NOWITNA NATIONAL WILDLIFE REFUGE

Galena, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 1983

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

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INTRODUCTION

The Nowitna National Wildlife Refuge containing 1,907,000 acres is located in the approximate geographical center of Alaska. The refuge was established under the Alaska Naitonal Interest Lands Conservation Act (ANILCA) of December 2, 1980 with the purposes established as follows:

1) Conserve fish and wildlife populations and habitats in their natural diversity including but not limited to, trumpeter swans, white-fronted geese, canvasback and other waterfowl and migratory birds, moose, caribou, martens, wolverines, and other furbearers, salmon, sheefish, and northern pike.

2) Fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats.

3) Provide, in a manner consistent with the purposes set forth in paragraphs 1) and 2), the opportunity for continued subsistence uses by local residents.

4) Ensure, to the maximum extent practicable and in a mannner consistent with the previous three purposes, water quality and necessary water quantity within the refuge.

The refuge office is located in Galena, a village of approximately 765 residents, on the Yukon River 55 miles west of the refuge. The region has a continental climate regime with short warm summers and long severe winters. Day light varies from 23 hours in the summer to four hours in winter. The refuge can be divided physiographically and geographically into two large areas referred henceforth as the lowlands or "flats" and the mountainous uplands. The lowlands are located in the north and contain a vast expanse of rivers, lakes, and sloughs which provide important habitat for waterfowl breeding and many of the associated species of wildlife. This area is bordered on the north by the Yukon River and bisected by the "Wild and Scenic" Nowitna River, the dominant waterway in the refuge.

The Southern and mountainous unit contains extensive black spruce forests and many upland lakes. The most southern area contains the Nowitna River and a river corridor approximately six miles wide for the protection of the Nowitna River.

The entire refuge is in a relatively undisturbed state with little sign of man's presence. Cabins and fish camps are found along the major rivers but the refuge contains no facilities for refuge visitors. Travel to and from the refuge and the office site in Galena is by aircraft or boat. There are no roads in this area of the state. The refuge provides hunting, fishing, and trapping opportunities for sportsman and subsistence users. Other recreational uses include wildlife observation and raft/float trips conducted from June through August.

From left to right: Fisher, Olin, Blair

Personnel

1. James Fisher, Refuge Manager, GS-12/01 (PFT), EOD 08/24/83
2. Charles Blair, Assistant Refuge Manager, GS-11/03 (PFT), EOD 03/07/82
3. Valerie Olin, Clerk-typist, GS-4/01, Local Hire - Part time, EOD 10/03/83
4. Barbara Demoski, Clerk-Typist, GS-4/01, (Local hire, Part time), EOD 05/31/83 - Resigned 08/18/83 (Not pictured)

Review and Approvals

James R. Fisher 3/2/84
Submitted by Date

Actg Dep
Regional Office Review
4/12/84

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2) The Nowitna and Koyukuk Refuge receive 1.5 million dollars for the purchase of land and construction of 6 residences in Galena.

3) A productive field season provides important information on migratory birds and moose.

The village of Galena is located on the north bank of the Yukon River. 83-01-CB

B. CLIMATIC CONDITIONS

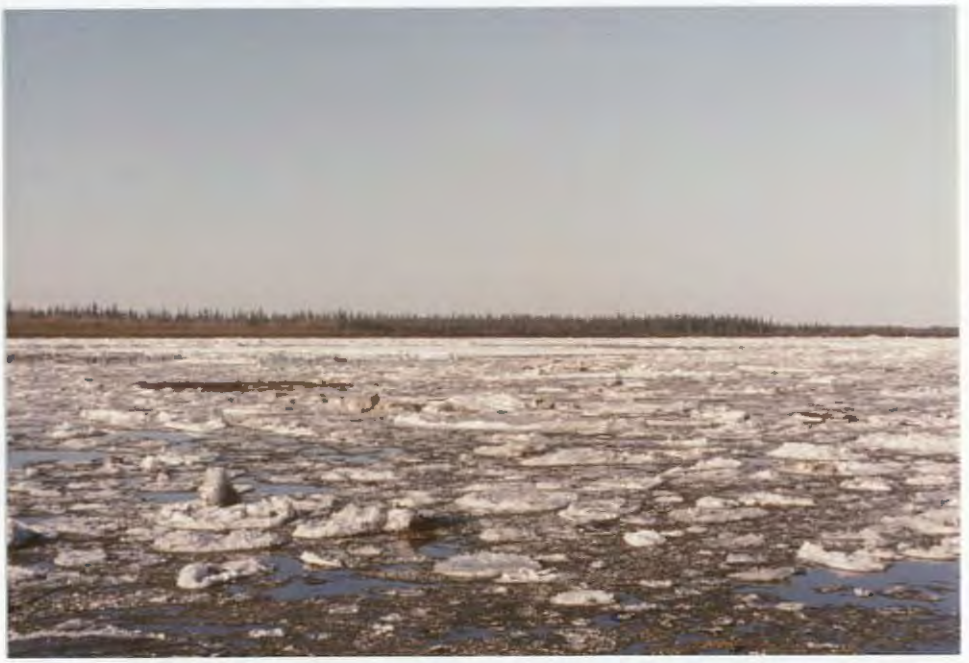
The Nowitna has a continental climate with short, relatively warm summers and long, cold winters. Average annual wind speed for Galena is 5.4 kts.

Daylight peaks in the summer at almost 23 hours, and declines in December to a low of approximately 4 hours.

Breakup on the Yukon River in Galena occurred on May 10. The river was frozen solid again on October 23. By the last week of September most of the ponds on the Nowitna were frozen.

The following weather observations were made at the Galena Airport:

	Precipitation			Temperature (F)	
	Mean	1983	Snow	Maximum	Minimum
January	0.82	0.25	3.3	13	-45
February	0.81	0.23	2.4	20	-25
March	0.63	0.04	.4	28	-14
April	0.52	0.87	9.6	45	- 3
May	0.59	0.24	0	72	26
June	1.24	0.62	0	80	35
July	2.22	1.04	0	76	45
August	2.76	3.19	0	66	36
September	1.76	1.03	0.7	56	15
October	0.81	0.54	2.9	40	- 4
November	0.90	0.41	6.0	35	-12
December	0.76	0.29	33.0	27	-26
Totals	13.8	8.8	28.6		



A major event each year, break up on the Yukon River occurred on May 10. 83-02-CB

C. LAND ACQUISITION

1. Fee Title

The establishment of the refuge with the passage of ANILCA on December 2, 1980, set aside approximately 1,560,000 acres as the Nowitna National Wildlife Refuge (NWR). A survey conducted since that date has established 2,051,132.64* acres within the boundaries of the refuge. A breakdown of land ownership is as follows:

Type of Ownership	Acreage*
Native allotment	2,058
Private	5
Native selected	87,400
Cemetery	270
Interim conveyed	60,435.61
Fish and Wildlife Service	1,907,865
Water (proposed navigable)	100

* Figures do not add up due to incomplete survey.

