

INTRODUCTION

The Yukon Flats National Wildlife Refuge (NWR) was established by the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980. The Refuge is the third largest in the National Wildlife Refuge System. The exterior boundaries encompass approximately 12 million acres (about the size of New Hampshire and Massachusetts combined). The Refuge extends 220 miles along its east/west axis and 120 miles from its southern to northern boundaries; it is roughly bisected by the Arctic Circle. An estimated 20,000 lakes, ponds, and sloughs dot the Refuge, and segments of 10 major rivers traverse the Refuge before discharging into the Yukon River.

The major purposes for which the Yukon Flats NWR was established and shall be managed are specified in ANILCA. These purposes include (but are not limited to):

(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, canvasbacks and other migratory birds, Dall sheep, bears, moose, wolves, wolverines and other furbearers, caribou (including participation in coordinated ecological studies and management of the Porcupine and Fortymile caribou herds) and salmon;

(ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;

(iii) to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents; and

(iv) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the Refuge.

The Refuge contains a variety of plant communities representative of all major habitat types occurring within Interior Alaska. In addition to the typical "Flats" habitats of marshes, wet meadows, lakes, ponds, and other wetlands; the Refuge has large areas of black and white spruce, paper birch, balsam poplar and aspen interspersed to provide a mosaic of vegetation communities. Alpine tundra is found in the White Mountains, along the southern border of the Refuge and in the Hodzana Highlands in the northwest corner of the Refuge.

All things considered, probably the most important feature of this Refuge is its contribution of waterfowl to all major flyways of North America. The Yukon Flats provides one of the greatest waterfowl breeding areas in North America and is perhaps the most consistent production area for waterfowl on the continent. Waterfowl displaced from their traditional breeding grounds on the prairie potholes during drought, migrate northward to the "Flats" where vast wetland areas are periodically recharged through flooding of the Yukon River and its tributaries. Waterfowl banded on the Yukon Flats have been recovered in 45 of the 50 United States and in several foreign countries including Belize, Columbia, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Panama, Russia, and eight Canadian Provinces – truly a shared resource, nationally and internationally.

The Refuge is open to both sport and subsistence hunting, subject to State of Alaska and Federal regulations. Approximately 1200 residents of the eight villages in and adjacent to the Refuge depend heavily on the area's large and small game. An undetermined, but relatively small number of non-local hunters access the Refuge by aircraft or river boat to hunt moose, bear, and to a lesser extent other game. Sport, commercial and subsistence fishing is allowed. Nearly all of the chinook, chum, and coho salmon caught are taken with nets or fish wheels by local residents, primarily for personal use or dog food. Fish harvests are regulated by Alaska laws and regulations.

The Yukon Flats ranks as one of the most important fur production regions in the Nation. Measured in terms of use days or economic and cultural significance to local residents, trapping is one of the more important Refuge activities. Trapping provides the basis for one of the most traditional lifestyles remaining in America – a living cultural resource that the Refuge is mandated by ANILCA to protect.

Virtually all wildlife observation, camping and picnicking not related to hunting, fishing, and trapping is associated with float trips down the Refuge's boatable rivers and streams. The most commonly floated waters include Beaver Creek, Birch Creek, and the Chandalar, Porcupine, Sheenjek, and Yukon Rivers.

A. HIGHLIGHTS

- ✿ Mark Bertram and Mike Vivion's work on moose calf mortality within the Refuge was published in the *Journal of Wildlife Management* (G.8.).
- ✿ Refuge staff cooperated with University of Alaska Fairbanks professor Mark Lindberg and graduate student David Safine to initiate a white-winged scoter breeding ecology study (D.5.).
- ✿ Supported by the Refuge staff, SCEP graduate student Robin Corcoran continued her fieldwork on a lesser scaup nesting ecology study (D.5.).
- ✿ Mark and Mike's manuscript on black bears was accepted for publication in *Ursus* (G.8.).
- ✿ SCEP student Bryce Lake helped analyze historical waterfowl banding data from the Yukon Flats (G.16.).
- ✿ Our vacant fire management officer position was filled with retired Alaska Department of Fish and Game biologist Dr. Sam Patten (E.1.).
- ✿ Shannon Nelson and Michelle Corrigan were selected to fill our vacant education specialist position as the Region's first job-share position (E.1.).
- ✿ An eighty-acre parcel on Henderson Slough was purchased and added to the Refuge (C.1.).
- ✿ Refuge staff helped organize, sponsor, and oversee the sixth biennial Earth Quest Science Camp at Twin Bears Camp (E.2.).
- ✿ The Service's annual breeding pair survey estimated 1.26 million ducks on the Yukon Flats (G.3.).
- ✿ Twelve lightning-caused fires burned 116,000 acres of Refuge lands (F.9.).
- ✿ A new Refuge brochure was developed and printed (H.6.).
- ✿ Steel shot clinics were held in Chalkyitsik, Venetie, and Arctic Village (H.17.).
- ✿ In cooperation with Doyon, Limited and the Native Village of Fort Yukon, an interpretative kiosk was erected near the Fort Yukon boat ramp (I.1.).
- ✿ To facilitate field operations, a 540-gallon fuel tank was installed at a remote lake between the villages of Birch Creek and Beaver (I.3.).

B. CLIMATIC CONDITIONS

Straddling the Arctic Circle, the Yukon Flats National Wildlife Refuge enjoys a subarctic continental climate, characterized by extreme seasonal variation in temperature and daylight. Summers are generally warm, with temperatures sometimes exceeding 90 degrees Fahrenheit (°F). Fort Yukon, which is centrally situated within the Refuge, holds the state record temperature of 100° F. Daylight exceeds civil twilight for approximately 84 days, from 13 May to 4 August. (Civil twilight occurs when the sun is below the horizon by six degrees or less.) This extended daylight, in combination with the continental location, provides for warm and sunny summers. Conversely, the same continental location combined with the prolonged darkness of winter results in bitter cold. Winter temperatures of -50° and -60° F are common on the Refuge. The official weather recording station on the Yukon Flats is located in Fort Yukon. Historical climate data for Fort Yukon from 1961 to 2000 may be viewed on the Western Regional Climate Center's Web site at <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?akfory>

C. LAND ACQUISITION

1. Fee Title

As reported in last year's annual narrative, our realty office signed a purchase agreement for one native allotment in 2001, an 80-acre parcel on Henderson Slough, off the Porcupine River. However, at the end of 2001 the deal had not closed due to questions over the title. We are pleased to report that a "final title opinion" was issued in May, and the parcel is now part of the Yukon Flats National Wildlife Refuge (NWR).

Offers were made on two additional allotments in 2002, and at years end we were still waiting for the "final title opinions" on these two tracts. A few other native allotment owners expressed interest in selling their allotments to the Refuge this year. Since the US Fish and Wildlife Service (USFWS) has a limited land acquisition budget, we are only interested in purchasing those allotments that will provide the highest quality wildlife habitat. We are not interested in acquiring allotments that are effectively surrounded by native corporation lands or allotments that have limited value as wildlife habitat.

2. Easements – Nothing to report

3. Other – Nothing to report

D. PLANNING

1. Master Plan – Nothing to report

2. Management Plan – Nothing to report

3. Public Participation – Nothing to report

4. Compliance with Environmental and Cultural Resources Mandates – Nothing to report

5. Research and Investigations

Timing of Breeding and Reproductive Success in a Subarctic Population of Yellow Warblers (*Dendroica petechia*) – This study was completed by graduate student Kristine Sowl in 1991 under the guidance of Professor Ed Murphy, Ph.D., University of Alaska Fairbanks (UAF). Kristine defends her thesis in April 2003.

Lesser Scaup (*Aythya affinis*) Nesting Ecology on Yukon Flats National Wildlife Refuge, Alaska – Robin Corcoran, graduate and Student Career Experience Program student, is conducting this study under the direction of Professor Dr. James Lovvorn, Ph.D., University of Wyoming (UW). This project was initiated in 2001 with the objective of defining nesting habitats, survival rates, and food habits of lesser scaup. The study will continue through 2003.

Breeding Ecology of White-winged Scoters on the Yukon Flats National Wildlife Refuge – This project examines characteristics of nesting habitat, and survival of white-winged scoters. In 2002, we tested search methods, and successfully captured and marked 59 white-winged scoters, including 20 females with hook and suture radio transmitters. Graduate student David Safine, under the guidance of Professor Mark Lindberg, Ph.D., UAF, will be conducting field work on this project through 2004.



White-winged scoter captured and marked on the Yukon Flats Refuge

Landscape-level changes associated with climatic warming at high latitudes: use of remote sensing for monitoring wetland areas in Alaska. – This project focuses on the perceived drying trend in three areas of Alaska: Copper River Basin, the Yukon Flats, and the North Slope. It is being conducted by UAF graduate student Brian Riordan. This study used remote

sensing techniques to document water body loss. Preliminary data from two sites on the Yukon Flats indicates a 43% decrease in surface water since 1952 with about 30% of change occurring since 1978. Higher losses are indicated for the Copper River Basin, and little change is indicated for arctic habitats. Although this work is not sponsored by the Yukon Flats NWR, we are sharing data with Mr. Riordan to ensure the highest quality data sets for analysis and interpretation.

6. Other – Nothing to report

E. ADMINISTRATION

1. Personnel

It was a pretty stable year for permanent employees. No one retired or transferred, and we were able to refill a couple of vacant positions. (See Figure E.1.) In January, we were lucky to pick up Dr. Samuel Patten as our new fire management officer (FMO). Sam is a retired Alaska Department of Fish and Game (ADFG) biologist (most recently with Creamer's Refuge in Fairbanks). He brings a wealth of knowledge and expertise to the position: over twenty years working with Alaska wildlife and habitats. Sam will serve as the FMO for the Yukon Flats, Arctic, and Kanuti NWRs.



Sam Patten – Fire Management Officer

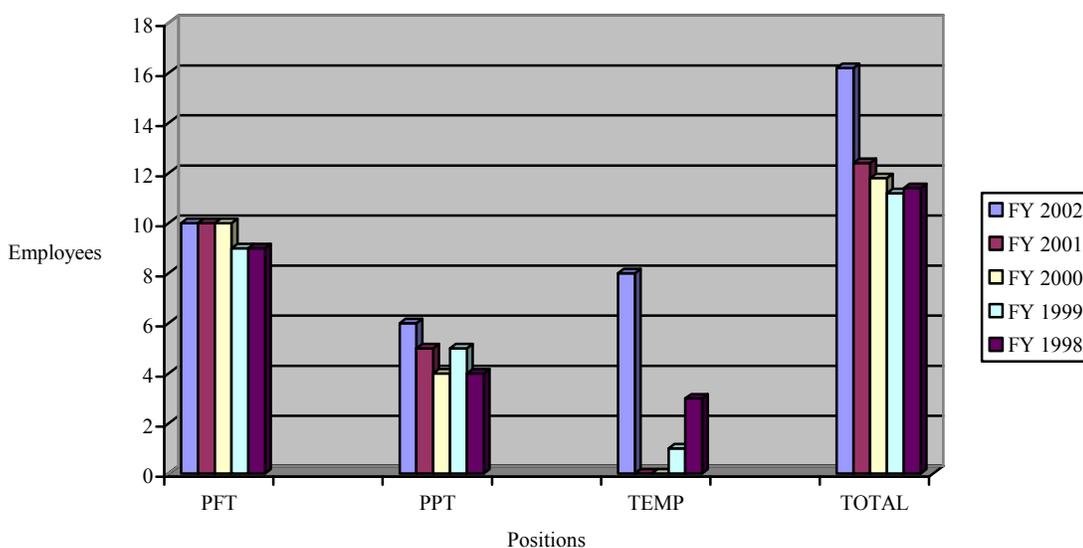
In June, we filled our vacant education specialist position as a permanent job-share and were fortunate to pick up Shannon Nelson and Michelle Corrigan. Shannon has considerable work experience with the USFWS. She has held temporary positions with both the Kanuti and Yukon Flats NWRs, and is a wonderful addition to our staff. Michelle also brought a lot of valuable expertise and new skills to our staff; unfortunately, she resigned in September and at the end of the year we had not yet filled the vacancy.



Shannon Nelson – Education Specialist

In addition to a great permanent staff, we've also been lucky to have some outstanding temporary employees. This year we were fortunate to re-hire Robin Corcoran to oversee a lesser scaup nesting ecology study on Plot M, a series of lakes about 25 miles southwest of Chalkyitsik. Tyler Lewis, Mike Medvecz, and Letty Hughes (who worked part of the summer for us and part of the summer for the Fairbanks Fish and Wildlife Office) ably assisted Robin. We were also fortunate to select Dave Safine, a graduate student at the UAF, to initiate a study on white-winged scoters. Kate Soetaert, Heather Knudsen, and Jetta Minerva (one of our new SCEP trainees) assisted David. All of the seasonal employees worked long hours under some difficult and primitive conditions, and they did a wonderful job. We hope to see them back again next year. Thanks everyone for all of the dedicated work!

Fig. E.1 Refuge Staffing (FY 1998 - FY 2002)



2. Youth Programs

The sixth Earth Quest Science Camp was held 29 July – 7 August 2002 at Twin Bears Camp, 30 miles east of Fairbanks, within the Chena River State Recreation Area. This residential camp is held on a biennial basis through the efforts of several partners. In 2002, the list of partners actively involved in Earth Quest included the Alaska Bird Observatory (ABO), ADFG, Alaska Fire Service (AFS), Alaska Division of Parks & Outdoor Recreation, National Park Service (NPS), Bureau of Land Management (BLM), UAF, Tanana Chiefs Conference (TCC), and several Service offices – including Kanuti NWR, Arctic NWR, Koyukuk/Nowitna NWR, Yukon Flats NWR and the FFWO.

Students selected for the camp were individually interviewed, and selected on their desire to learn about natural resource management. A total of nine students from the villages of Minto, Nikolai, Shageluk, Grayling, Koyuk, Kaltag and Fort Yukon participated in the ten-day camp. Students received hands-on experience with a variety of natural resource projects – chum salmon research, bird banding, and boreal forest management – in the Fairbanks/Chena River area. In addition, students set up and conducted their own small mammal live-trapping study through the direction of Karin Lehmkuhl (Koyukuk/Nowitna NWR) and Professor Eric Rexstad, Ph.D. (UAF).

