at Mink Creek Lake. This family with a clutch size of six, produced six cygnets observed June 13. Hatching was most active between June 14-20. A minimum of seventy-five cygnets was observed this season. At Lonesome Lake an on ground inspection at this nest site revealed at least shells from two eggs and a recovery of one dead cygnet on the nest approximately 2-3 weeks of age. Two adult trumpeters were on the lake during this visit.

Survival and Mortality. Aerial surveys during the last week in August and first week in September helped locate eleven swan families in company with 41 fledged cygnets. We were unable to relocate the swan family at Bear Lake, Timberlost Lake, Dipper Lake, or Plover Lake.

During an aerial survey October 17, 35 adult swan and 18 cygnets were observed mostly in lakes north of the Sterling Highway.

Banding and Marking. Bird banding was not conducted by the refuge staff this period. However, several trumpeters which were collared and tarsus banded on this refuge during previous seasons were observed on their return to the Kenai.

TABLE I. KNOWN TRUMPETER SWAN PAIRS NESTING ON THE KENAI PENINSULA

1957-74

<u>YEAR</u>	<u>NUMBER</u> <u>of</u> <u>NESTS</u>
1957	20
1958	21
1959	20
1960	27
1961	30
1962	25
1963	22
1964	25
1965	39
1966	36
1967	28
1968	30
1969	31
1970	21
1971	26
1972	21
1973	25
1974	23

TABLE II. CLUTCH SIZE OF 12 OBSERVED TRUMPETER SWAN NESTS ON THE
KENAI PENINSULA - 1974

<u>CLUTCH</u> <u>SIZE</u>	<u>FREQUENCY</u>
4	3
5	3
6	5
7	1
RANGE <u>4-7</u>	
MEAN 5.33 egg/nest	

TABLE III TRUMPETER SWAN NEST LOCATION, PRODUCTION AND SURVIVAL

KENAI PENINSULA - 1974

NEST #	LOCATION	CLUTCH SIZE	HATCHING SUCCESS		SURVIVAL	
			DATE CHECKED	CYGNETS	DATE	CYGNETS
1.	Brown's Lake (2.5 mi.SE)	Unknown	6/19	3	8/19	3
2.	Mink Creek Lake	6	6/13	6	8/12	4
3.	Angler Lake	Unknown	6/19	4		
4.	Diamond Lake	6	6/19	5	8/10	4
5.	Campfire Lake	4	6/25	3	8/25	3
6.	Bear Lake	6	6/20	4	Unknown	-
7.	Mackey's Lake (1 mi.W)	4	6/20	2	8/15	2
8.	TimberLost Lake	Unknown	6/18	4	Unknown	--
9.	Dipper Lake	5	6/19	4	Unknown	-
10.	Two Island Lake (1.5 mi.N)	Unknown	6/19	5	8/10	2
11.	Quill Lake	Unknown	7/4	4	Unknown	-
12.	Cisca Lake	6	6/18	6	9/6	4
13.	Donkey Lake	7	6/20	6	9/6	6
14.	Camp Island Lake (1 mi. W)	5	7/9	3	8/20	3
15.	Moose River (1 mi.SE	5	6/25	5	8/22	5
16.	Brood Lake (1 mi. ^{Moosehorn Lk.)} NE)	4	6/19	0	-	-
17.	Plover Lake (1 mi. NW)	Unknown	6/25	4	Unknown	-
18.	Lonesome Lake	Unknown	6/27	1	6/27	0
19.	Beaver Lake	6	6/18	5	8/19	5

