



US FISH & WILDLIFE SERVICE--ALASKA

ARCTIC NATIONAL WILDLIFE REFUGE
Fairbanks, Alaska

ANNUAL NARRATIVE REPORT
Calendar Year 1995

United States Department of Interior
Fish and Wildlife Service
National Wildlife Refuge System



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REVIEW AND APPROVALS

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Calendar Year 1995

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INTRODUCTION

Size

Arctic National Wildlife Refuge (Refuge, Arctic Refuge, or Arctic NWR) includes nearly 19.8 million acres, including eight million acres of wilderness. The Refuge spans more than 200 miles west to east from the Trans-Alaska pipeline corridor to Canada, and 200 miles north to south from the Beaufort Sea to the Venetie Indian Tribal Lands and the Yukon Flats National Wildlife Refuge (NWR).

Geography

Major land forms include the coastal plain, the Brooks Range mountains, and the boreal forest south of the mountains. The Refuge extends south from the Beaufort Sea coast, including most offshore islands, reefs, and sandbars. It extends across the mostly treeless, rolling tundra of the coastal plain to the Brooks Range, located 8-50 miles inland from the coast. The Brooks Range runs roughly east to west through the Refuge, creating a natural north-south division. The Refuge contains the four tallest peaks (led by Mt. Isto, 9049 feet) and the only extensive glaciation in the Brooks Range. The mostly mountainous and hilly south side of the Refuge is cut by numerous stream and river valleys dominated by sub-arctic boreal forest of spruce, birch, and willow.

Facilities

No permanent facilities are located on the Refuge. The headquarters office is located in Fairbanks, 180 miles from the southern border of the Refuge. Other facilities include a modern bunkhouse and field station at the Native village of Kaktovik on Barter Island, a few miles north of the Refuge coastal plain.

Enabling Legislation

On December 6, 1960, Secretary of the Interior Fred Seaton signed Public Land Order 2214 establishing the 8.9 million acre Arctic National Wildlife Range (original wildlife range), closing it to entry under existing mining laws.

The original wildlife range was redesignated the Arctic National Wildlife Refuge with the signing of the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980. Under ANILCA, the Refuge more than doubled in size to 18 million acres. In addition, three Refuge rivers were designated as Wild rivers and eight million acres (most of the original wildlife range) were designated as Wilderness. Section 1002 of ANILCA directed a resource assessment, including limited seismic testing, of approximately 1.5 million acres of the Refuge coastal plain (the 1002 area), pending a future Congressional decision on oil and gas leasing or Wilderness designation for the area.

animals, winters in the southern portion of the Refuge and in Canada. Calving and post-calving activities occur on the coastal plain from late May to late-June. Up to one-fourth of the Central Arctic herd, which numbers about 18,000 animals, utilizes the northwestern part of the Refuge. All three species of North American bears (black, grizzly, and polar) are found on the Refuge. Grizzlies, which den in mountainous areas, exist throughout the Refuge. They are thought to number between 130 and 150 on the north slope. Black bears inhabit the south side boreal forest. A few polar bears annually den on the coastal plain. The Refuge contains about 400 muskoxen, which often are observed along rivers on the coastal plain. Large Dall sheep populations occur in the mountainous areas of the Refuge, although a reliable population estimate does not exist. Other mammals found on the Refuge include moose, wolverine, wolf, arctic fox, lynx, marten, and snowshoe hare. Grayling and Arctic char are the primary sport fish that inhabit Refuge rivers.

Approximately 165 species of migratory birds have been seen on the Refuge. The coastal plain is especially important for shorebirds and waterfowl that nest on or otherwise use the area during summer. Oldsquaw is the most common waterfowl species in coastal lagoons, but king and common eiders, pintails, brant, and other species also are found. Some 75 pairs of tundra swans nest on the coastal plain, concentrating on wetland dotted river deltas. From mid-August to mid-September, the eastern part of the coastal plain serves as the fall staging area for an average 117,000 snow geese. The Refuge also supports the northernmost breeding population of golden eagles and includes critical habitat for the endangered peregrine falcon, much of it along the Porcupine River.

Local Residents

Residents of several Native villages harvest subsistence resources on the Refuge. Kaktovik, located on the northern edge of the coastal plain, is an Inupiat Eskimo village with about 210 people. Villagers utilize bowhead whale, caribou, polar bear, waterfowl, walrus, seal, All sheep, muskox, wolves, ptarmigan, and several species of fish. Arctic Village, an Athabascan Indian village with about 130 residents, is located on the East Fork of the Chandalar River just outside the Refuge's southern boundary. Although villagers rely mainly on the Porcupine caribou herd, they also take moose, All sheep, wolves, marten, beaver, lynx, fox, and several other species. Limited fishing occurs, primarily for whitefish and lake trout. Residents of Fort Yukon, Venetie, and Chalkyitsik also use Refuge resources, but to a lesser degree.

Public Access and Use

Public access is unrestricted except for all-terrain vehicle use. Almost all visitors get to the Refuge by bush plane. Subsistence users rely on boats, snowmobiles, and occasionally dog sleds.

The Refuge is open to public use year-round. Due to the isolated, pristine nature of the area, wilderness related activities predominate. Hunting, river floating, and backpacking are the most popular. Weather limits almost all visitation to June through early October. Trips generally range from one to three weeks, partly due to the remoteness of the Refuge and the high cost of getting there. Peak use occurs in July (floating, backpacking) and August-September (hunting).

The State of Alaska relinquished selection of approximately 971,800 acres within the Refuge in 1983. In 1988, the 100th Congress enacted Public Law 110-395 which added another 325,000 acres, bringing the Refuge to its current size.

Refuge Purposes

Public Land Order 2214 stated that the purpose of the original wildlife range was to preserve unique wildlife, wilderness, and recreational values. This purpose was added to by Section 303(2)(B) of ANILCA, which specifies that the Refuge "is established and shall be managed:

- (i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to, the Porcupine caribou herd (including participation in coordinated ecological studies and management of this herd and the Western Arctic caribou herd), polar bears, grizzly bears, muskox, Dall sheep, wolves, wolverines, snow geese, peregrine falcons and other migratory birds, and Arctic char and grayling;
- (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 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 subparagraph (i), water quality and necessary water quantity within the refuge."

In Section 101 of ANILCA, Congress made clear its intent to preserve within conservation system units in Alaska, including the Refuge, "nationally significant" scenic, wilderness, recreational, wildlife, and other values for the benefit of present and future generations." Section 101 further states that "it is the intent of Congress in this Act to preserve . . . wilderness resource values and related recreational opportunities including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wildlands and on freeflowing rivers . . ."

Refuge Resources

The Arctic Refuge includes a unique diversity of habitats offering exceptional wildlife, wilderness, recreation, scientific, and aesthetic values. The area includes an assemblage of plant and animal life found nowhere else in the circumpolar region.

Major habitat types include alpine tundra and rocky areas, wet and moist arctic tundra, boreal forest, muskeg, brackish coastal lagoons, shrub thickets, and numerous types of wetlands.

The Refuge contains an unusual diversity of arctic and subarctic wildlife, including the Porcupine and Central Arctic caribou herds. The Porcupine herd, numbering some 152,000



Stream flow from Shublik Springs, one of the many special and scenic areas of the Refuge.

M. Emers

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"Candle ice" created by the melting of a thick layer of ice formed by winter overflow of a stream.

T. Edgerton

A. HIGHLIGHTS

Army Corps of Engineers continued cleanup of abandoned DEW sites (see D.4, p. 5).

Canning River was surveyed for recreational impacts (see D.5, p.13).

Moose collaring project documented migration between Alaska and Canada (see D.5, p. 14).

Refuge tours resumed, but in a manner sensitive to wilderness (see F.12, p. 22, and H.1, p. 34).

Peregrine survey revealed highest nesting success since 1967 (see G.2, p. 24).

Erigeron species from the Porcupine River is considered a new species (see. G.2, p. 24).

Porcupine caribou herd calved mainly on the plain (see G.8, p. 26).

Survey verified rapid decline in north slope moose populations (see G.8, p. 27).

Refuge received nearly unprecedented media coverage about potential development of the 1002 area (see H.1, p. 36)

Refuge and NBS drafted an analysis of the 1987 "1002 Report" for the Clinton Administration (see H.1, p. 39, and J.3, p. 62).

Staff helped conduct Fairbanks Outdoor Days for 835 sixth graders (see H.2, p. 39).

First Earth Quest Camp was held at Circle Hot Springs (see H.2, p. 40).

Arctic cooperated with Kanuti and Yukon Flats NWRs to conduct NWR Week celebration (see H.6, p. 44).

New Dalton Highway exhibits were completed and installed (see H.6, p. 45).

Staff members attended two international conferences (see H.6, p. 46, and H.7, p. 47).

New 2500 gallon fuel tank for fueling FWS aircraft was installed at Fort Yukon (see I.1, p. 58).

Cessna 206 was transferred to the Refuge (see I.4, p. 59).

Refuge field gear was moved to new warehouse in the Fairbanks Federal Building (see I.8, p. 60).

Alaska Congressional delegation led serious effort to open the 1002 area to oil development (see J.3, p. 61).

B. CLIMATIC CONDITIONS

Weather stations at Barter Island, Arctic Village, and Old Crow, Yukon Territory, are the only reliable sources of climatic data for the Refuge. Barter Island, on the Beaufort Sea coast, represents the north side. Arctic Village, located on the Refuge's southern boundary, and Old Crow, located 30 miles east of the Refuge border in Canada, represent the south side. Table 1 shows monthly temperature data for these three stations.

Table 1. 1995 temperature data (degrees F) for Barter Island, Arctic Village, and Old Crow, Yukon Territory.

	Barter Island			Arctic Village			Old Crow		
	Min.	Max.	Ave.	Min.	Max.	Ave.	Min.	Max.	Ave.
Jan	M	M	M	M	M	M	M	M	M
Feb	-43	21	-14.7	-38	20	-12.7	-45	18	-15.9
Mar	-48	23	-16.1	-50	25	-7.5	-54	25	-8.4
Apr	-23	38	9.3	-9	48	22.9	-9	51	21.8
May	13	39	27.8	16	70	42.6	18	75	45.6
June	28	50	35.3	34	72	53.4	37	80	57.6
July	31	65	42.4	33	74	57.2	37	78	60.3
Aug	29	59	39.5	29	68	48.2	23	75	49.7
Sept	26	55	37.2	16	63	40.2	27	71	44.7
Oct	0	32	20.5	-11	37	17.0	-5	42	18.6
Nov	-15	30	2.5	-37	29	-12.3	-40	29	-14.6
Dec	-29	16	-8.8	-54	24	-16.0	-52	9	-25.2

January was relatively warm this year in Fairbanks and northern Alaska compared to many past years. The mild winter weather continued into February with only a couple of short -40 degree bouts. March usually is the month for warming, due to the greatly increased day length. However, the lion came, bringing below normal temperatures over much of interior and northern Alaska. Normal temperatures finally arrived in April. The summer was one of the finest on record; many Alaskans could not remember a longer and better one. Mild to warm temperatures and reasonable precipitation prevailed from May through September. October continued to be quite pleasant. Temperatures in November and December were either near or above normal.



Snow and ice crystals bring a unique natural beauty to the winter landscape.

J. Keller

October brought a significantly lower than normal snowfall. The lack of snow continued through November and December over much of Alaska, including Fairbanks and most of the Refuge. Barter Island snowfall was above average in November, but below average in December. However Fairbanks, Arctic Village, and Old Crow all had very little snow on the ground at year's end. Several dog team races were canceled around Fairbanks, and at least one dealer shipped a load of snowmachines to Canada where there was enough snow to use them.

C. LAND ACQUISITION

1. Fee Title

Nothing to Report

2. Easements

Nothing to Report

3. Other

Native Allotments

Under the Native Allotment Act of 1906, qualified Alaska Natives each could claim up to 160 acres of unreserved land until December 18, 1971. Each 160 acre claim (allotment) could consist of up to three parcels. The Bureau of Land Management (BLM) ALRS computer system indicates that some 95 individuals have about 150 active (not rejected) allotment parcels on the Refuge comprising some 14,000 acres.

Allotment actions were more numerous in 1995 than during any of the past five years. The BLM transmitted 83 allotment status changes, including 14 approvals, 29 surveys, 39 certificates of ownership, and one rejected application. Most of these actions dealt with land on the Refuge's south side. Most allotment actions in the past have dealt with the north side, a higher BLM priority. Each of the allotment actions were examined and will be summarized in the Refuge's computer information system.

Native allotments present a significant management challenge on the Refuge since the owners can do virtually anything they wish with the land after it is conveyed. It is important for the Refuge to maintain up-to-date files on locations and sizes of the allotments because they are considered private land upon acceptance of the application.



Views like this are common from private allotments on the south side of the Refuge.

Management decisions must consider all possible conflicts that could occur with allotments. Significant allotment use changes that have occurred to date include the building of a communal cabin along the Hulahula River on the coastal plain and the offering for sale of an allotment on the shore of Old John Lake on the Refuge's south side. A rumor of an allotment for sale on the Coleen River surfaced at year's end.

Mining Claims

Records from the BLM show that two mining claims remain on the Refuge. Both are placer claims owned by active mining interests, but so far they are undeveloped.

D. PLANNING

1. Master Plan

Nothing to Report

2. Management Plan

This year the Refuge put the River Management Plan on hold just as it was about to be completed. Early in the year, the Anchorage Regional Office reviewed a near final copy of the plan, revised in 1994 in response to public comments on the Draft Plan released in 1993. In February, the Refuge received Regional Office comments on the near final plan. Intermittently from March through July, Edgerton worked on changes to the document in response to those comments. The plan was shelved in August due to other work commitments and pending an evaluation of its final provisions, deemed necessary because in September the planning process was six years old.