The students also shared many memorable experiences – cooking meals together, hiking 8 ½ miles during an overnight backpack trip, and a paddle raft float of the Chena River. Over nightly campfires, Alaska native elders shared their ways of learning, and the daily experiences were reflected upon by the students.

3. Other Manpower Programs

Both the Student Career Experience Program (SCEP) and the Student Temporary Employment Program (STEP) were used to provide work experiences at the Refuge for several students. Under both programs, students need to be enrolled at least half-time in an accredited school. Working under STEP appointments were graduate student Robin Corcoran, University of Wyoming Laramie, Heather Knudsen, University of Montana Missoula, and graduate student David Safine – University of Alaska Fairbanks. Jetta Minerva, University of Alaska Fairbanks worked under a career-oriented SCEP appointment.

4. Volunteer Programs

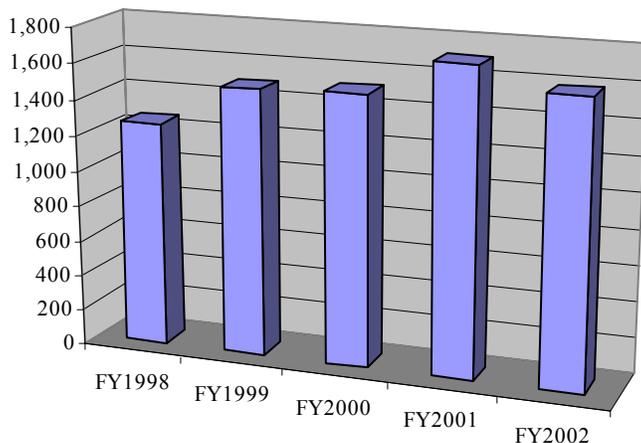
Estimated value of volunteer time (414 hours) this year was \$9,300 for the Refuge. Our estimated cost for overseeing the volunteer program was \$6,500. A list of volunteers and hours donated to Refuge programs is provided below in Table E.4.

Table E.4 Volunteer Contributions for 2002			
NAME	PROGRAM	DATES	HOURS
Raymond Bribiesca	Filming images and other work on Yukon Flats video project	March, July and September	120
Sheila Dufford	Junior Duck Stamp Program and other outreach activities, white-winged scoter project and interagency resource assessment	February - December	262
Patti Picha	Junior Duck Stamp Program	February-April	16
Jennifer Reed	Junior Duck Stamp Program		30
Lois P. Williams	Earth Quest Camp	August	16
TOTAL			444

5. Funding

It was a good (not great) year in terms of the budget. Total Refuge funding was \$1,586,000. (See Figure E.5.) Funding this year was slightly less than the allocation in 2001, due mostly to cuts in the fire program (-\$80K) and fewer maintenance management system (MMS) projects. Overall, we did fine since we had a couple of vacant positions for part of the year, and the positions we filled did not involve moving costs.

Figure E.5 Refuge Budget (FY 1998 - FY 2002)
(in thousands)



6. Safety

No lost time accidents occurred this year. As usual, all Refuge staff attended mandatory safety training programs, including first aid, cardiopulmonary resuscitation, and aircraft, watercraft, bear, and firearms safety. Field camp emergency plans were updated for each field project, and daily call-in schedules were established for all field camps.

7. Technical Assistance – Nothing to report

8. Other

In November of 2001, the USFWS received a request from the Council of Athabascan Tribal Governments (CATG) for information concerning *“all available program, budgetary, and staffing information regarding programs, functions, services, and activities at the Yukon Flats National Wildlife Refuge.”* CATG, a consortium of tribal governments within the Yukon Flats region, was interested in *“assuming responsibility for all field positions in the Yukon Flats region performed by the USFWS, as well as YFNWR [Yukon Flats NWR] positions in the Fairbanks office of the USFWS that are associated with the YFNWR.”* CATG proposed to assume these programs, functions, services, and activities (PFSAs) through an annual funding agreement under Title IV of the Indian Self-determination and Education Assistance Act (ISDEAA). Under Title IV of the ISDEAA, self governance tribes have the ability to negotiate annual funding agreements to assume PFSAs administered by Department of the Interior, non-Bureau of Indian Affairs bureaus, which are of “special geographic, historical, or cultural significance to the participating tribe.”

Refuge Manager Heuer provided a box of material to CATG including position descriptions for all staff members, budget information, annual narrative reports, fire management accomplishment reports, recent planning and environmental documents, etc. In June 2002, the USFWS received the formal proposal from CATG to perform Refuge PFSAs under Section 403(c) of the ISDEAA. On 2-3 July 2002, Refuge Manager Heuer and Refuge Supervisor Jerry Stroebele met with tribal chiefs, members of CATG, and an attorney representing CATG in Anchorage in a “pre-negotiation meeting.”

On 15 July 2002, USFWS Alaska Regional Director David Allen responded to the formal proposal, stating that the PFSAs of the Yukon Flats NWR were not available for negotiation, and that the USFWS did not believe that the statutory purposes of the Yukon Flats NWR, and the mission of the National Wildlife Refuge System would be best served through an annual funding agreement under the ISDEAA. CATG appealed the regional director’s decision to USFWS Director Steve Williams in August, and on 11 October 2002 the director denied the appeal.

F. HABITAT MANAGEMENT

1. General

Several factors contribute to the Refuge's history as the most productive waterfowl habitat per acre in Alaska. The Refuge extends 300 miles across the flood plain of the Yukon River and includes an estimated 20,000 ponds, lakes, and oxbows. In addition, ten major rivers and numerous streams comprising about 7000 river miles dissect the flood plain before emptying into the Yukon River. These features combined with the periodic flooding of the Yukon Flats by the Yukon River, low evaporative rate, presence of permafrost, occurrence of wild land fires and long, warm summer days all contribute to the abundance and diversity of waterfowl and other wetland-dependent wildlife. In addition to innumerable wetlands, this area contains extensive acreage of interspersed white spruce, black spruce, paper birch, and aspen forest. Alpine tundra is located in the White Mountains to the south and the Hodzana Highlands on the northwestern border. An entire ecosystem representative of the northern boreal forest and the alpine tundra is found within the Refuge.

2. Wetlands

The Yukon Flats, Alaska's largest interior basin, was identified as a major breeding ground for waterfowl in the early 1950s. Subsequent studies confirmed the Yukon Flats region as one of Alaska's primary waterfowl breeding grounds with an estimated population of 1.2 million ducks, 10,000 geese, 11,000 sandhill cranes, and an estimated 20,000 Pacific and common loons. Today, the Yukon Flats is considered one of the most productive waterfowl breeding areas in North America. During statewide waterfowl production surveys, it has been estimated that an average of over 200,000 ducklings are produced annually. The Prairie Pothole and Aspen Parkland regions of the U.S. and Canada can yield a higher density of waterfowl on an annual basis, but the Yukon Flats region has a higher sustained rate of production. In years when portions of these southern regions are dry, ducks will over-fly them and nest on the Yukon Flats.

3. Forests – Nothing to report
4. Croplands – Nothing to report
5. Grasslands – Nothing to report
6. Other Habitat – Nothing to report
7. Grazing – Nothing to report
8. Haying – Nothing to report
9. Fire Management

The 2002 Alaska fire season ranked as the fifth most active since reliable fire records began in the 1950s. On the Yukon Flats, however, the weather during the 2002 season was only partially conducive to fire activity. This is in contrast to 2001, when there were no fires recorded on the Yukon Flats. Periods of hot, dry weather in May 2002 were followed by weeks of cool, rainy weather in June. The rainy periods were then followed by renewed hot, dry weather, cumulus buildup, and lightning strikes. This weather pattern continued after mid-July, and led to the outbreak of additional lightning-caused fires and the rapid expansion

of existing fires. The weather continued to be conducive to fire starts until mid-August.

Overall temperatures and rainfall were very close to normal for the summer, but several intervals of dry lightning were recorded, especially between 15 – 25 July. As a result, these natural ignition sources led to three small and one large wildland fire on the Yukon Flats in 2002. There was also one small escaped campfire on a stream bank during moose hunting season in fall 2002. Thus, this year the Yukon Flats returned to a more normal pattern of fire occurrences – five reported – although still well below the annual average in the number of fires and acreage burned (12 fires/116,000 acres). For more information on the fire management program see Appendix F.9.



Wildland fire in the White Mountains

Prescribed Burning Program – About 89% of Refuge lands are within limited suppression zones, and about 37% of the Refuge has burned in the last 50 years greatly reducing the need to apply prescribed fire. However, about half the fires on the Refuge since 1988 have received initial attack with the intent of extinguishing them. Fires may be attacked even in designated limited option zones because they threaten or are anticipated to threaten cabins or lands with modified, full, or critical designation. Prescribed fire still has a role for hazardous fuel reduction and to meet resource objectives. Refuge prescribed burns to date include:

- 3,500-acre hazardous fuel reduction burn around an Air Force seismic site (1994)
- 1,200-acre burn for resource objectives and to study fire behavior and effects (1989)
- 740-acre burn (1998)
- 930 acres divided between several burns near three villages (1999)
- 125 acres in one burn (2000)

- 745 acres near the village of Beaver (2001)(Refuge lands:620 acres; village corporation lands:125 acres)

Other – One snow course, three aerial snow depth markers, and one manual snow gauge were read during the winter to improve estimates of overwinter precipitation that is used in calculating start-up values for fire danger indices. The manual snow gauge is located in Beaver in the yard of Refuge Information Technician (RIT) Williams.

10. Pest Control – Nothing to report

11. Water Rights – Nothing to report

12. Wilderness and Special Areas

As discussed in the Yukon Flats NWR *Annual Narrative Report for 2000 & 2001*, the lower portion of the Sheenjek River (that portion within the Yukon Flats NWR) has been proposed to be added to the “National Wild and Scenic River System” as a national wild river. President Clinton forwarded the recommendation to the US Congress on 19 January 2001. There was no congressional action taken in 2002. Meanwhile, the USFWS has interim authority to protect the outstandingly remarkable values of the river as a national wild river until 19 January 2004.

13. WPA Easement Monitoring – Nothing to report

G. WILDLIFE

1. Wildlife Diversity – Nothing to report

2. Endangered and/or Threatened Species – Nothing to report

3. Waterfowl

The Division of Migratory Birds conducted their annual breeding pair survey on the Yukon Flats on 24 May. The total estimate of 1,255,000 was the third highest since at least 1990, and was up 9% from the 26-year mean of 1,152,700. Estimates were up from the 19-year mean for all dabbling species (range 17 to 60%) – except pintail – but down for most divers (range 17 to 97%). Canvasback estimates for the Yukon Flats comprised 42% of the total state estimate!

4. Marsh and Water Birds – Nothing to report

5. Shorebirds, Gulls, Terns and Allied Species – Nothing to report

6. Raptors

Peregrine falcon (*Falco peregrinus anatum*) surveys were conducted by the Arctic NWR along the Porcupine River within Yukon Flats NWR on 19-20 July. Nine historical aerie sites are located on the Refuge. Six breeding pairs were observed at the nine sites, and five were successful breeders and produced 12 young. Nine of the 12 young were banded. (See table in Appendix G.6.)

7. Other Migratory Birds

Refuge personnel are encouraged to record general observations of birds while working on various field projects. Observations may include both visual sightings and vocal recognition. Species checklists were maintained at Waterfowl Production Plots C, G and M, Bear Camp Lake, Marten Island and on the Porcupine River.

Ninety different bird species were observed during 62 observation days. An observation day is a day during which bird observations were recorded at a particular field site. The frequencies with which various species were observed during the 2002 field season are listed in a table in Appendix G.7. The most unique observation was the sighting – for the second year in a row – of a breeding pair of Wilson’s phalaropes on the Refuge. The sighting occurred at Canvasback Lake on 11 June by Robin Corcoran.

8. Game Mammals

Moose, caribou, black and grizzly bear, wolf, marten, beaver, wolverine, lynx, otter, red fox, and snowshoe hare are found throughout the Refuge. Moose and black bear are the most commonly harvested game mammals. Marten are the most economically important furbearers.

Moose are present throughout the Refuge, their highest densities occurring along the Yukon and Porcupine rivers and in the foothills of the White Mountains. Although densities are low compared to other areas of interior Alaska, moose are an important subsistence resource for local residents and an important recreational resource for non-local Alaskans.

Bag limits, harvest quotas, and hunting seasons for moose have varied over the years in the western Yukon Flats. The combination of federal and state regulations and the checkerboard pattern of federal, state, and private lands on the western Yukon Flats leads to confusion for both local users and managers. A registration or Tier II hunt has been administered by the State of Alaska since 1983; the number of permits issued annually has ranged from 60 to 125.

In 1990 the federal government assumed subsistence management on federal public lands. Current federal regulations close the federal season when the combined harvest on federal, state, and privately owned lands reaches 60 bulls. No sport harvest has been allowed in the western Yukon Flats (Game Management Unit (GMU) 25D) since 1990. The Tier II season on state, federal, and privately-owned lands is 25 August - 28 February. The subsistence season on federal lands within GMU 25D is also 25 August - 28 February.

Moose Population Survey – All moose surveys scheduled for the eastern and western Yukon Flats in November 2002 were cancelled due to lack of adequate snow cover. The western Yukon Flats survey was rescheduled for the March 2003.

Moose Calf Mortality Study – A moose calf mortality study – to better understand moose population dynamics in the western Yukon Flats – was completed in 2000. The primary objective was to determine the sources, rates, and timing of mortality among neonatal moose calves and adult cows in the western Yukon Flats. A summary of findings was presented in the Yukon Flats NWR Annual Narrative Report for 2000.

Activities regarding this study included oral presentations at brown bag lunches at the Anchorage Regional Office and Fairbanks Refuges Conference Room in February 2002 and at the Alaska Chapter Wildlife Society meeting in Fairbanks in May 2002. The findings of the study were also published in the *Journal of Wildlife Management* in July 2002 (Volume 66, Number 3, pages 747-756).

Black Bear Monitoring Study – Twenty-five black bears were outfitted with radio-collars from 1995 to 1997. Since the study began we have collected over three years of radio-tracking data. Today, after 5-7 years, most of the males have shed their collars. Consequently, much of the remaining effort in bear monitoring has been monitoring dens and collecting reproductive indices of females. See Appendix G.8 for the reproductive indices of radio-collared adult females.

