SELAWIK NATIONAL WILDLIFE REFUGE

Kotzebue, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 1994

U.S. Department of Interior

Fish and Wildlife Service

National Wildlife Refuge System

REVIEW AND APPROVALS

SELAWIK NATIONAL WILDLIFE REFUGE

Kotzebue, Alaska

Annual Narrative Report

Calendar Year 1994

3/15/95
Refuge Manager Date

ACTING
3/20/95
Associate Manager Date

3/23/95
Regional Office Approval Date

INTRODUCTION

The Selawik National Wildlife Refuge boundary encompasses 3.1 million acres in northwest Alaska on the coast of the Chukchi Sea. The refuge was established by the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) which withdrew 2.15 million acres of land from the public domain. The remaining lands within the refuge boundary have been selected by Alaska Native corporations and are in the process of being conveyed to private ownership by the Bureau of Land Management (BLM). In the interim, these lands are managed by the refuge in cooperation with the Native corporations.

The purposes for which the refuge was established include conservation of fish and wildlife populations and their habitats, specifically including caribou, waterfowl, shorebirds and other migratory birds, salmon and sheefish; the opportunity for continued subsistence uses by local residents; ensuring water quality and necessary water quantity within the refuge; and allowing continued reindeer grazing in the southwest part of the refuge. There currently is no reindeer grazing on the refuge but local residents use the refuge year-around extensively for hunting, fishing, firewood and house log cutting, berry picking, and gathering greens.

The refuge habitat includes extensive tundra, foothill spruce forests and large river deltas. The northern boundary follows the divide of the east-west oriented Waring Mountains. Here it shares a common boundary with the Kobuk Valley National Park. The Waring Mountains contain the 240,000 acre Selawik Wilderness. The southern boundary is formed by the Selawik Hills and the Purcell Mountains. For a while this boundary follows the continental divide and shares a common boundary with the Koyukuk National Wildlife Refuge. Between these mountain boundaries lies the long, broad westward flowing Selawik River valley. The Selawik River flows into Selawik Lake, which is actually a slightly brackish estuary. The larger Kobuk River delta is the western edge of the refuge. The Selawik River valley and the river deltas contain most of the refuge's 22,000 lakes and wetlands.

Two Inupiaq Eskimo villages, Selawik and Noorvik, are within the refuge boundary. Four other Inupiaq villages, Kiana, Ambler, Shungnak and Kobuk, and the city of Kotzebue, are located within 25 miles of the refuge. Approximately 2500 people live in the six villages and 3600 live in Kotzebue. Many of the people of these villages, and from the more distant villages of Deering, Buckland, Shishmaref, and the interior Athabascan Indian village of Huslia, have traditionally used refuge resources for their subsistence lifestyle. The refuge is neither fenced nor are the boundaries marked. Subsistence use by local residents is more encouraged than constrained by refuge management.

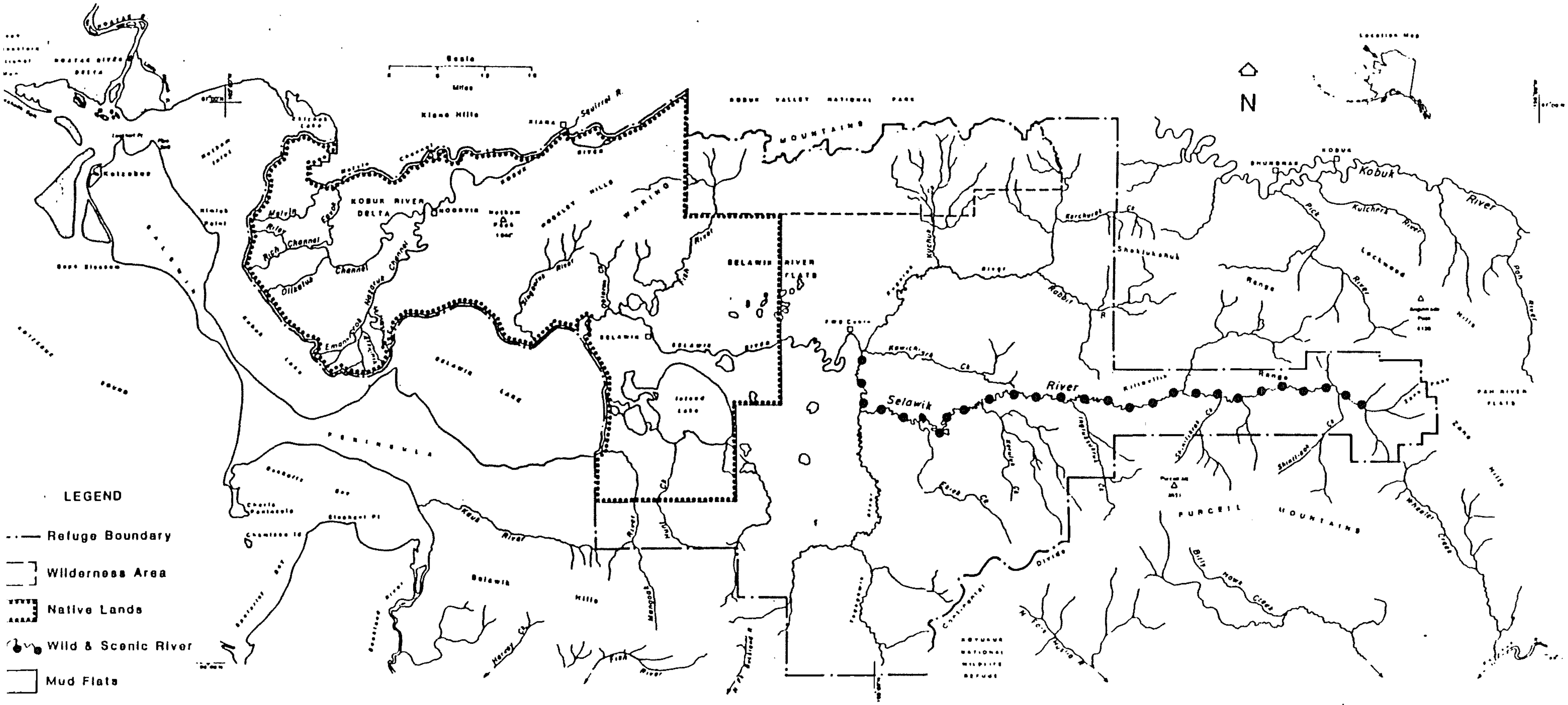
Transportation methods in this region include aircraft, boats, all-terrain vehicles and snowmachines. Dog teams are still used for transportation, but mostly for racing. There are short gravel roads within most of the villages but there are no roads between any villages and there are none to, on, or near refuge lands. Established winter trails between villages are extensively used during the winter months. All villages have gravel runways and daily commercial air service, weather permitting. During the short summer, boats are the most commonly used form of transportation between villages and to subsistence camps. The refuge owns and the staff uses, extensively, all of the vehicles mentioned above.

The refuge is bisected by the Arctic Circle and lies mostly within the Northwest Arctic Borough, which is analogous to a Lower 48 county but is the size of the state of Indiana. The Selawik River and Refuge take their name from the Inupiaq word "siilivik," which means "place of" (vik) "sheefish" (sii). The sheefish is a member of the whitefish family and attains weights up to 60 lbs on the refuge. It is eagerly sought after as a subsistence food and for sport-fishing.

The Refuge address is: Selawik National Wildlife Refuge
PO Box 270, Kotzebue, AK 99752
(907) 442-3799

A typical local village,
this one happens to be Buckland.

SELAWIK NATIONAL WILDLIFE REFUGE



Page

INTRODUCTION

TABLE OF CONTENTS

HABITAT MANAGEMENT (Cont.)

G. WILDLIFE

H. PUBLIC USE

I. EQUIPMENT AND FACILITIES

J. OTHER ITEMS

K. FEEDBACK

A. HIGHLIGHTS

In April, WB Peltola and crew radio-collared 50 moose in the Tagagawik River basin with 0% capture-related mortality (G. 8.).

In April, AT Warburton and RIT Ramoth held a mini science/moose camp with four Selawik High School students. The students assisted with radio-collaring Moose (H. 2.).

[LOWLIGHT] On August 10, Seasonal Pilot Christensen flipped the plane (N91251) while attempting to take off from Isaac Lake. He was not injured and the plane suffered minor damage (E. 6.).

[LOWLIGHT] On August 11, an OAS led recovery rips tail off of Super Cub (E. 6.).

On August 19, Fisheries crew is forced to pull camp due to rising water (G. 11.).

In September, AT Warburton, with help, pulls off another successful Caribou Camp (H. 2).

In October, RM Rearden visited several Russian wildlife refuges (D.8.).

B. CLIMATIC CONDITIONS

Weather for the Selawik National Wildlife Refuge is obtained from the National Weather Service in Kotzebue. Kotzebue weather is typical of the arctic coast, characterized by wind and cold. Much of the refuge is typical of subarctic interior Alaska, complete with hot summer days and clear cold winter days.