3. Public Participation

Nothing to Report

4. Compliance with Environmental and Cultural Resource Mandates

Compatibility determinations and subsistence use evaluations were completed for all activities on the Refuge requiring special use permits.

Contractors for the Army Corps of Engineers (Corps) nearly completed cleanup of the abandoned Collison Point and Nuvagapak Point Distant Early Warning (DEW) sites. They also began cleanup of the Demarcation Point DEW site, demolishing the building and cutting up and removing all the 55-gallon drums. Excavation and removal of the contaminated soil and restoration of the site are scheduled for 1996. The Corps surveyed the Griffin Point DEW site in preparation for its cleanup also scheduled for 1996. The

Corps eliminated funding for the Brownlow Point DEW site to fund work outside the Refuge. They modified their cleanup plans for the Demarcation and Griffin Point sites to conform with Fish and Wildlife Service (FWS) requirements. The Refuge and Northern Alaska Ecological Services (NAES) offices will continue working with the Corps until final completion of the projects and examination of the sites. Cleanup will dramatically improve the sites and free up staff, since work on the projects is very time consuming.

No archeological or historic research was conducted on the Refuge this year. Kaye discussed with residents of Old Crow and Fort Yukon the possibility of restoring the Reverend Sims grave site at Old Rampart, and he began oral history work with Alice Blakley, a 1930s resident of Old Rampart.

5. Research and Investigations

Research on wildlife and vegetation continued on the Refuge coastal plain in 1995. Work was conducted by biologists from the Refuge and the National Biological Service (NBS). Scientific permits were issued to the University of Alaska-Fairbanks (UAF) Geophysical Institute and Aberdeen University of Scotland for glaciology studies, and to the University of California at Santa Barbara and the U.S. Geological Survey (USGS) for surficial geology studies. A second permit was issued to the USGS for work reevaluating the oil potential of the 1002 area. The Poker Flats Rocket Range annually receives a permit to impact spent rockets and debris associated with aurora and other atmospheric research.



The "aurora borealis" or northern lights.

T. Edgerton

1002 Studies

I. Potential impacts of petroleum exploration and development on the numbers, distribution, and status of caribou populations on the arctic coastal plain.

Brad Griffith, NBS, Fairbanks, AK

Thomas R. McCabe, NBS, Fairbanks, AK

Noreen E. Walsh, NBS, Fairbanks, AK

Kenneth R. Whitten, AK Department of Fish and Game, Fairbanks, AK

ia. Population dynamics and demographics of caribou in developed and undeveloped areas of the arctic coastal plain.

The annual Porcupine herd calving survey was conducted in late May and early June to determine parturition rate and distribution of the calving caribou.



The herd of fame calved mainly on the plain in 1995.

G. Elison

Reports, papers, and publications

Walsh, N. E., B. Griffith, and T. R. McCabe. 1995. Evaluating growth of the Porcupine caribou herd using a stochastic model. *Journal of Wildlife Management*. 59:262-272.

- ib. Effect of potential displacement of caribou from the 1002 area on mortality rates of calves.

Data from marked females of the Porcupine caribou herd during calving from 1983-1994 continued to be analyzed. Areas of concentrated calving were determined for each year using adaptive kernel techniques. Mortality rates of calves born to cows in annual high-density calving areas were lower than the rates of calves born in the low-density calving zones. Differences in calf survival between years were due primarily to calving in the low-density zones. Calf survival was not related to relative bear density at the calving location. Complete results of these analyses are contained in the manuscript "Landscape use by a migratory caribou herd at calving," which is in preparation.

- ic. Differential impacts of predators (grizzly bears, wolves, golden eagles) on caribou calving in the 1002 area and potential displacement areas: an assessment of predation risks.

Donald D. Young, NBS, Fairbanks, AK
Thomas R. McCabe, NBS, Fairbanks, AK

Data on grizzly bear predation rates on caribou calves were analyzed. Results of these analyses are contained in the manuscript "Grizzly bear predation rates on caribou calves in northeastern Alaska" which is in preparation.

Reports, papers, and publications

Young, D. D., Jr., C. L. McIntyre, P. J. Bente, T. R. McCabe, and R. E. Ambrose. 1995. Nesting by golden eagles on the north slope of the Brooks Range in northeastern Alaska. *Journal of Field Ornithology*. 66:373-379.

Young, D. D., and T. R. McCabe. Grizzly bear predation rates on caribou calves in northeastern Alaska. Presented at the 10th International Conference on Bear Resources and Management, Fairbanks, AK, July 16-20, 1995.

- II. Habitat requirements and potential impacts of oil development on caribou.

Brad Griffith, NBS, Fairbanks, AK
Noreen E. Walsh, NBS, Fairbanks, AK
Janet C. Jorgenson, Arctic NWR, Fairbanks, AK
Mike Emers, Arctic NWR, Fairbanks, AK

Performance of caribou in relation to habitat availability and quality.

Data from marked calves of the Porcupine caribou herd from 1992-1994 continued to be analyzed. Results of these analyses are contained in the manuscript "Performance of caribou in relation to habitat availability and quality," which is in preparation.

III. Effects of global climate change on ungulate resources of the arctic coastal plain.

Noreen E. Walsh, NBS, Fairbanks, AK
Thomas R. McCabe, NBS, Fairbanks, AK

Objectives of this study include determining the effect of early and late snowmelt on phenology, biomass, and nutrient content of tundra vegetation, with an emphasis on those species used as caribou forage. Ninety-six permanent sampling plots of three treatment types were established in six areas on the coastal plain of the Refuge. Snow fences were used on some plots to increase the amount of snow and delay snowmelt. Black mesh nets were used on other plots to facilitate early snowmelt.



When the shoots of *Eriophorum* (cottongrass) first emerge through the melting snow, they are packed with nutrients and eaten by caribou and ptarmigan. M. Emers

Snow depth data were collected in mid-May from 1993-95. In June of each year, the plots were sampled for number and phenology of *Eriophorum vaginatum* flower heads, and phenology of *Salix planifolia*. In July of each year, the plots were sampled for cover of *S. planifolia* and *Betula nana*, length of the annual increment of *S. planifolia*, *B. nana*, and *Cassiope tetragona*, as well as soil temperature, soil pH, and thaw depth. Samples of *E. vaginatum*, *S. planifolia*, and *B. nana* were collected in 1994-95 from areas immediately adjacent to the plots. The samples were sent for analysis of carbon and nitrogen content to the Natural Resource Ecology Lab at Colorado State University. The plots were protected from grazing by electric fencing during the summer. The fences were removed in August and snow fences were re-erected in preparation for data collection in 1996.

Analysis of 1993-94 data indicates that phenology on late melting plots was significantly delayed, and that cover of the two shrub species, *S. planifolia* and *B. nana*, increased significantly relative to controls. These results are being examined in relation to regional weather patterns, as determined from seven remote weather stations on the Refuge. Each of the weather stations was visited twice during the summer to recover recorded weather data and perform routine maintenance. Results of experimental manipulations will be extrapolated across the region using the LANDSAT-TM map of the Refuge to make predictions about caribou populations under conditions of climate change.

IV. Potential effects of petroleum exploration and development on muskoxen using the arctic coastal plain.

Patricia E. Reynolds, Arctic NWR, Fairbanks, AK

During 1995, data was collected and analyzed on population size, distribution, and sex and age structure of from a population census, radio-relocation surveys, and on-ground composition counts. This information was compared with data from previous years. In April, 647 muskoxen were counted between the Canadian border and the Sagavanirktok River during a pre-calving census. Mixed-sex groups occupied areas between the Colville River in north-central Alaska and the Babbage River in Canada. The total population in this area reached almost 800. Of 385 animals classified by sex and age in late June 1994, only 12% were calves. Productivity was well below average, calf survival was low, and 15% of all radio-collared females died between April and June 1995. This indicates that weather conditions were severe during winter 1994-95.

A paper on seasonal strategies of muskoxen which described seasonal differences in distribution, habitat use, movement rates, and activity patterns was finalized for publication. A draft manuscript documenting changes in muskox population growth and distribution over time also was completed.



Studies show that muskoxen, monitored closely since their reintroduction in 1969, have done well on the Refuge and the north slope. G. Weiler

Reports, papers, and publications

Reynolds, P.E. Seasonal strategies of muskoxen: adaptation in an Arctic environment. Paper being submitted to the Journal of Wildlife Management.

Reynolds, P.E. Dynamics and range expansion of a re-established muskox population in northeastern Alaska. Paper in review.

Reynolds, P.E. Patterns of dispersal in an expanding muskox population in northeastern Alaska. Paper presented at the 2nd International Arctic Ungulate Conference, August 13-17, 1995.

V. Potential impacts of petroleum development on lesser snow geese staging on the arctic coastal plain.

Jerry W. Hupp, NBS, Anchorage, AK
Donna G. Robertson, NBS, Anchorage, AK

No field work was conducted in 1995. Reports on research activities from 1988-1993 were completed and submitted for publication.

Reports, papers, and publications

Hupp, J. W., D. G. Robertson, A. W. Brackney, M. A. Spindler, R. G. White, and J. S. Sedinger. 1995. Potential impacts of petroleum development on lesser snow geese staging on the arctic coastal plain. Draft final report submitted to T. R. McCabe, NBS, Fairbanks, AK.

Hupp, J. W., R. G. White, J. S. Sedinger, and D. G. Robertson. 1995. Forage intake and digestibility by lesser snow geese: effects of dominance and resource heterogeneity. Manuscript submitted to *Oecologia*.

Hupp, J. W., and D. G. Robertson. 1995. Forage site selection by lesser snow geese on the Arctic National Wildlife Refuge, Alaska. Manuscript submitted to *Wildlife Monographs*.

Robertson, D. G., A. W. Brackney, M. A. Spindler, and J. W. Hupp. 1995. Distribution of autumn staging lesser snow geese on the northeast coastal plain of Alaska. Manuscript submitted to *Journal of Field Ornithology*.

Other Studies

- I. Long-term effects of winter seismic exploration on the vegetation of the coastal plain of the Arctic NWR.

Mike Emers, Arctic NWR, Fairbanks, AK

Janet C. Jorgenson, Arctic NWR, Fairbanks, AK

No field work was conducted in 1995. Analysis of 1993-1994 field data was completed and papers were written.

Reports, papers, and publications

Emers, M. J. C. Jorgenson, and M. K. Raynolds. 1995. Response of arctic tundra plant communities to winter vehicle disturbance. *Canadian Journal of Botany* 73:905-917.

Emers M. and J. C. Jorgenson. (In press). Effects of winter seismic exploration on the vegetation and soil thermal regime of the Arctic National Wildlife Refuge. In Crawford, R. M. M. Ed., 1996. *Disturbance and recovery in Arctic lands: an ecological perspective*. Kluwer Academic Publishers, Dordrecht, the Netherlands.

Jorgenson, J. C. Tundra disturbance and recovery nine years after winter seismic exploration in northern Alaska. Manuscript submitted to *Arctic*.

II. Baseline survey of recreational impacts along rivers of the Arctic NWR.

Mike Emers, Arctic NWR, Fairbanks, AK

Beverly E. Reitz, Arctic NWR, Fairbanks, AK

Janet C. Jorgenson, Arctic NWR, Fairbanks, AK

The survey of recreational impacts along high use rivers in the Refuge continued in 1995. The purpose of the survey was to determine baseline levels of impact to riparian habitats in high use recreational areas, establish permanent plots to detect changes over time, and provide a baseline for determining limits of acceptable change in high use areas. Thirteen campsites were located along 76 miles of the Canning River. Sites were mapped, photographed, and evaluated for impacts to riparian and tundra habitats. Two sites had high disturbance, two had moderate disturbance, and nine had little or no disturbance. Campsites were most disturbed at access points (airstrips) and where the river was narrowest, limiting camping options. Campsites were least disturbed where the river was braided, providing a wider choice of campsites. Site information was recorded using a system that facilitates re-evaluation in the future.



Botanist Mike Emers identifies a plot at a site on the Canning River.

B. Reitz

Reports, papers, and publications

Emers, M. and B. Reitz. 1995. Recreational impact study along the Kongakut and Hulahula rivers of the Arctic National Wildlife Refuge, 1994. Fish and Wildlife Service report. Fairbanks, AK. 49p.

III. Classification, description, and dynamics of plant communities after fire in the taiga of interior Alaska.

M. Joan Foote, USDA, Institute of Northern Forestry, Fairbanks, AK
Perry Grissom, Yukon Flats NWR, Fairbanks, AK
Mike Emers, Arctic NWR, Fairbanks, AK

Plots set up by the Institute of Northern Forestry (INF) following the 1954 fire along the Porcupine River within the Refuge were revisited during the summer. The plots were sampled for vegetation composition and cover, shrub and tree density, and soil characteristics every 10 years through 1981. All the study sites were located including one at Rapid River, one at Salmon Trout River, and three near Canyon Village. Data is currently being analyzed by the INF staff and reports will be completed in 1996.

IV. Population and harvest significance of southern Brooks Range moose concentrations.

Francis J. Mauer, Arctic NWR, Fairbanks, AK

From March 30-April 4, a total of 57 moose (44 females and 13 males) were captured and radio-marked at four concentration areas in the southern Brooks Range (see G.14, p. 32, and G.16, p. 34 for more information). Nearly all the animals were in excellent condition, and there were no capture-related mortalities. Subsequent relocations revealed that most of the moose (70%) migrated to Old Crow Flats in Canada by mid-May. A fall migration back to Alaska was documented during September. Individual moose traveled a maximum of 120 miles (straight line) in seven days during the fall migration. This was the first hard evidence the Refuge obtained to verify that such a migration, suspected for some time, was indeed happening. Data collected regarding moose pregnancy rates, calf production/survival, mortality, hunter harvest rates, fidelity to seasonal ranges, disease screening, and genetics studies are being analyzed. Collection of data will continue for the next three years.