The processing of Native Corporation lands and Native allotments continued at a slow pace during 1983. There were some lands selected by the Dineega Village Corporation of Ruby conveyed in 1983. However, to our knowledge, there were no surveys completed for Native allotments. Further, many of the allotments are entered incorrectly on the status maps and the exact location is usually not known until the time of the survey. This creates several problems for the refuge. First, the refuge is required to obtain landowner permission or exclude allotments from activities conducted under a Special Use Permit. It is difficult to do this if their location is in question. Second, if an allotment has not been surveyed and boundaries established, the owner does not know th extent of his property and his action (logging, cabin construction) may actually be on the refuge land or neighboring allotments.

The U.S. Fish and Wildlife Service received, by special appropriation, 1.5 million dollars for the purchase of land and construction of six residences in Galena for the Nowitna and Koyukuk Refuges. An option was accepted for four lots in new site Galena in June but because of land status problems, the USFWS was unable to complete the purchase. There have been no new negotiations at years end.

D. PLANNING

1. Master Plan

All National Wildlife Refuges established under the Alaska National Interest Lands Conservation Act (ANILCA) of December 2, 1980, are mandated to (provide) a "Comprehensive Conservation Plan" by 1987. The Nowitna NWR will not enter the first formal stage referred to as preplanning until the summer of 1984. However, we are approaching our management objectives with the idea of collecting as much of the vital information that will be needed to produce the

best possible plan. Leslie Kerr, Planning Team Leader, spent ten days on the refuge during July becoming familiar with the refuge and gaining first hand experience with information needs and refuge habitats. We believe this interaction and first hand experience will help establish a strong working relationship between refuge and planning personnel.

E. ADMINISTRATION

1. Personnel

For most of CY 83, the Assistant Refuge Manager, GS-11, was the only staff member for the Nowitna. The manager position, GS-12, was not filled until August due to a shortage of housing in Galena.

In October the Koyukuk picked up a half time clerk position (GS-4). The Nowitna shares this position, paying half of the salary.

We have written position descriptions for a Biological Technician (GS-5) and a pilot (GS-12). The former has been approved, and will be used for a subsistence study of the Ruby area. The pilot position is still somewhere in the mill. Both are local hire positions which do not require FTE's.

The station manpower summary follows:

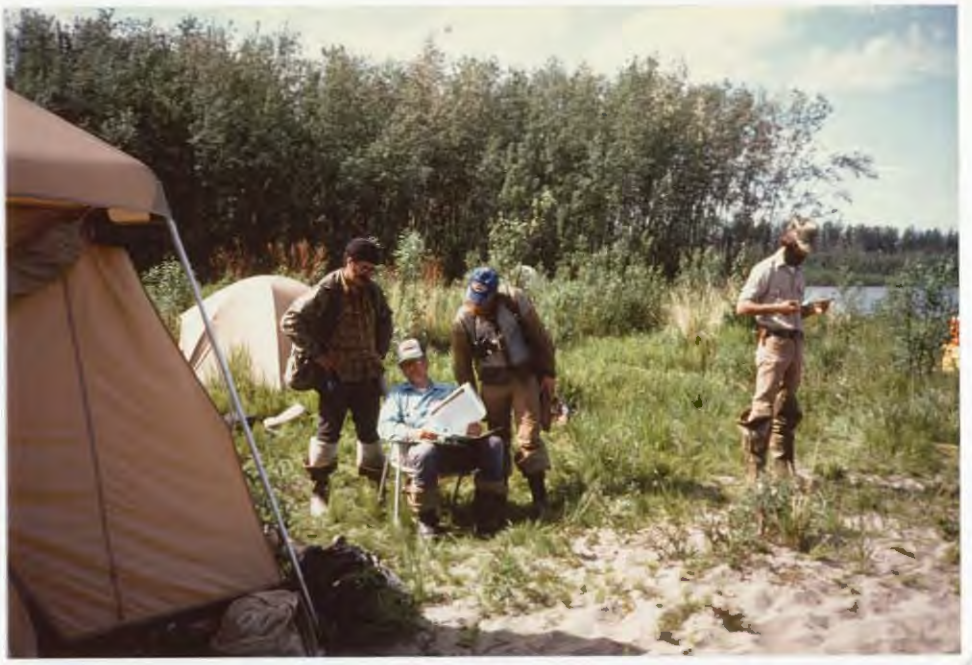
	Permanent		Temporary
	Full time	Part time	
FY'82	1	0	0
FY'83	2	0	0
FY'84	2	0	0

3. Other Manpower Programs

The Nowitna staff received a great deal of help from the Koyukuk and Innoko Refuges throughout the year. The Innoko has a Cessna 180 which they shared freely with us for much of our waterfowl inventory work. The three staffs cooperated or our waterfowl census work, sharing manpower and equipment as necessary.

The relationship between the Nowitna and the Koyukuk Refuges has been extremely close, and we often pool equipment and manpower. Although we each have our own areas of concern, the question of "turf" has never been a problem.

The Alaska Department of Fish and Game (ADF&G) has management concerns on the Nowitna, and we worked closely with the state biologist stationed in Galena on our aerial moose census and on planning our moose browse transects. In addition, we agreed to cooperate with ADF&G on a subsistence study for the area around the village of Ruby. The study should begin in February, 1984 and is designed to give us some baseline data on subsistence hunting, fishing, trapping, and wood gathering on and around the refuge. We plan to provide the personnel for the study, and the state will provide guidance for our temporary hires.



The staffs of Innoko, Koyukuk, and Nowitna NWR's and Regional Office personnel worked cooperatively on the three refuges. Innoko manager Phil Feiger (seated) spent alot of time in this position. 83-03-CB

4. Volunteer Program

Aside from the refuge wives and families, the Nowitna used no unpaid help during the calendar year. This was largely because during the field season we had so much top quality help from the Regional Office and from some of the other Interior refuges.