During an aerial survey May 1, we observed one adult blue collared trumpeter swan near Campsite Lake but were unable to obtain the collar number. During a May 23 survey flight over the Big River headwaters there were no swan observed in that area in which 12 birds were captured and collared July 28, 1973. Four swan were observed at Quake Lake May 30, but we were unable to read the numbers and supposed them to be 11VY and 12VY, both of which had been banded on the same lake August 4, 1972. These birds were again sighted on Quake Lake and positively identified September 12, 1973. Again on June 13 one blue collared adult was observed near Brood Lake. Six days later at a new nest location approximately 2-½ miles northeast of Brood Lake, a pair of trumpeters were observed, one of which was collared 02VY. This bird had been collared with 4 other trumpeters on July 31, 1972, one half mile southeast of Snowshoe Lake. Unfortunately, this particular bird escaped before the FWS band could be attached to the tarsus. One banded adult was observed June 18 and for several additional days on very small lakes west of Mosquito Lake. We were unable to reach the area during this period to make a positive number identification. Two adults, one with a blue collar, in company with two juvenile swan were observed one and one half miles northeast of Barabara Lake June 27. Other collared birds observed included one west of Lonesome Lake on August 10 and another north of Cow Lake on August 12.

During an aerial flyover June 5, two adults were observed in the grass drainage on the east edge of Hook Lake, the site on the small north side peninsula was empty. One dead swan was retrieved on the northeast shore about 50 yards from the Hook Lake site. This bird had been captured and banded 05VY on Flat Lake, 19 miles southwest, during our 1972 banding program.

During 1973 we learned from Mr. Jack Adams, Regional Game Biologist for the Washington Department of Game and Fish, stationed at Mt. Vernon, Washington, that sightings of a blue collared trumpeter swan had been observed wintering near the Mt. Vernon area.

Wintering Populations. No wintering swan were reported or observed on the refuge this year.

West Side Cook Inlet Surveys. This sample area, located immediately west of Cook Inlet, was not surveyed this season.

3. Other Migratory Birds. By the end of the first week in May, Robins, Swallows, Sparrows and some yellowlegs were observed in the area. About 300 migrating Sandhill crane were sighted on the Kenai flats May 9. Not until mid August would we again see this bird in numbers migrating southward in flocks numbering hundreds.

Tree Swallows and Traill's flycatchers were observed June 5, as were Arctic Tern, within the week Arctic Loon, Bonaparte's Gull, Red-breasted Mergansers, Surf Scooters, Warblers, Hermit and varied Thrushes, and Sandpipers were observed in numbers. There was no recorded sighting this season of the Osprey family, usually nesting near Weed Lake. Two seasons earlier they had abandoned their old nest site at the broken top of a spruce tree immediately adjacent the Swanson River Road and south of Dolly Varden Lake.

B. Upland Game Birds

1. Spruce Grouse. Spruce grouse populations have been down the past two seasons and remain at a low level. Hunting pressure for these game birds has again been limited during the period.
2. Ptarmigan. Willow ptarmigan populations were down markedly from the 1973 season and was most apparent to those persons in the field. Rock and white-tailed ptarmigan had good population numbers in the mountain regions. Hunting has been generally very light in most areas.

C. Big Game.

Moose

The winter of 1973-74 was once again an important contributing factor for moose survival on the Kenai. This is the 3rd consecutive winter season we have experienced deep snow, prolonged cold temperatures and a late spring. The last four winters have reduced the total moose herd significantly. The annual moose quadrant census conducted during March 1971 resulted in an estimate of 7,900 moose on those lands north of Tustumena Lake and Kasilof River. The census estimate of February 1974 was only 4,850 moose in the same 1900 square mile count area surveyed annually.

Calf Survey. Calf surveys were not flown in FY 1974. However, during the February quadrant census we observed 18.2 percent calves of the total moose counted.

Population Inventory. The annual moose census using the quadrant sampling method was flown on February 25-28, and included that area north of Tustumena Lake and Kasilof River in Game Management Unit 15. The Moose Range staff used two Supercub aircraft and the State of Alaska, also 2 Supercubs, to conduct the 106 square mile random sample count areas. The 54.6 flying hours associated with this survey included several hours of reconnaissance flight prior to the initial survey. Counting conditions during the census were poor to fair because of partially snow covered areas saturated in bright sunlight. Surveys in the future should be conducted during late January or early February, hopefully during periods of overcast sky and recent snowfall when most vegetation is covered with snow. This inventory resulted in a moose population estimate of 4,850 animals.