Biologist Jim Akaran prepares to process an immobilized "moose on ice."

F. Mauer

6. Other

Nothing to Report

E. ADMINISTRATION

1. Personnel

Permanent Appointments

1. James W. Kurth, Refuge Manager, GS-14, Entered on Duty (EOD) 8/21/94.
2. Donald P. Garrett, Deputy Refuge Manager, GS-12, EOD 3/18/84.
3. Roger W. Kaye, Public Use-Subsistence Coordinator/Pilot, GS-12, EOD 12/23/84.
4. David C. Sowards, Pilot, GS-12, EOD 2/28/88.
5. Janet S. Jorgenson, Botanist, GS-12, EOD 5/24/88.
6. Francis J. Mauer, Wildlife Biologist, GS-11, EOD 6/28/81.
7. Patricia C. Reynolds, Ecologist, GS-11, EOD 11/1/81.
8. Harvey A. Heffernan, Fish and Wildlife Biologist, GS-11, EOD 6/5/88.
9. Thomas R. Edgerton, Outdoor Recreation Planner, GS-11, EOD 3/25/90.
10. Catherine H. Curby, Wildlife Biologist, GS-09, EOD 4/1/83.

11. R. David Cox, Biological Technician, GS-07, EOD 4/24/88. Transferred to Yukon Delta NWR 9/29/95.
12. Eleanore B. Patterson, Budget Assistant, GS-07, EOD 10/16/94.
13. Julia M. McIsaac, Office Automation Assistant, GS-05, EOD 6/2/91.
14. Donna L. Christensen, Financial Assistant, GS-05, EOD 10/6/91.
15. Orville H. Huntington, Refuge Operations Specialist Trainee, GS-05, EOD 4/3/95. Transferred to Koyukuk/Nowitna NWR 11/13/95.

Term Appointments

- 1a. Michael Emers, Botanist, GS-11, EOD 6/7/91 (NTE 6/18/97).
- 2a. Mark A. Willms, Wildlife Biologist, GS-09, EOD 7/31/90. Term ended 9/30/95.
- 3a. Beverly E. Reitz, Biological Technician, GS-07, EOD 6/16/91 (NTE 6/15/97).
- 4a. James J. Akaran, Biological Technician, GS-07, EOD 9/8/91. Term ended 9/17/95.
- 5a. Mary L. Lubinski, Statistical Assistant, GS-07, EOD 6/13/93 (NTE 9/30/95). Resigned 5/27/95.
- 6a. Dale L. Dufour, Maintenance Worker, WG-08, EOD 6/18/93 (NTE 6/12/96).
- 7a. Hilmar A. Maier, Statistical Assistant, GS-07, EOD 6/27/93. Term ended 9/30/95.

Volunteers

- 1b. Loie J. DeLavergne, Woodburn, Oregon, 5/24/95 - 9/6/95.
- 2b. Jim D. DeLavergne, Woodburn, Oregon, 5/24/95 - 9/6/95.



BACK (L-R): Kaye, Reitz, Garrett, Kurth, McIsaac, Patterson, Curby. FRONT (L-R): Heffernan, Reynolds, Edgerton, Jorgenson, Sowards, Emers. (Mauer, Christensen, and Dufour not shown.)

2. Youth Programs

Nothing to Report

3. Other Manpower Programs

Nothing to Report

4. Volunteer Program

This year, Edgerton collaborated with personnel from the BLM and National Park Service (NPS) to recruit, interview, hire, and train summer volunteers to staff the Coldfoot Interagency Visitor Center. Jim and Loie DeLaVergne, a retired couple from Woodburn, Oregon, were selected as the ones sponsored by the FWS. They volunteered for 14 weeks (late May-early September), including time spent training, working the visitor center, and handling related duties.

Sue Hall spent two weeks (late August-early September) in a tent camp along Red Sheep Creek on the Refuge's south side. She gathered data that will help determine the amount of guided sheep hunting activity in the area. Also in early September, Paul Hanson accompanied Edgerton up the Dalton Highway to help close out the Coldfoot operation and winterize the trailer used by the volunteers.

5. Funding

Refuge funding decreased approximately 15% in fiscal year (FY) 95 (see Table 2). The total allocation of \$1,473,500 funded a variety of projects including continued work on the Dall sheep inventory, north and south slope moose surveys, river planning, environmental education, muskox studies, ecosystem weather station monitoring, repair and cleanup of field facilities, replacement of field gear, and the Coldfoot operation. Fire Program funds for training, travel, equipment, and maintenance totaled \$14,500.

Table 2. Funding summary (figures expressed to the nearest \$1,000), FY 95-FY 95.

Program	FY91	FY92	FY93	FY94	FY95
1120	160				
1221	69				
1261	1,127	1,194	1,101	1,122	1,041
1262	557	480	541	606	418
1411	92				
4960				1	
8610				1	
9110		1	61	2	14
9120	9	20	16	8	
Total	2,014	1,695	1,719	1,740	1,473

Employee Awards

On-the-Spot Awards were given during the year to James Akaran, Mike Emers, Phil Garrett, Roger Kaye, Fran Mauer, Beverly Reitz, and David Sowards.

Performance Awards were given to James Akaran, Cathy Curby, Tom Edgerton, Phil Garrett, Harvey Heffernan, James Kurth, Fran Mauer, Eleanore Patterson, and David Sowards.

6. Safety

Only a couple of staff safety meetings were held during the year. Partly for this reason, early in the fall a five-member safety committee was formed to start developing a Refuge safety plan, a schedule for monthly meetings, and a schedule of staff safety needs. By years end, however, the committee had made little progress.

Staff members attended all required and needed safety training including AIDS awareness, wound care, CPR, aircraft refresher, and bear/firearms safety. Several staff attended a swiftwater rescue course taught by The Rescue Company in Fairbanks. Garrett was involved with bear/firearms instruction and Edgerton helped teach a watercraft operator certification course.

Sowards enhanced the Region 7 aviation safety program by taking an active role in the new mentor pilot program. He flew a total of more than 100 hours of training and currency flights with seven different pilots. Most flights were with new pilots, but some provided practice for experienced pilots. Instruction focused on ski flying, off-field and low level operations, and area familiarizations. When possible, the training was done in conjunction with regular mission-oriented flights.

7. Technical Assistance

Nothing to Report.

8. Other

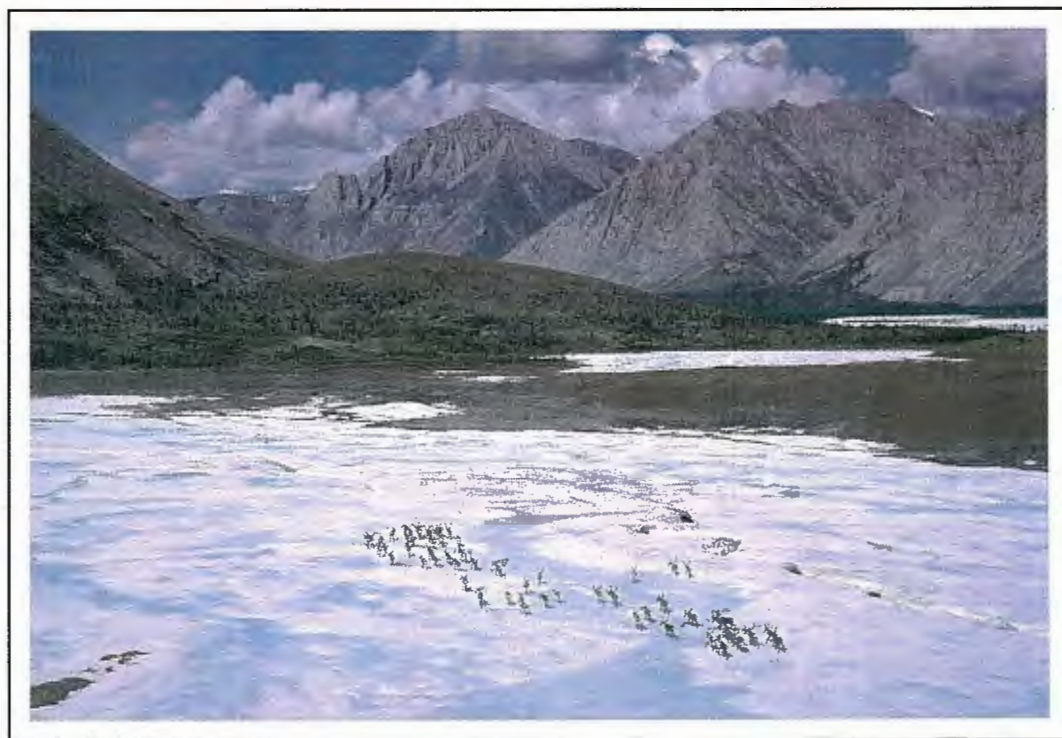
Table 3. Training received by employees in 1995.

<u>Course Title</u>	<u>Date(s)</u>	<u>Employee(s)</u>
Law Enforcement Refresher	1/9-13	Garrett, Heffernan, Kaye, Sowards
Temporary Duty Travel	2/6-8	McIsaac, Christensen
Smith and Wesson Armorers	2/9	Garrett
Wound Care Class	2/15	Curby, Edgerton, Kaye, Garrett, Heffernan, Mauer, Patterson, Reynolds, Sowards
AIDS	2/22	All staff
Resource Conservation	2/23-24	Heffernan
Philanthropy	2/28-3/2	Edgerton
Workshop on Windows	4/3	All staff
Understanding Harvest Assessment	4/20-22	Huntington
River Management Workshop	4/23-28	Edgerton, Heffernan, Garrett
Workmen's Compensation Workshop	4/25	Patterson
Native American Fish & Wildlife Society	5/1-5	Kurth, Huntington
8th Northern Furbearer Conference	5/3-5	Huntington
Travel Manager Plus	5/8-9	Christensen, Patterson
4th Intl. Outdoor Recreation Conference	5/14-17	Kaye
Federal Supply Service	5/16-17	Christensen, Patterson
Leadership and Supervisory Skills	5/22	Patterson
CPR	6/19	Curby, Garrett, Heffernan, Jorgenson
Merit Principles Workshop	6/29	Patterson
Design Eye-Catching Brochures	8/14	Curby
Storytelling	8/8	Curby, Jorgenson, Patterson, Reitz
Swiftwater Technician I	8/26-28	Edgerton, Huntington, Reitz
Geographical Information Systems	9/13-12/31	Emers, Reitz
Intro. to Internet for Field Managers	9/26-27	Patterson
Understanding the Internet	10/16	All staff
Director Animation Software	11/7-10	Curby
Media Relations	12/5-7	Edgerton

F. HABITAT MANAGEMENT

1. General

The Arctic Refuge is the Nation's only conservation area that includes an undisturbed continuum of arctic and subarctic ecosystems from the Beaufort Sea to the Yukon River drainage. Management is focused on preserving and maintaining these systems in their original state, allowing for natural processes to continue with minimum human intervention. Collection of baseline information on Refuge plant and animal communities is essential to current and future management activities. There are no habitat manipulation practices currently employed on the Refuge.



Natural processes at work on the Refuge!

2. Wetlands

Nothing to Report

3. Forests

Nothing to Report

4. **Croplands**

Nothing to Report

5. **Grasslands**

Nothing to Report

6. **Other Habitats**

Nothing to Report

7. **Grazing**

Nothing to Report

8. **Haying**

Nothing to Report

9. **Fire Management**

The Alaska Fire Service (AFS), the fire fighting arm of the BLM, monitors fires by air as time and manpower permit, keeping Refuge personnel informed of the status of any fire. Close coordination with the AFS is maintained by Fire Management Officer Perry Grissom, who is responsible for Arctic, Yukon Flats, and Kanuti NWRs.

No fires were reported on the Arctic Refuge in 1995 or 1994. This lack of fire activity is unique in the recent fire history of the Refuge. Almost the entire Refuge is in limited suppression (no attack) category.

10. **Pest Control**

Nothing to Report

11. **Water Rights**

During 1995, the Region 7 Water Resources Branch filed for federal water rights on Sadlerochit Spring Creek and the Sadlerochit, Akutoktak, and Itkilyariak rivers.



Sadlerochit Spring Creek begins at this “warm” spring which has a year-round temperature of about 40 degrees F. M. Willms

12. Wilderness and Special Areas

As in years past, several high-level Department of Interior (DOI) officials toured the 1002 area and adjacent wilderness. These tours, however, were different. The officials elected to camp like the public rather than stay in Refuge facilities or at Deadhorse. They also traveled in a fixed-wing aircraft like most people, instead of feature hopping in a helicopter. Their sensitivity to wilderness and decision not to assert a special status was heartening to the staff. We hope DOI and other officials follow their example in the future when visiting the Refuge. “New Age VIPs,” a story written by Kaye about the tours, was accepted for publication in the *International Journal of Wilderness* and the DOI publication *People, Land, and Water*.

Aircraft continued to land on sensitive tundra areas of the Refuge, including the Wilderness area. Some staff expressed concern about the pioneering of new tundra airstrips and their impacts on the Refuge, including scars visible for miles that could last for decades. In August, several Refuge staff and a NBS employee met to consider this concern. They discussed, with considerable disagreement, the acceptability of new tundra airstrips in wilderness, the extent to which new airstrips are occurring, what is appropriate for reasonable access, what impacts are occurring, and what, if any, action is needed.



Aircraft wheel ruts - an unnatural process!

R. Kaye

A majority opinion was that further research is needed to determine the extent to which pioneering of tundra airstrips with adverse impacts actually is occurring. However, the group did not come up with a definitive plan of monitoring and data collection.