Ted Heuer, Rich Barcelona, Jill Parker, and Calvin Lensink from the Regional Office, Karen Bollinger and Rod King from Migratory Birds - North, Phillip Feiger, Mike Smith, and James Demientieff from Innoko NWR and Kevin Ryan from the Koyukuk NWR participated in the waterfowl survey work and their help was greatly appreciated.

It would be wrong to minimize the amount of help that we received and continue to receive from our families. Contrary to what you may have heard, living in the Alaskan bush is not necessarily every woman's dream. They (and this certainly includes the Koyukuk staff) have provided help in the form of listening for emergency calls, relaying messages, and in other ways too numerous to mention. This, of course, is not news, but it is too easy to take this kind of help for granted.

5. Funding

The Nowitna received both 1210 and 1220 funds for FY'83. For FY'84 only 1260 funds were available. The breakdown follows:

	FY'82	FY'83	FY'84
1210	$ 30,000	$ 90,000	
1220	40,000	40,000	
1260			$255,000*

* Includes $120,000 in ARMM funding.

6. Safety

No accidents occurred during 1983.

Due to the isolated working conditions and the sometimes extreme weather conditions on the Nowitna safety training is taken seriously. Charles Blair took the U.S. Air Force Arctic Survival course in 1983. Jim Fisher is scheduled for the course in 1984. We plan to get both the Nowitna and Koyukuk staffs trained on an annual basis (preferably just before the field season) in the Red Cross Multi Media first aid course.

The totally inadequate radio communications system which we are currently trying to use gives us some serious safety concerns. There is some hope of getting permission from the Bureau of Land Management (BLM) to use their radio repeaters. This would be excellent, since we would have access to three channels for everyday business plus two emergency channels for the fire season.

7. Technical Assistance

We served occassionally as middle men for disputes between trappers over traplines on the refuge. Since we do not directly control the number of trappers on the refuge, and since traplines are not registered, this is a passtime which is guaranteed to make refuge staff unpopular.

The Tanana Chief Conference, a regional surrogate for the Bureau of Indian Affairs, contacted us often throughout the year with questions about refuge interpretations of subsistence laws and policies. They have indicated that they would like some input into the refuge conprehensive plan.

Charles Blair provided comments to BLM in April for their Central Yukon Resource Management Plan. We share common boundaries with BLM lands on the south and east refuge borders, and we expressed concern over impacts which agriculture and mining would have on the refuge and surrounding lands.

Noel Grove of the National Geographic Society visited the refuge in July to gather material for an upcoming book, "Wildlands for Wildlife". We trust that our assistance has immortalized us.

Refuge planner Leslie Kerr, Archaeologist Charles Diters, pilot Colin Brown (private carrier) and National Geographic Society (NGS) writer Noel Grove, spent several days on the refuge floating the lower Nowitna. Noel Grove's trip was for the NGS book, "Wildlands for Wildlife." 83-04-CB

The village of Ruby provides the Nowitna with most of its human constituency. We met with the Ruby Advisory Council in October to (1) answer their questions on refuge cabin policy; (2) assure them that the refuge (by Congressional mandate) will provide opportunities for a subsistence life style; (3) let them know that we are interested in hearing their opinions and their concerns and in discussing issues with them. This was an important meeting, and we need to follow up on it.

In December, refuge staff, along with representatives of the Koyukuk, Innoko, Kanuti, Yukon Flats NWR's, and the Regional Office (RO), attended a meeting of the Interior Regional Advisory Council. Again, we provided information and FWS interpretations on cabin policy, permit procedures, and subsistence matters. Our impression was that the council was pleased and somewhat surprised by the size of the FWS representation at the meeting.

8. Other Items

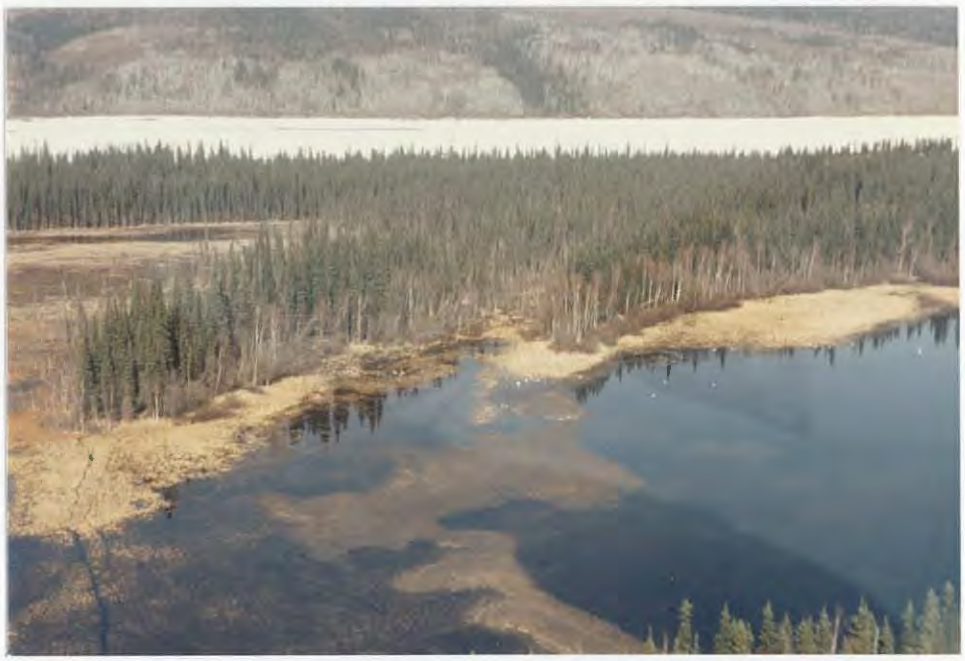
We, like many of the Alaskan Refuge staffs have been struggling to interpret those facets of ANILCA which affect the ways in which these lands are to be administered. The concept of subsistence, for example, is difficult to interpret, and individual interpretations can have profound implications on refuge management policies. "Subsistence" to most of us implies such traditional means of living off the land as hunting, fishing, and trapping. A more technically correct concept is that of a condition in which the ADF&G formally declares that wildlife resources in an area are so depleted that only subsistence hunting, fishing and/or trapping are allowed - i.e., there would be no recreational hunting, fishing and trapping. Since the Nowitna is mandated to provide subsistence opportunities, we need to arrive at some understanding of what the term subsistence means and our understanding of the term has to be consistent with that of our neighboring refuges.