January and February were warmer and drier than normal, moderating what could have been a hard winter.

The summer was cloudy and wet. Total precipitation (13.59 inches) was well above the normal, which is 8.53 inches. Flood damage occurred to several area villages and two field crews on the refuge were forced to pull camp.

Blizzards began in late October. They normally don't show up until December. October received 14.9 inches of snow, normal is 6.6 inches. November and December had normal snowfall (total 16 inches) but above average winds.

The ice broke loose in front of Kotzebue on May 24 and Kotzebue Sound froze up on October 18.

Table 1. Monthly weather data for Kotzebue, 1994. Data from National Weather Service office in Kotzebue.

MONTH	TEMP MIN	DATE	DEG F MAX	DATE	WIND MAX	DATE	TOTAL PRECIP.
JANUARY	-24	11	37	31	46	21	0.47
FEBRUARY	-23	16,17	36	1	48	1	0.18
MARCH	-33	21	35	28,29	39	13	0.91
APRIL	-16	17	36	2,30	38	8	0.29
MAY	14	2	58	21	30	6	0.39
JUNE	27	1	63	10	39	18	0.24
JULY	40	8	74	27	39	16	3.07
AUGUST	29	28	75	6	43	26	4.70
SEPTEMBER	25	26	56	16	37	14,15	0.86
OCTOBER	-2	23	42	3,4	48	31	1.10
NOVEMBER	-25	19,20	38	9	55	8	0.75
DECEMBER	-37	23	26	2	53	27	0.63
EXTREME	-37		75		63		13.59

C. LAND ACQUISITION

1. Fee Title

The NANA Regional Corporation (NANA) is the major Alaska Native corporation which has selected lands within the refuge boundary in accordance with the provisions of the Alaska Native Claims Settlement Act of 1971 (ANCSA). The Kikiktagruk Inupiat Corporation (KIC, the village corporation of the City of Kotzebue) and Doyon, Inc. have also selected lands within the refuge boundary. ANCSA allowed Native corporations to over-select their entitled acreage by 20 percent to identify adequate lands for final selection. At NANA's request no lands have been conveyed since 1988 so the current tally remains at 360,000 acres conveyed and 734,800 acres selected but not conveyed within the refuge boundary. Since statewide, about 80 per cent of Native lands have been conveyed, the regional refuge policy on management of selected but not conveyed lands changed during 1990 to the following: As before, they are managed as refuge lands. If any party requests a special use permit to use selected lands in a manner compatible with the purposes for which the refuge was established and in accordance with existing regional policies, the selecting Native corporation is notified and their comments requested. The manager waits thirty days and issues or denies a permit in accordance with applicable policies. The manager, may or may not follow recommendations of the Native corporation.

D. PLANNING

1. Master Plan

The Selawik NWR Comprehensive Conservation Plan was completed in 1987.

2. Management Plans

In January, staff completed a Refuge Operations Need's (RON's) exercise to determine the station's minimum needs. At minimum requirements this station needs three more staff members and a doubling of its budget.

Another exercise with a much shorter deadline (24 hrs) was completed by WB Peltola and ROS Koepsel. They divided the state into ecological regions, prioritized each region and listed the stakeholders within their region. This was the start of ecosystems management directive coming from Washington D.C. The refuge ended up receiving priority number nine, out of ten eco-regions in Alaska (number ten has no refuges in it).

RM Rearden joined the Northern Alaska Ecosystem Management Team. After several meetings in Fairbanks the team produced an action plan for Fiscal 95-97. Our future projects will be tied to this plan.

Several tele-conferences were held between the regional office and refuges about ecosystems management and Total Quality Management.

3. Public Participation

This is one of those long stories, it will eventually get around to 1994. In 1992, the Northwest Arctic Borough (NWAB) developed a Comprehensive Plan that included zoning ordinances. They intended to zone a five mile corridor along all navigable streams as a subsistence conservation district. The plan said "Sport hunting and fishing are not allowed in the subsistence conservation district." This will be enforced on all lands in the borough. This corridor included a large amount of federal land. A copy of the plan was sent to the Solicitor's Office for a legal opinion. The legal opinion came back: "It depends."

On December 22, 1992, RM Rearden testified at NWAB Zoning Ordinance Meeting. This meeting was broadcast live by KOTZ Radio. The zoning plan was radically changed at the last minute, then passed on an interim basis (until April 30, 1993) to allow

the borough to get with state and federal agencies and work out differences.

In January 1993, the meetings continued, NPS Superintendent Bob Gerhart, NPS Dalle Molle, NPS Dave Mills, BLM Whalen met with RM Rearden and ROS Koepsel on the NWAB Zoning Ordinance. All three agencies discussed how to accommodate, when possible, and work with the Borough on federal lands. Then on the 2nd of February, NWAB, NPS, BLM and FWS representatives met to discuss the Borough planning and zoning ordinance.

Finally on April 21, 1993, RM Rearden attended the NWAB Planning Commission Meeting when they discussed the planning and zoning ordinance. The commission recommended that the ordinance be extended until September 30, 1993. The state has expressed some concerns with the ordinance. The addition of "except where superseded by federal law" has satisfied our Solicitor's Office.

In September 1993, the ordinance was passed permanently. That should be the end of this story but its not.

In August 1994, the NWAB came out with a Revised Coastal Management Plan (CMP). In this plan the Title 9 Zoning Ordinance was adopted as the cornerstone. Public comments on the plan were due by September 2, 1994. After complaints that this wasn't enough time to review such a large document the comment period was extended until November 21, 1994.

On October 7, 1994, various Department of Interior representatives met to discuss the CMP. In this meeting it was decided that NPS would compile comments from all the agencies to submit to the Borough.

ROS Koepsel wrote up Selawik NWR's concerns and submitted them to Deputy Associate Manager - line, Jerry Stroebele. Who worked with the Acting Regional Director to draft FWS's response to the plan.

On November 8, 1994, ROS Koepsel and RM Rearden attended a public hearing on the plan. RM Rearden gave public testimony on his concerns to the plan. All people that gave testimony objected to the plan, those included: NANA Corp., City of Kotzebue, KIC Corp., FWS, and NPS. The combined Dept. of Interior written comments were submitted before November 21, 1994.

At the end of the 1994, NWAB had not yet addressed the public comments.

5. Research and Investigations

The National Biological Survey is now responsible for most research. The refuge does inventory and monitoring studies, for that work see the wildlife section (G.).

E. ADMINISTRATION

1. Personnel

Staff Photo
Left to right, RM Rearden, ROS Koepsel
WB Peltola, MW Johnson, AT Warburton

APHIS Pilot Chris Christensen returned on June 6 for another summer of flying for us.

Staff List

1. Michael B. Rearden, Refuge Manager, GS-0485-12, PFT, EOD 07/22/91.

2. Mark A. Koepsel, Refuge Operation Specialist, GS-0485-11, PFT, EOD 09/22/91.

3. Johnson, William, Maintenance Worker, WG-4749-8, TFT EOD 9/09/91, EXT 9/09/92, hired on PFT 06/30/93.

4 Eugene R. Peltola, Wildlife Biologist, GS-0486-9, PFT, EOD 11/16/91.

5. Janet Warburton, Administrative Technician, GS-303-5, PFT, EOD 04/07/93, Promoted 4/03/94 to GS-6.

6. Ralph Ramoth, Refuge Information Technician - Selawik, GS-1001-5, Temp, Local Hire, Intermittent, EOD 07/27/92, Hired Permanent, Intermittent, Local Hire, GS-1001-8, EOD 09/18/94.

7. Barbara Armstrong, Office of Subsistence Management, Coordinator of NW Arctic, Seward Peninsula, North Slope Regional Subsistence Advisory Councils, GS-1101-11, EOD 04/19/93.

8. Chris Christensen, APHIS Pilot, GS-12, Temp, EOD 06/06/94, Ended 8/20/94.

9. Allison Gal, YCC, EOD 08/01/94, Ended 08/20/94 (not pictured).

10. Roger Cook, Biological Technician, GS-5, TFT, EOD 06/06/94, Put on intermittent status 09/06/94.

11. Linnie Brister, Biological Technician, GS-5, TFT, EOD 05/31/94, Term ended 09/02/94.

12. Clinton Carlton, Volunteer, EOD 05/31/94, Ended 08/25/94.

13. Robert Hingsberger, RAPS, EOD 6/07/94, Ended 8/19/94.

Pilot "Chris" Christensen

RIT Ralph Ramoth

Left to right, Vol Carlton, BT Cook,
BT Brister, RAP Hingsberger, Vol Shoop.

2. Youth Programs

WB Peltola interviewed four potential RAPS students and selected one for a position this summer. The selected RAPS Student Robert Hinsberger worked from June 7 to August 19. He was a member of our vegetation mapping and duck banding crew.