Composition Counts. The annual moose composition count was conducted during November by the refuge staff with State assistance. Observed were 9.3 bulls and 37.2 calves per 100 cows. The bull/cow ratio dropped 40.4 percent between 1972 and 1973 and is down 56.5 percent from 1971. Calf production is down slightly from 1972 when there were 41.2 calves per 100 cows. Calf production, however, has remained good, averaging 37 calves per 100 cows during the past 5 years.

Hunting. The 52-day moose hunting season began August 20 and continued through September 20. This provided a late hunt November 1 through 20. The harvest in Game Management Units 15A and 15B were about 250 animals. The total harvest was down 20 percent from the 1972-73 season generally because an antlerless hunt was not provided this year. Drastic declines in small bull ratios observed during sex and age surveys confirmed low survival and the antlerless season was cancelled.

Dall Sheep

Aerial Count. Aerial sheep and goat surveys were not conducted by the refuge staff this season. Sheep population in the Kenai Mountains remains level at about 900 animals.

Ground Counts. A ground sheep survey was conducted June 24-28 between Green Lake and Lake Emma in the Kenai Mountains. The 197 sheep observed included 43 rams, 10 of which were 3/4 horn or greater, with at least 100 ewes and yearlings plus 19 lambs. Other sightings were not identified by composition although two young billy goats were recorded.

Hunting. Sheep season officially opened August 10 and closed September 20 as in past seasons. Bag limit included one ram with 3/4 curl horn or larger. Hunting pressure was noticeably lacking this year. Only 6 sheep were harvested by first weekend hunters in the Green Lake area. Additional favorite hunting sites in the Kenai Mountains lacked usual hunter pressure.

Mountain Goat

Aerial goat surveys were not conducted by the refuge staff this period. The hunting season was open August 10 through December 31. Sportsmen were permitted 2 goats of either sex. Hunting pressure was considered light and was generally incidental to a sheep hunt. About 25 goats were harvested.

Brown Bear

As in the past seasons, few brown bear observations were recorded or for that matter harvested. Perhaps 3 or 4 may have been taken during the September 10 to October 10 hunting period. The Caribou Hills region, as usual, produced the most sightings although several "Brownies" are observed regularly along the Russian River drainage. On August 27, 3 yearlings were sighted west of Ptarmigan Head in the Caribou Hills. Again on October 20, a sow and 3 cubs were observed on a moose kill. Eleven days later another sow with 3 yearlings were recorded 3 miles west of Skilak Lake. On June 19, a 3 year old Brownie was sighted 1/2 mile north of Kuvia Lake.

Black Bear

Numerous sightings of black bear throughout the refuge were recorded by the staff and general public. Bear range the entire refuge during summer and at the peak of the berry season, frequently congregate in alpine areas. Eleven blacks were observed one afternoon feeding in berry patches on the southwest hillside above Upper Russian Lake. A good populations of bear have been sighted in the Chickaloon Flats and Point Possession areas. The hunting season extends from August 10 through June 30, permitting a take of up to 3 bear (except females with cubs). For the first time beginning July 1, 1973, all black bear taken in the Game Management Unit were required to be sealed. Estimates indicate more than 50 blacks were

harvested on the refuge about 49 percent taken in the north portion of the Range, 38 percent between Skilak and Tustumena Lake and the balance south of Tustumena.

Caribou

Again a summer resident herd of 10-30 caribou were frequently observed north of the Kenai airport and grazing along Beaver Creek to Akula Lake. This was the first summer we have observed their wanderings so far north, due perhaps to a small wolf group of 4 to 5 animals observed on several occasions by Beaver Creek Unit oilfield employees. Early December tracks of 28 caribou were identified between Duckbill and Swan Lakes as this herd moved northeast from Kenai to their traditional wintering area near Bear Lake. On February 16, 32 caribou including at least 8 calves, were sighted one mile south of Bear Lake. By June 14, near Beaver Creek, 33 caribou including 9 calves had returned for the summer. During late fall between Skilak Lake and Tustumena Lake, 3 caribou were observed near the Benchland. A group of nearly 350 caribou traditionally utilize the nearby alpine regions at the head of Big Indian Creek on Forest Service Lands adjacent to the refuge. A Federal Airport security program necessitated the construction of a chain-link fence surrounding airport property. To date this structure has prevented the herd from frequenting the landing area as they were prone to do in the past.