F. HABITAT MANAGEMENT

1. General

The Nowitna NWR comprised approximately 1,907,000 acres. The land and the vegetation are characteristic of Interior Alaska. Elevations range from approximately 150 feet at the mouth of the Nowitna River to nearly 2,000 feet in the rolling hills to the south.

We do not, at this point, have an accurate breakdown by acreage of land classification types. We have placed a high priority on obtaining good vegetative and water maps.



Many of the lakes on the Nowitna thaw before the major rivers and provide resting habitat for migrating waterfowl. Note the frozen Yukon River in background. 83-05-CB

2. Wetlands

The refuge is bisected north to south by the Nowitna River, which meanders for approximately 230 miles within the refuge. In the northern lowlands, this river has formed numerous oxbows and sloughs which provide excellent habitat for waterfowl, moose, and furbearer.

The Nowitna has been designated a Wild and Scenic River, and it is very attractive, with clear, cold, swift running water and excellent fishing. Numerous small rivers and streams throughout the refuge drain into the Nowitna.

The Yukon River forms the northern boundary of the refuge. It is the largest river in the state, with stream flow at Ruby averaging 170,000 cfs over the year. Ninety percent of this flow occurs from May through October. It is a glacier fed river which carries a huge sediment load (nearly 70 million tons/year at Ruby). It is in important salmon fishery, and it is an important "highway" both summer and winter for much of Interior Alaska.

Even though annual precipitation in the area is quite low, because of the intermittent permafrost, the refuge is dotted with numerous small ponds which are replenished by spring floods. These provide excellent wildlife habitat. Most of them are shallow and freeze out during the winter.

A typical waterfowl transect lake on the Nowitna NWR. 83-06-CB

3. Forests

The majority of the lands of the refuge are forested and belong to three major plant associations. The bottomland spruce - poplar forest is found along the Nowitna and Yukon River drainages and to a lesser exent, along smaller streams and tributaries. This type is composed of black spruce, white spruce, balsam poplar, quaking aspen, and paper birch. Shrubs include alder spp., willows, roses, cranberries and blueberries, alders and resin and dwarf birches. Sedges, rushes and cotton grasses as well as mosses and lichen may also be found here. The largest plant association on the refuge is the lowland spruce - hardwood forest. This community is dominated by black spruce but white spruce, tammarck, paper birch, balsam poplar, and quaking aspen may be found. Understory vegetation includes willows, dwarf birch, blueberry, rose, labrador tea, crowberry, bearberry, cotton grass, ferns, horsetail, lichens and possibly sphagnum and other mosses.

6. Other Habitats

Small portions of the refuge are covered by tundra. These areas are characterized by tussocks of grass one to two feet high and one to one and a half feet in diameter. The areas between the tussocks are usually vegetation free and are filled with standing water. Travel through this country is difficult during the winter and much worse during the summer.

The "uplands" of the refuge contain many lakes. Investigations to date indicate that very little production takes place in these types of waters. There is little water level change and the nutrients are "locked up" in the existing vegetation. 83-07-CB

9. Fire Management

All the lands encompassing Nowitna NWR are part of the Alaska Interagency Fire Management Plan, Tanana/Minchumina Planning Area. This plan was completed in 1982 and provides for specific fire treatment on different units of the refuge. Previous to this plan, all fires occurring on the refuge were treated by aggressive attack until they were controlled and extinguished. Following 20-30 years of fire control it became apparent that habitat was changing and the characteristic wildlife resources of that habitat were decreasing. It was slowly accepted that fire is a natural component of this environment combined with the fact the wildfire suppression is very expensive. Hence we entered into the current fire managment plan.

Under the Fire Management Plan there are four options that apply to refuge lands. The following is a summary of those options:

Critical protection: Highest priority response. Fires will receive immediate and aggressive initial attacks. This category includes the protection of life and property.

Full protection: All fires will receive aggressive initial attack and suppression efforts until the fire is declared out. Native allotments and selections, private property, and adjoining refuge lands are in this option.

Limited action: Suppression actions need only be to the extent necessary to keep a fire withing the management unit or to protect critical sites within the area. Most of the refuge falls within this classification.

Modified action: This option provides protection between "Full" and "Limited". The intent is to provide manager/owners with an alternative for those lands that require a relatively high level of protection only when the risks of large damaging fires is present. Its intent is to reduce suppression costs and increase resource benefits during the entire fire season.

11. Water Rights

We need to begin to establish instream flows on our major rivers so that we can file for water rights. Fortunately, Alaska recognizes wildlife as a legitimate use of water.

12. Wilderness and Special Areas

The entire 230 miles of Nowitna River classified as "wild" under the Wild and Scenic River Act is contained within the refuge boundaries. The river was added to the system on December 2, 1980, by Alaska National Interest Lands Conservation Act (ANILCA), Public Law 96-487, which also established the refuge. The Nowitna River and its surrounding lands are primitive, with few man-made structures, no roads, and few trails. Access to the river is

predominately by boat and airplane. The amount of use that occurs by recreational boaters at the present is unknown but is not believed to be great. The river and surrounding land certainly qualify to provide the experience of a wild river trip but the cost of access and its remote locations relative to other rivers does not make it a "popular" trip at this time. This type of use, however, is expected to increase in the future as more accessible areas become crowded.

G. WILDLIFE

1. Wildlife Diversity

The refuge contains a diverse group of wildlife species ranging from moose and black bear to warblers and thrushes. A complete list of birds and mammals that utilize the refuge has not been compiled, but mammals, birds, and fish common to Interior Alaska are believed to occur. A preliminary list includes 33 mammals, 125 bird species and 1 amphibian.

2. Endangered and/or Threatened Species

Peregrine falcons have been confirmed as nesting within a half mile of the refuge boundary and there are several other possible locations just outside the refuge. There were several sites on the refuge that have potential, but surveys during the summer of 1983 failed to find any nesting birds. The refuge did receive some second-hand information on peregrine sightings from refuge visitors but these were not confirmed by refuge staff. Peregrines probably nest just outside the refuge boundary and utilize the refuge in their activities.

3. Waterfowl

The wetlands of the refuge provide habitat for breeding and migrating waterfowl. In 1983, refuge staff attempted to investigate the waterfowl breeding population. This was the first time a ground investigation was attempted on the Nowitna NWR and our objectives in this first season were as follows:

1) Assess refuge habitats for the establishment of census transects to monitor, on an annual basis, waterfowl production.