4. Volunteer Programs

Three volunteers were utilized this year. Two helped with vegetation mapping. The mapping volunteers were Clint Carlton and Kathleen Shoop. Ms. Shoop worked from July 5 to July 13. Victor Karmun, a certified bear and firearm safety instructor and former employee, taught bear and firearm safety to the staff.

5. Funding

After two years of maintenance level funding the refuge saw a increase. Funding had been reduced $204,000 over the last two years. The 1994 budget showed an $105,000 increase from 1993.

Table 2. Selawik NWR Funding, FY 85 through FY 94 (thousands).

Fiscal Year	Funding Source 1260	ARMM	1520/1210 1230	1100	8610	Station Total
85	226.0	109.0	2.4	9.6	0	346.4
86	233.6	66.4	3.1	6.9	0	310.0
87	305.5	50.0	1.5	10.0	17.0	384.0
88	442.0	0	0	12.0	18.0	472.0
89	540.0	0	0	13.0	0	553.0
90	540.0	0	16.0(1)	20.5	0	556.5
91	655.0	0	11.0(2)	15.0	0	681.0
92	522.0	0	11.0(3)	12.0	0	545.0
93	454.0	0	11.0(4)	12.0	0	477.0
94	558.0	0	12.0(5)	12.0	0	582.0

(1) 1240 Fire funds to purchase Remote Area Weather Station
(2) Arctic nesting geese I&E
(3) 1230 funds for pintail banding (5,000) & Grtr Wht Frnt Geese banding (6,000)
(4) 1230 funds for pintail banding (9,000) & Grtr Wht Frnt Geese banding (2,000)
(5) 1230 funds for pintail banding (9,000) & Grtr Wht Frnt Geese banding (3,000)

6. Safety

RIT Ramoth attended a U.S. Coast Guard boating course from February 7-25. Yukon Delta's MW Mike Jenson attended the training and stayed in our bunkhouse. We both now have licensed Coast Guard inland water boat operators.

In June, Permanent staff and seasonal employees successfully completed Adult CPR and Standard First Aid training.

In June, the field staff qualified on the bear safety firing course. Everyone enjoyed the charging bear target, the box only ate one person. One of the Sako .375 bolt action's refused to extract spent shells after firing a few rounds. This weapon was retired until repairs can be made or it is replaced. We have now had trouble with two of the three Sako .375's. The new 35 cal. Whelen pump rifle was tried out and users preferred it over the bolt action rifles. The pump action works for both right and left handed people.

Training continued as MW Johnson (Motorboat Operator Certified Instructor) gave boat safety class to temporary staff before they went into the field.

On August 10, Pilot Christensen flipped N91251 while attempting to take off from Isaac Lake (the Kotzebue airport float pond). The official accident report is not yet in. Chris believed a strong crosswind flipped him over while the floats were on plane but not yet airborne. He escaped from the plane with minor scrapes on his chin. An OAS mechanic flew up to direct removing the plane. He directed that an A frame be built between the floats and a rope attached to the tail section and over the A frame. The rope was then pulled by a vehicle on land to right the plane. This effort managed to break the airplane in half. After several failed attempts a local contractor was hired. The contractor removed the floats and hired two scuba divers to attach ropes around the engine. The plane was then lifted using a davit (designed to lift crab pots) on his boat and brought it to shore where a loader lifted it onto shore. The plane was taken apart and freighted to Anchorage. It was declared a total loss.

The first attempt was to slowly pull it to the opposite shore where it could be lifted out.

Second try was to flip it over which...

...broke the airplane in half.

Finally a local contractor was hired.
He used his boat to remove it.

On October 17, a metal cabinet for flammable items was obtained for the hangar.

On December 14-16, AT Warburton, MW Johnson and WB Peltola took a course from Learn to Return, a private firm, on winter survival. NPS staff filled out the rest of the class. After one day in the classroom they spent two days and one evening practicing what they learned outside the city limits of Kotzebue. NPS also participated in this class. The exhausted crew complained of sore muscles for weeks after but thought the training excellent. An escape (theft) of the live rabbit, brought by LTR for demonstration purposes, made the crew miss out on the rabbit soup dinner while in the field.

7. Technical Assistance

From February 22-23, WB Peltola assisted NPS Schultz with radio tracking moose on the Noatak River.

On May 27, WB Peltola and RM Rearden flew with Northwest Aviation's Jim Rood to track NPS radio-collared bears.

8. Other Items

The refuge issued seven special use permits in 1994. Three were to air taxi operators: Arctic Air Guides, Ptarmigan Air, and Northwest Aviation. The Kotzebue Dog Musher's Association and the Kotzebue Lion's Club were issued permits to conduct races on refuge lands. One permit was given to Dr. Doug Anderson for archaeological work. The final permit was given to Alaska Area Native Health Services to move a John Deere - 350 from Noorvik to Selawik.

Five year permits were issued to big game guides, Jake Jacobson, and C. Wayne Taylor in 1993.

A five year permit was issued in 1991 to the Upper Kobuk Elders Council to permit cabins and use at the Purcell Mt. hot springs.

On February 2nd, RM Rearden met with the Shungnak Elders council. They were in town for a NANA meeting and wanted to talk about their special use permitted cabins at the hot springs. Bears have damaged these facilities because of meat and garbage left behind by people using the hot springs. They agreed to work it out among themselves and share cleanup responsibilities with other villages that use the facilities.

In April, MW Johnson and RIT Ramoth inspected the hot springs on snowmachines and hauled out garbage. The rough trail enticed them to use the hot springs to work out the kinks.

Pacific walrus follow the ice floes and so generally get no closer than 30 miles from Kotzebue. Occasionally a young one swims right to town. Ocean currents deposit walrus carcasses on the beaches in town and south along the Baldwin Peninsula. Due to the cold water and long ice season, walrus carcasses last two or three years. There are only a few traditional walrus hunters in Kotzebue but many in the nearby villages of Wales, Shishmaref, Kivalina and Point Hope. Frequently, wounded walrus escape and die later, or sink after being shot. They also die of old age and by crushing and fighting. The dead ones with their ivory tusks intact are eagerly sought by airplane pilots and ATV riders who cruise the beaches after the fall storms looking for fresh carcasses. The Marine Mammal Act allows possession of beach found walrus ivory by non-Natives, but it must be registered within 30 days of being found. Native hunters must register their ivory and polar bear hides also.

In 1994 the refuge registered 1 pair of tusks for non-Native beach found ivory. No Native hunters brought in ivory. One polar bear was sealed by this office in 1994.

From June 29 to July 2, we were host to four Russian preserve managers. They had been in Washington D.C. where they received

training in western management styles. We were the last stop on a whirlwind tour as they headed home. Although exhausted they showed great interest in the refuge and were a joy to have.

From September 27 to October 5, RM Rearden was in the Primorski Krai Region of Russia to attend a conference on biodiversity. While there he was able to visit several Russian reserves and visit with his Russian counterparts. The highlight of the trip was seeing a siberian tiger. RM Rearden was still telling Russian stories at year end.

Steve Thompson, Steve Kohl, Natalia R. Danilina, Acting Director of the Main Dept of Nature Reserves Mgmt., Mike Finley, Mike Rearden, Ted Heuer on a beautiful Primorski Krai Stream.

Steven G. Kohl, in charge of the China/Russia International Affairs program for the USFWS put together this trip to far southeastern Russia. Those attending the trip were: Dr. Tom Elias, Director National Arboretum, Mike Finely, Superintendent Yosemite NP, Ted Heuer, Yukon Flats NWR, Mike Rearden, Selawik NWR, Steven G. Kohl, Washington Office, Steven Thompson, Laguna Atascosa NWR. Steven Thompson was the journal taker and the following excerpts are from his journal...

...We are meeting in a conference hall that was used by the young communists in the past government. They were a rough equivalent to our boy/girl scouts, only you fink more on your parents. At the conference we find out that the governor of the region can't make it because the flights into the area have been canceled due

to a mini-typhoon. I don't like the sound of that but no one else seems to react. Perhaps it's because Mike is trying to stay still as a steady stream of water-drops bounce off his bald head, splashing on Ted and I, who unfortunately are sitting on either side of him. Mike politely waits until the speaker is done then slips off to a dry seat. Then we notice that the plants are all arranged in key spots to catch the rainwater from the leaking roof...

...I'm the first speaker out of the box this morning so I always prepare for the worst. Our first challenge is the adaptor we brought along doesn't work with the power plugs and the amount of 220 juice we are receiving. The slide projector that Ted has brought all the way from Alaska simply sits there, with a faint afterglow. The fan is making an odd noise like it wants to start but just can't get going. Next Anatoly comes in with two old slide projectors. One is a real classic. You load up a single slide and inject it into the machine one at a time. The second machine is slightly more complex and appears to have the ability to take about 30 slides at once.