D. Fur Animals.

Coyote. Remain numerous throughout the refuge.

Beaver. Populations are lower than in recent years.

Mink, Otter, Weasel, Lynx. Numbers appear stable except for the Lynx population which now is high.

Snowshoe Hare. Populations have declined in some areas of the refuge.

Wolves. Numerous sightings would indicate the population is increasing. The following observations were recorded:

- 8/9 One grey and 3 black, E. slope Surprise Mountain
- 8/12 One set wolf tracks at pass above Twin Lakes
- 8/28 Large grey 1.5 mi. N. Lower Gasline strip
- 9/18 Carcass, $\frac{1}{2}$ mi. E. Portage Lake
- 10/1 Pack of 12 wolves led by black male and grey female observed on Surprise Mountain several times during the summer period. The Alpha pair has been seen several times during the past three years on Surprise Mountain (Luman Nichols, ADFG)
- 11/17 One black and 3 grey and 3?, Lower Funny River Strip.

11/23 Four black and 4 grey, N. of the Caribou Hills.
5/4 One large black and 1 small grey, Timberlost Lake.

Wolverine. No apparent change in the population.

E. Hawks, Eagles, Owls, Ravens and Magpies

No change was observed in the status of these populations.

G. Fish

Sport fishing continues to be a major visitor attraction on the Kenai. Results of the many lakes surveyed during this period have been included in the Fishery Services Annual Report.

III. REFUGE DEVELOPMENT

A. Physical Development

Y.C.C. completed general maintenance of all campgrounds, access sites, and waysides; picked up litter from the entire Skilak Loop Road (20 Miles) as well as that portion of the Sterling Highway on the refuge (22 Miles), cleared hiking trails; posted 15 miles of the Swanson River Road; completed maintenance of the Swan Lake Canoe Route; and many other projects.

In response to the energy crises, all refuge buildings were converted to more efficient natural gas heat. Vehicular speeds were kept below 55 mph.

Additions of wall maps, displays, and leaflet dispenser were made to the Visitor Contact Station. A propane heating and lighting system was installed to combat the cool rainy weather that prevails. Installation of vehicular control barrier logs and uprights added to the completion of the site. A gravel base was spread on the access road and parking area.

Completed fencing of the north boundary of headquarters area in downtown Kenai. Increased theft and vandalism dictated need for fence. Completed graveling of shop parking area and entrance road.

B. Plantings

Forty acres of roadside cut banks were seeded and fertilized culminating efforts by refuge personnel to stabilize the erosion problem along the Jean Creek section of the Sterling Highway. Previous cooperation with the State Highway Department proved futile.

Forty acres of fence line were also seeded and fertilized at the Moose Research Center facility.

C. Collections and Receipts - none

D. Control of Vegetation - none

E. Planned Burning - none

F. Fires

Smoke from a camper's fire on a small island near the south shore of Skilak Lake (R4N, T7W, Sec. 22 & 27) was sighted on September 9, 1973 during a routine aerial patrol. Refuge personnel were

immediately flown to the site and the 1/2 acre fire was doused. Forty mature trees were downed as their supporting root systems were consumed by the hot burning ground fire.

IV. RESOURCE MANAGEMENT

- A. Grazing - none
- B. Haying - none
- C. Fur Harvest

The trapping effort, no longer traditional but rather recreational in nature, increased during the 1973-74 season. The reason for this increase was the high prices offered for prime furs, especially lynx and wolverine.

Slightly more than 1,000 fur bearers were taken with the 81 permits issued by the refuge staff. These permits represent an increase of 20 per cent over those issued during FY 73.