Dens were investigated on 11 and 12 March 2002. We discovered a female, No. 511, had slipped her collar between March 2001 and March 2002. Additionally, females' No. 507 and No. 524, which each had two yearlings in 2001, had no young in 2002. Each female was re-collared. Snow depth at the den sites was low with a mean of 18 inches. One den had no snow cover over the den entrance. Female No. 507 weighed approximately the same weight as in 2001 (120 lbs.). The weight of female No. 524 was up 20% from the previous year.

A manuscript entitled, "*Black bear monitoring in eastern interior Alaska*" was accepted by the journal *Ursus* for publication in June 2002.

Dall Sheep Monitoring – Dall sheep are found in the White Mountains on the southern boundary of the Refuge. The majority of available sheep habitat is in the Steese National Conservation Area and the White Mountains National Recreation Area, which are managed by the BLM. However, sheep are also found on Mt. Schwatka which lies on the southern boundary of the Refuge and includes a significant proportion of the population. Other off-Refuge areas in the region offering escape habitat include Mt. Prindle/Lime Creek, Victoria Mountain, and Cache Creek. The terrain is well traveled between these regions and telemetry data suggests the same population of sheep is utilizing many of these areas.

Sheep have been monitored intermittently since 1929, primarily by ADFG. Since 1970, efforts have been made to aerially census all sheep habitat in the White Mountains region. Survey results suggest the White Mountains sheep population may have decreased in the 1970s dependant on the consistency of survey effort over the years. Since 1991, the sheep population has been thriving. In 2002 BLM, ADFG, and the Refuge combined efforts to survey all available sheep habitat in the White Mountains and observed 485 sheep.

Refuge staff completed our portion of the survey in the Mt. Schwatka and Victoria Mountain area on 23 July. Flying conditions were excellent. A total of 189 sheep, including 120 ewes, 37 lambs, and 32 rams were observed in both areas. A historical summary of sheep surveys of the White Mountains including the Schwatka/Victoria area is included in Appendix G.8.

9. Marine Mammals – Nothing to report

10. Other Resident Wildlife

Species of resident wildlife observed by field crews included moose, Dall sheep, black bear, grizzly bear, wolf, red fox, lynx, beaver, mink, ermine, marten, red squirrel, snowshoe hare, muskrat, yellow-cheeked vole, northern red-backed vole, and meadow jumping mouse.

Beaver Cache Monitoring – Beaver food cache surveys are normally conducted each year in late September/early October after leaf fall and before heavy snowfall. The 2002 survey was conducted on 23 September, 31 October and 1 November. Appendix G.10-1 provides a historical summary of beaver food cache monitoring.

11. Fisheries Resources – Nothing to report

12. Wildlife/Propagation and Stocking – Nothing to report

13. Surplus Animal Disposal – Nothing to report

14. Scientific Collections

Canada Goose Genetics – Nine Canada goose eggs were collected in late May from a Yukon River island and submitted to the Alaska Science Center, United States Geological Survey (USGS) in an effort to analyze distinguishing DNA characteristics between subspecies of Canada geese.

White-winged Scoter Nesting Ecology – Eleven white-winged scoter eggs were collected during pilot study efforts for the white-winged scoter nesting ecology study. The eggs were collected from depredated nests.

Lesser Scaup Contaminants Investigation – Three lesser scaup eggs were collected from failed lesser scaup nests at Plot M during June - July 2001. The eggs were analyzed by the Division of Ecological Services in 2002 and results indicated there were no contaminants.

15. Animal Control – Nothing to report

16. Marking and Banding



Robin Corcoran preparing to band a female lesser scaup.

Waterfowl – Thirty-nine lesser scaup were banded at Plot M between 5 June and 31 July. The total included 9 females and 30 males; all ages were after-hatch year. During a period from 3 to 8 June, fifty white-winged scoters were banded at Plot C and Bear Camp Lake. The total included 19 females and 31 males; all ages were after-hatch year.

Long-term Band Recovery Project – Bryce Lake, USFWS/UAF student intern, co-authored a draft manuscript entitled, *Survival of ducks banded in the boreal forest: Why fly north?* The paper analyzes data collected on the Yukon Flats NWR from 1959 to 1989. The paper will be submitted to the *Journal of Wildlife Management* this spring for publication consideration. The following is the draft abstract:

We conducted a retrospective analysis of recovery data from ducks banded in the boreal forest during 1959-1966 and 1989-2000, with the objective of modeling sources of variation in survival and reporting rate. Although waterfowl from the boreal forest make significant contribution to continental populations, their life-history characteristics are poorly described. Survival of ducks 1959-1966 was species- and year-specific, but not sex-specific. Sea ducks (*Mergini*) and diving ducks (*Aythiini*) had higher survival rate and lower reporting rate than dabbling ducks (*Anatini*). Survival of lesser scaup (*Aythya affinis*) and canvasback (*Aythya valisineria*) from the boreal forest was generally greater than ducks at lower latitudes. During 1989-2000, survival of northern pintail (*Anas acuta*) was age-, sex-, and time-specific. Age-class by sex interaction, without time-specificity, however, best-described survival of mallard (*Anas platyrhynchos*) and green-winged teal (*Anas crecca*). In general, regardless of species, male and female ducks had a similar annual survival rate, and hatch-year (HY) birds had a lower survival rate than after-hatch-year (AHY) birds. Survival of AHY female northern pintail and green-winged teal was higher than similar species from lower latitudes, but male survival for both species was not different across regions. Reporting rate during 1989-2000 varied by sex and year, with females having a lower reporting rate than males. Reporting rate

increased dramatically after 1995, concurrent with the initiation of band reporting by telephone. We conclude that boreal-forest ducks use different life history strategies than their mid-continent counterparts. Management of North American waterfowl populations that incorporated regional differences in life history would be more effective than current management.

17. Disease Prevention and Control – Nothing to report

H. PUBLIC USE

1. General

Most public contacts by Refuge personnel are with residents of the villages within and adjacent to the Refuge. Visits to these communities keep residents informed and consequently increase understanding and cooperation. Maintaining good rapport and cooperation with Yukon Flats villages is essential because most Refuge uses involve hunting, fishing, trapping, food gathering, and other subsistence activities of village residents.

Since 1998, the Refuge has received annual supplemental funding from the Office of Subsistence Management (OSM) for RIT Paul Williams's travel costs to visit area villages. He visits with people in their own households, advising them about current Refuge activities and addressing any questions or concerns they have about Refuge activities or management. This effort has been very well received. As evidence of Paul's excellent work, he was presented the *Charles F. Hunt Award for Outreach Excellence* by the USFWS Alaska Region.

The award recognizes outstanding efforts in communicating the USFWS message to the public. As the regional outreach award winner, Paul was nominated for the USFWS *Sense of Wonder* award.



Paul Williams accepting the *Chuck F. Hunt Award for Outreach Excellence*

The Refuge is regularly represented at meetings of the state's Yukon Flats Fish and Game Advisory Committee (YFAC), the federal subsistence board's Eastern Interior Regional Advisory Council (EIRAC), and as requested at village/tribal council meetings. These meetings are an opportune time to inform village residents and the general public of ongoing and future Refuge programs. It also provides a learning environment for staff as they hear village concerns.

We routinely participate in annual events such as *National Wildlife Refuge Week*, *UAF Career Fair*, *National Hunting and Fishing Day*, *Creamer's Refuge 5th Grade Bird-watch*, and *Fairbanks Outdoor Days for 6th Graders*. These efforts are combined with contributions from other USFWS offices in Fairbanks. For a complete list of meetings, workshops, conferences and other activities of the subsistence program see Appendix H.

2. Outdoor Classrooms – Students – Nothing to report
3. Outdoor Classrooms – Teachers – Nothing to report
4. Interpretive Foot Trails – Nothing to report
5. Interpretive Tour Routes – Nothing to report
6. Interpretive Exhibits/Demonstrations

As reported last year, we have been working with Wilderness Graphics in Tallahassee, Florida, to revise our general Refuge brochure and Refuge bird list to conform to the USFWS's new publication standards. After what seemed like a long and difficult process, we are pleased to report that our general brochure was completed and printed in 2002. The contract for the revision of our Refuge bird list was extended and we hope to complete that process by the end of 2003.

7. Other Interpretive Programs

Fire Management – Education is extremely important in helping achieve fire management objectives to include preventing human-caused fires, allowing fire to keep functioning as a part of the ecosystem, and implementing hazard reduction projects. As part of planning for fuel reduction projects in Northway and Allakaket, FMO Patten, RIT Williams, and other staff discussed fire policy and fire ecology with village councils and residents in the villages. Contacts were with small groups at meetings and with individuals at their homes. FMO Patten also participated as a core group member in the extensive planning process for a *Firewise* (wildland/urban interface fire prevention) public education conference to be held in Fairbanks in May 2003. This planning effort continued throughout fall and winter of 2002.

8. Hunting

The federal government assumed subsistence management on federal public lands (60% of all Alaska lands) in July 1990, which resulted in major changes in hunting in Alaska. Separate federal and state hunting regulations are promulgated annually for big and small game, furbearers, and game birds. The checkerboard pattern of federal, state, and private lands and the concurrent checkerboard regulatory patterns make hunting a confusing matter

to both users and managers. The Refuge boundaries cut across three state GMU subunits: 25(A), 25(B), and 25(D). Subunit 25(D) is split into east and west, effectively creating four units on the Refuge. Depending on the species, both federal and state regulations govern hunting in these units and they may be different. Practically speaking, however, the most hunting within the Refuge boundaries takes place in Unit 25(D) West and East, which is the focus of this report.

In 1999, the Interior Department ruled that “selected - but not yet conveyed lands” within conservation units will fall under federal subsistence jurisdiction for hunting and trapping regulations rather than state regulations. However, state regulations can still apply on these lands unless superceded by federal subsistence regulations.

Subsistence users may fear that state hunts and recreational hunters could conflict with the subsistence priority mandated by ANILCA. In response, many corporations identified by the Alaska Native Claims Settlement Act (ANCSA) have closed their lands to non-shareholders. Other private landowners have followed the lead of the ANCSA corporations. Private lands within Yukon Flats NWR are closed to non-local residents without permission. Refuge land remains open to the public; however, non-local residents cannot hunt moose on Refuge land in GMU 25 (D) West. Ownership boundaries on maps are difficult to translate to boundaries on the ground, so confusion exists among all parties.

Changes to the federal subsistence regulations are made by proposal to the Federal Subsistence Board (FSB), which meets each May to consider wildlife proposals for regulation changes. In 2002, the FSB considered one statewide proposal for changes to wildlife regulations that would affect hunting on the Refuge. The proposal (WP02-01) originated in Fort Yukon and requested that black bears and brown bears be classified as furbearers. The proponent wanted to allow sale of hides and parts of black and brown bears taken from federal lands. The EIRAC voted to defer the proposal also asking the FSB to defer action, but the EIRAC did vote to align state and federal regulations to all sales of handicraft items made from black bear fur. The FSB rejected the proposal as written, but modified it to allow the sale of handicraft items made from black bear fur so it would align with state regulations. These changes will take effect for the 2002-2003 hunting season.

The ADFG no longer publishes the annual *Alaska Wildlife Harvest Summary*. It was last published for the 1993-1994 regulatory year. Therefore, harvest data for this report is based on preliminary analysis of the returns of harvest tickets and permit reports by hunters. Given the low rate of harvest reporting by rural residents, the harvest data likely reflects less than the actual harvest.

Moose Hunting - Moose are the most important big game mammal taken in the Yukon Flats NWR. Hunting regulations for GMU 25(D) West and East are slightly different. Moose hunting on federal land within Unit 25D West is closed at all times except for residents of Unit 25(D) West. The FSB also limited the number of permits to be issued to 60 and allocated them as follows: Beaver 25; Birch Creek 10; Stevens Village 25. This hunt is open for 1 bull moose per permit holder, from 25 August 2001 through 28 February 2002, or until

60 moose have been harvested in the entirety of Unit 25D West from federal and non-federal lands. In Unit 25(D) East, moose hunting is open to rural residents of the remainder of Unit 25(D), from 25 August to 25 September 2001 and 1-20 December 2001. Limit is one antlered moose. A federal permit is not required for Unit 25(D) East.

For the 2001 - 2002 season, the 60 federal subsistence moose permits for GMU 25(D) West were given to the villages for issuance. Permits were given to the Stevens Village Natural Resource Department and to the tribal councils of Beaver and Birch Creek. For the 2001-2002 season, 37 harvest reports were returned, of which 17 permit holders indicated that they did not hunt. Five of the 60 were permits were not issued. ADFG issued 34 Tier II permits for 25(D) West. Of these, 7 went to local residents and 27 went to non-local residents. Fifteen Tier II permit holders reported that they did not hunt, 13 permit holders reported hunting, and 7 did not report. Moose harvest data for the 2001-2002 season is reported below.

Table H.8 Reported Moose Harvest in GMU 25(D), 2001-2002		
Hunt Title	Number Taken	Moose/Community
25(D) West - Federal Permit Hunt RM945	8	Beaver
	tickets not returned	Birch Creek
	6	Stevens Village
25(D) West - State Tier II Hunt	2	Local residents
	2	Non-local residents
25(D) West Total	18	
25(D) East State Harvest Report	16	
25(D) East Total	16	
25(D) Total Moose	34	

In August 2001, an agreement was initiated with the CATG to estimate the numbers of moose, bears, and wolves harvested by geographic location for 2001-2002. Preliminary information from harvest surveys received through December 2001 is provided in Appendix H.8, Table H.8-1.

Bear Hunting – Black bears are abundant on the Yukon Flats, and some local residents take them for food. They also are hunted to some extent by non-local residents and nonresidents for trophy value and/or food. The State of Alaska does not require black bear hides from the Yukon Flats area to be sealed, so there is no effective harvest reporting system in place for

black bears. However, commercial guides are required to report harvests. Guide reports for the Yukon Flats NWR show that guided hunters took 8 black bears during the year. The most recent subsistence-related black bear harvest data are reported in Table H-8.1, Appendix H.8.

Brown bears (grizzlies) are not as abundant on the Refuge as black bears. Harvested brown bears must be sealed. ADFG reported one male brown bear from GMU 25(D) during the 2001-2002 season. Local compliance with brown bear sealing requirements is typically very low. The most recent subsistence-related brown bear harvest data are also reported in Table H-8.1, Appendix H.8.