We opt for the high tech model and I quickly unload my slides out of my carousel into an empty single tray. Anatoly loads up the tray and promptly injects three slides into the projector. The only problem is that none of the slides come out of the machine. I can smell plastic burning and can't wait to see what mangled mess comes out. Well we are able to retrieve two slides but my orientation map is nowhere to be found. We take the machine apart but to no avail. The slide is nowhere to be seen. I give up, we get past it, and go on with the show. In the dark when you point Mike Finely's pointer at Mike Rearden's bald head, he looks like Bryshnikov. If I knew they had a sense of humor I would love to start my talk off with that joke. I look over at Steve Kohl and he starts to squirm, so I decide I won't be the first to start an international incident. The rest of the delegation goes through their talks which I found to be very good and informative. The morning and afternoon talks are interesting and I even learned a great deal about plants from Dr. Thomas Elias....

...Ted and I enjoyed a very special day together, with our excellent host, Serge. Others of our group went different directions. That night when we got back to share stories, it turned out everyone had a great time. Mike and Mike had an adventure in a small boat out in the open ocean and up a small river. NO PFD's, an old boat, just enough gas, and an engine that barely ran. But they did have raw elk liver, vodka, and some fantastic scenery. They headed out for an eight hour tour and came back in the best of spirits... For dinner we had tea, vodka, beef and sliced cucumbers...

...Breakfast is fish eye soup. I quickly give a fish bowl to Ted and pass my eye ball off to Mike R., he will eat anything...

...As we continue south the weather continues to deteriorate to a rather dramatic thunder storm. The people in these villages must suffer from horrendous health problems as the factories, strip mines, and apartments are almost one. As the lightning bolts light up the strip mines and factories, Victor starts on a UFO story. Apparently the entire town claims to have witnessed UFO sightings. The people who went out and picked up rocks or parts where the UFOs landed all got sick and died. The combination of UFO stories by Victor and seeing so many people living in a strip mine and factory left me feeling a little uneasy. I looked over to Mike Rearden for comfort but he began telling some more of his corny jokes. I believe that on this trip I set some sort of Guiness book record by sitting next to Mike Rearden, listening to his jokes for 14 hours straight. That's one record that will never be broken...

...Our final destination is another nature reserve somewhere just north of Vladivostok. My guess of our final destination time is correct. For 14 hours, 10 of us have been crammed into a small vehicle with all our luggage. On this trip you know you are getting in the neighborhood when Victor starts shining the spotlight in people's bedroom windows, honking the horn (8-10 times), generally wresting people out of their houses in the middle of the night. This routine starts about 4:00 am. By 4:22 we have three families out of bed, into the street, in various stages of dress, discussing life and our current predicament in the headlights. Conversations generally run from 5-10 minutes in length and always seem friendly. Victor who is a good candidate for extensive sensitivity training is about as subtle as a Mack truck. The reserve we are looking for is just down the road?!?

5:00 am: Now on the tenth house using the same wake-up routine we advise our Russian hosts that this technique would be very dangerous in America. I have finally stopped ducking when the routine starts, as no one seems inclined to fire shots in our direction. On our last stop we connect with a Russian gentleman in the headlights wearing rubber boots, boxer shorts, and carrying a flashlight. Our host. He walks down the road leading us to our long awaited quarters.

After 14 hours in the vehicle, Steve Kohl steps out and quickly bloodies his shin. It looks very painful but everyone is to tired to give him much help. It becomes quickly apparent that they don't have enough room for us. Looks like two beds and a couch for six. Tom and I end up on the beds and Steve Kohl gets a couch. Ted and Mike Rearden get a hard floor with the promise of cots. Our NPS representative huddles on the tile floor next to a broken pane of window glass. He gave me a hand signal and probably wishes he hadn't pushed me into the room with a bed and given up his chance for a good two hours of sleep.

Good thing it was a short night as we get up about 7:00 am. Mike Rearden walked into my room as I am propped up against the wall trying to scribble something in my field notes. As my eyes begin to focus I notice that Mike is covered from his bald head to his boots in chicken feathers. He has this weird smirk on his face so I'm afraid to ask what happened. It looks like 10 days in Russia may have been a day to long. About that time Ted walks in spitting chicken feathers. Turns out the sleeping bag our host loaned Mike was stuffed with chicken feathers and had a big hole in it. I walk around to gander at their room and it looks like someone sacrificed a chicken. That was their story and they stuck to it...

F. HABITAT MANAGEMENT

1. General

The refuge contains a variety of habitats, including alpine tundra, subarctic tundra and taiga, extensive wetlands and lake complexes, meadows, mountains, glacial valleys, and sand and gravel beaches. There are no roads on the refuge. With the exception of fire management, there are no active habitat management programs on the refuge.

RAPS Hingsberger and BT Cook near their base camp in the Waring Mountains. This park-like area is underlain by ancient sand dunes.

A vegetative mapping project was initiated in 1993 and continued this season. Polygons were delineated from color infra-red, high

altitude photography; which are representative of "gross" vegetative communities. Within each polygon, a 100 meter transect was executed, and along these transects, ten 1 meter plots were sampled. With in each plot, species composition and percent cover were recorded.

Two nine mile square sampling blocks were worked this summer. The first sampling block was located at Toklomarak Lake. This site was a challenge to sample; seiche action limited days of access to the wetland sites of particular interest. When heavy rains occurred in late summer the crew sampling at Toklomarak Lake joined the other crew in the Waring Mountains.

The additional sampling block was located at the eastern end of the Waring Mountains. This location was unique in the fact that it represented subalpine tundra, dwarf black spruce forest, and portions of the Kobuk Sand dunes.

3. Forests

Some of the refuge is forested. The type of cover varies from the boreal black spruce forest, which belts the Waring Mountains and Kiana Hills on the northern border, to the riparian corridors which consist of a mixture of hardwood and coniferous species. These corridors are characterized by white and black spruce, birch, aspen, and various willow species.

N91251 at the base of the Waring's. An example of the refuge's boreal black spruce forest is in the background.

9. Fire Management

On the April 21, BLM held a meeting with the federal land agencies, NANA and the Northwest Arctic Borough to discuss the upcoming fire season.

Table 3. Wildfires occurring on Selawik NWR in 1994.

BLM No.	Date	Location Lat	Location Long	Management Category	Size (Acres)	Suppression Taken?
A201	06/07	66.00	158.55	Lim	0.1	No
A237	06/10	66.43	160.49	Mod	12.0	Yes
A243	06/11	66.49	160.36	Mod	124.0	Yes
A244	06/11	66.47	160.30	Mod	12.0	Yes
A264	06/12	66.58	158.54	Mod	160.0	Yes
A474	07/18	66.44	158.23	Mod	5.0	No

A total of six fires burned 313.1 acres before frequent summer rainstorms made the tundra to wet to burn.

G. WILDLIFE

1. Wildlife Diversity

The major purpose of Selawik NWR, as set forth by congress, in ANILCA, is to conserve fish and wildlife populations in their natural diversity and to maintain the environment of the refuge in a condition that will perpetuate total fish and wildlife values.

3. Waterfowl

Historically, the Selawik River basin and Kobuk Delta areas of Kotzebue Sound have been reported to support large waterfowl populations. The Selawik NWR was established in 1980, with one of the objectives being to preserve and manage waterfowl habitat in this wetlands area.

There are numerous waterfowl nest predators in Northwest Alaska, including jaegers, gulls, ravens, red foxes, black bears, mink, and weasels. Unfortunately, we have no quantitative estimates of any of these predator populations.

This pintail was caught hanging out with the big birds.

A. Geese

Two species of geese breed on the refuge: Greater white-fronted geese and lesser Canada geese (subsp. taverneri). Emperor geese are seen occasionally along the coast, with the nearest known nesting areas at Cape Espenberg on the Seward Peninsula. Black brant are a common spring migrant, and summer resident of coastal areas, while the nearest breeding colony is located at the mouth of the Nugnugaluktuk River, on the northern Seward Peninsula.

5. Shorebirds, Gulls, Terns, and Allied Species

Many shorebirds, gulls and terns use the refuge throughout the summer. A complete list and the relative abundance of each species is included in the appended bird checklist.

6. Raptors

Many raptors use the refuge as a migratory corridor during the spring and fall, while the gyrfalcon is a year around resident.

Table 4. First and average arrival dates for 12 common bird species at Kotzebue and a 10 mile radius, 1983-1994. All dates are in May except as noted.