- D. Timber Removed

One hundred and twenty-six free use permits were issued for timber removed for personal use:

47 Permits for fuel wood 75 cords

41 Permits for fence posts 100 cords

2 Permits for cesspool logs 2 cords

33 Permits for house logs 165,000 BF

3 Permits for spruce transplants 30 trees

Three commercial use permits were issued for the removal of 1700 Black Spruce transplants and 100 cords of fuel wood.

Louisiana-Pacific- which purchased the Kenai Lumber Company--initiated interest in Timber harvests on Moose Range Lands. Considerable additional interest has been generated from several other companies, some of which are related to the Japanese Market.

E. Commercial Fishing - no permits were issued.

F. Other Uses

Twenty-six permits were issued for activities in addition to those issued for timber harvest.

G. Oil and Gas Operation

Marathon Oil Company, Unit Operator of the Beaver Creek Unit, continued development and some production during this reporting period. At present, there are 5 wells in varying stages of development within this participating area. Three wells are gas shut-in waiting for the proper market before committing the resource, one well is a crude producer, and another, a new crude well drilling ahead with the option for natural gas recovery.

Capped gas well No. 2, completed earlier in the Beaver Creek gas sands Sterling Formation, was reentered about November to clean out the well through the "G" Zone by fracturing and use of other down-hole techniques, hopefully to develop a crude producer. Unfortunately, a commercial crude source was not located and the "G" Zone was abandoned. The well was recompleted in the Beaver Creek gas zone and remains capped today.

Well No. 4, a "G" Zone crude producer, has produced as high as 1850 bbls/day, however, the monthly average in November was 36,730 bbls. produced, slowly dropping during this period to approximately 30,000 bbls/month. Cumulative production for this oil field through November 30 was 370,911 bbls.

Spud-in date for well No. 5 was June 10. Planned total depth for this effort exceeds 16,000 feet.

At the Swanson River Oil Field, operated by the Standard Oil Company of California, crude production and further recovery operations continue with some additional field developments.

Two new wells were completed during the period initially producing 3350 bbls. and 1580 bbls/day respectively. A field-wide reservoir pressure survey test was conducted and revealed pressures less than desired. To assist in correcting this deficiency one well was converted to gas injection providing more injection capacity in the southern

portion of the Soldotna Creek Block. One gas injection well was terminated and placed on water injection in the northern section of the field.

Clearing and land preparation for two new 4000 H.P. compressors at the pressure maintenance plant was also completed requiring the removal of 3500 yards of top soil plus subsurface material later replaced by 5700 yards of gravel. These two huge compressor units will increase the daily gas injection program by 85,000 MCF.

A second LTS unit installed at the propane plant facility increased that output 1500 gal/day. Daily average propane production is now 16,500 gal/day

As of January 31, cumulative values for the Hemlock Zone crude produced was 145,423,587 bbls. Average daily production was 28,405 bbls/day crude and daily gas injection averaged 235,000 MCF.

Preparation for abandonment of the Swan Lake Road and Finger Lakes Road by Standard Oil continued during summer and fall. The most easterly mile of Swan Lake Road was rehabilitated by dozing back fills into cuts, re-contouring, seeding and fertilizing. Numerous unvegetated or slightly vegetated sections along the Swan Lake Road right-of-way were hydroseeded and fertilized. One culvert was repaired and a gate was installed at the gravel pit access road entrance on Finger Lakes Road.

A new and rustic guard station house was constructed at the Swanson River Oil Field access road entrance. This facility blends in well with the forest surrounding and provides shelter and telephone/radio communications with the Field while controlling all vehicular ingress and egress.

Early 1974 Phillips Petroleum proposed a 16-mile seismic program using existing seismic trails about 8 miles southwest of Point Possession. This program involved Vibrotrac equipment mounted on Nodwell tracked units plus the drilling of 16 sixty-foot shot holes along these seismic routes. This equipment became available so late in the season that lack of snow cover prevented commencement of this project and the was cancelled until next season.