2) Identify breeding waterfowl species and their abundance.

3) Establish baseline information on waterfowl breeding and production for long term trend comparisons.

The survey consisted of 12 transects conducted on lakes and sloughs. Water bodies ranged in size from 5 acres to 190 acres. A total of 792 acres of water was surveyed. Methods were as outlined in waterfowl Inventory Procedures No. 1 and 2 Nowitna NWR.

Nine species of waterfowl were confirmed as nesting on the refuge. American Widgeon was the most abundant species comprising 19 broods and 119 young. The Canada goose was the least abundant with one brood composed of two young. Table 1 contains the result of 12 transects.

Table 1. Brood Characteristics of Nesting Waterfowl on the Nowitna NWR, during July 23-28, 1983.

Species	Number of Broods	Total Young	Brood Size	Total Adult
Mallard	6	18	3.0	6
Green-wing Teal	18	94	5.2	18
Pintail	6	24	4.0	6
American Widgeon	19*	119	6.3	20
Scaup	8	37	4.6	8
C&B Goldeneye	2	5	2.5	2
C. Scoter	1	5	5.0	1
Canada goose	1	2	5.0	1
White-fronted goose	3	27	9.0	5
N. Shoveler	4	23	5.0	4

* One brood of 16 young contained two adult hens indicating that this group was probably composed of two broods.

A total of 354 young of all species was counted during the brood survey and this amounts to a minimum production of 0.45 young per acre of water.

Both the surf scoter and red-breasted merganser were found paired in the breeding pair count but were not surveyed with young in the brood count.

The main channel of the Nowitna River appears to provide significant brood rearing habitat for several waterfowl species. Although there were no transects conducted on the river in 1983, frequent travel on the river allowed observation. The most abundant broods on the river were goldeneye which were seen most frequently from early July into August. The large trees along the river probably provide abundant nesting cavities for this species. American widgeon, pintail, green-wing teal and white-fronted geese broods were also observed regularly.

The lower section of the river, from the confluence with the Yukon upstream for approximately 40 miles, contained the majority of the broods. Very little Canada goose nesting was observed. White-fronted geese were more common and were found upriver usually associated with the main channel of the river and probably nesting in upland areas adjacent to the river.

Of all the areas surveyed, the oxbow lakes with a connection to the Nowitna River were the most productive. These areas contained broods of most the nesting species observed and usually had well-developed aquatic vegetation and gradual sloping shorelines with well developed vegetation.

The refuge supports approximately 60-100 trumpeter swans which breed in the lowlands bordering the Yukon River. A specific trumpeter swan survey was not conducted in 1983 but sightings while performing other surveys established at least 16 young produced in 1984. A specific survey is scheduled for 1984.

4. Marsh and Water Birds

Lesser sandhill cranes, Arctic, common, and red-throated loons, and horned and red-necked grebes all utilize the refuge. The red-necked grebe is a confirmed nester utilizing the numerous lakes and sloughs where it constructs a floating nest of vegetation. Lesser sandhill cranes are frequently sighted and are believed to nest. Large flocks can be seen staging or restng on the refuge during fall migration. Arctic and common loons are common with the red-throated loon an occasional visitor.

5. Shorebirds, Gulls, Terns, and Allied Species

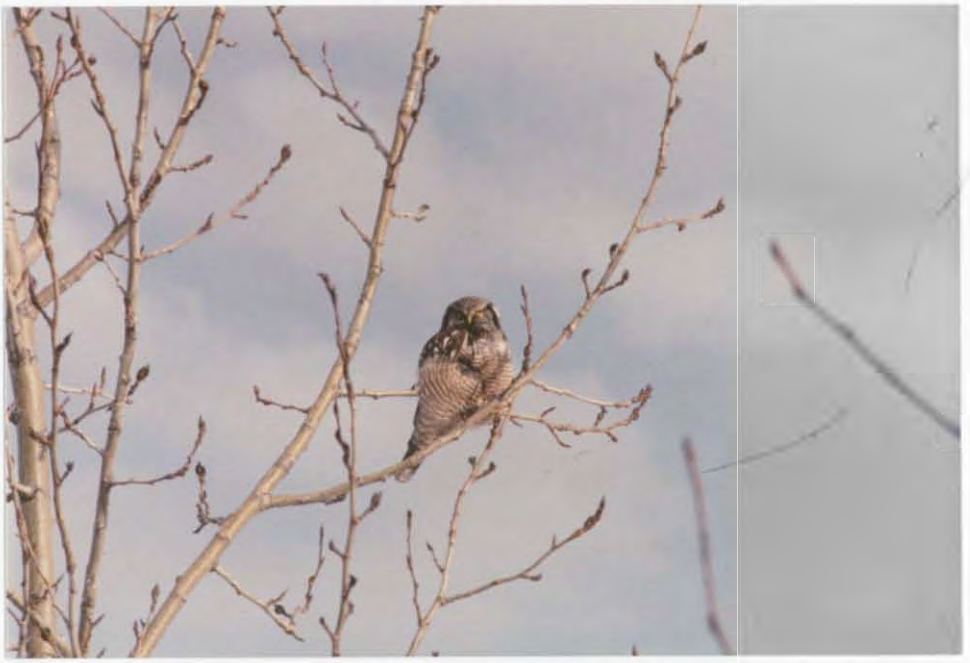
A total of 18 species of birds in this category was confirmed on the refuge during CY'83. Of the gull species, the mew gull is the most common species and a confirmed nester. The arctic tern is the only tern species found on the refuge and is a common nesting species throughout.

The lesser yellowlegs is the most common shorebird. 83-08-CB

6. Raptors

The northern harrier, merlin, rough-legged hawk, sharp-shinned hawk, goshawk, red-tailed hawk, great-horned owl, short-eared owl, snowy owl, great gray owl, hawk owl, and boreal owl are found and probably nest on the refuge. The snowy owl and gyrfalcon are probably infrequent visitors.

Bald and golden eagles are found on the refuge with the bald eagle the more common species. Three active bald eagle nests were located during the summer of 1983.