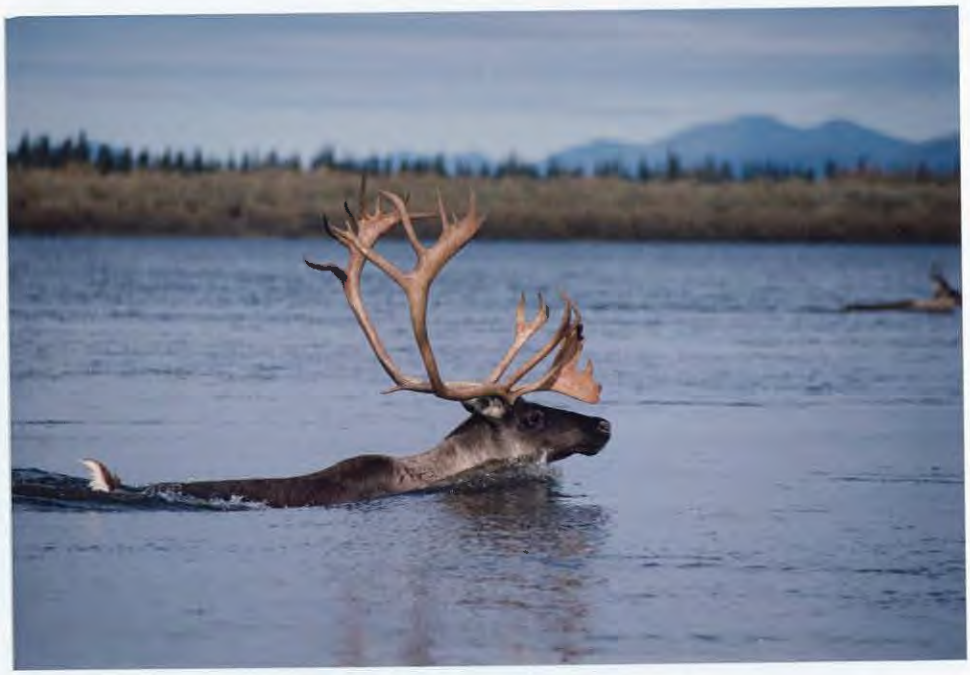
Species	'84	'85	'86	'87	'88	'88	'90	'91	'92	'93	'82-'93 Average	'94
Tundra Swan	n/a	7	7	12	3	4	14	2	7	8	7	8
W-F Goose	16	17	2	8	5	30*	n/a	1	7	4	7	4
Canada goose	13	11	2	8	3	28*	6	1	6	5	7	26*
Mallard	23	17	9	15	29	17	9	11	6	29*	14	9
No. pintail	23	16	2	9	29*	18	7	3	28	27*	8	12
Am. wigeon	23	17	2	9	7	18	10	15	24	29*	13	4
Greater scaup	23	19	18	13	5	21	17	11	29	14	17	15
Sandhill crane	13	10	1	3	29	6	4	4	15	27*	8	30*
R-N phalarope	28	18	22	16	12	24	17	18	25	16	19	17
Glaucous gull	7	8	30*	27*	24*	23*	5	1	24*	21*	29*	30*
American robin	14	23	9	6	5	6	12	3	22	5	11	9
Lapland longspur	8	17	3	10	5	18	14	21	24	13	13	5

* Observation recorded in the month of April.

8. Game Mammals

On January 6-7, WB Peltola attended the regional biological workshop. Gene is a member of the herbivore working group and the moose and caribou subgroups.

A. Caribou



A bull caribou crosses the Kobuk River.

The Western Arctic Caribou Herd is the largest caribou herd in Alaska, and contains well over 450,000 individuals and is the second largest in North America. Historically, the herd has calved north of the refuge, northwest of the Lisburne Peninsula, and wintered south of the Brooks Range, including some parts of the refuge, and south to the Seward Peninsula and Nulato Hills. Wintering distribution and migration routes are characteristically highly variable; primary use of the refuge occurs during migration, and in some years a substantial portion of the herd winters on the refuge.

Management and monitoring of the herd is conducted cooperatively between state and federal agencies, but ADF&G acts as the lead agency. Participating federal agencies include the Service, the National Park Service and the Bureau of Land Management.

Monitoring of the herd consists of recruitment surveys, calving ground surveys, a biannual photo-census, and aerial radio-telemetry (distribution) surveys.

ADF&G conducted aerial recruitment surveys in late April and early May 1994, when caribou were migrating north. To ensure the samples were adequately distributed throughout the entire herd, sampling effort was concentrated around radio-collared cows. For each relocation, up to 200 animals in the immediate vicinity of the collared animal, were classified to assess composition. A total of 9,956 caribou were counted and classified, yielding a recruitment ratio of 19 short yearlings (calves born the previous spring):100 adults. This is within the range of recruitment observed during recent years. Since 1986, recruitment has ranged from 19-27 short yearlings:100 adults.

Calving ground surveys were conducted from June 10-13, near the Utukok River and Lisburne Peninsula, and yielded a ratio of 52 calves:100 adult collared females (38 calves: 100 adults). A total of 16,187 total caribou were counted (11,761 adults, 4,426 calves).

From July 2-6, 1993, WB Peltola participated in the Western Arctic Caribou Herd biannual photo-census. The largest aggregation observed, included some 200-300,000 animals. In addition, up to 100 radio collared animals were located. This was a cooperative effort involving the Service, ADF&G, and the National Park Service. It took until 1994 for all the photos to be counted. A total of 451,061 caribou were found in the photos.

B. Moose

Based on a refuge-wide census conducted in 1984 and 1985, approximately 2,000 moose inhabit the refuge. Moose are harvested by both local, subsistence hunters and non-local sports hunters. During the winters of 1990-1992 moose in NW Alaska experienced severe winter conditions, mainly deep snow. Generally, winter mortality can be attributed to severe snow depth and predation.

In the recent past, two annual trend count areas have been used to monitor survival and mortality including the effects of hunting. Aerial trend counts have been conducted by the Refuge in a 91 mi^2 area near the Tagagawik (Tag) River since 1984; and a 103 mi^2 area, adjacent to the Tag River, in the Selawik Hills, has been conducted by the Alaska Department of Fish & Game (ADF&G) since 1986.

Analysis of this data is conducted in three scenarios, first the data from the Tag River is considered independently, as is the Selawik Hills data, then both areas are combined. This last

instance provides for a larger sample size, while the two independent analysis provides for a site-specific approach to interpretation.

Traditionally, the Selawik Hills data reflects a healthier portion of the population. All population statistics are higher than those of the adjacent Tag River trend count area, and may be indicative of differences in hunting pressure, response to climatic conditions, or a combination of both stimuli.

These trend areas are being continued, although limited they provide the only means at delineation of at least a portion of the population which inhabits the Tagagawik River drainage and the adjacent Selawik Hills. The composition data attained represents the moose present at the time of the survey, but this data does not provide any quantitative means of assessing the total abundance. A independent collaring project, which started in April of 1994, will provide further insight into the validity of these trend count areas.

The following information is summarized based on the collection area and with both areas combined (pooled).

TAG RIVER:

Results of the standardized moose trend surveys conducted on the Tag River trend area during 1994 have shown an increase in the total number of moose observed, as compared to the six prior sample years. Although search effort has remained relatively constant between years, it is felt that this is indicative of snow-induced movements, rather than actual changes in population.

The expressed increase in total number of moose can best be accounted for by an increase in the proportion of adult moose observed in the population. Although the total number of bulls has increased 76.7% over the previous sample year and 75.5% greater than the previous 6 year average, this segment of the population (i.e. total number of moose observed) has been more sensitive to an increase in the number of observed cows in the sample population. There were also substantial increases in the observed large and medium bull segments over the previous survey year, although large bulls were slightly more numerous in 1985. The only category of bulls to decline from the previous survey year(s) was that of the yearling bulls, they were slightly more numerous in 1985 and 1993. Calf numbers show a substantial decline from the previous survey year, and are less than, or equal to four of the remaining five prior sample years; 1985 was the only survey year to express a lower calf crop.

Population statistics (i.e. ratios) have varied greatly over the years. The bull:cow ratio has fluctuated from an alarming low of 28.0:100 (1986) to a high of 48.5:100 (1985), the current

bull:cow ratio of 45.8:100 is acceptable and it exceeds that which is called for by both ADF&G and other state Management Plans, which call for a ratio of 40:100. The yearling bull:cow ratio has declined over the previous sample year (-28.9%) and is 14.3% lower than the previous six year average (11.2:100). The calf:cow ratio is the lowest ever recorded for this sample area and is 48.2% lower than the previous six year average This expressed decrease is accounted for by a decrease in the total number of observed calves, coupled with an increase in the total number of cows in the observed population.

SELAWIK HILLS:

The total number of moose observed in this area has decreased over the previous survey year and is less than at least two of the previous four years the survey has been conducted. In comparison with the Tag River count area, this may be more reflective of snow-induced movements, rather than actual population fluctuations. The topography of this count area is dominated by mountainous terrain, in comparison to the relatively flat sample area to the east. Therefore one would expect that the environmental stimulus would have a more profound effect.

The decrease of 7.9% in total observed moose for this area can be attributed to an 11.5% decrease in the total number of cows observed. Although slight, there were increases in all bull age classes in 1994, over the previous survey year. Calves were the other cohort to show a decline in 1994 (-4.3%). This is the lowest ever recorded for this area, and is 67.5% below the previous four years sampling average.

The bull:cow ratio was at a high of 78:100 in 1986 and a low of 46.3 in 1987; that of 1994, 73.9 is very high, this being reflective of decreases in the total cows observed, coupled with overall increases in the bull segment of the sample population. There was a decrease in the calf:cow ratio in 1994 (17.4:100) as compared to the previous four year sampling average (30.5:100). This trend did not carry-over into the yearling bull cohort; that of this year (1994), exceeds that which was observed in the previous sample year and remains 45.5% greater than the previous four year sampling average.