Marathon Oil conducted a 76-mile Vibroseis program on refuge lands generally between Beaver Creek north to Grey Cliff and Birch Hill on the coast. This equipment was mounted on large rubber tires and did not prove adequate in negotiating the deep snow cover or steep gradient terrain. The seismic camp was located on pad No. 3 within the Beaver Creek Oil Field, a centralized location for two-thirds of the program.

The Birch Hill and Grey Cliff portion of the project was conducted from their relocated camp several miles north of Swanson River along the Phillips gasline right-of-way. Total cleanup of used lines following the completion of this project was not approved by the refuge staff until July 1975.

V. FIELD INVESTIGATIONS

A. Moose Research Center

Cooperative research efforts between Alaska Department of Fish and Game and the Denver Wildlife Research Station (Kenai Field Station), resulted in ten publications, one professional paper presented at the Tenth North American Moose Conference, Duluth, Minnesota, and five PR Project reports (two finals and three in progress).

B. Fishery Services

The Kenai Station provided technical advice in a cooperative effort with Alaska Department of Fish and Game fishery biologists involving the taking of 20,000 rainbow trout eggs from the Swanson River. This is a Cooperative program the State has undertaken in an effort to establish a disease free brood stock of native Alaskan Rainbow Trout reared in State fish hatcheries. Prior to this program trout eggs were received from out of state sources which posed the risk of introducing fish diseases into Alaskan waters.

C. Spruce Bark Beetle

The refuge staff provided logistical support for US Forest Service personnel engaged in studies related to spruce beetle (Coleoptera) infestations. Results of portions of the study were published as a manuscript, Repression of Spruce Beetle (Coleoptera) Attraction by Methyl Cyclohexenone in Alaska by Furniss, Baker, and Hostetler. Publication of the manuscript was planned for inclusion in the "Canadian Entomologist."

D. Other Studies

Other studies which were initiated in the spring of 1974 included a survey of canoe system use and wilderness perception (Miss Lisa Shon, University of Alaska), and field work involving small mammals of Alaska (University of California, Davis, California). Both studies have management implications and the small mammals study includes the drafting of a comprehensive list of mammals for the Kenai National Moose Range.

VI. PUBLIC RELATIONS

A. Recreation

Public use during Fy 74 reached 148,800 visits, a 22 percent increase over FY 73 and slightly more than the expected annual increase of 15 percent. Significant factors contributing to this increase were good weather, an exceptional pink salmon run, and changes in State hunting regulations which shifted considerable pressure from other Game Management Units near Anchorage to GMU 15 which includes the Kenai National Moose Range.

Resident big game hunting visits increased 24 percent during the fall of 1973 (FY 74) and fishing increased 36 per cent in total visits. The hunting of migratory waterfowl which decreased substantially (37 per cent) was attributed to a rather speedy migration of most birds over the area.

The use of magnetic loops buried in the roadbed of refuge access roads, increased traffic counter reliability and accuracy throughout the summer period. Vandalism, the cutting of pneumatic tubes attached to standard traffic counters, was virtually eliminated.

Also adding to the accumulation of public use data, was the initiation of A Standard System of Measuring Public Use by Dr. Dwight McCurdy of Southern Illinois University. This "system" employs a postcard questionnaire distributed to refuge visitors on randomly selected days requesting basic activity data. Unfortunately, confusion on the part of the respondents led to invalidation of activity hour data. The basic data of average party size, length of stay, and residence was considered to be valid and was applied to vehicle counts to determine total visits (monthly). Random aerial and ground counts were also conducted to supplement the use of traffic meters.

TABLE IV
PUBLIC USE - 1974
KENAI NATIONAL MOOSE RANGE

	% VISITS	ACTIVITY VISITS	ACTIVITY HOURS	RBU	% A/H
Interpretion	.8	2197	1146	80,450	.02
Education	.4	1061	5647	941,750	.07
Rec. Wildlife/Wildlands					
Hunt Migra Birds	.5	1475	12150	607,500	.16
Hunt Resident Game	10.5	30,855	203,440	34,884,100	2.6
Fishing	24.5	71,380	436,428	10,910,700	5.7
Other Consumptive	2.9	8,510	31,290	312,900	.4
Wildlife Obs.	8.9	25,860	51,315	2,565,750	.7
Wildlands Apprec.	48	140,279	6,624,989	99,374,835	88
Public Affairs	-	65	-	82,000	
Rec. Non-Wildlife/Wildlands	3.5	10,350	181,330	1,788,200	2.4
	100.0	291,967	7,547,735	147,971,785	100.0

Program Activities: 96.5% of Visits - 97.6% of Act/Hrs.