The hawk owl is a common raptor on the refuge. 83-09-CB

7. Other Migratory Birds

The refuge provides habitat for a diverse group of migratory species. In this harsh northern climate many of the bird species migrate to more favorable areas in the winter. The bird population consisting of more than 120 species in summer drops to eight or nine in winter. Surveys for passerine birds are conducted in conjunction with the waterfowl census and the refuge is compiling a bird list. The refuge is planning separate intensive, passerine surveys during 1984.

8. Game Mammals

Moose, black bear, brown bear, wolf, coyote, pine martin, beaver, wolverine, lynx, red fox, and snowshoe hare are found on the refuge. Moose and black bear are the major hunted species. Martin, beaver, fox and lynx are important furbearers and sought by trappers.

Moose

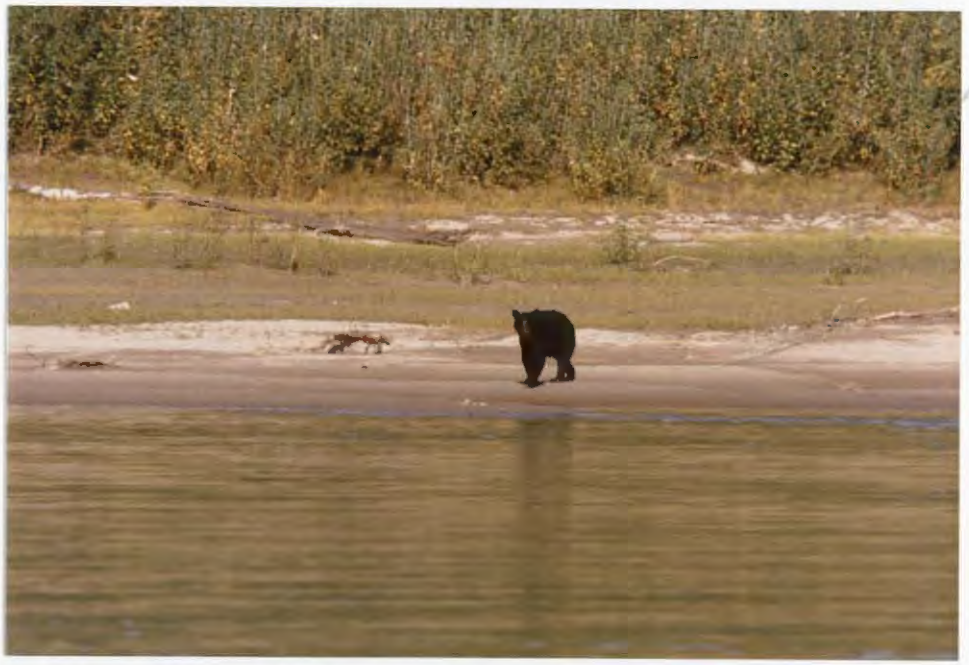
The Nowitna NWR supports a large population of moose and contains valuable moose wintering habitat along the lower Nowitna and Yukon Rivers. Calendar year 1983 was the first year that the refuge conducted a fall moose survey and this should continue as an annual event. A total of 15 areas comprising approximately 189 square miles was surveyed by aircraft according to the Wildlife Inventory Plan. Table 2 contains the results. Moose densities ranged from a high of 5.33 to a low of zero animals per square mile. Cow:calf ratio for the entire refuge was 100:48 indicating good production in 1983. The bull:cow ratio was 36:100. The survey units were dispersed over the entire refuge and represent all the major habitat types. The highest density areas were associated with and bordering the lower Nowitna and Yukon Rivers. These areas were composed of large stands of willow interspersed with white spruce and white birch. These areas are commonly referred to as the lowlands or "flats" and are thought to be the prime winter range. The lowest densities were in the upland areas composed predominantly of black spruce.

Table 2. 1983 Moose Trend and Composition Information for the Nowitna NWR

Unit No.	Area (sq. mi.)	Total Moose	Cow	Bull Lg.	Bull Md.	Yrling.	Calf	Density moose per square mi
Mason slough A	15.9	11	5	1	0	0	5	0.69
Mason slough B	14.6	0	0	0	0	0	0	0.00
Mason slough C	14.2	13	7	0	2	0	4	0.92
27	11.9	19	13	0	1	1	4	1.60
28	12.2	17	6	2	4	2	3	1.39
29	12.0	19	12	0	1	0	6	1.58
33	14.8	24	14	3	1	0	6	1.62
35	11.8	63	32	0	3	2	16	5.33
36	15.1	24	15	0	2	2	5	1.60
37	14.4	14	10	0	1	2	1	1.00
154	13.0	10	3	2	0	1	4	0.77
157	12.8	9	4	2	0	0	3	0.77
LM1	12.7	2	1	0	0	1	0	0.16
OC3	14.1	6	3	0	0	0	3	0.43
Totals	189.5	231	125	20	15	11	60	

Black Bear

The black bear is common and found throughout the refuge. It is more numerous along the rivers and in the lowlands where it is commonly observed. The black bear is not a sought after game animal but they are occassionally taken by moose hunters. Local residents and long time hunters say that the species is increasing in numbers and adversely affects moose production by taking moose calves. Research in other areas of the state has confirmed that the black bear can be a significant predator on moose calves. However, moose calf production and survival were good during 1983 as measured by our fall survey. We will continue to monitor this.



Black bears are common throughout the refuge, but concentrate along the major waterways. 83-10-CB

Brown Bear

Brown bear occur on the refuge but are not very numerous. They are occasionally sighted and taken by hunters predominantly in the more mountainous areas of the refuge.

Wolf

Although litle is known of the actual numbers of wolves on the refuge, they are occasionally sighted and their sign is very evident. Survey work this past December indicated at least two different packs utilize the refuge with minimum numbers of eight and fifteen individuals. More survey work is scheduled for the spring of 1984 with the intent of locating packs and establishing areas of activity.

Beaver

The species is abundant and found throughtout the refuge. Nearly all rivers and drainages contain beaver where they construct bank lodges and remain active year-round. Most of the larger lakes and sloughs contain active colonies. Water depth is important in these areas because of the severe winters which cause ponds to freeze several feet deep. An inventory will be conducted in September, 1984 utilizing house and cache counts.

Wolverine

This mammal is found on the refuge and is occasionally taken by trappers. Little is known of its population status and distribution.

Martin

The pine martin is one of the most abundant mammals in the forested regions. It is intensively sought by trappers and provides the greatest revenue of all the furbearers.

Other game mammals

Lynx, red fox, snowshoe hare, mink, land otter, and coyote occur on the refuge.