POOLED AREA(S):

The total number of moose observed in the two areas combined has increased over the previous sample year for which the data can be combined and is the highest ever recorded. This can be attributed to the increase in the total number of moose observed in the Tag River count area; differing distribution of moose throughout the Selawik Hills, Tag River drainage, and the Kauk River (adjacent to the Selawik Hills count area); representative

of environmental conditions; and/or is reflective of differing harvest or predation rates throughout the region.

All else being considered equal, the increase in the total number of moose can best be attributed to a substantial increase (53%) in the number of bulls (all age classes) within the observed population, as compared to previous sample years. There have been slight increases (+12.2%) in the total number of cows observed, over the previous sample year, and an increase (+19.9%) over the previous four years sampling average of 373.5. There were more calves in all previous sample years, as compared to 1994. Both the bull:cow (59.3:100) and adult bull:cow (43.4:100) ratios have increased in 1994, as opposed to the four year sampling averages of 45.1 and 34.6, respectively. This trend did not carry over into the calf:cow ratio. That which was attained in 1994 is the lowest ever recorded for the years for which data can be pooled, and is 52.5% less than the previous four years sampling average of 30.1. This can be attributed to an increase in the total number of barren cows observed, coinciding with a decrease (-48.8%) in the total number of calves which were observed.

Most of the startling decreases in the population parameters with respect to the pooled data, can be accounted for by changes in the calf segment of the sampled population. This appears to be a regional occurrence. The population statistics, with respect to younger cohorts, have also been very low in the Noatak River drainage. A moose census conducted this past November (1994) revealed a calf:cow ratio of 16:100 (Brad Shults, NPS-NWA, pers. commun.), and the Noatak trend data revealed a fluctuation ratio of 07-23:100, for the past few years.

POPULATION PARAMETERS, DISTRIBUTION, AND MOVEMENT OF MOOSE ALONG THE TAGAGAWIK RIVER DRAINAGE.

To date no quantitative studies have been initiated to address the moose (*Alces gigas*) population of the Tagagawik River (Tag River) drainage. Since no information exists on distribution and movements of moose along the river, the Selawik NWR (Refuge), is unable to assess if sport hunting along the upper portion of the drainage adversely effects subsistence harvest along the lower river. This, compounded with increased sport activity, now and in the future, places managers in a situation where management decisions must be made without adequate biological foundation.

There is growing local concern that sport hunting of the Tag River drainage moose population is in direct conflict with subsistence users. This concern has been expressed in the past, as well as during the recent hearings for the proposed zoning ordinance by the Northwest Arctic Borough (1992). Subsistence users mainly utilize the lower portion of the river, which is accessible by boat, while sport harvest is focused on the upper

portion of the river, which is accessed by aircraft. Local users access the upper Tag River by snowmobile during the winter months, at which time some harvest of moose occurs. The Refuge has monitored the upper Selawik and Tag Rivers usage by local and non-local users and the number of hunters over the years appears to be increasing (USFWS unpubl. data), while harvest has decreased over the same time frame. Reports by local users support this data.

In their Annual Report of Survey-Inventory Activities (1990, 1991) ADF&G has identified the need for home range and movement data for Game Management Unit (GMU) 23 moose populations. Of the data which have been collected by ADF&G for GMU 23 (which encompasses the Refuge), there has been great variability in observed population parameters between different drainages (Dau 1989). In light of this fact, it is not feasible to use population parameters from one drainage and apply those to the management of the Tag River moose population.

This study will provide the following information, based on collaring and subsequent radio tracking of moose on the Tag River Drainage:

1. movement patterns and distribution within the Tag River drainage; this information will be used to delineate a census area and to determine the degree of movement along the drainage;

2. sex and age composition data, and trends (from survey results), and population status (from census results);

3. natural and hunting mortality rates (from monitoring radio-collared animals & ear-tag returns).

This information will give the agencies and local residents a better understanding of moose ecology and allow for responsible management of moose on the Refuge.

From April 1-6, capture operations were executed along the Tag River drainage. Fifty moose (25 females and 25 males) were captured and collared. The total targeted of each sex is based on the fact that both cows and bulls are targeted during the 8 month long hunting season, sexes are segregated during portions of the winter, and collared bulls will allow for assessment of mortality and extreme emigration. The total number collared is based on economics and the biology of the species itself. Moose form loose aggregations throughout the year, and are not "herd animals" in the true sense. In order to guarantee an adequate and valid sample of the population of the drainage, a large number of collars must be deployed. This would avoid geographic clustering of the collared population -- which would result in a very limited sample.

A moose about to be darted from the helicopter.

The moose tagging crew included students from Selawik.

The areas of capture and the extent of the study area included the southern most extension of the Refuge and that portion of the Tag River which is immediately south of the Refuge border.

Moose to be collared were first located by fixed-wing aircraft. They then were captured via standard helicopter and chemical immobilization techniques. The drugs Carfentinal and Xylazine were delivered from Cap-Chur equipment and a projectile syringe.

Upon being placed sternal, the captured moose were fitted with a standard VHF transmitter package (Telonics, Mesa, AZ). The transmitters package incorporated a mortality mode which will activate after five hours of inactivity. The life expectancy of these transmitters is approximately 36 months, although longer periods are quite common.

A total of 72 animals were darted. In addition to the 50 radio collared moose, 19 bulls were fitted with ear-tags. Three animals were released without any maker(s), we felt that the animals were to small to be fitted with a collar. In subsequent tracking rounds, conducted in Late April & early May, in was revealed that we had not incurred any capture related mortalities (relative to collar placement).

Collared and waking up, everyone cleared out because a moose may wake up a little grumpy.

In May tracking flights were conducted to assess the calving which occurred. Of the 25 cows, 11 were accompanied by calves (44%). Of these cows (n=11), three had given birth to twins (12%).

Mortality:

To date we have encountered 6 mortalities in the collared population (12%). The sources can be attributed to: probable predator kills (2 cows); hunter harvest (1 bull), and natural (3 cows). In addition, 2 ear tagged bulls were reported harvested by hunters. Combined ear tagged and radio collared bulls (n=44), 3 (7%) were harvested by hunters.

9. Marine Mammals

Spotted seals and beluga whales are sometimes seen using refuge rivers; beluga whale, and spotted, bearded, ringed, and occasionally ribbon seals occur in the marine waters of Hotham Inlet, which forms the western boundary of the refuge.

10. Other Resident Wildlife

A. Furbearers

Furbearers present on the refuge include red fox, arctic fox, wolverine, wolf, beaver, muskrat, lynx, mink, marten, least weasel, short-tailed weasel, river otter and occasionally a coyote is reported.

11. Fisheries Resources

The refuge's many lakes and rivers support both anadromous and freshwater fisheries, and include spawning grounds for sheefish, northern pike, whitefish, and grayling. Arctic char and chum salmon are also present. Herring spawn in the coastal waters of Kotzebue Sound and Hotham Inlet, which are adjacent to the refuge.

Concern for the local sheefish population remains an issue at the refuge. During the winter and spring, NW Alaska residents utilize this species of fish as a subsistence food source. The population is also exploited commercially. There is presently a 25,000 lbs. limit on this commercial fishery. The subsistence fishery far exceeds this limit. Although, it is felt that current subsistence harvest does not exceed the historical level of harvest. In response to these concerns Fisheries Resource Office started a sheefish study in 1993.

In first part of the study, FR Fishery Biologist, Ken Troyer, surveyed subsistence nets on the Selawik River from June 3-18, 1993. On the June 10, 1993, Pilot Christensen flew Ken on a survey to make sure that no camps had been missed.

In September 1993, the second part of the study began. FR Tevis Underwood and Rod Simmons with assistance from RIT Ramoth caught and tagged 70 Sheefish on the upper Selawik. High waters hampered the effort and made aerial surveys impossible.

Refuge staff continued to participate with Fairbanks Fishery Resource Office staff on the Selawik River Sheefish Study during 1994. Logistic support and personnel were provided. Field crews that helped with sampling included: Refuge Information Specialist, Ralph Ramoth; Biologist, Mike Millard; Technician, Kellie Whitten; Technician, Floyd Knox of Selawik Village; volunteer, Mike Reitz; and Biologist, Tevis Underwood. Field work began on July 27, and concluded on October 13. A field camp was established across from the confluence Kerulu Creek (N 66° 28' 25", W 158° 30' 64"). Crews tagged 148 fish and implanted 22 fish with radio transmitters prior to a 40 year flood event that halted tagging operations on August 17.

Fisheries crew with our new boat. Can you believe it, they paid these people to go fishing.