Caribou Hunting – Two caribou herds use portions of the Yukon Flats NWR. The Porcupine herd ranges from the Arctic Coastal Plain on Arctic NWR, across the eastern and northern portion of Yukon Flats NWR, and into the Yukon Territory of Canada. Subsistence hunters, principally from Kaktovik, Arctic Village, Fort Yukon, and Venetie harvest caribou primarily within the boundary of the Arctic NWR and account for most of the harvest. Occasionally residents from Beaver and Chalkyitsik harvest caribou, again primarily within the boundary of Arctic NWR. Subsistence hunters may take up to 1,500 animals depending on when the caribou are around and how accessible they are. Data from a CATG harvest monitoring project conducted from the early to mid 1990s noted that residents of Beaver harvested 5 caribou in 1994 within the Refuge, near mile 46 on the winter trail, and residents of Venetie harvested 72 animals in 1995, primarily in an area 3-12 miles west of the village and north of the Refuge boundary. ADFG data indicate that 5 caribou were harvested in Unit 25(D) in the 1999-2000 season, the last year for which data are available (Bob Stephenson, ADFG, 2003, personal communication). The low harvest number results from the herd being inaccessible last year because the caribou herd had limited wintering in Alaska. Sport hunting of the Porcupine herd within the Refuge boundary is non-existent in most years.

The White Mountain herd is probably an offshoot from the Fortymile herd. It is a relatively sedentary herd centered in the White Mountains, which straddles the border between Yukon Flats NWR and White Mountains National Recreation Area. Hunters harvested 30 bulls, 9 cows, and 1 of unknown sex from the White Mountain herd during the 2000-2001 season; however, it is unlikely that any of these caribou were harvested within Refuge boundaries (Tom Seaton, ADFG, 2003, personal communication).

Migratory Bird Hunting – In 2000, the regional office of Migratory Birds and State Programs (MBSP) provided funding to ADFG to conduct household surveys of the 10 Yukon Flats communities. The project was a cooperative endeavor between ADFG and CATG. Locally-hired CATG resource technicians gathered migratory bird harvest data through face-to-face interviews, primarily with heads of households. This survey was not funded in 2001 or 2002, but funding is anticipated for 2003. For more information on migratory bird harvests, see Appendix H.8.

9. Fishing

A small number of visitors sportfish on the Refuge; they generally are fishing in connection

with floating and/or hunting on the Refuge. Species harvested are typically northern pike and arctic grayling. The largest fishing effort on the Refuge is classified as a subsistence activity. Fish are the most important subsistence resource to villagers in and around Yukon Flats NWR, comprising up to 90 percent of the total subsistence harvest by weight. The Yukon River and its tributaries are the major source of fish within the Refuge. For management purposes, the Yukon River and tributaries are divided into districts, some of which are further divided into subdistricts. The districts are numbered sequentially upriver, beginning with District 1, which contains the delta area, and moving upriver to District 5D, which begins just inside the eastern Yukon Flats NWR boundary and extends to the Canadian border. Therefore District 5D contains the entire section of the Yukon River flowing through Refuge lands.

Subsistence Fishing – Contemporary fishing techniques consist of fishwheels (*tr'il* in *Gwich'in* or *_ookk'a okko* in *Koyukon*), set gill nets (*chihvyaa* or *taabee_*), and hooking (*ja_* or *gi_t_*). A few older residents know how to make and use fish weirs and basket traps (*neegwaatsaii* or *taal'ona*), but rarely do so. Some whitefish and pike are taken with fish spears (*ch'eedaih* or *badeegguda*). Local residents, to meet their subsistence needs, use a variety of fish species, but salmon are the most important fish resource to residents of Yukon River villages. Although some species of fish are available throughout the year, most fishing takes place during the summer months. Four separate salmon runs are fished: (1) chinook, (2) summer chum, (3) fall chum, and (4) coho. Chum salmon make up somewhere between 50 and 75 percent of the normal catch. Fish are shared with other households in the community and with people in other areas, including Fairbanks, Anchorage, and out-of-state. For more information on salmon harvest, see Appendix H.9.



Fish wheel on the Yukon River

10. Trapping

Subsistence and commercial trapping occur on the Refuge. Because the Refuge and the State of Alaska do not have a system of trapline registration, the number of trappers using the Refuge is not known. Some trappers are residents of villages within or near the Refuge boundaries, while others are from Alaskan communities such as Fairbanks or North Pole. It is believed by some that trapping is an important source of supplemental income to some residents.

However, trapping harvest is poorly documented. Fur sealing data are the primary information source, but participation is sketchy. Moreover, the State of Alaska requires only those species listed by the Convention on International Trade in Endangered Species (CITES) to be sealed (beaver, lynx, otter, wolf and wolverine). Marten, muskrat, red fox, and mink generally are considered by many to be the most important furbearers (economically) of the Yukon Flats, but because their hides are not sealed, harvest data are limited. A recent source of data is from a harvest monitoring program administered by CATG under a cooperative agreement with the USFWS since 1993. This information reflects harvest information from residents of the ten CATG villages and includes some harvest information on the non-sealed animals.

Some local residents trap and use the furs or hides to make parka ruffs, moccasins, or native handicrafts. Animals taken for personal use are generally not sealed. Many species can be taken under both hunting and trapping provisions of the ADFG regulations, and harvest data are not separated into hunting take and trapping take. Fur prices, furbearer abundance, and weather conditions seem to be the dominant factors affecting harvest. However, lynx, our most cyclic species, have supported a relatively high and consistent yearly harvest within the Refuge. The furbearer harvest for GMU 25(D) for 1992-2002 is shown in Table H.10.

In 2002, there were twenty-one active special use permits authorizing the use of forty-two cabins on the Refuge. Rural and non-rural residents utilize the majority of these cabins as trapping quarters in the winter, while qualified subsistence users can legally use a handful of cabins (pre-ANILCA) throughout the year.

Year	Beaver	Lynx	Marten	Mink	Muskrat	Otter	Red Fox	Wolf	Wolverine
1992	71	334	N/A	N/A	N/A	5	N/A	19	7
1993	13/ 10**	128/ 87**	707*/ 312**	15**	N/A	4	117**	11/ 1**	6/ 2**
1994	83/ 28**	186/ 78**	359**	34**	704**	1/ 2**	80**	32/ 7**	9/ 1**
1995	66/ 15**	155/ 20**	277**	16**	299**	6	25**	17/ 2**	5/ 1**
1996	152	522	N/A	N/A	N/A	4	N/A	19	7
1997	50	364	N/A	N/A	N/A	1	N/A	9	2
1998	32	213	N/A	N/A	N/A	0	N/A	4	3

1999	100	159	N/A	N/A	N/A	0	N/A	6	25
2000	84	232	N/A	N/A	N/A	0	N/A	8	3
2001	89	241	N/A	N/A	N/A	1	N/A	19	7

N/A = Data are not available *25(A), (B) and (D) combined

Source(s): ADFG Harvest Summary, 1992-1994
 Bob Stephenson, ADFG, personal communication, 1995, 97 - 2001
 Subsistence Office from ADFG Harvest Information, 1996
 ** CATG harvest data

- 11. Wildlife Observation – Nothing to report
- 12. Other Wildlife-oriented Recreation

We believe that many visitors to the Refuge fall under this classification because they come with the intent to enjoy the Refuge in combination with floating, flight seeing, camping and/or hiking. It is often impossible to link a visitation with only wildlife observation or photography. The exact number of visitors participating in “Other Wildlife-oriented Recreation” is hard to quantify because of the sheer size and remoteness of the Refuge. However, we do receive visitation data associated with concessions. For more information see Section H.19 “Concessions.”

13. Camping

River rafters and canoeists, hunters, anglers and a few other recreationists, utilize the Refuge as a place to camp and/or experience the outdoors. The exact number of campers is unknown though camping associated with concessions is documented each year. A Refuge visitation (enabled by commercial operations) summary is found below in Section H.19 “Concessions.”

- 14. Picnicking – Nothing to report
- 15. Off-road Vehicling – Nothing to report
- 16. Other Non-wildlife-oriented Recreation – Nothing to report
- 17. Law Enforcement

Regular law enforcement patrols were maintained over the Refuge during annual hunting seasons. Intermittent patrols were conducted on an opportunistic basis, often in conjunction with other flights, during the remainder of the year. No citations or official warnings were issued.

One commercial air operator who had been suspected of operating on Refuge lands was contacted on neighboring native property by Refuge Officer Vivion, who explained the permit requirements for commercial operators operating on the Refuge. The operator submitted an application for a special use permit within the week, and is now in compliance with federal regulations.

Steel shot clinics were held in Chalkyitsik, Venetie and Arctic Village this spring in our

continuing effort to encourage waterfowl hunters to switch to steel shot. For the first time this year, all spring hunters contacted were actually utilizing steel shot, so our efforts may be paying off. The trick may be to discourage retail outlets, in Fairbanks and Anchorage, from shipping large quantities of lead shot shells to the bush – this could prove to be a significant challenge.

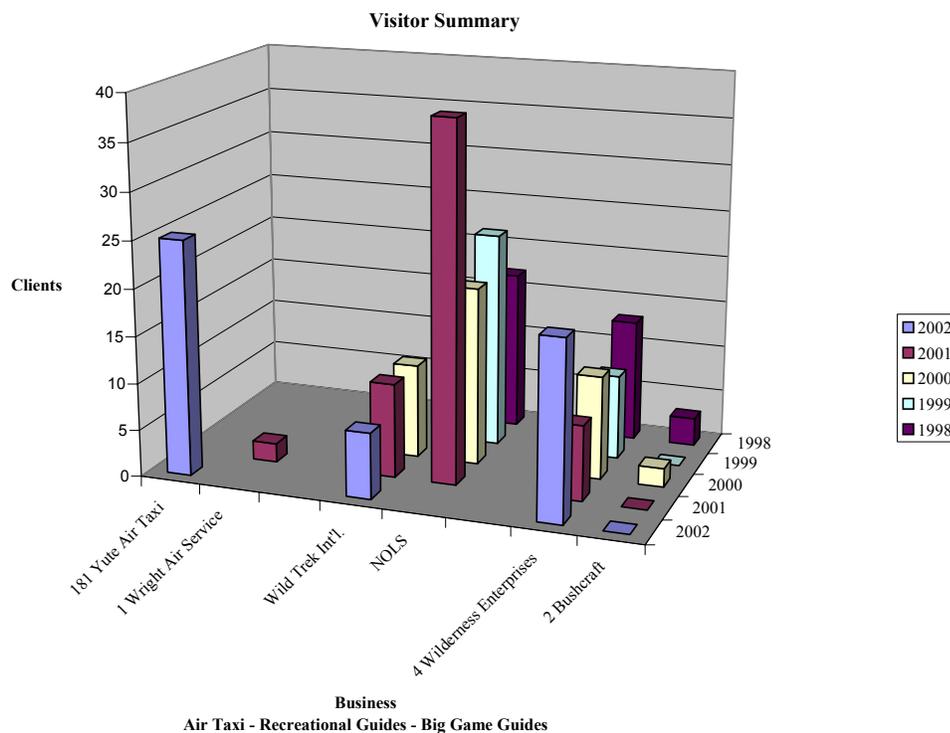
No break-ins were noted at our facilities in Fort Yukon.

18. Cooperating Associations – Nothing to report

19. Concessions

The Yukon Flats National Wildlife Refuge is divided into two big-game guide areas; one guide is assigned to each unit. Guide Unit YKF-01, includes the southwest part of the Refuge, and YKF-02 in the northeast. The boundaries of these two areas coincide with the ADFG GMU boundaries for 25 (D) West and 25 (A). The areas were selected based on: 1) big-game populations – the moose density in the southwest unit is lower than the northeast unit; 2) local resident concerns about “too many guides” and potential conflicts with subsistence hunters – hence we only proposed two areas; and 3) consistency with ADFG regulations.

In January of 1993, Mr. Sandy Jamieson (Bushcraft) was awarded the Refuge permit for USFWS guide area YKF-02, the northeast unit. Mr. Jamieson specializes in spring grizzly bear hunts (with wolf and black bear as additional species for combination hunts), and fall “mixed bag” hunts (moose, caribou and bear). The southwest unit was awarded to Mr. Joe Letarte (Wilderness Enterprises) in June of 1993. Moose hunting in this area is closed to all hunters except local residents, so Mr. Letarte restricts his operation to spring bear hunting. In accordance with Service policy for acceptable performance (both guides are outstanding in hunter evaluations and their “good neighbor” relations); our existing guides were issued permits in 1998 that extended their hunting privileges for another 5 years. The Service will begin reviewing big game prospectuses or applications next spring for the 2004 – 2008 operating period.



During the 2002 season, Bushcraft did not report Refuge use. Wilderness Enterprises guided nineteen black bear hunters who took seven black bears during 107 client days. One of the hunters had a grizzly tag but was unsuccessful.

Two companies held permits to conduct non-hunting recreation trips in 2002. Wild Trek, International hosted a group of seven clients, assisted by one guide, for a thirteen-day float trip on Beaver Creek. The cumulative visitation for this outing was ninety-one visitor use days. National Outdoor Leadership School obtained a permit but did not utilize the Refuge.

Yute Air Taxi was the only air taxi company to operate on the Refuge this year. They carried twenty-five clients (eight trips) to the Refuge for one-day tours of the area. The clients are treated to an aerial tour and float plane landing on the Refuge.

I. EQUIPMENT AND FACILITIES

1. New Construction

Under a challenge cost share agreement with Doyon, Limited (an Alaskan native corporation) and the Native Village of Fort Yukon, an interpretive kiosk was built and placed in Fort Yukon. The kiosk is located near the boat landing and displays a land status map with interpretive panels about Fort Yukon and the Refuge.

2. Rehabilitation – Nothing to report

3. Major Maintenance

A 540-gallon fuel tank was delivered to a remote lake via helicopter (sling-load) in March. While our intent was to have the tank topped off with aviation fuel via single-engine Otter aircraft, the Otter aircraft normally available were not due to accidents or other reasons. As a consequence, we procured a 115-gallon aluminum fuel tank that will fit in the cargo compartment of our Cessna 206. This aircraft will be used to fill the remote 540-gallon tank – 110 gallons at a time.