13. WPA Easement Monitoring

Nothing to Report

G. WILDLIFE

1. Wildlife Diversity

The proximity of the Brooks Range to the Arctic Ocean in northeastern Alaska and northern Yukon Territory affords a unique assemblage of arctic plant and animal communities repeated nowhere else in the circumpolar region. The southern boundary

of the Arctic Refuge extends well into the northern boreal forest zone, combining arctic and subarctic life forms. This provides for an unusual diversity of wildlife. For example, all three species of North American bears (black, brown, and polar) occur on the Refuge. Ungulates such as moose, Dall sheep, muskox, and caribou often are found in close proximity, occasionally overlapping in certain habitats. The Refuge has the northernmost breeding populations of golden eagles and Dall sheep in North America. Several plant species are at their extreme limits of distribution on the Refuge. About 180 bird species have been recorded there, some coming from distant places such as Africa, India, Australia, and Patagonia. The majority of the Refuge's diverse wildlife and habitats exist in a relatively undisturbed condition.

2. Endangered and/or Threatened Species

Peregrine Falcon

The 17th consecutive annual survey of peregrine falcons and other cliff-nesting raptors on the Porcupine River was conducted by Refuge personnel from July 13-19 (see G.16, p. 39 for more information). Twenty-four of 30 pairs of peregrines produced a minimum total of 55 young (see Table 4). This constitutes the greatest number of peregrine young recorded since surveys began on the Porcupine River in 1967. Single adult peregrines were observed at three historic nest territories.

Table 4. Peregrine falcon productivity, Porcupine River, AK, 1995.

Productivity parameter	1994	1995	16 year ave.
Total pairs	28	30	16.3
Pairs with young	21	24	11.6
Total young	47	55	30.6
Young fledged/Total pairs	1.68	1.83	1.88

Rare Plants

A species of *Erigeron* (fleabane) known from four collections along the lower Ramparts of the Porcupine River within the Refuge is now considered a new species to science. The plant, being described by Dr. Ronald Hartman of the University of Wyoming and Dr. David Murray of UAF, will be considered a Category Two species by the Alaska Floristics Working Group. A status survey for the plant is being planned for 1996.

3. Waterfowl

On June 28, the 1995 breeding pair survey was conducted on the Refuge coastal plain by the Fairbanks Migratory Birds Office. Aerial transects of the Refuge are part of a broad system which covers the entire north slope of Alaska, so estimates for the Refuge are not highly precise. This year, the survey estimated 267 tundra swans (± 305 @ 95% CI),

2,855 northern pintails ($\pm 3,884$ @ 95% CI), 430 scaup sp. (± 945 @ 95% CI), 4001 oldsquaw (± 4358 @ 95% CI), 2,553 common eiders ($\pm 5,607$ @ 95% CI), 7040 black scoters ($\pm 15,471$ @ 95% CI), 3,285 surf scoters ($\pm 7,220$ @ 95% CI), and 89 small canada goose sp. (± 167 @ 95% CI). The annual snow goose survey was not conducted due to poor weather.



Oldsquaw are the most numerous waterfowl species found in the coastal brackish lagoons of the Refuge.
M. Hanneman

4. Marsh and Water Birds

The 1995 breeding pair survey conducted on the Refuge coastal plain by the Fairbanks Migratory Birds Office provided population estimates of 223 pacific loons (± 254 @ 95% CI) and 89 red-throated loons (± 106 @ 95% CI).

5. Shorebirds, Gulls, Terns, and Allied Species

The 1995 breeding pair survey conducted on the Refuge coastal plain by the Fairbanks Migratory Birds Office provided the following population estimates: 45 parasitic jaegers (± 105 @ 95% CI), 89 long-tailed jaegers (± 156 @ 95% CI), 223 glaucous gulls (± 254 @ 95% CI), 45 arctic terns (± 98 @ 95% CI), and 89 phalarope sp. (± 116 @ 95% CI).

6. **Raptors**

The annual survey of cliff-nesting raptors on the Porcupine River was conducted in July (see G.2, p. 24). This year only one of 17 golden eagle nest territories produced young. Continued low abundance of snowshoe hares in this region is likely related to the poor golden eagle productivity.

7. **Other Migratory Birds**

Nothing to Report

8. **Game Mammals**

Caribou

Significant portions of the Porcupine caribou herd wintered in the Christian hills near Venetie and the Ogilvie basin in Canada's Yukon Territory during 1994-95.

Nearly the entire herd (92%) calved on the Refuge coastal plain in 1995. Snow melt was well advanced when the migrating caribou arrived. Calving was distributed from Marsh Creek on the Refuge to Clarence Lagoon just a few miles east of the border in Canada. Highest concentrations of calving were along the Sadlerochit River southwest of Barter Island and the lower Niguanak River southeast of Barter Island. Post calving aggregations formed along the north base of the Brooks Range from June 15-20.



Part of a caribou aggregation near the Kongakut River estimated at 60,000 animals.

G. Ellison

The caribou moved east into Canada before the end of June. Most of the herd remained in Canada during the rest of the summer and fall. Several thousand caribou were in the southeastern Brooks Range early in September. These animals moved north in mid-September when unusually warm air associated with typhoon "Oscar" moved into the region. In November, large numbers of the Porcupine herd were reported moving south along the Dempster Highway in Canada. Most of the herd likely wintered in Canada.

Moose

Several adult moose carcasses were reported during the summer on the north slope. Field investigation of some carcasses indicated that predation was not the cause of death. Decomposition prevented adequate testing for disease organisms. Several people reported extreme mosquito conditions on the north slope during the summer, and observed moose responding to these insects. It is plausible that insect harassment may have contributed to moose mortality, but actual data on this are not available.



Moose are vulnerable to hunting pressure on the north slope and alpine areas of the Refuge.

Fall moose surveys conducted by staff on the north slope of the Refuge between the Dalton Highway and the Canning River documented the greatest rate of decline to date for north slope moose populations. Only 145 moose were observed in the standardized count areas. This represents a decline of 38% from 1994 (381 moose counted) and 76% from 1989 (approximately 600 moose counted). The low numbers of calves indicates

poor recruitment over a period of several years. Severe winters and increased predation may be factors influencing the low calf numbers.

In response to this severe decline, the Alaska Department of Fish and Game (ADF&G) will recommend to the Alaska Board of Game a 1996 closure of moose hunting on the north slope. The Refuge supports this action, and is coordinating with ADF&G to further investigate factors affecting north slope moose populations.

Results of spring moose studies initiated in the southern Brooks Range (see D.5, p. 14) suggest moderate calf production and survival. Thirty-two percent of radio-collared females had calves in November. Mortality of radio-collared adults from April-November was about five percent. A fall moose count in the southern Brooks Range was not possible due to poor snow conditions.

Muskoxen

In early April, 321 muskoxen were counted on the Refuge coastal plain and 270 muskoxen were counted between the Canning River and Sagavanirktok River west of the Refuge. Alaska Biological Research biologists saw at least 60 muskoxen further west between the Colville and Sagavanirktok rivers, and biologists with Parks Canada counted 147 muskoxen in northeastern Canada adjacent to the Refuge. This indicates a region-wide, increasing population of at least 797 animals. Numbers of muskoxen within the Refuge are stabilizing at less than 350 (see Figure 1).

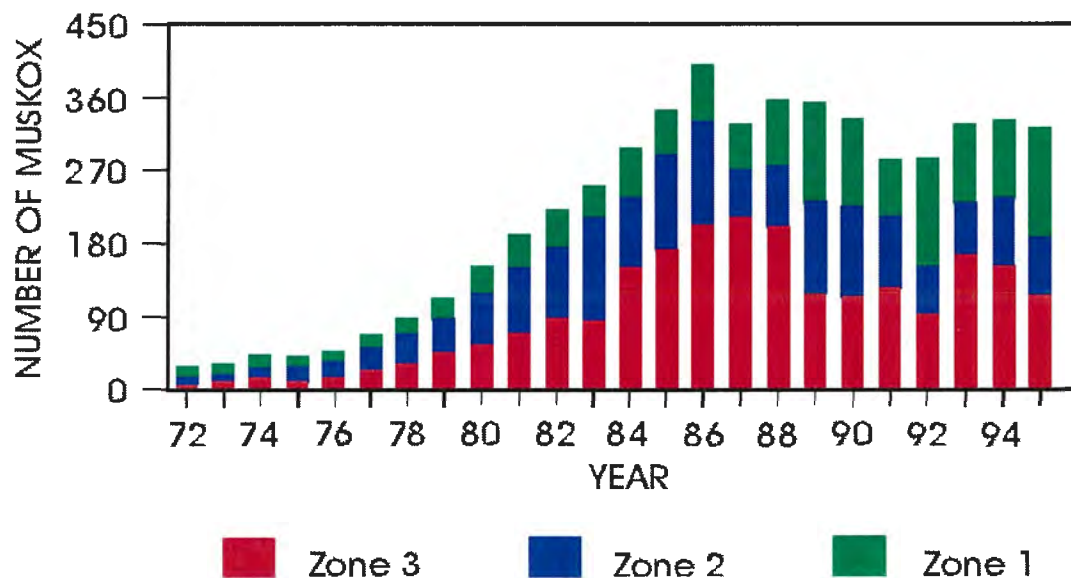


Figure 1. Number of muskoxen in three management zones in Unit 26(c) of the Arctic NWR, AK, 1972-1995.

In late June, 385 muskoxen on and near the Refuge were classified as to sex and age. Only 28 calves/female older than two years were seen on the Refuge in 1995, the lowest calf/female ratio measured in the past 13 years (see Figure 2). Calves comprised 12% of 240 muskoxen classified on the Refuge in 1995; 20% of radio-collared females had calves. Survival rates for calves (66%) and yearlings (73%) were below average. Six of 25 radio-collared females died in 1994-95, and carcasses of three other unmarked individuals were seen. At least three muskoxen, including two large males, were killed and/or eaten by bears. Refuge muskoxen made a few unusual movements in late winter 1994-95. Several animals moved west to the Sagavanirktok River and beyond; other mixed sex groups were found south of the coastal plain in mountain valleys. These observations suggest that weather or other local conditions were particularly severe on the Refuge during winter 1994-1995. Muskox distribution in October 1995 was similar to that seen in June, but two additional mortalities occurred by early winter.

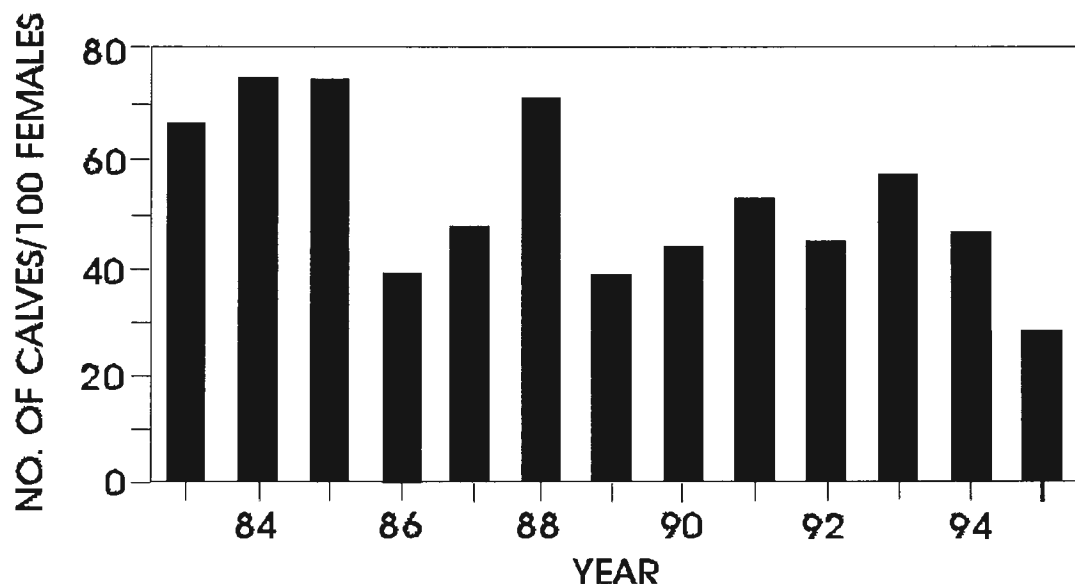


Figure 2. Muskox calf production in Unit 26(c) of the Arctic NWR, AK, 1983-1995.

Dall Sheep

Refuge biologists conducted age/sex classification surveys for Dall sheep in three trend areas during early June. A total of 1,595 sheep (Hulahula-1130, Chandalar-158, and Atigun-307) were classified. Initial lamb production varied from 43 lambs/100 ewes in the Hulahula area, to 29 lambs/100 ewes in the Chandalar area, to 17 lambs/100 ewes in the Atigun area. Heavy snow in the Atigun area during winter 94-95 may have contributed to the low lamb production there.

Radio-collared sheep were relocated during February, March, April, May, and June. Over-winter mortality of marked adults varied from 11.5% in the Hulahula area to 9.1% in the Chandalar area.

9. **Marine Mammals**

Under the Marine Mammal Protection Act of 1972, only Alaska Natives can hunt and use polar bears, whales, seals, and certain other marine mammals for food, clothing, and traditional crafts.

Polar Bears

Polar bears usually are found on the Beaufort Sea (Arctic Ocean) ice where they hunt for seals. Before the fall freeze up, however, they often are observed along the coastal areas of the Refuge. Several polar bears were seen near the village of Kaktovik during the fall, attracted by whale carcasses harvested by the community. One polar bear was killed by a Kaktovik resident during the 1994-95 season. Only pregnant females den during winter. Although most of these bears establish maternity dens on the sea ice, several polar bears have denned on the Refuge in past years. No dens were located on the Refuge during the fall, however, as no den surveys were conducted by NBS biologists.



Polar bears are a relatively rare sight on the Refuge during most of the year.

G. Weiler

Bowhead Whales

Inupiat Eskimo whaling crews from Kaktovik harvested four bowhead whales during the fall. Whale hunting occurs only in fall for Kaktovik residents because ice conditions make spring whaling impossible. Other communities west of Kaktovik along the Beaufort Sea, Chukchi Sea, and Bering Sea hunt bowhead whales both in spring and fall.