10. Other Resident Wildlife

Willow and rock ptarmigan, spruce and ruffed grouse, porcupine, short-tailed and least weasels, muskrats and several species of other small mammals are found on the refuge.

11. Fishery Resources

The Nowitna River and its associated drainages provide important habitat for the fishery resource. King, chum, and coho salmon utilize the waters for migration and spawning. The extent of spawning by these species is undetermined, but is not believed to be significant. Northern pike are found throughout the waters on the refuge and appear to be the most abundant sport fish. The Nowitna River is also an important spawning area for sheefish which are found throughout the drainage and migrate upriver in the fall to spawn.

Our fish sampling revealed that pike utilize the protein resources on the surface. This gosling was taken from a relatively small fish. 83-11-CB

There is some commercial fishing in the Yukon River (which forms the northern boundary of the refuge). Species taken are predominantly king, chum, and silver salmon migrating up the Yukon to spawning streams. The catch has declined in recent years with the down turn of the market for these species in the interior of the state.

H. PUBLIC USE

1. General

The villages of Ruby and Tanana are located close to the boundaries of the refuge and provide residence for approximately 590 people (Ruby-196, Tanana-394, 1980 census figures). There is only one known year-round resident on the refuge. Residents from these two villages utilize the resources of the refuge. An undetermined number of residents from Fairbanks and Anchorage and other population centers hunt and fish on the refuge.

Public use on the refuge is predominantly for consumptive purposes including hunting, fishing, and trapping. Some recreational use in the form of river float trips and wildlife observation occurs during the summer months.

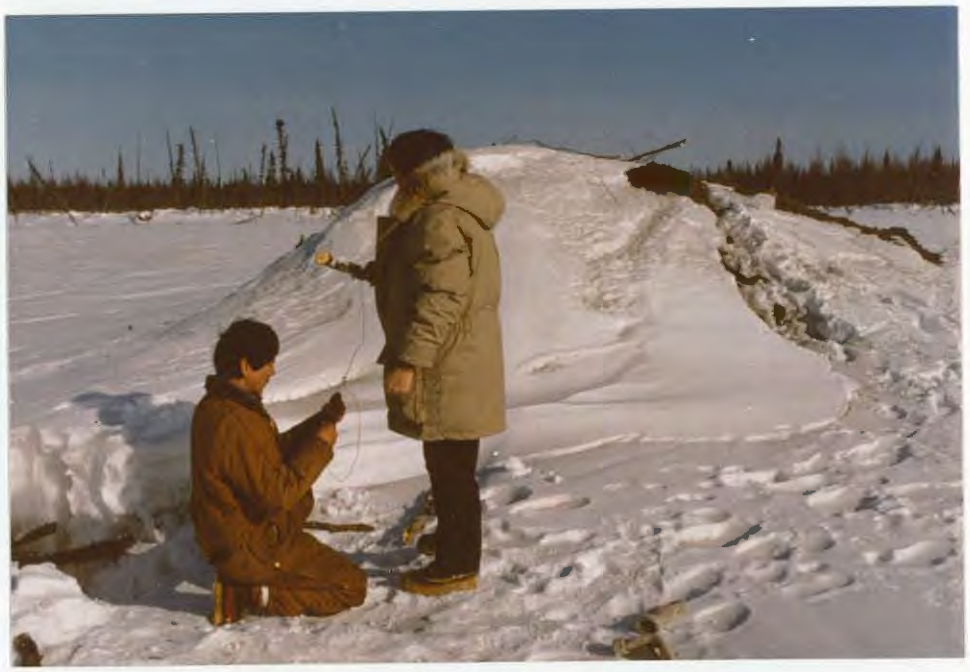
Four placer mining claims are located on the refuge and several other active mines lie just outside the refuge but within the same watershed.

8. Hunting

The refuge is popular hunting area for residents of Fairbanks who travel by boat down the Yukon River to the Nowitna River. The predominant species sought is the moose but black bear are also taken if the opportunity arises. Most of the "recreational hunters" or those coming from Fairbanks or Anchorage camp on the river banks and stay for periods ranging from three days to three or four weeks. The refuge also provides subsistence hunting for local residents with moose and black bear as the major species.

9. Fishing

The Nowitna River and the associated waters provide outstanding opportunities for sport fishing. Northern pike and sheefish are the major species sought and many of the waters have little or no pressure. Because of the remote location, fishing is an activity that is usually conducted in conjunction with a hunting or river float trip. The many lakes and cut-off sloughs provide opportunities for fishing but require a float plane for transportation, making this activity expensive. Further, the sport fishing industry in this state concentrates on the salmon and trout species close to the population centers. We do not know of any sport fishing guides utilizing the refuge.



Trapping is an important activity on the refuge.
Here, local trappers set snares for beaver. 83-12-RK

10. Trapping

Approximately eight trappers operate on the refuge. Major species sought include martin, lynx, beaver, red fox and wolf. Martin is by far the major species taken and the refuge is considered excellent martin habitat with its extensive spruce forests. Wolf and lynx are taken by some trappers by their numbers are usually small relative to the martin and beaver harvest.

12. Other Wildlife Oriented Recreation

The Nowitna NWR is used for wildlife observation during the months of June, July, August and September. This use is usually combined with a float trip of the Nowitna and Yukon Rivers and conducted by commercial guides from Fairbanks and Anchorage. A float trip down the Nowitna River provides extensive wildlife observation opportunities and its primitive or natural condition provides the user a wilderness experience.

17. Law Enforcement

Little is known about law enforcment problems on the refuge. The vast area and the few people that utilize it result in few observed or reported violations. The refuge receives its greatest influx of people for moose hunting during September of each year. Refuge personnel have made it a point to be out on the refuge during this period.

Refuge users come to these remote areas well supplied. These individuals attempted to build a cabin and follow a subsistence lifestyle. However, no permit was issued and they moved off the refuge. 83-13-CB

The refuge offers excellent fishing opportunities for northern pike and sheefish. 83-14-CB

Alaska Maritime manager John Martin, visited the refuge on August 5, and demonstrated his fishing skills. 83-15-CB

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The Nowitna currently owns one house and rents and apartment. The heating system and the furnace room in the FWS owned unit were completely rehabilitated during CY'83.

3. Major Maintenance

Most of our equipment is relatively new and has not needed a great deal of work. The only notable exception is a low mileage Chevrolet Suburban which was acquired from a YACC camp in the Lower 48. It needs work on everything behind the engine and below the floor. Whoever drove this vehicle before we got it could have a great future at the Yuma Proving Grounds. We kept it running.