4. Equipment Utilization and Replacement – Nothing to report

5. Communications Systems – Nothing to report

6. Computer Systems

Refuge computers were maintained and upgraded as funding allowed. Assistance was provided by Arctic NWR employees, Patrick Scanlon and Carlette Smith. This year the station had thirty computers in service: twenty workstations and ten laptops. One Fujitsu portable laptop was purchased by Mike Vivion for data entry in aircraft. Purchases, upgrades and/or repairs included: 1) Shannon Nelson's new Gateway 700L computer was upgraded by Alaska Computer Smith to replace the IDE hard drive with a raid array, larger monitor, better video card with 128mb memory onboard, 1 GB memory; 2) Barry Whitehill received a new Gateway 700L computer; and 3) a new computer purchased from Alaska Computer Smith by Harvey Heffernan and Missy Corrigan to be used for video editing.

7. Energy Conservation

For Fiscal Year 2002, the Refuge reported energy use for the aircraft hangar and aircraft. The Refuge office is leased from the General Services Administration (GSA). The energy-using gross square footage for this facility is 13,250. The facility used 45,218 kilowatts/hour of electricity at a cost of \$12,832. The hangar boilers used 6,067.40 gallons of heating fuel oil at a cost of \$7,034.97. We purchased 5,000 gallons of aviation fuel with the invoice equaling \$12,500. No energy data are available for automobiles because all vehicles we use are owned and managed by GSA.

8. Other – Nothing to report

J. OTHER ITEMS

1. Cooperative Programs

Moose Management – For several years residents of Yukon Flats villages have expressed interest in working with the ADFG and USFWS to develop a moose management plan for the Yukon Flats. This request stemmed from the low density moose population and a desire to identify ways to increase the population. At the December 2000 meeting of the YFAC, the ADFG presented a proposal to establish a planning committee and initiate a collaborative,

consensus based, planning process involving the advisory committee and other Refuge stakeholders. In January 2001 a planning committee was formed with representatives from each Yukon Flats village council, and included representatives from ADFG and the Yukon Flats NWR. Bi-monthly public meetings were conducted in 2001 to formulate the plan, and a draft plan was issued in February 2002 for public comment. Public meetings were held in Beaver, Stevens Village, Fort Yukon, Venetie, Chalkyitsik, and Circle to gather comments on the draft plan. Most comments supported the plan in its efforts to increase the moose population. Respondents also favored the effort to educate people about the low moose population and the effects of harvesting cow moose. They also supported the tribal councils taking a greater role in harvest reporting and managing potlatch moose harvest. As stated in the plan, its purpose is to:

Protect, maintain and enhance the Yukon Flats moose population and habitat, maintain traditional lifestyles, and provide opportunities for use of the moose resource.

The plan promotes an increase in the Yukon Flats moose population by:

- Improving moose harvest reporting to better document subsistence needs and improve management
- Reducing predation on moose by increasing harvest of bears and wolves
- Minimizing illegal cow moose harvest and reducing harvest of cows for ceremonial purposes so that more moose calves are born
- Informing hunters and others about the low moose population on the Yukon Flats and how people can help in the effort to increase moose numbers
- Using both scientific information and traditional knowledge to help make wise management decisions.

Specific management recommendations were grouped into three categories:

1. Moose population, harvest and predation management
2. Public information, education and involvement
3. Management information needs

Specific goals and objectives accompany each management recommendation and are linked to proposed regulatory changes in both state and federal game laws. Eight proposals for regulatory changes were submitted to the Alaska Board of Game (ABG) for consideration at the March 2002 meeting, but two were subsequently withdrawn pending further evaluation. The remaining six proposals were adopted by the ABG. The EIRAC voted to support the proposed regulatory changes. The FSB, the EIRAC, and the ABG endorsed the Yukon Flats Cooperative Moose Management Plan.

2. Other Economic Uses – Nothing to report
3. Items of Interest – Nothing to report
4. Credits

This annual narrative report is the result of numerous contributions from many staff members. From a volunteer to the refuge manager, team members captured important facts and dates for historical preservation within this government document. See Appendix J.4 for a list of authors and contributions.

Table J.4 Annual Narrative Credits for 2002		
Section	Sub-section	Author
A. Highlights		Heuer
B. Climatic Conditions		Fox
C. Land Acquisition	1. Fee Title	Heuer
D. Planning	5. Research & Investigations	Bertram
E. Administration	1. Personnel	Heuer
E. Administration	2. Youth Programs	Whitehill
E. Administration	3. Other Manpower Programs	Person
E. Administration	4. Volunteer Programs	Dufford
E. Administration	5. Funding	Heuer
E. Administration	6. Safety	Fox
E. Administration	7. Other	Heuer
F. Habitat Management	1. General	Akaran
F. Habitat Management	2. Wetlands	Person
F. Habitat Management	3. Forests	Person
F. Habitat Management	9. Fire Management	Patten
F. Habitat Management	11. Water Rights	Fox
F. Habitat Management	12. Wilderness & Special Areas	Heuer
G. Wildlife	3. Waterfowl	Bertram
G. Wildlife	6. Raptors	Bertram
G. Wildlife	7. Other Migratory Birds	Bertram
G. Wildlife	8. Game Mammals	Bertram
G. Wildlife	10. Other Resident Wildlife	Bertram
G. Wildlife	12. Wildlife Propagation & Stocking	Bertram
G. Wildlife	14. Scientific Collections	Bertram
G. Wildlife	16. Marking & Banding	Bertram
H. Public Use	1. General	Brown
H. Public Use	2. Outdoor Classrooms - Students	Whitehill

H. Public Use	6. Interpretive Exhibits & Demonstrations	Heuer
H. Public Use	7. Other Interpretive Programs	Patten
H. Public Use	8. Hunting	Brown
H. Public Use	9. Fishing	Brown
H. Public Use	10. Trapping	Brown
H. Public Use	12. Other Wildlife-oriented Recreation	Fox
H. Public Use	13. Camping	Fox
H. Public Use	17. Law Enforcement	Vivion
H. Public Use	19. Concessions	Fox
I. Equipment & Facilities	1. New Construction	Heuer
I. Equipment & Facilities	3. Major Maintenance	Vivion
I. Equipment & Facilities	4. Equipment Utilization & Repair	Akaran
I. Equipment & Facilities	5. Communications Systems	Akaran
I. Equipment & Facilities	6. Computers Systems	Fox
I. Equipment & Facilities	7. Energy Conservation	Fox
J. Other	1. Cooperative Programs	Bertram
J. Other	4. Credits	Fox

K. FEEDBACK

L. INFORMATION PACKET (Not included)

M. REFERENCES

Andersen, D.B., and G. Jennings. 2001. *The 2000 Harvest of Migratory Birds in Ten Upper Yukon River Communities, Alaska*. Division of Subsistence, Alaska Department of Fish and Game. Final Report No. 1 to USFWS under Cooperative Agreement No. 701810J252.

Brase, A.L.J., and Hamner, H.H. 2003. *Subsistence and personal use salmon harvests in the Alaska portion of the Yukon River Drainage, 2002*. Division of Commercial Fisheries, Alaska Department of Fish and Game. Regional Information Report 3A03-13.

CATG, 2001. Preliminary report.

Holder, R.R. and R.F. Hander. 2003. *Yukon River Federal Subsistence Fishery Management Report, 2001*. US Fish and Wildlife Service, Fairbanks Fisheries Resource Office, Alaska Fisheries Management Information Report Number 1, Fairbanks, Alaska.

Seaton, Tom, ADFG, personal communication, 2003.

Stephenson, Bob, ADFG, personal communication, 1995, 1997 – 2001, and 2003.

Thomas, B. 2002. *Yukon Flats moose harvest data and TEK* [Traditional Ecological Knowledge] *study*. Final report. Agreement #701811C075. Council of Athabascan Tribal Governments, Natural Resource Department. Fort Yukon, AK.

US Fish and Wildlife Service, Eastern Interior Regional Advisory Council Meeting Presentation and Handouts, 8 October 2002.

Yukon River Drainage Fisheries Association weekly conference call notes, June – August, 2002.

N. APPENDICES

- Appendix E.1 – List of Refuge Staff
- Appendix F.9 – Fire Summary
- Appendix G.6 – Peregrine Falcon Survey Summary
- Appendix G.7 – Avian Sightings for 2002
- Appendix G.8 – Black Bear Reproductive Indices
- Appendix G.8-1 – Dall Sheep Survey Summary
- Appendix G.10 – Beaver Cache Survey Summary
- Appendix H – Subsistence Staff Activities
- Appendix H.8 – Hunting
- Appendix H.9 – Fishing Summaries

Refuge Staff for 2002Permanent, Full-time:

1. Akaran, Jim – Fish and Wildlife Biologist (*Local hire*), GS-9, PFT
2. Bertram, Mark – Supervisory Wildlife Biologist, GS-12, PFT
3. Brown, Wennona – Subsistence Coordinator (*Shared w/Arctic & Kanuti NWRs*), GS-11, PFT
4. Harwood, Christopher – Biological Science Technician (*Local hire*), GS-07, PFT
5. Heffernan, Harvey – Fish and Wildlife Biologist (*Lead for GIS program*), GS-11, PFT
6. Heuer, Ted – Refuge Manager, GS-13, PFT
7. Patten, Samuel – Fire Management Officer, GS-11, PFT (**EOD 1/13/02**)
8. Person, Delia – Refuge Operations Specialist, GS-9, PFT
9. Vivion, Michael – Wildlife Biologist/Pilot, GS-12, PFT
10. Whitehill, Barry – Deputy Refuge Manager, GS-12 PFT

Permanent, Part-time:

1. Carroll, Clifton – Refuge Information Technician (RIT) (*Local hire*), GS-06 (**6/16/02 to 6/21/02**)
2. Corrigan, Michelle – Education Specialist, GS-09, PPT (**6/16/02 to 9/24/02**)
3. Nelson, Shannon – Education Specialist, GS-9, PPT (**EOD 6/16/02**)
4. Williams, Paul – Refuge Information Technician (RIT) (*Local hire*), GS-7, PPT

Student Career Experience Program (SCEP):

1. Minerva, Guiletta (Jetta) – Student Trainee, GS-04 (**5/19/02 to 9/25/02**)
2. Winfree, Michael – Student Trainee, GS-05 (**10/20/02 to 12/06/02**)

Temporary:

1. Corcoran, Robin – Biological Science Technician, GS-05 (**5/13/02 to 9/24/02**)
2. Dufford, Sheila – General Biologist (*Emergency hire*), GS-09 (**4/25/02 to 7/15/02**)
3. Hughes, Letty – Biological Science Technician (*Shared w/Fairbanks Fish and Wildlife Office*), GS-05 (**5/20/02 to 9/30/02**)
4. Knudsen, Heather – Biological Science Aid, GS-03 (**5/17/02 to 8/09/02**)
5. Lewis, Tyler – Biological Science Technician, GS-05 (**5/13/02 to 8/31/02**)
6. Medvecz, Michael – Biological Science Technician, GS-05 (**5/13/02 to 9/24/02**)
7. Safine, David – Biological Science Technician, GS-07 (**5/20/02 to 8/09/02**)
8. Soetaert, Kate – Biological Science Technician, GS-05 (**5/19/02 to 9/30/02**)

Fire Management for 2002

Fire management on the Yukon Flats National Wildlife Refuge follows guidelines presented in the refuge's fire management plan as well as interagency plans. Lands are assigned a fire protection level based on values to be protected, with human safety being the top priority in all fire management decisions. (See Figure F.9-1.) A critical fire management option zone (COZ), which normally includes villages, automatically receives the highest priority for fire suppression. A full management option zone (FOZ) is designated around COZs and may also include historic sites or high-value resources, such as commercial or house-log timber. Fires in these zones are usually aggressively attacked and fought until the fire is declared out. Where large fires are not wanted early in the fire season – especially around FOZs – another zone is recognized as a modified management option zone (MOZ). Fires in MOZs are usually suppressed by fairly aggressive action early in the season, but later might be treated as limited management option zone (LOZ) fires.

LOZs, by comparison, are principally located in the more remote sections of the refuge, where values to be protected do not warrant the cost of aggressive suppression. Fires in LOZs are normally monitored but not suppressed. This strategy reduces costs, keeps suppression forces available for high priority areas, and helps maintain a more natural fire regime over much of the refuge. This practice also increases habitat diversity and helps maintain plant community productivity.

Questions are continually raised about increasing protection levels because of the importance of firefighting to the local economy, and also because some people believe that fire harms plant and animal communities. However, many other people understand, and research has shown that healthy plant and animal communities in the boreal forests of interior Alaska require fire as a regenerative force. The refuge staff will continue to evaluate and adjust protection level designations. The refuge option zones are divided as follows:

- 127,000 acres (less than 1%) in FOZs and COZs combined
- 884,000 acres (about 10%) in MOZs
- 8,259,000 acres (89%) in LOZs

Native lands within the refuge boundary are made up of about 2,046,000 acres in FOZs, about 585,000 acres in MOZs, and about 65,000 acres in LOZ.

The boreal forest of the Yukon Flats is thus a fire-driven ecosystem, subject to repetitive natural cycles of burning and regeneration. Until 1984, all fires on the Yukon Flats were suppressed – by policy – to the degree possible. The classification placed lands after that time into critical and full management zones near villages and other high value sites; this has temporarily reduced the occurrence of fire in these protected areas.

Fires occurring on lands placed in these two classifications are immediately suppressed. As a forest stand ages, however, there is a change in plant communities that moves toward more flammable types. This results in an increase in fuel loading, as older trees die and debris falls to the ground. Thus fire suppression in COZs and FOZs results in increasing

flammability over time. Fuel loading has now continued for over forty years in the FOZs and COZs on the Yukon Flats. Forty years is about half the natural return interval for wildland fires in black spruce habitats in the region. An additional risk from high fuel loads is greater chance for inadvertent ignition. This is independent of whether the ignition is from natural (lightning) or human-caused sources.

Fire intensities in older forest stands with high fuel loads are more difficult to control. Unfortunately the areas receiving full and critical protection surround human habitations and other high-value resources on the Yukon Flats. Areas surrounding the villages are often in lowland white spruce or deciduous stands (early successional), and thus at less ignition risk than black spruce stands. However, in the absence of intervention, the fire risk to these areas will increase with each passing year. Examination of fire history data utilizing a Geographic Information System (GIS) reveals many of these forest areas have not burned in over a half-century. The increase in risk for these zones also accelerates as the forest ages, becomes more dominated by spruce and more fuel accumulates. As these stands become over-mature to senescent, it is not a matter of if this forest will burn, it is a matter of when.