10. Other Resident Wildlife

Little information was obtained on other resident wildlife species in 1995. At year's end, Refuge biologists were developing plans to monitor, in future years, small mammal populations and other wildlife species at sites throughout the Refuge.

11. Fisheries Resources

Akaran, Brian Lubinski from the Fairbanks Fisheries Resource Office, and Rodger Schneidervin from the Utah Department of Natural Resources conducted a mark-recapture study of lake trout (*Salvelinus namaycush*) at Schrader Lake during the summer (see G.16, p. 32).

12. Wildlife Propagation and Stocking

Nothing to Report

13. Surplus Animal Disposal

Nothing to Report

14. Scientific Collections

Plants

During the summer, Emers and Reitz made 105 collections, including several range extensions, for the Refuge herbarium. Of particular interest were collections of a *Erigeron* species currently being described as a new species to science (see G.2, p. 24).

Approximately 1700 clippings of three caribou forage species were collected in 1995 during an on-going Global Climate Change study conducted by the Fairbanks NBS office. These clippings are being analyzed for carbon and nitrogen content.



Siberian phlox is but one of the many lovely wildflowers sought after by plant enthusiasts and photographers.
M. Emers

Mammals

Biological specimens were collected from moose captured on the Refuge in the spring (see D.5, p. 14). Hair samples were clipped from 42 females and 13 males for contaminants evaluation. Blood samples were collected from 38 females and 14 males for genetics and disease investigations. Fecal pellets were collected from 28 females for pregnancy studies. Tissue samples from ear punches were taken from all 57 moose.

15. Animal Control

In response to reported incidents of a bear terrorizing river floaters, Sowards and NBS biologist Tom McCabe camped at Caribou Pass on the Kongakut River from July 17-20. No bears were seen and therefore no control measures were taken.

16. Marking and Banding

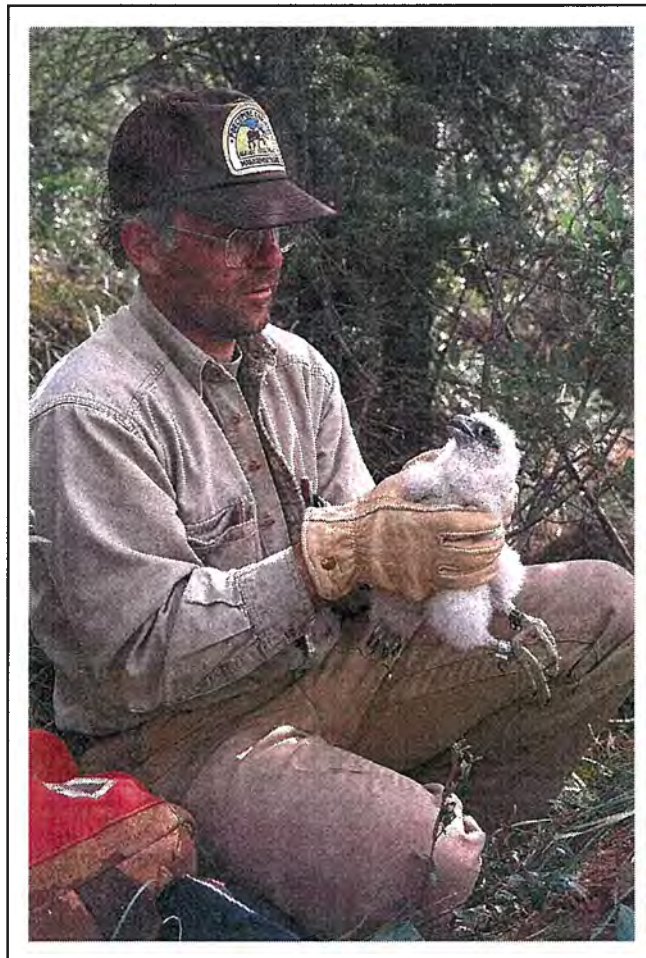
Fish

During a study of lake trout in Schrader Lake (see G.11, p. 31), mark-recapture methods were used to estimate population size. During the study, biologists captured 479 lake trout > 300 mm fork length and numerous smaller ones using sinking gill nets and by

angling. One hundred seventy-two of the larger trout were captured and marked during the marking phase of the study; 307 were captured during the recapture phase. Ten of the 307 were marked fish. All the trout caught were measured, weighed, and released alive. The 479 trout > 300 mm fork length were marked with both Floy T-bar tags (city and state) and a caudal fin hole punch.

Birds

Mauer banded 13 peregrine falcon nestlings on the Refuge during 1995. All the birds were from 18-28 days old and were captured at nest sites along the Porcupine River (see G.2, p. 24). The birds were marked with an aluminum leg band, size 7A, on the right tarsus. Eight individuals also were marked with a color-coded aluminum leg band on the left tarsus. This banding effort contributes to continent-wide peregrine falcon studies, in accordance with peregrine recovery plans and the Refuge wildlife inventory plan.



Peregrines banded on the Refuge have been seen as far away as Argentina. Biologist Fran Mauer wonders where this one may be headed.
B. Reitz

Mammals

In late March and early April, a total of 57 moose were captured and marked with radio-collars and color-coded ear tags along the Sheenjek, Coleen, Kongakut, and Firth rivers as part of a study to determine seasonal distribution and migration patterns (see D.5, p. 14 and Table 5).

Table 5. Sex and age of moose captured and radio-collared on the Arctic NWR in March and April, 1995.

	Sheenjek	Coleen	Kongakut	Firth	Total
Adult males	3	2	2	5	12
Yearling males			1		1
Adult females	7	10	5	6	28
Young females	3	3	4	3	13
2 year females	2				2
Yearling females				1	1
Total	15	15	12	15	57

17. Disease Prevention and Control

During 1995, blood samples collected from 52 moose were sent to ADF&G for disease analysis. Preliminary results indicated that five of the moose had been exposed to parainfluenza-3 (PI-3) virus, a bovine respiratory disease previously found in blood samples from arctic caribou populations and muskoxen on the Refuge. Six of the moose tested positive for blue-tongue, a hemorrhagic disease also caused by a virus. The source of these diseases, and the effects on animal populations in the Refuge, is unknown.

H. PUBLIC USE

1. General

Tours

From June 19-20, Kurth, Kaye, and Mauer camped with Frank Clifford of the Los Angeles Times near the Aichilik River where large groups of caribou were gathered. Two days later (June 22-23), Kurth and Kaye accompanied Deborah Williams, Special Assistant to the Secretary for Alaska, on an overnight camp near the Aichilik River to see the caribou.

From July 4-7, Region 7 Director Dave Allen, Kurth, Sowards, Kaye, and Mauer toured the Refuge with Don Barry and Dan Sakura, Counselor and Special Assistant to the Assistant Secretary for Fish, Wildlife and Parks, respectively. The trip included an overnight camp near the Hulahula River, a day hike up the valley, and an after-breakfast serenade by howling wolves.



Department of Interior workers get a taste of true wilderness in the Hulahula River valley.

F. Mauer

From August 7-9, Kurth, Sowards, Kaye, and Mauer conducted a tour of the Refuge for John Leshy, Solicitor, Brooks Yeager, Deputy Assistant Secretary for Policy, and Melanie Beller, Director of Congressional and Legislative Affairs. The tour included an overflight of the Brooks Range, and on-ground experiences on the coastal plain and in the mountains. Last Lake in the Sheenjek River valley was used as a base camp. On August 16, Garrett, Mauer, and NAES Supervisor Pat Sousa participated in an overflight tour of the Refuge for Michigan Congressman Dale Kildee and his wife. Garrett, Sowards, Kaye, and Sousa accompanied House and Senate Appropriation Committee members Sue Masica, Deborah Weatherly, and Loretta Beaumont on a tour of the Refuge coastal plain on August 21.



Overflight tours of the Refuge almost always try to include the spectacular Peters and Schrader Lake area.
P. Garrett

Media

This year, hundreds of news reports, opinions, and stories about the Arctic Refuge were published in newspapers and magazines across the country. Most of these articles related to the proposal to open the 1002 area to oil and gas development. A sampling of the pieces, including a number of related political cartoons, is included in the Appendix (see Tab 1).

The oil development issue also was the focus of countless local and national television and radio news programs all across the country. The coverage was especially prolific from May through November when the push was on to get Congressional approval for oil development of the Refuge included as part of the budget-balancing Reconciliation Bill. In Fairbanks it seemed at times that the issue was covered on radio and/or television almost every day. Kurth was interviewed by several television crews during this time, including the McNeil/Lehrer News Hour, which covered the issue on their national television program two separate nights. From mid-summer through the end of the year, the Refuge made available to television news organizations "B-roll" video footage of the Refuge purchased from Daniel Zatz of Homer, Alaska.

On August 31, Mauer was interviewed via phone by Doug Urquhart, Secretary-treasurer of the Porcupine Caribou Management Board, regarding the southern Brooks Range

moose study that documented significant moose migrations between the Refuge and Old Crow Flats in Canada (see D.5, p. 14). An article by Mr. Urquhart about the migrations appeared in the September 6 issue of the Whitehorse newspaper *The Yukon News* (see Appendix, Tab 1).

Mauer was interviewed via phone on two occasions by Steve Rinehart, reporter for the Anchorage Daily News, regarding the issue of oil development and its potential impacts to caribou. Articles by Rinehart, which quoted Mauer several times, appeared in the Anchorage paper on October 21 and November 12 (see Appendix, Tab 1).

On December 14, Mauer participated in a panel discussion, sponsored by the Northern Alaska Environmental Student Union at UAF, concerning proposed oil development on the Refuge. An article reporting on the event appeared in the Fairbanks Daily News-Miner on December 15 (see Appendix, Tab 1).

Section H.6 on p. 44 includes information about media activities related to NWR Week.

Meetings

During winter and spring, Edgerton met several times with BLM and NPS staff to develop the Joint Facilities Operating Plan for the Coldfoot Interagency Visitor Center. This document should be completed early in 1996.

In January, Kurth was appointed to represent the Region on the FWS Refuge Outreach Team. He participated in a planning meeting in Washington, D.C. from January 22-27 and then took part in numerous teleconferences during the year. Curby and Edgerton attended meetings of the Fairbanks Interpretation and Education group regularly throughout the year. Edgerton represented the Service at meetings of the Dalton Highway Coordination Group, which met intermittently during the year to discuss and plan for future activities along the Dalton Highway. He also served on the Information and Interpretation Group, which met several times to work on improving information services for those traveling the highway. Garrett attended several meetings of the Interior Ecosystem Team during the year as appointed representative of the Refuge.

From January-July and from September to year's end, Kaye organized, conducted, and/or attended numerous meetings to help plan and coordinate Earth Quest camps (see H.2, p. 40).

As an appointed member of the Region's Automated Administrative Systems Quality Improvement Team, McIsaac attended numerous meetings in Anchorage from January through June. The team's final report was distributed in August.

Curby attended the Region's Outreach Team meeting in Anchorage February 1-2 and participated in a team teleconference on February 24. After writing the majority of text

for the Regional Outreach Report, she traveled to Anchorage on March 22 to present the document to the Region 7 Directorate. The report was adopted by the Region in October.

Most of the staff attended an Ecosystem Approach Seminar in Fairbanks February 27-28.

In March and April, Curby attended several meetings to help plan Fairbanks Outdoor Days (see H.2, p. 39).

On April 1, Curby attended a Fairbanks workshop about creating effective teaching kits. Emers went to the Alaska Rare Plant Forum in Anchorage from April 5-7. On April 20, Kurth, Heffernan, and Garrett met with ARCO, British Petroleum, and Alaska Oil and Gas Association personnel in Anchorage to discuss surface geology efforts and summer tours.

Curby attended a Fairbanks workshop on June 1 to learn about the Creamer's Field Migratory Waterfowl Refuge teaching kits, which can be borrowed for classroom use.

Reynolds attended the 10th International Conference on Bear Research and Management at UAF from July 16-20.

On August 23, Mauer and Kaye briefed the residents of Old Crow, Yukon Territory about the southern Brooks Range moose study (see D.5, p. 14). The people of Old Crow were very interested in the study results and requested additional meetings in the future.

From September 19-22, Emers attended the American Association for the Advancement of Science Conference in Fairbanks.

David James from the Yukon Flats NWR and Mauer presented moose movement and study information at a meeting of the Eastern Interior Regional Subsistence Council in Fairbanks on October 5. A similar presentation was given by James at a meeting of the Native Village of Fort Yukon Tribal Council in late October.

Early in the fall, Edgerton agreed to serve as one of DOI's Emergency Operation Center/Disaster Field Office FEMA Public Information Officers in Fairbanks, responsible for helping implement DOI's Natural Disaster Response Plan for Alaska if it ever becomes necessary. On November 8, he attended a meeting about the Disaster Plan and the Response Team's general responsibilities. More training is expected in 1996.

Kurth and Garrett attended a meeting of northern Alaska project leaders at the Fairbanks Westmark Inn November 2-3. Kurth and Mauer went to a meeting of the North Slope Wildlife Management Advisory Council in Barrow November 29-30. Kurth gave a presentation on the status of Refuge caribou, muskox, moose, and Dall sheep populations.

Other Activities

As they do every year, Refuge personnel answered several hundred letter, phone, and in-person requests for information about recreational opportunities, natural resources, management issues, guides, permit requirements, employment, and potential oil development of the 1002 area. Several organizations and individuals also asked to borrow slides to use in publications.

Curby facilitated the Arctic Ecosystem Team meeting in Fairbanks January 18-19, a small group activity during the Ecosystem Approach Seminar on February 28, and an August 16-17 Bettles meeting of the Kanuti NWR staff to discuss complexing.