Prior to suspension of tagging, adequate fish were sampled to determine the size structure and accomplish objectives regarding the genetic variation between Selawik and Kobuk river spawners. Sample sizes were not adequate for a mark and recapture estimate of the spawning population, therefore, the recapture effort was not attempted as planned in September. Telemetry data indicated that at least eight sheefish headed downstream at the start of the flood event, August 17-18. Power supply problems at the data logging receiver sites negated receipt of telemetry data after that date, so it is likely that more fish left the study area during the flood. Mobile tracking in September, however, confirmed seven radio tagged fish on the presumed spawning grounds on September 15. Aircraft tracking conducted by Gene Peltola on October 13, indicated that all radio tagged fish had left the spawning area. Several fish were detected in Inland Lake.

Crews observed 10 to 15 boat loads of people fishing for sheefish within 2 miles of camp in August. They fished mostly downstream from camp, although one boat was observed fishing upstream. Most people contacted were from Selawik Village, although one boat included a Kotzebue resident and visitors from out of state.

16. Marking and Banding

Band returns from greater white-fronted geese banded in 1988, 1989 and 1990 have come from SE Alberta, SW Saskatchewan, and from the Gulf Coast of eastern Texas and western Louisiana. While, 1991 returns came from Alaska, SE Alberta and northern Mexico.

Refuge goose banding activities took place on July 13. Two drive attempts yielded 196 white-fronted geese. Large groups of molting geese were a common occurrence this summer, unlike last season. More white-fronts could have been captured and collared -- we ran out of collars after the first day of capture activities. Attempts were made to acquire additional collars, no collars were available state-wide.

A total of 23.0 hrs of aircraft-time (cost: $1,910.24) were expended on the capture effort.

Pilot Christensen takes a turn at banding a "specklebelly".

A successful drive leads to a "pot" load of greater white-fronted geese.

Even data taker AT Warburton takes a turn.

Goose catcher Rearden takes a photo-break while the rest of the crew looks on.

Two methods were employed to conduct the pintail aspect of the summers' banding effort: 1) baited, swim-in traps; and 2) baited, rocket netting. Baited swim-in trapping occurred at a single location, Arctic Circle Lake (ACL). Methodologies followed those executed on the Yukon Delta NWR (Wege 1990) in previous years, with the exception of barley being used as bait. Swim-in trap and baited, rocket-net (associated) activities were conducted at the above site from August 3-25, 1994. The ACL trap site(s) were established via watercraft and the traps were checked daily.

Actual capture operations were conducted from August 5-23. The rocket-net was placed on a large shoreline with a gentle slope, which was relatively vegetation free, and adjacent to a shallow water body.

Both rocket netting and swim-in trapping required that the locations be pre-baited with barley. This occurred from July 28 to August 3. The net location(s) was re-baited on numerous occasions prior to net placement and firing.

Trapping locations at ACL were very susceptible to water level fluctuations, when compared to past years efforts -- strong westerly winds (at times exceeding 40 knots) would act upon the adjacent waters of Kotzebue sound, causing the water-level to fluctuate by several feet. Inclement weather precluded the successful use of this type of trap.

A total of 25.4 hrs of flight time (PA-18, C-185 & C-206), at a cost of $2,394.58 (including $371.92 of chartered time), was expended for pre-baiting, camp establishment, resupply, and personnel changes.

Attempted rocket net firing occurred on 4 occasions. Two of these attempts yielded no birds (equipment malfunction). The charges had apparently become damp and failed to ignite. The remaining two attempts yielded a capture of 40 pintail. Sixty-two point five percent of the total number of pintail captured with the use of the rocket net were females, while hatch year (local) birds comprised 87.5% of the total.

Reconnaissance flights of ACL, in the later part of July and the first few days of August, revealed that 500-1,000 pintail and other (additional) dabbler species occupied the area. Yet, of the (approximately) 3 weeks in which crews were in place and set-up for capture activities, there were only 4 days in which there was not a heavy rain or very strong wind. Inclement weather was the main contributor to low capture success.

H. PUBLIC USE

1. General

The annual EE Workshop took place in Anchorage and was attended by AT Warburton. She took part on a panel discussing camps and gained a wealth of information on how to improve the caribou camp for next year. As usual, the workshop was well attended by all the refuges and proved to very valuable for discussing programs, initiating new ideas into existing EE programs, and rejuvenating everyone's enthusiasm.

Plans for developing a localized caribou curriculum were initiated by ES Farfan, RM Rearden, and AT Warburton, when they were setting up the caribou camp in 1993. It became apparent that some form of caribou information needed to be consolidated and presented in a useable format for educators to use in the classroom. After several meetings and audio-conferences with ES Farfan, we decided to combine our efforts with the Togiak refuge as they had a similar program. We reviewed already existing caribou curriculum and revising it as needed to fit local needs. The combined curriculum and a information booklet on caribou, being written by Elaine Rhode, are to be completed late spring of 1995. Currently, a local graphics artist is producing a template for the curriculum. A draft will be available for teachers to test in the fall of 1995.

The display just inside our office door. The main public use information materials are held in the Kotzebue Public Lands Information Center.

Other education events included the annual goose calendar contest. The 1994 theme was "Respect our habitat: we share it with the geese". In April, prizes for the goose calendar contest winners were sent out. Kotzebue had one second place winner for literature.

2. Outdoor Classroom-Students

In April, AT Warburton had a mini science/moose camp with four Selawik High School students. The collaring crew located moose close to our field cabin on the lower Tagagawik River. After the animals went down from the drug, RIT Ramoth brought the students to the moose by snowmachine to assist in collaring and taking data.

Selawik student putting on
a moose collar.

Students work up another moose.

The highlight of the year was the science/caribou camp conducted in September at the refuge cabin. The caribou camp was part of an environmental education program on the refuge to enhance the awareness and education of local students in the management of the Western Arctic caribou herd. Prior to the camp, a Challenge Grant was awarded for funding the camp.

Prior to camp, participating students from Noorvik High School and Selawik High School, prepared for the outing by making a chore, equipment, and food list.

On September 6, WB Peltola, AT Warburton, and RIT Ramoth, left for caribou camp at the refuge cabin. The camp was attended by 7 Selawik and 6 Noorvik high school students, and 4 teachers. For five days, the group explored the surrounding wilderness, learned about caribou biology, caribou ecology, and caribou management. The students participated in a necropsy of a caribou, as well as handled caribou while collaring them at Onion Portage, on the Kobuk River. A local archeologist with the NPS also attended camp and discussed techniques they used to explore local sites. The students got hands-on experience mapping a site and setting up a site for exploration. Students also videotaped the entire camp.

Students collar a cow caribou while...

...junior dries off.

After the camp, participating students and teachers began to incorporate what they learned into their different classes. Some examples include editing the video, writing articles about their experience for the local newspaper, analyzing tracking data from other caribou collared, and creating traditional fish hooks from caribou antlers during bilingual studies. We continue to work with the school on this project and will hold another camp in September 1995.

3. Outdoor Classroom-Teachers

Teachers from the Selawik High School and Noorvik High School played an integral role in developing, assisting, and carrying on the caribou camp project. Several teachers attended the caribou camp (see H. 2. Outdoor Classroom-Students).

7. Other Interpretive Programs

Throughout the year, staff members gave presentations to both elementary and high school students in Kotzebue.

On June 18, AT Warburton and WB Peltola participated in the Kotzebue High School Science Fair. This is the second year that WB Peltola has been a judge.

8. Hunting

No sport hunting data is available from the state at this time. Special use permittees reported 40 sport hunters took 20 moose, 20 caribou and one black bear on the refuge in 1994.

9. Fishing

There is currently little sport fishing and much subsistence fishing in refuge waters. Most of the "hooking" is through the ice.

10. Trapping

Trapping is an historic and present facet of the subsistence economy of the region. Many of the furbearers harvested in northwest Alaska are used locally for clothing and many of the animals harvested are not reported to ADF&G. Wolves and wolverine are the most sought after furbearers and most are used domestically for ruffs on parkas. Lesser numbers of fox, beaver, otter, mink, and other furbearers are taken.

11. Wildlife Observation

We are a bit off of the beaten path here and there are no organized wildlife tours on the refuge. Local residents and refuge staff observe wildlife from casually to zealously during pursuit of other activities. The local Christmas Bird Count occurs off of refuge land for reasons of shelter, access, weather and hospitality.

13. Camping

Camping is allowed anywhere on refuge lands and occurs regularly by subsistence users of the refuge. The extremely remote Selawik Hot Springs enjoys crowds (50 people at a time) of campers during the prime winter traveling months of March and April. Dog mushers traversing the refuge are probably the next most common campers. Because of the very remote nature of the refuge most non-local hunters from out of the region camp here for a week while hunting.

15. Off-Road Vehicle Use

We are not aware of any specific use of refuge lands by all-terrain vehicles (ATV's) during summer months, however, these machines are becoming very popular in villages and we intend to begin educational activities aimed at responsible use of these potentially destructive machines to head off a law enforcement issue.