Timely intervention to reduce high fuel loads around villages can provide considerable benefits. Methods to reduce wildfire risk include mechanical treatments, and prescribed burns. Local village chainsaw crews can remove most fuels by removing low-hanging limbs in areas near the village – creating shaded fuel belts. The lowered risk provided by these reduced fuel belts may be further enhanced by prescribed burns on the outer perimeters of these mechanically-treated areas. Most villages on the Yukon Flats are located in riparian areas. An ideal, projected outcome would be that wildland fire risk is reduced by the presence of a river on one side of a village, and by semicircular shaded fuel belts resulting from mechanical treatments, followed by an area of prescribed burn on the federal lands on the other side of the village.

Reducing wildland fire fuel loads in the wildland/village interface by mechanical means provides fire control benefits while also providing employment to local fire crews. A mechanical (using chain saws) hazardous fuel reduction program was completed by the Tetlin NWR around the village of Northway in 2002. The Yukon Flats FMO assisted in cooperative planning for this FWS fuel reduction project at Northway in early 2002. The fuel reduction program is now being expanded to include the village of Allakaket in 2003 (Kanuti NWR), as well as a village to be selected on the Yukon Flats in 2004. The planning for the Allakaket fuels reduction project was well underway during calendar year 2002, with several village meetings completed. FMO Patten has been designated as the FWS manager for the Allakaket fuels reduction project.

Refuge staff continues to work with local governments and native corporations in the Yukon Flats to reintroduce fire into the large FOZs around the villages. Lowland white spruce, which often surrounds villages in interior Alaska, has a much longer fire return cycle – upwards of 150 years. However, experience in other interior Alaska areas has demonstrated fire suppression in full or critical zones do not necessarily equal fire exclusion. During very dry periods, large-scale fires may escape suppression action and become uncontrollable. This is especially evident in areas of heavy fuel loads, or when fires become strongly wind-

driven during periods of high air temperatures and low dew points. During these times suppression personnel are forced into defending structures only. Natural processes such as wind and rain then dictate the progress of the wildland fire.

Two ways to bring fire cycles into a more natural fire regime are by changing the fire protection level and by using prescribed fire. The natural fire regime in interior Alaska supports more frequent, smaller, and usually less intense fires, especially in black spruce habitat. Prescribed fires attempt to mimic aspects of the natural fire regime. Most local residents are mainly interested in using fire to regenerate moose browse. The refuge is interested in the reintroduction of fire into these areas to help restore the natural role of fire and to reduce hazardous fuels, after years of suppression. In the last five years, the refuge and several villages have conducted six prescribed fires totaling 2,545 acres. It is notable, however, that neighboring Kanuti and Arctic NWRs, have decided against the use of prescribed fire because both areas now approach fire frequencies of a natural fire cycle.

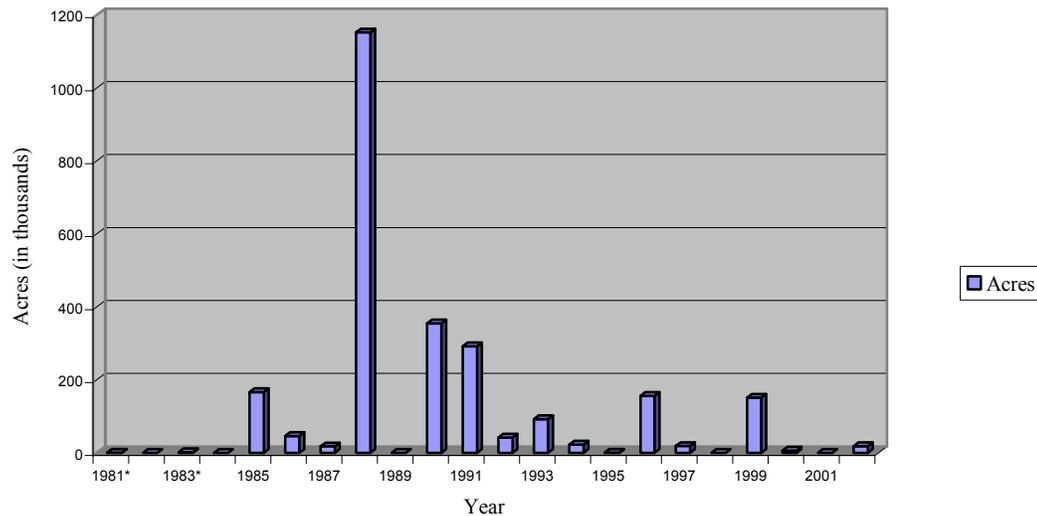
The Role of Wildland Fire - Wildland fire and flooding have created a distinct mosaic of plant communities on the refuge. Fire is critical in maintaining healthy wildlife populations. The boreal forest on the Yukon Flats is an excellent example of a fire dependent ecosystem. This ecosystem, known as a “fire disclimax”, results from low precipitation, high summer temperatures, presence of highly flammable fuel types, and in most years, a high incidence of lightning (up to 2,000 strikes in a 24-hour period). The Yukon Flats is likely the most fire-prone region of Alaska. Individual fires commonly burn several hundred thousand acres. The entire Yukon Flats area is subject to repetitive but irregular, long-term cycles of burning and regeneration. Figure F.9-2 displays the perimeters of all recorded fires greater than 1,000 acres since 1950, showing the dominance of fire as a natural force on the refuge.

The fire season in most years in interior Alaska extends from late April through July. The year 2002, however, was unusual from a fire history standpoint because the fire season continued through August, which is unusually late. This extension of the fire season was directly related to hot, dry weather and periods of “dry” lightning, (lightning unaccompanied by rainfall) which occurred through mid August. The month of August is usually the rainiest month in the area. Dry lightning is the most frequent source of natural ignition for wildland fires on the Yukon Flats and surrounding areas.

The recent absence since 1997 of large-scale fire activity on the Yukon Flats is notable, especially in comparison to 1988, when over one million acres burned (See Figure F.9-3 below). The burning of that much acreage in one season occurred five years after the 1983 decision was made to cease suppressing all fires in interior Alaska. Fire management was then instituted by zones, allowing fires to burn naturally in limited and modified zones. (MOZs convert to LOZs after the middle of July in most years). One proffered explanation for the large fires in 1988 was that the Yukon Flats was in the process of returning to a more natural fire regime. The reasons for the more recent (since 1997) lack of extensive fire activity on the Yukon Flats are unknown. In theory, based on a 100-year fire return cycle for the Yukon Flats, some 88,000 acres are expected to burn

each year. The average acreage burned since 1997, however, has remained well below that amount. An alternative theory follows the expectation of renewed fire activity on the refuge in the next few years.

Fig. F.9-3 Fire History (1981 - 2002)



* All fires engaged per Alaska Fire Service policy

The area west of Sheenjek River supported the largest fire on the Yukon Flats Refuge in 2002. (See Table F.9-4 below.) This lightning-caused fire burned from the first week of June through the month of September and slowly covered nearly 18,000 acres of principally black spruce in a LOZ. The ignition initially occurred on an exposed bluff five miles west of the Sheenjek River. This area is prone to repeated lightning strikes. The Sheenjek Fire was considered of resource benefit and was not suppressed. The initial fuels on the bluff consisted of mixed trees, grass, birch, and small black spruce. For several weeks the fire remained small, smoldering in a serpentine pattern on the dry, east-facing bluff, consuming pockets of highly mixed vegetation on an old burn. The fire was repeatedly monitored by AFS and FWS. At times, after periods of rainfall, the fire would appear nearly out.

During July, however, the fire gradually spread westward over the escarpment and began burning large areas of black spruce habitat on a plateau southwest of the Sheenjek. By 25 July, the fire increased – with warmer air temperatures – to 2500 acres, with numerous smokes observed. The fire then began a period of rapid growth, backing to the southwest into the wind, doubling to 5700 acres by 2 August, and doubling again to 10,200 acres by 5 August. After a wind change to the northwest on 6 August, the fire blew back on itself and remained an estimated fifteen percent active. The fire began moving east as a head fire, approaching the riparian corridor of the Sheenjek River. By 9 August, the fire had become active on all sides again crossing the Sheenjek River to the east, and approaching within ½ mile of a permitted cabin in section 16 on the Sheenjek.

Table F.9-4 Summary of Fires for 2002				
AFS Fire Number	Date Discovered/ Date Out	Fire Mgmt. Option	Refuge Acres Burned	Comments
A272	6/6 9/20	Limited	17,909	lightning ignition in old burn on bluff; most acreage consumed west of Sheenjok River in black spruce; duration all summer
A314	6/16 6/30	Modified	23	Squirrel Creek; SE of Ft. Yukon; lightning ignition into lowland white spruce
A461-462	7/19 8/12	Modified	280	Fire A462: 0.1 acre; merged with A461; Bear Nose #1 & 2; lightning ignition into old burn on wide hilltop s. of Chalkyitsik; mixed spruce/birch
A488	7/21 8/02	Limited	15	in sparse black spruce/tundra; low intensity; 4 Mile Fire (from Venetie); lightning ignition
Beaver Creek	9/--	Limited	5	Birch Creek, escaped campfire gone underground into root systems; may overwinter
A---	7/10 8/28	Limited	---	plus 95 acres of Doyon and 2.5 acres of Native allotment
A---	8/5 8/26	Full	---	human-caused, rainy weather, no smokes when finally found, monitored
TOTAL	12		18,231	plus ---- acres Doyon and -- acres of Native allotment

The FWS, after consultation with the cabin permit holder, recommended aggressive cabin protection. On 10 August, with the fire nearing 16,000 acres, an AFS fire crew set up a sprinkler system around the threatened site, and used over 15,000 gallons of river water to protect the structure. A survey aircraft flew the fire on 11 August to update the status of the threatened cabin, and found no change in fire perimeter and that the fire had not advanced any further towards the cabin. The fire continued to burn into black spruce habitat east of the Sheenjok, increasing to 17,909 acres on 20 August. With the advent of the first fall frosts and much cooler air temperatures the fire slowed to a crawl, but continued to smolder through the month of September.

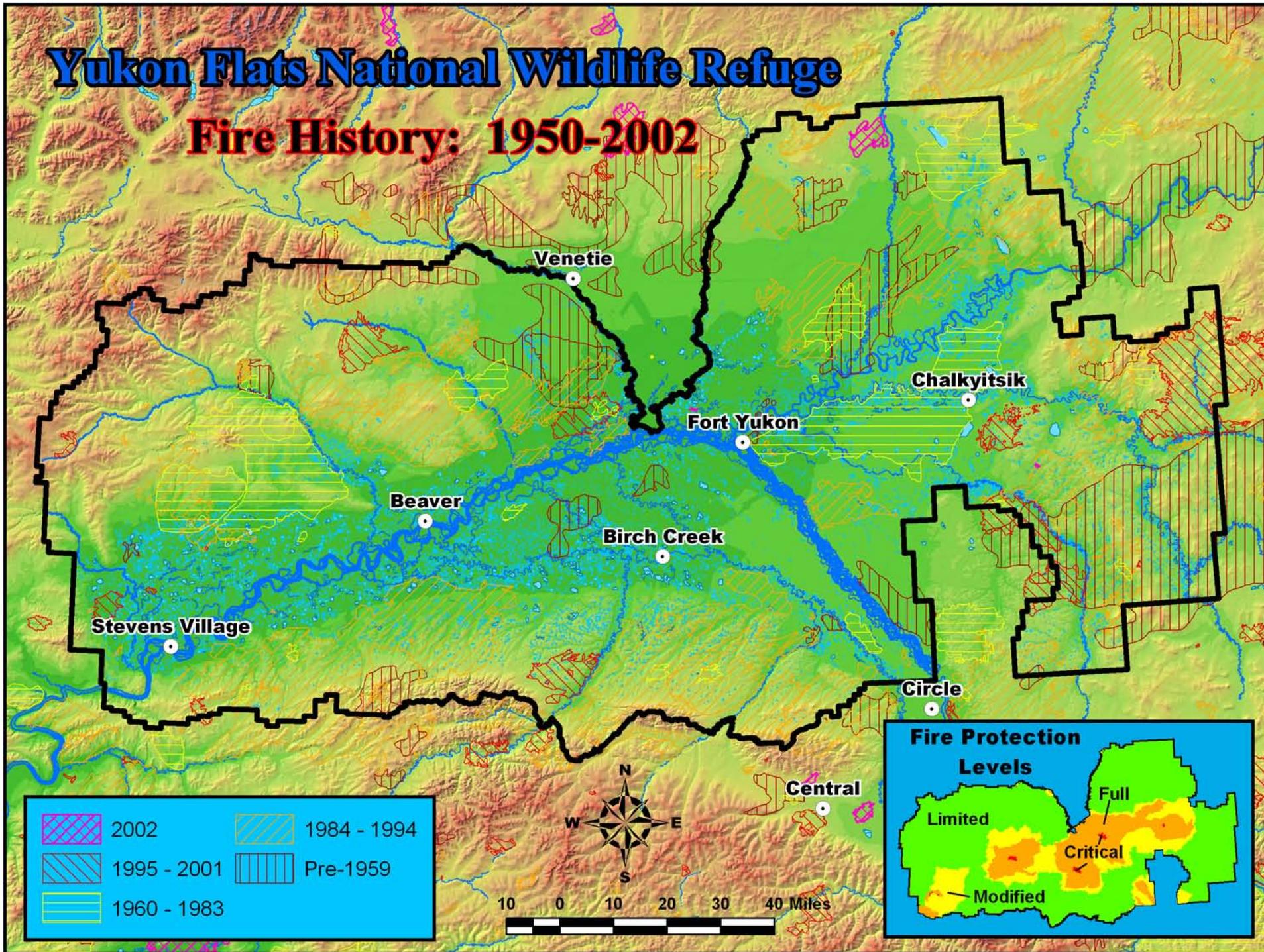
Several other small lightning fires were reported during the summer. The largest of these,

the Bear Nose Fire (A462) consumed 280 acres of mixed spruce and birch habitat. The fire occurred in an old burn area – on an open hilltop south of Chalkyitsik - prone to repeated lightning strikes. The fire occurred in a MOZ converted to a LOZ after the middle of July. This fire was also considered of resource benefit and was not suppressed, but went out on its own by 12 August.

An escaped campfire on the banks of Birch Creek burned into an area of tree root systems during moose season in September. This five-acre fire caused a number of birch trees to lean over. This subterranean root fire may not extinguish this winter. Hence the area will be patrolled by survey aircraft for a potentially re-emerging fire in spring 2003.