To provide updated information about the Refuge oil development issue, in May the Refuge and NBS were directed to draft an analysis of the 1987 "1002 Report" for use by the Clinton Administration. The review was to determine whether the report's conclusions about potential development impacts were still valid, given the research information collected since 1987. The final document - "A Preliminary Review of the Arctic National Wildlife Refuge, Alaska Coastal Plain Resource Assessment: Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement" - was released in August after much internal review, both in Alaska and Washington. Refuge personnel also developed 15 one-page fact sheets, complete with color photographs, about Refuge resources. These sheets and the "1002 Report" review (see Information Packet, Tab 2) were included in a new information folder, distributed in late summer and fall to DOI personnel, legislators, special interest groups, and many other people interested in the oil development issue.

Staff reviewed information about the Refuge for several publications including an upcoming Reader's Digest book and the *River Information Digest* produced by the American River Management Society.

Curby finalized several computerized maps of the Refuge and produced them in slide format. The Refuge also invested in several photo CD's that facilitate the internal production of flyers and documents (including this report) with high quality images.

2. Outdoor Classroom - Students

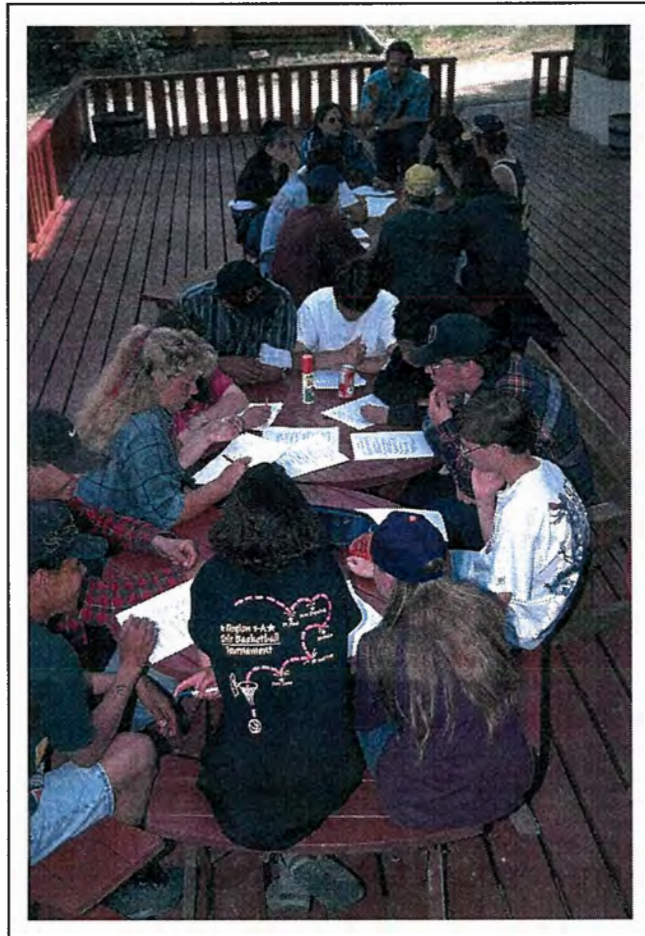
Early in May, several Refuge staff gave presentations to 4th, 5th, and 6th grade students at Twin Bears Camp near Fairbanks. Akaran involved the students in activities about radio telemetry; Jorgenson and Reitz taught mapping of boreal forest vegetation using aerial color-infrared photography and ground verification; and Curby spoke about the behavior of Refuge wolves.

From May 16-18, Akaran, Curby, Edgerton, and Huntington worked various stations at Fairbanks Outdoor Days, an annual multi-agency program that gives Fairbanks 6th

graders hands-on experience with the work of various natural resource agencies. This years program involved 835 students from 14 schools. Each student participated on one of the three days, visiting six activity stations on one of three different trails. Curby and Edgerton conducted classroom visits from May 8-12 to prepare students for the activity.

Earth Quest Camp

In fall 1994, the Refuge, under the leadership of Kaye, proposed to various agencies and organizations a cooperative wildlife and wildlands education camp for village teenagers. By February, fifteen partners were recruited, including four other refuges, two national parks, other federal and state resource agencies, Native organizations, and rural school districts. The partners agreed to sponsor students and then met frequently to plan logistics and develop curriculum.



Groups of students working on land management scenarios at Earth Quest. R. Kaye

The goals of the camp, called Earth Quest, were to actively involve rural youth with resource agencies, introduce the concepts of resource management and an ecological approach to decision making, provide hands-on experience with scientific work, explore resource careers, involve students in collaborative approaches for resolving resource issues, and create a setting where agency people and village students work, laugh, and develop new attitudes together.

Earth Quest was held at Circle Hot Springs from June 5-16. Twenty students from 15 communities participated. The Refuge sponsored two students and provided the use of Kaye, Huntington, and a Cessna 185.

The camp was featured in a six page story in the Fairbanks Daily News-Miner in July (see Appendix, Tab 1). In September, the partners met to begin planning Earth Quest 96.

Other Activities

Throughout the year, Curby maintained contact and coordination with Kaktovik and Arctic Village school teachers to support their environmental education programs.

On February 3, Edgerton talked to a UAF interpretive services class about the role and objectives of interpretation in the FWS, and the variety of interpretive services and activities the agency offers.

In March, the Refuge sent National Wildlife Week packets, including a letter about educational support, to Arctic Village and Kaktovik schools, and to the North Slope Borough School District office in Barrow.

Refuge biologists served as judges for school and District-wide science fairs in the Fairbanks area during February and March. In April, Curby helped judge the state-wide science fair in Anchorage. An article highlighting a project she evaluated appeared in May in the Eielson Air Force Base newspaper (see Appendix, Tab 1).

On April 12, Huntington lectured about subsistence issues and the Cooperative Education Program to natural resource majors at UAF. Curby conducted programs at the Arctic Village School April 12-13; she discussed with the 5th-8th grade class how precipitation affects wildlife distributions and played an Alaskan version of 'O Deer' with the younger students. On April 25, Reitz gave a presentation to a 9th grade class at Lathrop High School about the Refuge oil development issue. On April 26, Huntington presented a lecture about wildlife issues and concerns to a high school class visiting UAF. Curby talked about habitat needs with a first grade class at Pearl Creek Elementary school on April 28. She returned on May 1st to tell the class about wolves on the Refuge.

On May 16, Huntington spoke about education and careers to 100 elementary and high school students at West Valley High School.

During an evening program at the Chena River campground on June 26, Curby spoke to a number of families about wolf behavior and rabies.

Reynolds gave an evening program about the natural history of muskoxen to families at the Chena River campground on July 12. On July 17 at the Creamer's Field Migratory Waterfowl Refuge, Akaran gave a presentation about radio telemetry to high school students in the Upward Bound program.

On September 8, Garrett and Curby spoke about Refuge issues via conference call with students from Barter Island. On September 21, Curby presented a program about trees to a 1st grade class at Badger Road Elementary School in North Pole and Reynolds presented a lecture about muskoxen to a wildlife class at the University of Oslo, Norway.

On November 16, Reitz gave a presentation to a 9th grade class at Lathrop High School about the Refuge oil development issue. Also in November, Kaye discussed wilderness planning with eight graduate students in a land planning class at UAF.

Kaye presented slide shows about the Refuge to two classes at Pearl Creek Elementary School in December.

3. **Outdoor Classroom - Teachers**

Nothing to report.

4. **Interpretive Foot Trails**

Nothing to report.

5. **Interpretive Tour Routes**

Nothing to report.

6. **Interpretive Exhibits/Demonstrations**

Coldfoot

The Coldfoot Interagency Visitor Center (Center), along the Dalton Highway 250 miles north of Fairbanks, offers exhibits, interpretive programs, free publications, and a small sales outlet. The facility is run cooperatively with the BLM and NPS. This year, the Center was open June 1-September 6 from 1-10 p.m. daily. During that time, services were provided to 4,792 visitors, a 35% increase from 1994. The increase was due to the

fact that 1995 was the first summer the Dalton Highway was open to general traffic all the way to Deadhorse.

The FWS-sponsored volunteers (see E.1 and E.4, pp. 16-17) worked with BLM and NPS seasonal/volunteer staff to maintain the Center, provide information to visitors, conduct interpretive programs, and work the sales outlet. For the first time, this year's staff training was done cooperatively by the three agencies and was held primarily at Coldfoot.

Edgerton, Sandy Westcott (BLM), and Jeff Mow (NPS) traveled to Coldfoot in mid-April to reorganize and upgrade the Center. The result was a more efficient operation with increased working space for staff, upgraded furniture and equipment, and improvements in the exhibit area.

Edgerton decided to move the housing trailer this year, after complaints about the noise and dust in the Coldfoot Services campground. In mid-June, after permission was obtained to move the trailer next to the NPS cabin in the woods, a place without electricity, Cal Westcott (BLM) laid the gravel pad and moved the trailer.



FWS volunteer Jim DeLaVergne preparing his summer home at Coldfoot, AK.

L. DeLaVergne

National Wildlife Refuge Week (October 8-14)

The Refuge collaborated with Kanuti and Yukon Flats NWRs and the Fairbanks Public Lands Information Center (FPLIC) to advertise and celebrate the first ever National NWR Week.

The three Refuges set up an information table and the FPLIC staff set up a small exhibit about the Refuge System in the FPLIC during NWR Week. Throughout the week, people could enter a drawing there to win a chance to volunteer at one of the three Refuges on a special project. The winner, Lori Arthur of Fairbanks, chose to help with bird banding on the Yukon Flats NWR during summer 1996.

The three Refuges also hosted a NWR Week Discovery Day at the FPLIC from 10 a.m.-4:30 p.m. on Saturday, October 14. There were films and slide programs, handouts (posters, flyers, bookmarks, and brochures), and a variety of hands-on activities for children. Kids had the opportunity to conduct wildlife surveys on a computer, create a wildlife refuge using various craft materials, and draw or color refuge symbols and duck stamp images while their parents learned first-hand about the Refuge System on a large question-answer map exhibit. Between 60 and 70 people participated in the activities.

On October 11 from 10-11 a.m., the three refuge managers participated in an interview and call-in radio program (KFAR's Problem Corner with Lori Bacus) about NWRs. Kurth also did a short interview about NWR Week with Katie Markin on the Fairbanks Evening News (Channel 2, KATN) on October 12.

Several staff met with Tom Mowry of the Fairbanks Daily News-Miner (News-Miner) to provide information for an article about the Refuge System and NWR Week (see Appendix, Tab 1). A packet of information also was given to Lori Bacus of KFAR radio and to each of the Fairbanks area television stations. The News-Miner printed ads about NWR Week Discovery Day in three editions of the paper. Public service announcements were sent to the News-Miner, KUAC radio/TV, and the Fort Wainwright Public Affairs office. The FPLIC distributed more than 400 copies of their October schedule, which contained information about NWR Week activities. The three Refuges also developed a flyer (see Information Packet, Tab 2) which was distributed to all the Fairbanks area newsletters and media people, and was available for people to take at the FPLIC.

Fairbanks Public Lands Information Center (FPLIC)

The FPLIC provides visitors with exhibits, interpretive programs, information, and brochures about various public lands in Alaska, including the Refuge. The Refuge staff continued to ensure that the FPLIC's information was updated/complete and they provided information to the Anchorage Public Lands Information Center as needed.

Other Activities

Edgerton continued to serve as the FWS northern representative to the Alaska Watchable Wildlife Steering Committee. He completed a watchable wildlife survey form for ADF&G, developed a general information sheet about the Refuge for use in the *Alaska Wildlife Viewing Guide* being produced by Falcon Press, and provided advice about development of a tundra graphic for the publication.

During spring and early summer, Edgerton and Kaye reviewed and commented on the Leave No Trace tundra materials being developed by the Anchorage office of the National Outdoor Leadership School.

Perry Grissom from Yukon Flats NWR and Edgerton wrote an article about wildland fire for BLM's new Dalton Highway interpretive newsletter (see Information Packet, Tab 2), completed and distributed to travelers beginning in early summer.

New Dalton Highway exhibits, designed and fabricated as a three-year cooperative project between the Refuge (for the FWS in Fairbanks), BLM, and Wilderness Graphics of Florida, were finally received in February. In mid-summer, the BLM installed the wayside and trailside panels constructed for the Finger Mountain site.



Displays about alpine tundra, the Kanuti River, and the Kanuti NWR dominate the Finger Mountain site.
T. Edgerton

Edgerton drafted the near final text for an informational exhibit being developed for the Dalton Highway Yukon River crossing by staff from Yukon Flats NWR, BLM, and Stevens Village.

On April 29, Edgerton attended the grand opening of the new Visitor Center at the Creamer's Field Migratory Waterfowl Refuge. The event marked the first time the public viewed the myriad indoor and outdoor exhibits that he and Fred Deines of Yukon Flats NWR helped write and design in 1993-1994.

From September 24-30, Jorgenson attended a NATO-sponsored research conference in Finland entitled 'Disturbance and recovery of Arctic terrestrial ecosystems.' She presented the poster "Photo-documentation of 10 years of natural recovery after winter seismic exploration in the Arctic NWR." The workshop was attended by 50 researchers from all of the arctic countries.

Curby created numerous color slides and handouts for staff to use at the 1002 briefing for Region 7 Director Dave Allen in Anchorage on March 9, and the North Slope Wildlife Management Advisory Council meetings in Barrow November 29-30. She also created an interactive question-answer exhibit about Alaska's NWRs and other hands-on activities for NWR Week Discovery Day at the FPLIC (see H.6, p. 44).

7. Other Interpretive Programs

To fulfill Secretary Babbitt's request to DOI offices, the Refuge booth at the Fairbanks Outdoors Recreation and Sports Show from April 21-23 focused on endangered species, using an attractive exhibit created by Region 1. Numerous staff from the Refuge and other Fairbanks FWS offices worked in the booth during the three-day event.