16. Other Non-Wildlife Oriented Recreation

The Kobuk 440 Sled Dog Race was held in late March under special use permit. The route is Kotzebue-Noorvik-Kiana-Ambler-Selawik-Noorvik-Kotzebue. Three quarters of the route is within the refuge boundary and about 80 miles of the route cross the refuge.

Berry picking is an important local subsistence use.

17. Law Enforcement

RM Rearden attended LE refresher in Tucson, AZ from January 24-29.

RM Koepsel attended LE refresher from February 15-19 in Tucson, AZ.

18. Cooperating Associations

The National Park Service operated Kotzebue Public Lands Information Center is a Alaska Natural History Association sales outlet. Approximately 14,000 visitors passed through Kotzebue in 1992 and most of them stopped by the visitor center. The attraction for the mostly elderly tourists is being north of the Arctic circle and seeing the "midnight" sun. With daylight savings time and recent changes in time zones, solar midnight is actually at 3 a.m.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

In January, MW Johnson replaced the filler line from fuel tank to boiler at residence 481. About every two months air built up in the line and the boiler would stop. No air leak could be found in the line yet replacing it has eliminated the problem. While this doesn't sound like a major job, a house with no heat at -30 can quickly become an expensive project.

In preparation for the moose project (see G 8.), cargo sleds were adapted for fuel drum hauling and one basket sled was retied and coated with linseed oil during January.

On February 10th, RM Rearden attended a meeting with NPS Superintendent Bob Gerhard on the remodeling of the EON building. The NPS has received 1.6 million dollars to remodel the building. At present this building is used for our office, four apartments for FWS and NPS staff and heated storage space. FWS Engineering was designated to do the blueprints and put the contract out for bid.

Numerous calls from engineering occurred throughout the year along with interagency meetings on how the apartments and office space should be laid out. The heated storage space will be converted into office space for the BLM, climate controlled archaeological storage for NPS, handicapped accessible bathrooms and a interagency conference room and wet lab. FWS office space will get real walls instead of dividers. The four apartments upstairs will be converted into three apartments to make them larger.

After it was all settled on how the building should be rehabilitated a delay occurred. It seems congress appropriated the money for office remodeling with no mention of residential remodeling. So in December, a letter was written asking if this money could also be spent on the residences located above the office. At year end the letter was still circulating between

Regional Offices of FWS, BLM, and NPS. When all parties have signed, it will be sent to Alaska Senator Stevens.

In August, NPS purchased a piece of property which contained a unheated warehouse and a old restaurant. MW Johnson assisted NPS in converting the old "Dairy Queen" into a heated shop. This is an on-going project which will take well into next year. He also created locked storage space inside the joint use warehouse. The staff assisted with moving gear out of the rented storage space into the new warehouse.

In September, the floating dock that disappeared in spring flooding was found. On September 28, RIT Ramoth and MW Johnson hauled it back to the field cabin. The fall high water helped get access to the dock which had drifted into what is normally a cut off oxbow.

On September 21, MW Johnson made some modifications to the float plane trailer to make it easier to load and unload planes. An inside set of rollers that didn't fit under the floats but did get in the way when trying to pull the plane onto the trailer were removed. Work was also done on the hydraulic system to make it operate better.

On November 21, the BLM office froze up and water pipes burst. MW Johnson replaced broken pipes until December 3. More problems showed up a little later. The water heater went out shortly after everything was back on line. A replaced pressure valve, reworked burner gun and properly venting the exhaust pipe fixed the problem. The kitchen sink drain leaked because ice got into the strainer gasket damaging it. A new gasket fixed the sink.

3. Major Maintenance

MW Johnson replaced the heat exchanger in the water heater at quarters 481 on April 26. The heat exchanger was still under warranty, it seems the manufacturer is having numerous problems with this item. An identical unit in quarters 482 has not had the same problem yet.

With the hanger now two years old maintenance work has begun. While the maintenance wasn't major if you looked at each individual job by the time you added all the jobs together it consumed a fair amount of time.

MW Johnson did his best to silicon seal the windows to keep them from leaking. These windows have leaked from day one but the builders blame it on a design flaw so they wouldn't do anything about it.

As temperatures warmed up the hanger began to smell, it seems the sewage holding tank was venting gas into the hangar. This problem was solved by turning the vent pipe on the outside from pointing down to pointing up.

Algae growth in the water holding tank plugged the filter and caused problems with the water heater. MW Johnson got the system working again.

The outside aircraft fuel tank first refused to measure the amount of fuel being dispensed than stopped working altogether. A in-line fuel meter solved one problem some wiring work was needed to fix the other.

Whenever it wasn't raining or blowing to hard MW Johnson tried to get in a little painting. Most of quarters 481 and half of quarters 482 were completed by snowfall.

On November 10, the Dodge pickup began getting temperamental, refusing to start in cold weather. After a pull start and warm-up it would run fine. MW Johnson figured it was the starter and replaced it, same problem. After discussing with a auto mechanic the starter relay was replaced, same problem. The vehicle was taken in to a mechanic who determined it was the new starter. So it was sent back and a new one that worked installed. The year ended and still the truck starts when it feels like it (mainly on warm days).

On December 19, the CVC joint went out on the Blazer. Until it could be gotten into a garage (which often takes weeks) to be replaced we depended on the NPS to pull start the Dodge to get around. There aren't many warm days in December so ... the joys of arctic living.

4. Equipment Utilization and Replacement

Unicor drapes that were ordered last spring arrived and were installed in the bunkhouse in January (only one field season to late). Now people will be able to sleep during the twenty four hour daylight summer.

GSA sold our Chevrolet Suburban and Jeep Pickup in March. An order was placed for a new Suburban but Chevrolet refused to take government orders this year. GSA has a contract with Ford for a four door crew-cab pickup so that is what was ordered. Before it arrives we will have to arrange to remove the oil cooler and air-conditioning.

In March and April, the refuge snowmachines were utilized to haul fuel for the moose collaring project and the sheefish fisheries study.

On April 18, MW Johnson replaced the back hatchback window on the Chevrolet Blazer. The window was broken while parked at a local restaurant. The vehicle at the time was loaned to FWS personnel from Anchorage here for a public meeting.

On March 24, MW Johnson installed blinds for the office windows.

To replace two unsafe boats that were cut up last year the refuge purchased two Alaska manufactured welded Aluminum 18 ft river boats. In July, MW Johnson attached 90 hp jet outboards to these and made them ready for use. On the July 21, RIT Ramoth, MW Johnson and Fisheries BT Knox drove the boats to Selawik.

5. Communications systems

Telecommunication Manager Tim Miller and crew came through in the spring. While checking the repeater on Hotham Peak they removed the radio tower and placed the radio antenna inside a existing fiberglass shelter. Lowering the antenna 20 ft made communication with hand-held Bendix King radios difficult to impossible over a large portion of the refuge.

6. Computer Systems

On June 26, the refuge received two 486-66 computers with CD rom. The computers had been tested by IRM to make sure they conformed to government energy saving requirements. The computers had to be returned. The soundboard installed did not work nor was it documented on what make it was. No one at the company could provide assistance. All of the software that came with the computer was on 5 1/4 inch disks but the computer did not have a disk drive of that size. Inside wires and connectors are held out of the way with rubber bands. The machines came back in somewhat working order, the energy saving requirements powered down the computer and saved energy but locked up the computer so you had to turn off the computer and start over. Technical assistance from the company allowed us to disable this energy saving and computer crashing device.

Two months later we received some glue in the mail. It seems that a fan tends to vibrate the screws that hold it loose. Then the fan tends to fly apart and damage the motherboard. Directions were enclosed on how to glue the offending screws.

J. OTHER ITEMS

1. Cooperative Programs

Our cooperation with the National Park Service and the Bureau of Land Management continued this year. A joint facilities agreement between the three federal agencies defines the roles and

responsibilities of each organization in an attempt to stretch facilities and dollars in this remote location. NPS and FWS often loan biologist and/or maintenance workers to each other to assist when a project has a need.

RM Rearden met with representatives from the BLM and NPS, to renegotiate the multi-agency facility use agreement. In Fiscal 94 MW Johnson did maintenance for BLM and in return they reimbursed the refuge $5,000.

On October 20, NPS Superintendent Gerhard, BLM Helen Hankins, and ROS Koepsel met at the BLM Office. This is a meeting that the agencies try to hold at least once a year to update each other on their activities and explore ways in which we can help each other fulfill our missions while saving money at the same time. With tighter and tighter budgets these meeting may be turned into conference calls.

4. Credits

ROS Koepsel wrote the entire narrative except K. Feedback which was written by RM Rearden and WB Peltola added portions of his three in-house reports (waterfowl banding, moose trend counts, Tagagawik River Moose Collaring Project) to the Wildlife section. AT Warburton edited the H. Public Use section. ROS Koepsel did the preliminary edit and RM Rearden did the final edit of the entire narrative. Photo's were taken and selected by staff. WB Peltola experimenting with a new HP DJ320 printer and HP CXII Scanner scanned the photo's and put them on disk. ROS Koepsel then incorporated them into the narrative.

K. FEEDBACK