Yukon Flats National Wildlife Refuge

Fire History: 1950-2002



Peregrine Falcon Survey Summary

Comparison of peregrine productivity for the Porcupine River, 1986 - 2001 Yukon Flats National Wildlife Refuge.																	
Location	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Site 5013350	pr/2 yg	1 ad	pr/3 yg	pr/2 yg	pr/2 yg	pr/2 yg	pr	pr	pr	pr/2 yg	pr				pr/2 yg	pr	
Site 5013700					pr/3 yg	pr		pr/1 yg	pr/2 yg	1 ad				1 ad	pr		
Site 5013950		pr	pr/1 yg			1ad		pr/2 yg	pr/3 yg	pr/1 yg	pr/3 yg	pr/3 yg	pr/3 yg	pr/3 yg	pr/2 yg	pr/2 yg	pr/1 yg
Site 5014200						pr		pr/4 yg	pr/1 yg	pr/2 yg	pr/2 yg	pr/1 yg	pr/2 yg	pr/3 yg	1 ad	pr/3 yg	
Site 5014350	pr/2 yg	pr/4 yg	pr/2 yg	pr/1 yg	pr/3 yg	pr/2 yg	pr	pr/1 yg		pr							pr/2 yg
Site 5014450								pr/2 yg			pr	pr/3 yg	pr/3 yg	pr/3 yg	pr	pr/3 yg	pr/3 yg
Site 5015050											pr/1 yg	pr	1 ad	pr	pr/2 yg	1 ad	pr/2 yg
Site 5015400					pr/4 yg	pr/2 yg	pr	pr/2 yg	pr/1 yg	pr/3 yg	pr/1 yg	1 ad		pr/4 yg	1 ad	pr/2 yg	pr
Site 5016600						pr/3 yg	pr/4 yg	pr/3 yg	pr/4 yg	pr/1 yg	pr/1 yg	pr/3 yg	pr/1 yg	pr/3 yg		pr/2 yg	pr/3 yg
Total pairs	2	2	3	2	4	6	4	8	6	6	7	5	4	6	5	6	6
#prs w/yg	2	1	3	2	4	4	1	7	5	5	5	4	4	6	3	5	5
Total # yg observed	4	4	6	3	12	9	4	15	11	9	8	10	9	16	6	12	12
pr = pair yg = young ad = adult.																	

Avian Sightings for 2002

Frequency¹ of bird observations for the 2002 field season, Yukon Flats National Wildlife Refuge, Alaska.

SPECIES	FREQ	SPECIES	FREQ	SPECIES	FREQ
Lesser Scaup	70.0	Red-necked Grebe	26.3	Bald Eagle	5.0
Mallard	70.0	Northern Harrier	25.0	Blackpoll Warbler	5.0
Mew Gull	70.0	Common Raven	25.0	Scaup Sp.	5.0
Northern Pintail	70.0	Yellow Warbler	22.5	Blue-winged Teal	3.8
Northern Shoveler	70.0	Rusty Blackbird	18.8	Lincoln's Sparrow	3.8
American Wigeon	68.8	White-crowned Sparrow	15.0	Pine Grosbeak	3.8
Lesser Yellowlegs	67.5	Yellow-rumped Warbler	15.0	Redhead	3.8
White-winged Scoter	58.8	Black-capped Chickadee	12.5	Surf Scoter	3.8
Gray Jay	57.5	Common Loon	12.5	Common Merganser	3.8
Horned Grebe	57.5	Orange-crowned Warbler	12.5	Belted Kingfisher	2.5
Goldeneye sp.	56.3	Ring-necked Duck	11.3	<i>Buteo</i> sp.	2.5
Dark-eyed Junco	55.0	Barrow's Goldeneye	10.0	Canada Goose	2.5
Savannah Sparrow	55.0	Northern Flicker	10.0	Hairy Woodpecker	2.5
Canvasback	53.8	Ruby-crowned Kinglet	10.0	Redpoll sp.	2.5
Arctic Tern	52.5	Olive-sided Flycatcher	8.8	Swan sp.	2.5
Boreal Chickadee	52.5	Spotted Sandpiper	8.8	Northern Goshawk	2.5
Bohemian Waxwing	51.3	Fox Sparrow	8.8	Bank Swallow	1.3
Alder Flycatcher	51.3	Herring Gull	8.8	Common Goldeneye	1.3
Chipping Sparrow	51.3	Northern Waterthrush	8.8	Common Redpoll	1.3
Tundra Swan	50.0	American Kestrel	6.3	Gray-cheeked Thrush	1.3
Solitary Sandpiper	50	American Tree Sparrow	6.3	Greater White-fronted Goose	1.3
Bufflehead	48.8	Great-horned Owl	6.3	Hammond's Flycatcher	1.3
Common Snipe	47.5	Spruce Grouse	6.3	Long-billed Dowitcher	1.3
Green-winged Teal	47.5	Three-toed Woodpecker	6.3	Northern Hawk Owl	1.3
Sandhill Crane	47.5	Varied Thrush	6.3	Ruddy Duck	1.3
American Robin	46.3	Red-tailed Hawk	5.0	Short-eared Owl	1.3
Swainson's Thrush	46.3	Sharp-shinned Hawk	5.0	Wilson's Phalarope	1.3
Red-necked Phalarope	45.0	Fox Sparrow	5.0	Greater Scaup	1.3
Bonaparte's Gull	45.0	Violet-green Swallow	5.0	Ruffed Grouse	1.3
Red-winged Blackbird	33.8	White-winged Crossbill	5.0		
Pacific Loon	32.5	Western Wood-peewee	5.0		
¹ Number of days species was observed divided by 80 observation days multiplied by 100.					

Black Bear Reproductive Indices Summary

Reproductive status of radio-collared female black bears during 1996 - 2002 on the Yukon Flats National Wildlife Refuge.								
Black Bear	Capture age	1996	1997	1998	1999	2000	2001	2002
#507	15	no young	no young	2 males (2.5 kg, 2.6 kg)	1 male yearling	3 males (1.6, 1.3, 1.5kg)	2 male yearling	no young
#511	3		no young	no young	no young	no young	1 male cub (1.3 kg)	shed collar
#512	5	no young	shed collar					
#514	11	no young	2 females (.60 kg, .55 kg) 1 male (.65 kg)	1 female (15.9 kg) collared as #526	2 females (1.5 kg, 1.55 kg)	1 female (collared as 527), sow and yearling later killed by grizzly		
#520	4		no young	shed collar				
#522	11		2 females (1.2, 1.25kg)	unknown status	2 males (1.8 kg, 1.6 kg) cubs and females latter killed by grizzly bear			
#524	8			1 male (1.4 kg)	2 males (1.7 kg, 1.9 kg)	2 males (1.5, 1.65kg), 1 female (1.65kg)	2 yearling	no young
#526	1		w/514	w/ #514	unknown collar inactive			
#527						killed by grizzly		

Dall Sheep Survey Summary

Historical summary of sheep surveys, White Mountains, Alaska, 1970 to 2002.					
Year	Mt. Schwatka (USFWS)	Victoria Mountain (USFWS)	White Mountains (ADF&G)	Mt. Prindle Lime Peak (BLM)	Total
1970	101	60	87	37	285
1977 (Aug)	56	27	2	23	124
1982 (May)	39	18	18	37	112
1982 (June)	74	6	17	35	132
1986 (June)	75	26	30	109	240
1989 (Aug)	77	no survey	36	124	237
1991 (Oct)	129 ¹	no survey	70	157	354
1992 (Aug)	118 ²	see note 2	63	141	324
1994 (Aug)	70	32	66	176	344
1995 (Aug)	95	50	82	182	409
1996 (Aug)	129	47	84	204	464
1997 (Aug)	120	no survey	79	218	417
1998 (Aug)	no survey	no survey	no survey	no survey	no survey
1999 (July)	216	103	128	270	717
2000 (July)	168	34	134	232	568
2001 (Aug)	103	33	48 ¹	184	368
2002 (July)	152	37	94	202	485

¹ Incomplete survey. ² Includes Victoria Mountain observations.

Beaver Cache Survey Summary

Summary of observed beaver caches and lodges for Beaver Creek, Big Creek, and Old Lost Creek, Tulebagh Lake, and Sussaymin Lakes subunits, 1982-2002, Yukon Flats National Wildlife Refuge.			
SUBUNIT/YEAR	TOTAL LODGES	ACTIVE LODGES	INACTIVE LODGES
Beaver Creek 1982	24	5	19
1983	40	20	20
1984	52	30	22
1985	91	62	29
1987	109	53	56
1991	124	42	82
1995	75	42	33
1996	78	43	35
1997	74	36	38
1998	54	38	16
2000	62	34	28
2001	76	42	34
2002	65	30	35
13 year mean		36.7 (-18%)	
Big Creek 1983	18	8	10
1984	34	13	21
1985	46	17	29
1987	49	13	36
1988	52	16	36
1991	59	19	40
1995	26	10	16
1996	25	4	21
1997	31	12	19
1998	33	13	20
2000	29	11	18
2001	12	16	28
2002	17	7	10

Appendix G.10

13 year mean			11.9 (-41%)	
Old Lost Creek	1983	18	13	5
	1984	30	19	11
	1985	41	20	21
	1987	56	26	30
	1988	63	29	34
	1991	90	28	62
	1995	53	20	33
	1996	40	11	29
	1997	73	29	44
	1998	47	18	29
	2000	no survey		
	2001	no survey		
	2002	46	19	27
11 year mean			21.1 (-10%)	
Sussaymin Lakes	1983	9	7	2
	1984	23	20	3
	1985	35	18	17
	1986	39	22	17
	1987	52	23	29
	1988	54	16	38
	1991	61	26	35
	1996	28	14	14
	1997	31	9	22
	1998	20	5	15
	2000	no survey		
	2001	no survey		
	2002	19	8	11
11 year mean			15.3 (-48%)	
Tulebagh Lake	1983	11	8	3
	1984	18	15	3
	1985	30	23	7

Appendix G.10

1986	40	26	14
1987	7	25	22
1991	66	23	43
1996	16	0	16
1997	22	9	13
1998	21	6	15
2000	no survey		
2001	no survey		
2002	39	8	11
10 year mean		14.3 (-44%)	

Subsistence-related Outreach for 2002

Meetings attended by Subsistence Coordinator Wennona Brown:

- Koyukuk River Moose Management Planning Committee, 4 January 2002, Fairbanks
- YFAC, 30-31 January 2002, Venetie
- Yukon Flats Moose Management Planning Committee (YFMMPC), 5-6 February 2002, Stevens Village
- Koyukuk River AC, 7 February 2002, Huslia
- North Slope FSRAC (NSRAC), 20-21 February 2002, Barrow
- EIRAC, 25-27 February 2002, Circle Hot Springs
- YFMMPC, 26 February 2002, Circle
- Western Interior FSRAC (WIRAC), 19-20 March 2002, McGrath
- Native American Fish and Wildlife Society Conference, 29-30 April 2002, Anchorage
- Musk ox federal subsistence hunting season, 25 June 2002, Kaktovik
- Reduction of the number of federal subsistence permits issued for musk ox, 22 August 2002, Kaktovik
- NSRAC nominating panel meeting, 20 August 2002, Fairbanks
- EIRAC nominating panel meeting, 26 August 2002, Fairbanks
- NSRAC, 4 September 2002, Barrow
- Outreach/RIT Workshop planning, 17-19 September 2002, Anchorage
- CATG Chiefs' meeting, 20-22 September 2002, Birch Creek
- EIRAC, 8-9 October 2002, Fairbanks
- WIRAC, 8-9 October 2002, Fairbanks
- Outreach/RIT Workshop, December 2-6, 2002, Anchorage
- Federal Subsistence Board, December 17-18, 2002, Anchorage

Meetings attended by RIT Paul Williams:

- YFAC, 30-31 January 2002, Venetie
- YFMMPC, 5-6 February 2002, Stevens Village
- YFMMPC, 12 February 2002, Fort Yukon
- YFMMPC, 16 February 2002, Beaver
- YFMMPC, 13 February 2002, Chalkyitsik
- YFMMPC, 26 February 2002, Circle
- EIRAC, 25-27 February 2002, Circle Hot Springs
- ABG, 8 March 2002, Fairbanks
- TCC Annual Convention, 12-14 March 2002, Fairbanks
- Federal Subsistence Board, 13-14 May 2002, Anchorage
- EIRAC, October 8-9, 2002, Fairbanks

Educational activities by Subsistence Coordinator Wennona Brown:

- Presentation on the JDSP and the YFMMPC, 31 January 2002, Venetie School
- Presentation on JDSP and the YFMMPC, 5 February 2002, Stevens Village

School

- Booth staffing, Earth Day, 27 April 2002, Pearl Creek School, Fairbanks
- Traditional Gwich'in Gathering, 12-14 August 2002, Arctic Village

Educational activities by RIT Paul Williams:

- Presentation on JDSP and the YFMMPC, 31 January 2002, Venetie School
- Presentation on JDSP and the YFMMPC, 6 February 2002, Stevens Village School
- Presentation on JDSP and the YFMMPC, 6 February 2002, Beaver School
- Presentation on JDSP and the YFMMPC, 13 February 2002, Chalkyitsik School
- Traditional Gwich'in Gathering and Youth Leadership Institute, 12-14 August 2002, Arctic Village

Individual meetings of Subsistence Coordinator Wennona Brown:

- TCC staff regarding their contaminants in traditional foods study, 3 January 2002, Fairbanks
- Ingrid McSweeney, BLM, regarding potential collaboration on fisheries project, 14 June 2002, Fairbanks
- Closing ceremonies of Earth Quest Science Camp, 6 August 2002, Fairbanks
- Weekly YRDFA conference calls, June - August 2002, Fairbanks

Individual meetings of RIT Paul Williams:

- Isabel Carroll on possible waterfowl banding project, 14 February 2002, Chalkyitsik
- Household surveys, 14 February 2002, Chalkyitsik
- Household moose surveys/collect federal subsistence permits, March 2002, Beaver
- Collect moose federal subsistence permits, March 2002, Stevens Village
- Household fishery surveys, June-July 2002, Beaver
- Opening ceremonies of Earth Quest Science Camp, 29 July 2002, Fairbanks

US postal mailings:

- Steel shot posters, 22 April
- Subsistence waterfowl hunting flyers, 25 April
- Proposed spring migratory bird hunting regulations, 26 April
- Salmon fishing information, 30 May
- Moose poster & customary trade proposed regulations, 21 August
- Notification of cow moose season closure in Unit 24, 27 August

Steel shot clinics for refuge staff:

- 23-24 April 2002, Chalkyitsik (~15 participants)
- 7-8 May 2002, Venetie (~40 participants)
- 9-10 May 2002, Stevens Village (~20 participants)
- 11 May 2002, Birch Creek (~7 participants)

Field work for Subsistence Coordinator Wennona Brown:

- Yukon Flats NWR moose browse survey, 31 May – 5 June 2002
- Kanuti NWR off-road point count surveys, 20-24 June 2002
- Arctic NWR long-term ecological monitoring plots at Atigun Pass, 13-17 July 2002
- Seasonal cabin closure on Kanuti Lake, Kanuti NWR, 27-29 August 2002

Field work for RIT Paul Williams:

- Yukon Flats NWR moose browse survey, 26 May - 5 June 2002
- Kanuti NWR breeding bird and off-road point count surveys, 12-24 June 2002

Moose, Bear and Wolf Harvest Summary for 2002

Table H.8-1 Preliminary Estimates of Moose, Bears, and Wolves Harvested in 2001-2002*						
Village	Moose			Bears		Wolves
	Bulls	Cows	Unk	Black	Brown	
Beaver	14	2		22	1	3
Birch Creek	5	2		3	0	0
Chalkyitsik	5	0		0	0	0
Circle	6	0		0	0	0
Fort Yukon	47	0		16	4	4
Stevens Village**						
Venetie	10	0		0	0	0
Total	87	4		41	5	7

*Thomas, 2002; ** Stevens Village did not participate in the survey.