4. Equipment Utilization and Replacement

We have an 18 foot Alumaweld boat which was purchased in 1982. It is an excellent boat, but its limited load capacity makes it less than ideal for carrying field crews and enough gear for extended stays on the refuge. In addition, it vee-bottomed hull handicaps us when we work in shallow water. When the boat was ordered it was done in a rush to use available funds and it was done at a time when we were still trying to understand field requirements. We have ordered a 24 foot welded aluminum boat with a flat bottom, high sides, and vee bow to replace it. We can profitably use the 18 footer here for light duty work, but we would prefer to transfer it out to a refuge with different requirements.

Our copier, a Xerox 2600, was never a great machine. After two and a half years and approximately 12,000 copies of indifferent quality, it has given up the ghost. We requisitioned a new Canon, which we hope will meet our needs better.

Getting equipment repaired in Galena is often a problem. Good mechanics are scarce and shop fees are frightening. When we purchase new equipment we try to make sure that it a type and name brand (purchasing regulations not withstanding) that we can get repaired locally.

5. Communications Systems

The refuge has two motorola base stations and one portable SGC model #715 unit. Because of the great distances we are required to transmit, our system is limited. We have installed a helium coil inverted VCC antennae at one residence and plan to install another at the refuge office. We plan to upgrade our system by obtaining equipment which will be compatable with BLM's so we can use their repeater system and obtain State-wide coverage.

6. Energy Conservation

The new furnace which was mentioned under I2 seems to be lowering heating bills by 20-30%.

7. Other

When the staff size increases on the Nowitna and the Koyukuk NWR's, our office space will be inadequate. We are in the process of either attempting to rent more space in our present office building or renting elsewhere. Suitable office space in Galena is hard to find.

We took the plunge and requisitioned a computer system to be shared by the Nowitna and the Koyukuk. The system will be a Data General, which will be the standard for Region 7.

J. OTHER ITEMS

1. Cooperative Programs

The Refuge has two agreements with the Air Force base in Galena:

(1) A memorandum of understanding between the FWS and the Air Force which allows, at the discretion of the base commander, USFWS staff and their families to use the base exchange, the club, and the movie theater. This is a great morale booster for the families, and it is a priveledge which we appreciate very much
(2) A support agreement between the FWS and the Air Force which allows the Refuge to purchase gasoline and heating fuel at Air Force prices. This is a big help to our budget.

The refuge is part of a cooperative fire suppression plan. See F9.

We issued one special use permit to Exxon Company, USA, which allowed the company to do surface geologic studies, mapping of structural attitudes,and core sampling.

2. Items of Interest

Charles Blair got a well deserved quality step increase for the high quality of his work during CY'83 when he held the fort alone for most of the year.

Perhaps this is not the place for a thumbnail sketch of the village of Galena, but in view of the paucity of applications for some of the Alaskan refuges, it seemed appropriate to include it. Galena is located on the Yukon River in interior Alaska. It is primarily a subsistence village with a population of approximately 765 (including an Air Force base with approximately 350 personnel). It is a "hub" village because of its airport, which can and does accomodate jet flights. Its school (K-12) is fairly good and getting better. There is a clinic which is run by a physician's assistant. The village has no doctors, but it does have a dentist. Shopping is limited to two general stores, a hardware store, and (for us) a BX. There are no roads to Galena. Goods are either flown in or, during the summer, barged in. Refuge housing is proivided.

Assistant Refuge Manager Charles Blair attended the Interior Regional Advisory Council meeting in Fairbanks, Alaska, February 1 and 2.

Assistant Refuge Manager (ARM) Charles Blair completed the 40 hour Law Enforcement Refresher course during the week of January 24-28.

ARM Charles Blair attended Arctic Survival training in Fairbanks, Alaska, March 21-25.

Refuge Supervisor, North Owen Vivion retired on April 2.

ARM Charles Blair attended the Waterfowl Workshop held in Anchorage on April 20-22.

ARM Charles Blair attended a Basic Fire Suppression Course in Fairbanks, Alaska, May 21-25 sponsored by BLM.

Refuge Planner Leslie Kerr and Regional Archaeologist Chuck Diters spent ten days on the refuge (July 2-12) identifying major planning information needs and locating and investigating archaeological resources.

Noel Grove of the National Geographic Society spent four days on the refuge (July 6-10) in connection with an upcoming book "Wildlands for Wildlife".

Jim Gillett, Chief, Division of Refuge Management - Washington, D.C., visited the refuge on August 5 to be familiarized with Alaskan Refuges.

Refuge Manager James Fisher and Assistant Refuge Manager Charles Blair attended the Interior Regional Advisory Council meeting in Fairbanks, Alaska, on November 1-3.

Left to Right: Refuge Supervisor - North, John Kurtz,
Innoko NWR pilot, James Demientieff,
Regional Archaeologist Charles Diters,
Washington Office Deputy Division Chief of Refuge Management,
John Eadie, and Refuge planner, Leslie Kerr
visited the refuge on July 10 & 11. 83-16-CB

3. Credits

Charles Blair wrote sections A, C, D, G, and H. Jim Fisher wrote sections B, E, F, I, J, and K. Valerie Olin and Sheryl Daron typed the report.

A winter sunset in the northern latitudes is a special event. 83-17-CB

K. FEEDBACK

Despite assurances to the contrary, moving costs often do play a part in selecting people for positions. Since field stations normally operate on tight budgets, and since the receiving station pays for the move, this is a completely understandable and predictable situation. Nevertheless, the present system sometimes diminishes the likelihood of getting the best qualified person for a position. One possible solution for this would be to establish a central "moving fund" which would allow selections to be made at the field (or regional level) without regard to moving costs. Even though this would take money from local budgets, it would allow for a better selection process and it would mitigate the periodic shock that a station budget feels when it becomes necessary to replace someone.

The Nowitna NWR and all Alaskan refuges have received numerous service visitors from the Washington office, Regional office and other units during the past two years. We feel these are very important visits for they provide a chance for these people to see and understand the unique conditions and problems that exist for these stations. Conditions related to housing, office facilities, costs, and the public are so different from those found elsewhere in the system that it is difficult to explain our special needs in a memo or through words. This first hand experience goes far in shaping policy to make the system work better. We support and welcome all of these visits.

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