Edgerton gave a slide program about the Refuge river management planning process at an Interagency River Management Workshop held at Cooper Landing, Alaska from April 23-27.

Refuge employees worked with staff from the FPLIC, NPS, and BLM to plan and conduct a one and a half day resource information workshop May 6-7 for hunting guides, recreation guides, and air taxi operators. Kaye gave a slide program and led a discussion about the impacts of aircraft landings on the Refuge, and a detailed information packet about the Refuge was compiled for all the participants.

Curby told stories about Refuge wolves to about 60 cub scouts at their Fairbanks Jamboree on May 7. On May 25, she presented an overview of the three Fairbanks-based Refuges as part of an orientation for volunteers, seasonal employees, and other personnel hired to work along the Dalton Highway and at the Coldfoot and Yukon River Crossing Visitor Centers.

From July 1-2, McIsaac, Pam Sperry from Kenai NWR, and Kathy Marcouiller of NAES painted endangered species images on children's faces at the Salcha Fair.

Refuge staff participated with other FWS employees staffing a booth at the Tanana Valley State Fair from August 4-12. The booth featured a display about Alaska rivers created in the Anchorage Regional Office. Many fairgoers participated in the annual census contest at the booth, this year guessing the number of marine invertebrates in a quart jar. On Kid's Day, several Refuge staff provided free face painting of endangered species. FWS personnel at the booth contacted and provided information to 7,821 fairgoers, 1086 fewer than in 1994. The decrease was due largely to the Fair's dropping of a passport activity that had brought numerous visitors to the booth, and a 10% overall decrease in Fair visitation.

Reynolds participated in the 2nd International Arctic Ungulate Conference at UAF from August 13-17. On the 16th, she presented a paper on muskox dispersal patterns to an audience of 200. On August 17, she organized and participated in a panel discussion about managing introduced, re-established, and expanding muskox populations. Reynolds was a key organizer of the conference, working from January-August on its planning.

Mauer represented the Refuge at the NWR Week open house celebration at the Anchorage Regional Office on October 16.

8. Hunting

Sport hunting continues to be one of the most popular recreation activities on the Refuge. Dall sheep is the premier species that attracts hunters to the Refuge, followed by moose, grizzly bear, and caribou. Wolf and wolverine are taken when encountered by residents and non-residents. The few muskox available for harvest were declared a subsistence-only species and may now be hunted only by rural villagers. All species are hunted under applicable Alaska Sport Hunting or Federal Subsistence Hunting Regulations.

Hunting activity on the Refuge has grown during recent years, although the number of Dall sheep hunters has dropped since 1993. The decline perhaps occurred due to changes in guides and guide areas that caused booking problems and other difficulties, and by the downward trend in sheep numbers shown by surveys.

The number of non-resident hunters, required by state law to have a guide on the Refuge when hunting sheep or brown bear, is now limited by the operations plans submitted by guide-outfitters and incorporated into their special use permits. Multi-species hunts are common with some guides, especially those catering to European hunters. The number of resident hunters is not limited on the Refuge.



Grizzlies on the Refuge are among the smallest in Alaska, averaging 300-400 pounds.

T. Edgerton

Hunting Guide-Outfitters

The Refuge has been divided into 18 exclusive guiding areas since July 1993. Until mid-1995, all the areas were held by guides (nine had one area, three had two areas, and one had three areas, the state's maximum limit). Two additional areas were shared by two adjacent guides. During summer, one guide was asked to relinquish his area for non-use, as stated in Service policy, since he had not hunted the area since it was awarded. The open area was advertised and will be awarded in 1996 to the most highly qualified applicant.

Hunting guide-outfitter special use permit report data for 1995 is summarized in Table 6 (p. 49). The report form for 1996 was revised in November (see Information Packet, Tab 2).

Table 6. Hunting guide-outfitter special use permit report data, 1995.

	SHEEP	GRIZZLY	BLACK BEAR	MOOSE	CARIBOU	WOLF	WOLVERINE	CLIENT DAYS	NO. OF CLIENTS	AVERAGE HUNT PERIOD	NON-HUNTING CLIENTS	
											CLIENT DAYS	NO. OF CLIENTS
Andreis, Art (A&L Outdoor Ent.)	1							33	3	11.0		
Buist, Pete (Clearwater Outdoor Serv.)	4			1				30	5	6.0		
Hendricks, Joe (Fair Chase Hunts)	6					1		69	7	9.9		
Jacques, Jerry (Jacques Adv. Co.)	3				1	1		33	4	8.2	6	1
Jamieson, Sandy (Bushcraft Guide)			1	3	3			40	4	10.0		
Koontz, Keith (Chandalar River)	2	4		10	2	2		140	10	14.0		
Mackler, Len (AK Wilderness Ven.)	11	4		5	8	1		276	30	9.2		
Peterson, John (Bristol Bay Out.)	5	3						84	8	10.5		
Rivers, Larry (A.W. Enterprises)	7	3		1				46	11	4.2	3	1
Schetzle, Harold (Kichatna Guide)	2							20	2	10.0		
Schwab, Max		DID NOT HUNT										
Want, Joe	1			2				50	4	12.5		
Witt, Eugene (Brooks Range Hunts)					1			23	3	7.7		
Witt, Patton								8	1	8.0		
TOTALS	42	14	1	22	15	5	0	852	92	9.3	9	2

9. Fishing

Sport fishing for grayling, Arctic char, lake trout, and northern pike occurs on the Refuge incidental to other recreational activities, particularly river floating. Fishing is not a primary activity because of the Refuge's remoteness and the fact that better fishing is found many other places in Alaska. This year one permit was issued for sportfish guiding, but it was not used.

Subsistence fishing for both saltwater and freshwater species is important to local residents. Whitefish, grayling, and Arctic char are the primary subsistence species sought on the Refuge. Kaktovik residents fish in the coastal lagoons during summer and in spring at several traditional fishing holes, mainly on the Hulahula River. Residents of Arctic Village net whitefish and grayling in the Chandalar River during summer and pursue lake trout at Old John Lake in winter.

10. Trapping

Trapping is allowed Refuge-wide without a permit. Due to limited furbearer habitat, however, less than one third of the Refuge is actively trapped. Trapping effort declined this year, along with declining fur prices. Marten sold for \$30 at the end of the season, half what they were worth 10 years ago. Lynx fell to \$50, a quarter of their 1985 value.



The "cross" fox is one of several color phases of red fox found on the Refuge.

F. Mauer

Mink now average \$15; fox less than \$20. At the same time, the price of aircraft charters, snowmobile fuel, and other gear continued to rise, placing a squeeze on those whose primary income is trapping. Consequently, the Refuge had only one year-around bush based trapping family this year, and two who were out for part of the season.

11. Wildlife Observation

Nothing to Report

12. Other Wildlife Oriented Recreation

Visitors from around the Nation and the world continue to seek the superlative river floating, backpacking, camping, wildlife viewing, photography, and related activities for which the Refuge is renown. Access is primarily by aircraft, but the opening of the Dalton Highway in late 1994 provided increased access for backpackers and hunters into the west side of the Refuge.



This view along the Canning River explains why Refuge rivers are popular with floaters.

J. Jorgenson

Recreational guide special use permit report data is summarized in Table 7 (pp. 52-54). Commercial recreation use days (primarily floating and backpacking) from 1986-1995 is shown in Table 8 (p. 55). Private recreational use reported in charter aircraft and transporter special use permit reports is shown in Table 9 (p. 56).

Table 7. Recreation guide special use permit data, 1995. Page 1 of 3.

PERMITTEE	PERMIT NUMBER	USE*	PUT IN**	TAKE-OUT**	TRIP#	JUN	JUL	AUG	SEP	TRIP DAYS	PARTY SIZE	USE DAYS	TOTAL PERSONS	TOTAL USE DAYS
Adams, Macgill (Wilderness Alaska)	95-R1	H	JOE CRK	DRAIN CRK	1	17-26				10	6	60		
		F	DRAIN CRK	CARIBOU PASS	2	26	5			11	12	132		
		F	CARIBOU PASS	DAR POINT	3		5-10			6	8	48		
		H	U AICHILIK R	JAGO IS	4			3-17		15	4	60		
		F	JAGO IS	KAKTOVIK	5			17-22		6	4	24	34	324
Clarence Crawford (Sunlight N Expeditions)	95-R8	H	M JAGO R	M JAGO R	1	13-23				11	3	33		
		H	U AICHILIK R	U AICHILIK R	2		1-11			11	3	33		
		H	M AICHILIK R	M AICHILIK R	3		11-20			10	4	40	10	106
Robert Parker (North Star)	95-R2	F	DRAIN CRK	CARIBOU PASS	1	18-27				10	3	30		
		F	DRAIN CRK	CARIBOU PASS	2		4-13			10	10	100	13	130
Dittrick, Bob (Wilderness Birding Adventures)	95-R5	F	DRAIN CRK	CARIBOU PASS	1	9-18				10	4	40		
		F	GRASSERS LS	L HULAHULA R	2	14-24				11	10	110		
		F	MF CANNING R	L CANNING R	3		10-20			11	9	99		
		F	DRAIN CRK	CARIBOU PASS	4		16-25			10	8	80	31	329
Jamieson, Sandy (Bushcraft)	95-R15	AC	ESKIMO LK	ESKIMO LK	1			10-12		3	2	6	2	6
Koontz, Keith (Chandalar R Outfitters)	95-R16	HC	CHANDALAR SHELF	MF CHANDALAR R	1			7-9		3	4	12		
		HC	MF CHANDALAR R	MF CHANDALAR R	2			9	19	41	1	41	5	53
Finnoff, Ramona (ABEC's Alaska Adventures)	95-R4	H	DRAIN CRK	DRAIN CRK	1	5-16				12	2	24		
		F	DRAIN CRK	CARIBOU PASS	2	16-27				12	8	96		
		H	U CHANDALAR R	GRASSERS LS	3	19-27				9	6	54		
		F	U SHEENJEK R	CRESCENT MOON LK	4	27	2			6	4	24		
		F	GRASSERS LS	L HULAHULA R	5	27	7			11	12	132		
		H	MF CANNING R	U CANNING R	6		23-30			8	3	24		
		F	U CANNING R	CANNING R DELTA	7		30	8		10	7	70	42	424

Table 7. Recreation guide special use permit data, 1995. Page 2 of 3.

PERMITTEE	PERMIT NUMBER	USE*	PUT IN**	TAKE OUT**	TRIP#	JUN	JUL	AUG	SEP	TRIP DAYS	PARTY SIZE	USE DAYS	TOTAL PERSONS	TOTAL USE DAYS
Kasza, Carol (Arctic Treks)	95-R4	F	E PATUK CRK	L HULAHULA R	1	15-23				9	8	72		
		F	GRASSERS LS	L HULAHULA R	2	26	6			11	7	77		
		F	WHALE MT	TURNER R	3		17-28			12	6	72	21	221
Weller, Steven T. (Alaska Wilderness Journeys)	95-R11	F	DOUBLE MT	OLD WOMAN CRK	1			16-24		9	7	63	7	63
Benson, Hulda (Sourdough Outfitters)	95-R12		NO TRIPS											
Hardy, Charles (Sierra Club)	95-R14	H	CAMDEN BAY	SUNSET PASS	1	13-24				12	8	96		
		H	M AICHILIK R	M AICHILIK R	2	13-23				11	9	99		
		H	U AICHILIK R	L AICHILIK R	3	23	1			9	3	27		
		H	SADLERECHIT R	L CANNING R	4		23	5		14	5	70	25	292
Sisk, John (Alaska Discovery)	95-R3	F	DRAIN CRK	CARIBOU PASS	1	17-26				10	11	110		
		F	DRAIN CRK	CARIBOU PASS	2	26	5			11	7	77		
		F	DOUBLE MT	OLD WOMAN CRK	3			10-19		10	12	120		
		F	DOUBLE MT	OLD WOMAN CRK	4			19-28		10	12	120	42	427
Churck Ash (Hugh Glass Backpacking)	95-R13	H	CARIBOU PASS	CARIBOU PASS	1	18-27				10	6	60	6	60
Allred, Paul (Ouzel Expeditions)	95-R7		NO TRIPS											

Table 7. Recreation guide special use permit data, 1995. Page 3 of 3.

PERMITTEE	PERMIT NUMBER	USE*	PUT IN**	TAKE-OUT**	TRIP#	JUN	JUL	AUG	SEP	TRIP DAYS	PARTY SIZE	USE DAYS	TOTAL PERSONS	TOTAL USE DAYS
Ron Yarnell	95-R9	H	WF SHEENJEK R	GRASSERS LS	1	5-12				8	3	24		
(Wilderness Alaska/Mexico)		F	GRASSERS LS	AREY IS	2	12-22				11	12	132		
		H	RED SHEEP CRK	MF CANNING R	3	23	3			11	3	33		
		F	MF CANNING R	L CANNING R	4		3-12			10	4	40	22	229
Ford, Don	95-R6	H	EF CHANDALAR R	U SHEENJEK R	1		18-29			12	14	168		
(Nat. Outdoor Leadership School)		F	U SHEENJEK R	FT YUKON	2		30	14		16	14	224		
		H	M JAGO R	DOUBLE MT	3		24	6		14	9	126	37	518
TOTALS AND AVERAGES					40								297	3182

* Use Types:

H - Hiking/Backpacking
F - Floating
AC - Aircraft Camping
HC - Horseback Camping

**Abbreviations used:

CRK - Creek
E - East
EF - East Fork
IS - Island
L - Lower
LK - Lake
LS - Landing Strip
MF - Marsh Fork or Middle Fork

M - Middle
MT - Mountain
R - River
U - Upper
WF - West Fork

Table 8. Commercial recreation use days 1986-1995.