Migratory Bird Harvest Participation Summary for 2000

Of the 10 villages surveyed in 2000, eight are within or near the refuge boundaries (Beaver, Birch Creek, Canyon Village, Chalkyitsik, Circle, Fort Yukon, Stevens Village, and Venetie). Table H.8-2 presents summaries of the level of participation in harvest and use of migratory birds. In most communities, more households reported using birds than actually hunted or harvested. This indicates sharing harvested birds among households, a common subsistence practice. Eleven species of ducks and three species of geese were harvested by the villages within the refuge. Four villages also harvested sandhill cranes. Table H.8-3 presents the estimates of spring and fall harvest levels by village, season, and species. In addition to harvesting birds, two villages (Birch Creek and Fort Yukon) reported harvesting an estimated 25 waterfowl eggs (Andersen and Jennings, 2001).

Table H.8-2 Levels of Household Participation in Migratory Bird Use/Harvest in 2000					
Village	Using (%)	Hunting (%)	Harvesting (%)	Receiving (%)	Giving (%)
Beaver	90	46	43	50	25
Birch Creek	83	83	83	42	50
Canyon Village	100	100	100	67	33
Chalkyitsik	100	41	41	71	18
Circle	75	34	34	60	19
Fort Yukon	77	54	51	45	24
Stevens Village	92	54	54	83	29
Venetie	33	26	26	13	10

Source: Andersen and Jennings, 2001.

Migratory Bird Harvest Estimates for 2000

Table H.8-5. Migratory Bird Harvest Estimates for Yukon Flats Villages for 2000.																
Species	Beaver		Birch Creek		Canyon Vil.		Chalkyitsik		Circle		Fort Yukon		Stevens Vil.		Venetie	
	Spr.	Fall	Spr.	Fall	Spr.	Fall	Spr.	Fall	Spr.	Fall	Spr.	Fall	Spr.	Fall	Spr.	Fall
Canvasback	5	0	17	0	0	0	0	n/a	0	0	28	20	7	n/a	0	0
Goldeneye sp.	4	0	5	0	0	0	0	n/a	0	0	6	0	7	n/a	0	0
Mallard	10	41	121	107	25	0	62	n/a	107	0	772	158	54	n/a	8	57
Lg-tailed Duck	0	0	0	0	0	0	0	n/a	0	0	0	0	0	n/a	217	0
N. Pintail	8	1	88	0	3	0	110	n/a	0	0	292	21	26	n/a	5	2
Rg-Neck Duck	0	0	0	0	0	0	0	n/a	0	0	12	29	0	n/a	0	0
Scaup sp.	0	0	0	0	0	0	0	n/a	0	0	6	0	3	n/a	0	17
Scoter sp.	97	45	322	184	5	0	278	n/a	85	38	531	68	29	n/a	1305	49
N. Shoveler	0	0	5	0	0	0	0	n/a	0	0	4	0	10	n/a	0	0
Gr.Wing Teal	0	0	0	0	0	0	0	n/a	0	0	12	0	0	n/a	0	0
Am.Wigeon	7	32	20	0	3	0	53	n/a	0	0	121	23	12	n/a	0	25
Unidentified	1	0	0	0	0	0	0	n/a	0	0	0	2	8	n/a	0	73
Total Ducks	133	119	578	291	36	0	503	n/a	192	28	1783	322	155	n/a	1535	223
Canada Geese	118	8	77	96	23	0	30	n/a	159	0	519	22	39	n/a	147	6
Snow Geese	108	0	0	0	0	0	0	n/a	0	0	149	0	0	n/a	17	0
Wh.fr. Geese	302	53	45	0	5	0	35	n/a	0	0	810	0	10	n/a	149	9
Unidentified	0	0	0	3	0	0	0	n/a	0	0	4	6	0	n/a	0	0
Sandhill Crane	0	0	1	0	0	0	0	n/a	2	52	2	0	7	n/a	0	0
Total Birds	661	180	701	390	64	0	568	n/a	353	90	3266	349	210	n/a		7.1

Source: Andersen and Jennings, 2001 n/a fall harvest data were not collected for these villages

Subsistence Fish Summary

Three proposals (FP03-27, FP03-28, and FP03-02) to revise subsistence fishing regulations for 2003 were received. Two proposals would have statewide application and the third (FP03-02) applied to the Yukon River drainage. All three proposals were adopted by the FSB and will take effect 1 March 2002. Proposal 03-27 was a statewide proposal to provide for ceremonial harvest of fish. The federal subsistence program had established a similar provision for taking of wildlife and this proposal would extend similar opportunity for the taking of fish. Proposal 03-28 was a statewide proposal to streamline the federal action process so the FSB would only issue an in-season special action when it differed from the State of Alaska emergency order.

The primary issue presented was that when the state and federal agencies agree on an action, the federal special action is largely a duplicate effort for the administrative record. The streamlined process would allow staff to focus on management of the resource rather than preparing special actions. The FSB adopted the streamlined process for the Yukon-Kuskokwim only as an interim step. Proposal 03-02 would allow subsistence salmon take with rod and reel 24 hours/day, 7 days/week in the Yukon River tributaries. The EIRAC and WIRAC recommended modifying the proposal to include all federal waters in the Yukon River drainage. The FSB adopted the proposed modification to include the entire drainage rather than limit it to the tributaries.

The 2002 preseason forecast for chinook, summer chum and fall chum indicated the runs were anticipated to be below average to poor, particularly for chum. The chinook run was expected to be similar to the 2001 run, but the trend of poor salmon production that began in 1998 was expected to continue. At the beginning of the season, the FWS and ADFG jointly developed an information sheet and mailed it to all Yukon River commercial and subsistence fishing households. This year was the second fishing season to use the “windowed” schedule as adopted by the Alaska Board of Fish at its January 2001 meeting. The goal of the fishing schedule was to provide windows of time that salmon could migrate upriver unexploited. The schedule was designed to increase the quality of escapement, spread the harvest throughout the run, and spread subsistence opportunity among users. The 2002 management strategy was to wait until near the quarter-point of each salmon run to implement a reduced subsistence salmon fishing schedule if necessary, and to wait until the mid-point or later of the chinook run to determine whether the run size was sufficient to allow commercial fishing. The 2002 management strategy also included a preseason emergency order reducing the daily harvest limit for sport fishing to one chinook or one chum salmon in the Yukon drainage.

At the beginning of the season, the chinook run appeared similar to 2001. While managers thought it might be possible to have a small commercial fishery (~20,000 fish) near the mid-point of the run, they continued to manage conservatively. Run projections using an early run-timing and a normal-run timing model estimated run size between 156,000 and 298,000 fish. In early July, fisheries managers reported that the 2002 chinook run timing was normal and its abundance was still well below numbers for a normal year. Subsistence surveys reported in general that the run was earlier and that the fishing was better than last year; although the 2002 chinook salmon run was below average, most of the escapement objectives were met;

subsistence users generally reported meeting their needs; and there were enough fish to allow a small commercial fishery.

Summer chum run projections using an early run-timing and a normal-run timing model estimated run size between 1.1 million and 1.2 million fish. Even though the 2002 summer chum run was a little over a million fish, it was still a below-average return. The inseason assessment appeared sufficient to meet most escapement objectives, allow scheduled subsistence fishing, and allow a small commercial harvest.

Near the mid-point of the summer season, managers assessed that the run abundance of both chinook and summer chum was sufficient to meet escapement goals, meet subsistence needs, and allow for a small commercial harvest. The State of Alaska provided small commercial openings in nearly all districts, although lack of buyer participation or limited sales opportunities resulted in no fish being sold in some districts.

Management for fall chum salmon officially started on 16 July. Preseason assessment of the fall chum run was expected to be a little better than last year (500,000 - 600,000 fish), and sufficient to meet escapement and subsistence needs but not support a commercial fishery. Unfortunately, near the mid-point of the fall chum run, it became apparent that the poor production trend was continuing. The overall run of fall chum salmon projection was revised to less than 350,000 fish. State and federal managers jointly announced subsistence salmon fishing closures for the lower Yukon area on 9 August, and the upper Yukon area on 11 August. Subsistence fishing for non-salmon species remained open, with gear restrictions in place. The salmon fishery remained closed until late August when the subsistence fishery was progressively reopened as the majority of fish migrated beyond the district. Most subsistence fishermen did not have adequate opportunity to catch enough fish to meet their needs. Preliminary escapement information for the Tanana River, Chandalar River, and Canadian Border indicates that these areas received just enough fish to meet escapement objectives, while the Sheenjek River and Fishing Branch River did not.

The coho salmon run was assessed to be near average in both run strength and timing. Unfortunately, its overlap with the fall chum run resulted in missed opportunity to harvest coho because of the fishing closures to protect fall chum.

Monitoring for chinook infected with *Ichthyophonus hoferi* continued in 2002. Early subsistence reports indicated that there were a few fish infected with *Ichthyophonus hoferi* in the lower Yukon River. Preliminary reports of fish sampled for *Ichthyophonus hoferi* in the mainstem of the Yukon at the Rapids sampling site indicated that 30% of males and 40% of females were infected, while infection rates were approximately 25% at the mouth of the Tanana River.

Tables H.9, H.9-1 and H.9-2 present the subsistence harvest from 1992 through 2001 for Yukon Flats NWR villages and highlight how poor the fishing has been for several years. These data, collected by ADFG show large yearly variations in the salmon harvest. Harvests depend on a variety of factors including: (1) the fish run; (2) the number of people available in a family to

fish; (3) the availability of boats and equipment; (4) the number of dogs owned (much of the chum salmon taken is used for dog food); and (5) other employment opportunities. Fishing is a cooperative effort usually with men doing the fishing and women processing the catch.

Table H.9 Subsistence catch ¹ of chinook salmon by villages on or near the Yukon Flats National Wildlife Refuge, Alaska, 1992 - 2002.							
Year	Stevens Village	Birch Creek	Beaver	Fort Yukon	Circle	Chalkyitsik	Venetie
1992	1,887	44	1,564	4,122	1,585	3	
1993	1,754	0	1,557	6,361	745	0	
1994	2,814	119	850	4,727	1,377	0	
1995	2,674	93	1,221	3,132	1,145	0	
1996	681	0	886	4,957	1,781	0	
1997	2,070	373	1,859	3,145	1,091	0	
1998	1,232	48	470	1,771	685	11	
1999	1,214	24	473	2,539	524	35	
2000	466	72	196	988	627	0	103
2001	1111	0	1368	2361	447	0	28
2002	1,334	67	702	2,348	1,533	26	77

0 = No harvest ¹ Catches in numbers of fish.
Source: ADFG, Commercial Fisheries Division

Table H.9-1 (continued) Summer, fall and total subsistence chum catch¹ by village for 1992 - 2002.

Year	Fort Yukon			Circle			Chalkyitsik		
	Summer Chum	Fall Chum	Total Chum	Summer Chum	Fall Chum	Total Chum	Summer Chum	Fall Chum	Total Chum
1992	1,700	2,284	3,984	356	6,379	6,735	17	274	291
1993	3,830	2,380	6,210	83	349	1232	0	475	475
1994	2,043	6,827	8,870	98	4,581	4,679	0	1,751	1,751
1995	998	9,196	10,194	70	5,102	5,172	0	845	845
1996	26	8,144 ²	8,170	271	5,440	5,711	0	1,230	1,230
1997	133	6,119 ²	6,252	257	3,707	3,964	0	936	936
1998	30	3,035	3,065	1	37	38	0	433	433
1999	0	9,702	9,702	60	2,722	2,782	0	442	442
2000	0	355	355	109	0	109	132	0	132
2001	289	2,209	2,498	6	2,588	2,594	0	73	73
2002	1,832	3,523	5,355	5	74	79	0	4	4

0 = No harvest

¹ Catches in numbers of fish.

Source: ADFG, Commercial Fisheries Division

Table H.9-2 Subsistence catch¹ of coho salmon by villages on or near the Yukon Flats National Wildlife Refuge, Alaska, 1992 - 2002.

Year	Stevens Village	Birch Creek	Beaver	Fort Yukon	Circle	Chalkyitsik	Venetie
1992	20	0	398	341	54	0	
1993	0	0	135	5	10	0	
1994	0	0	10	963	30	456	
1995	1	0	20	4	0	0	
1996	2	0	47	157	210	0	
1997	1	3	0	248	210	7	
1998	63	0	0	39	0	0	
1999	0	0	0	124	0	0	
2000	0	0	0	129	0	0	0
2001	2	0	0	972	0	4	10
2002	0	0	17	14	0	0	12

0 = No harvest

¹ Catches in numbers of fish.

Source: ADF&G, Commercial Fisheries Division