Non-Program Activities: 3.5% of Visits - 2.4 % of Act/Hrs.

Average length of stay - annually = 48 hours

Total Visits (1974) = 156,345
(Potential Act/Hrs = 7,504,560 A/H)

B. Refuge Visitors

Several VIP tours were conducted during the period. Worthy of note was the visit of Dr. Yoshimaro Yamashina, Vice-President International Council for Bird Protection and two groups of Russian scientists who were interested in habitat management, oil development, and the Alaska environment in general. Editors from the National Geographic Magazine also spent several weeks on the Moose Range gathering material for an upcoming article.

C. Refuge Participation

1. Youth Conservation Corps. On June 17, 1974 the first Youth Conservation Corps program opened on the Kenai National Moose Range with thirty eager youth and six equally enthusiastic leaders. YCC projects included maintenance work at all recreational facilities, roadside litter pickup, trail maintenance on the Swan Lake Canoe Route, roadside posting, construction of an experimental moose browse enclosure, and various other projects. YCC youth also assisted Fishery Services and Moose Research Center personnel on various projects.
2. Environmental Education. The Environmental Education Program decreased in activity as Title III funds (Federal) were terminated. The local Borough government refused to provide any financial assistance even though three local teachers were instrumental in presenting a very worthwhile three year program. Refuge facilities during FY 74 were used by 828 students and teachers who spent 1,656 activity hours engaged in various environmental programs. Refuge assistance continued, but without Borough funds and authorization, local teachers were unable to use the facilities to any extent.
3. Other. Refuge personnel presented programs to 757 people, representing 1,021 activity hours on such subjects as habitat management, recreation, fisheries and oil operations on these refuge lands.

D. Hunting

Hunting pressure generally increased as food prices and other economic constraints placed increased emphasis on wild game as a supplemental food source. The overall hunting effort on a fiscal year basis, increased 24 per cent over the preceding year. Resident game hunting, principally moose, increased from 23,500 visits in FY 73 to 30,800 visits in FY 74.

Waterfowl hunting exhibited a decrease of 37 per cent from 2,341 visits in FY 73 to only 1,475 visits in FY 74. Migrational variations, in terms of population numbers and the length of stay within the area, are considered the norm as weather and other factors dictate movement patterns.

E. Violations

The local detachment of Alaska Department of Public Safety, Division of Wildlife Protection, provided coverage for the entire Kenai Peninsula including the Moose Range. The poaching of moose increased due to economic impact of food prices. Of 35 known illegal moose kills reported in November 1973, 20 people had been apprehended for these violations.

Several additional violation notices were issued for the use of vehicles in unauthorized areas. Four pilots were ticketed during September for the use of aircraft in the closed canoe system lakes in support of their moose hunting trips.

F. Safety

Refuge and YCC personnel attended the State of Alaska, Department of Labor, First Aid Course, which is mandatory under State law for all supervisors.

Accidents happen, and happen they did. Two separate parties of public users had aircraft accidents, resulting in injury to six people and substantial property damage but no fatalities.

Four hunters were found after three days of searching by CAP and US Army Search and Rescue Teams.

Two fatalities were recorded on the Moose Range during FY 74. One drowning, and one young girl was killed when abnormally high winds blew down a large cottonwood tree and crushed the cab-over portion of a camper. This occurred, despite continued efforts by refuge personnel to remove all suspected hazard trees earlier in the year. Over 300 trees were removed from seven campgrounds including the Upper Skilak Lake Campground where the accident occurred.

VII OTHER ITEMS

The entire staff contributed to the preparation of this report.

SIGNATURE PAGE

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