(F=floaters; H=hikers; HC=horseback camping; AC=aircraft camping)

Area	Users	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Kongakut River	F	330	425	786	1684	731	1014	955	1021	854	785
	H	189	81	28	10	184	74	129	92	52	50
Hulahula River	F	6	167	410	1032	671	736	545	535	461	523
	H	44	36	126	220	112	60	42	44	58	30
Sheenjek River	F	241	607	461	424	274	580	586	250	364	551
	H	4		10		211	40	123	60	142	103
Canning River	F			190	494	308	486	680	158	525	209
	H	16		123	90	12			36	62	48
Aichilik River	F					94	36	40		90	
	H	8	153	52	120	81	104	86	232	78	105
Jago River	F						238	187	219		24
	H	38		24	163	160	42	192	48	114	109
Wind River	F			106							
	H					7		12			
Chandalar River	F	18				6				25	
	H								30	80	100
	HC									314	53
Coleen River	F	74	36	70	140						
Junjik River	F					24	35		91		
	H	8							10	12	
Ivishak River	F							50			
	H							8	47	26	
Turner River	F					28					
	H						12	15	47		
Katakturuk River	H			24		60					
Okpilak River	H								70		
Sadlerochit/Shublik Mts.	H		134		53	196	521	228	60	133	85
Other Areas/Brooks Range	H				167	608	768	834	616	711	391
	AC									50	6
Schrader/Peters Lake	H	204		182	278	390	317	130	72		10
Subtotals	F	669	1235	2023	3774	2136	3125	3043	2274	2319	2092
	H	511	404	569	1101	2021	1938	1799	1464	1468	1031
	HC									314	53
	AC									50	6
Totals		1180	1639	2592	4875	4157	5063	4842	3738	4151	3182

Table 9. Private recreation reported in charter aircraft and transporter special use permit reports, 1995.

Company	Use Type				Animals transported for private hunters				
	Hunters	Floater	Hikers	Other Rec.	Sheep	Caribou	Moose	Wolf	Grizzly
<u>Air Taxi</u>									
Bursiel, Bob (Wright Air)	11			12	3	7	3		
Neel, Dave (Arctic Wild. Lodge)		1		3	-				
Audi, Walt (Alaska Flyers)	5	3	4						
Stirling, Eric (Pyxis Ltd.)	16	8		11	2	4	1		1
Smith, Ray (Umiat Enterprises)	13				3				
Ross, Don (Yukon Air)	35	40	41	3	1	12	2		1
Ruff, Steve (Sourdough/Brooks Range Aviation)	9				4				
Warbelow, Charles (40-Mile Air)	63	2		1	22	14	1	1	1
Warbelow, Art (Warbelow's Air)	14		1		5	4			
TOTALS	166	54	46	30	40	41	7	1	3

13. **Camping**

Nothing to Report

14. **Picnicking**

Nothing to Report

15. **Off-Road Vehicling**

Several Kaktovik residents hold Refuge special use permits authorizing all-terrain vehicle use to access their Native allotments.

16. **Other Non-Wildlife Oriented Recreation**

Nothing to Report

17. **Law Enforcement**

The Refuge has four officers; Sowards, Kaye, Heffernan, and Garrett. In January they all attended law enforcement refresher training in Tucson, Arizona. Sowards assisted Special Agent Roberts with the spring waterfowl meetings in Barrow, Wainwright, and Atqasuk.



A successful hunt often is no match for the crystal blue skies, brilliant colors, and magnificent scenery of the fall hunting season.

The Refuge planned a major law enforcement effort for the fall hunting season, but poor weather hampered the effort. Heffernan did enlist National Weather Service field researchers working on the Refuge during the hunting season to help gather information on the activities of guides and hunters. He also monitored Refuge hunting activity from the Dalton Highway during the first two weeks of sheep season, accompanied by Region 7's Law Enforcement Coordinator Bob Bartels during the second week. They noticed a considerable increase in hunting in this area compared to years past. Information they gathered led to a citation issued by an Alaska Fish and Wildlife Protection officer for possession of an illegal sheep and the operation of an off-road vehicle on the Refuge.

Alaska Fish and Wildlife Protection officers began investigating a possible wanton waste violation of big game meat at Canyon village. According to the officers, a large amount of moose and caribou meat had been left at the village site and was beginning to rot. A report likely will be made available in 1996.

18. Cooperating Associations

The FWS supports an Alaska National History Association sales branch that includes the main store at the Coldfoot Interagency Visitor Center and a smaller outlet at the Yukon River Crossing. The branch, administered by the BLM, brought in \$7,581 during 1995, an increase of \$2,282 from 1994. Sales items included a variety of wildlife posters, books, post cards, note cards, natural history slides, videos, and topographic maps.

19. Concessions

Nothing to Report

I. EQUIPMENT AND FACILITIES

1. New Construction

A 2500 gallon aviation fuel tank was hooked up in September on the Refuge's leased lot at the Fort Yukon airport. This new double-walled tank, installed according to federal and state regulations, provides a reliable source of fuel for Refuge work in the Fort Yukon area.

2. Rehabilitation

Nothing to Report

3. Major Maintenance

Nothing to Report

4. Equipment Utilization and Replacement

A Cessna 185 assigned to NBS and flown by Refuge pilots was returned to the Office of Aircraft Services, due to a reduction in funding for NBS. The aircraft was used both for research and Refuge projects. The Refuge replaced the 185 with a Cessna 206 from the Kodiak NWR. The plane was ready for service in June after the floats were removed and landing gear was installed. It will allow for the hauling of more passengers and heavier cargo loads to and from runways suitable for a 206.

Flight times for aircraft used on the Refuge are as follows:

Cessna 206	115.8 hrs.
Cessna 185	598.3 hrs.
Super Cub	45.0 hrs.
<u>Husky</u>	<u>56.0 hrs.</u>
Total	815.1 hrs.

5. Communication Systems

The two radio repeaters on the north side of the Refuge continued to work well, providing communications over most of the coastal plain. Efforts continued to make two south side repeaters operational. When they are, radio coverage will be adequate on the entire Refuge.

6. Computer Systems

The Refuge purchased three Gateway 2000 Pentium computers (two P5-90's and one P5-120), as well as one IBM Thinkpad notebook computer with interchangeable CD-ROM. The 286 and most of the remaining 386 computers, as well as two 8088 notebooks will be excessed in 1996.

To improve the Refuge's ability to produce high quality color information sheets, the Refuge acquired a 600dpi Tektronix Phaser 540 color laser printer. This report and the one-page briefing materials in the Information Packet (see Tab 2) were produced with this printer.

Of great disappointment to Refuge staff was the fact that the computer network purchased in 1994 was not installed. The project was delayed to work out, with the General Services Administration, design and construction for the moving of several FWS and other offices in the Fairbanks Federal Building.

7. Energy Conservation

The Barter Island Field Station was winterized and shut down due to reduced winter activity on the Refuge's north side. The heat was turned off, except for the garage where equipment and supplies were stored. This resulted in substantial cost savings in fuel oil.

8. Other

In August, Heffernan led the effort to move Refuge field gear from the warehouse to the new storage space in the Fairbanks Federal Building. In late fall, Edgerton and other staff began organizing and consolidating supplies and equipment in the main office and storage areas. This included tossing outdated administrative files, cleaning storage cabinets and lockers, and gathering old and outdated items to excess in 1996.

A summer project to clean up the large amount of trash remaining at several former mining claims associated with the Big Ram Lake mill-site, disallowed by BLM in 1993, was cancelled early in the planning process due to other staff priorities. The cleanup will occur in 1996 if staff and funding allow.

J. OTHER ITEMS

1. Cooperative Programs

North Slope Borough - Refuge staff attended meetings and communicated regularly by phone regarding Refuge issues with various officials, leaders, and other personnel.

Research - Refuge and NBS personnel shared administrative resources and cooperated closely on a wide range of studies and projects.

University of Alaska and other Projects - Special use permits were issued for glacier and geological studies and rocket research projects on the Refuge.

Public use - Numerous presentations and activities were conducted with teachers at village and Fairbanks area schools. Refuge personnel also worked with other agency and FWS offices to conduct activities such as the Tanana Valley State Fair, Fairbanks Outdoor Days, and Earth Quest.

Fairbanks Facilities - FWS offices continued to share library, warehouse, and other areas in and near the Fairbanks Federal Building.

Barter Island Facilities - The Refuge provided for use of the Barter Island Field Station as needed by personnel from other offices.

Coldfoot Interagency Visitor Center - Joint operation of this facility with the NPS and BLM continued under a Cooperative Agreement signed in 1991.

Fairbanks Public Lands Information Center - The Refuge coordinated with the FPLIC on a variety of activities, including the dissemination of wildlife and wildlands information, a guide workshop, and NWR Week.

Other - Cooperative efforts with other federal and state offices included wildlife research and inventories, law enforcement, environmental compliance, and permitting. Refuge personnel shared important information as needed or by request with American and Canadian natural resource agencies, biologists working on arctic issues and species, local residents, the media, and a variety of public and private organizations.

2. Other Economic Uses

Guided recreation is the main economic use on the Refuge. Guided hunting probably grosses the most money, followed by guided floating and backpacking. Sixteen commercial recreation, 14 hunting guide, and nine air charter permits were issued during 1995. Other, non-wildlife/wildlands uses continued at a low level. Only one surface geology permit was issued; none were issued for temporary navigation towers. Three permits were issued for coastal plain tours by the oil industry, although few tours occurred.

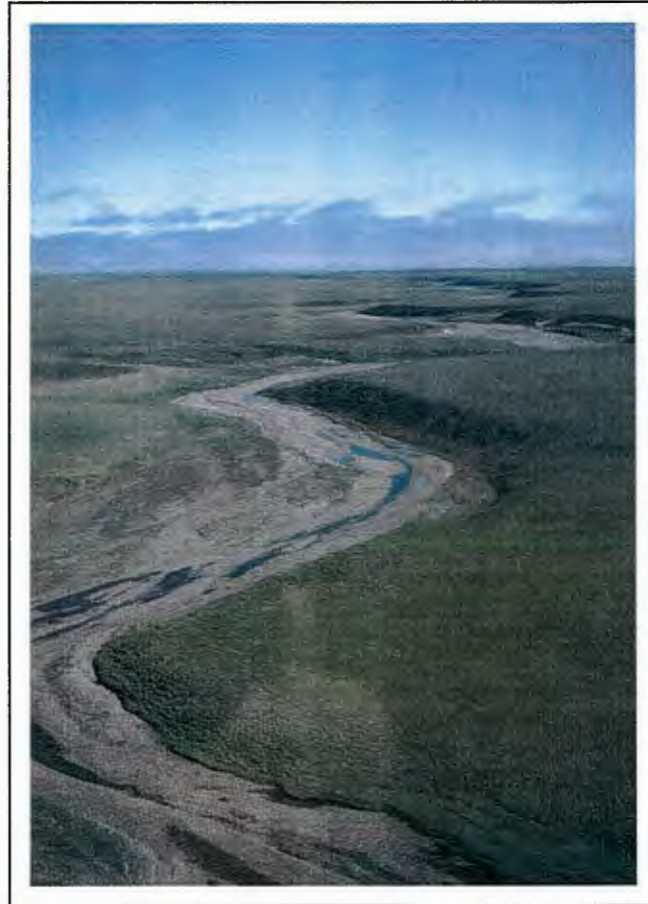
3. Items of Interest

Potential Oil Development

A tremendous push to open the 1002 area to oil and gas leasing and development occurred in 1995, led by the Alaska Congressional delegation. The fall 1994 national elections that brought a Republican majority into Congress gave Senator Frank Murkowski chairmanship of the Senate Energy and Natural Resources Committee and Congressman Don Young chairmanship of the House Resources Committee. Control by Alaskans of these two powerful committees, coupled with the influence of senior Alaska Senator Ted Stevens, created the ideal climate to push for development of the Refuge. The Alaska delegation was assisted in their effort by Alaska Governor Tony Knowles, the Alaska State Legislature, labor unions, and Arctic Power, a state-supported pro-development group based in Anchorage. The delegation was able to get a provision to develop the Refuge included in the budget-balancing Reconciliation Bill, which was passed by Congress in November. This had the effect of eliminating broad discussion and approval of the leasing proposal on its own merits. Many believe the proposal would not have survived otherwise.

During the year the Alaska delegation began to call the Refuge coastal plain, previously known as the 1002 area, the "Arctic Oil Reserve." This and numerous other factors caused discussion of the issue to be quite contentious at times. For example, on ABC's "Nightline" national television broadcast of November 20th, in a debate with Secretary Babbitt, who explained President Clinton's opposition to development, Senator Stevens at one point referred to Babbitt as a liar. Another time, the Senator tried to deny that the 1002 area was ever, or even meant to be, a part of the Refuge. In October, the Alaska

Federation of Natives, after much heated discussion, passed a resolution by a 2-1 vote to support leasing. From May to the end of the year, in newspapers and on radio and television programs across the country, people wrote about, reported on, and debated this important and emotional charged issue.



A river, born in the mountains of the Brooks Range, snakes its way across the controversial 1002 area. J. and K. Hollingsworth

In early fall the Refuge learned that the White House was considering placing the 1002 area in a protective “monument” status. The President later abandoned that route in favor of outright opposition to Congress on the development question. He stated that he would veto any budget bill containing a provision to lease the Refuge coastal plain. At year’s end, he had held to that promise.

In December, the Arctic Slope Regional Corporation, Cook Inlet Region, Inc., and Kaktovik Inupiat Corporation filed suit, naming Secretary Babbitt and Secretary Ada Deer as defendants, over a DOI document reaffirming the administration’s opposition to drilling on the Refuge (see H.1, p. 39). The document, which was drafted by Refuge and NBS personnel, analyzed the 1987 “1002 Report” to determine whether its conclusions

were still valid, using research data obtained since that time. The suit contends that ANILCA guarantees Native corporations input on decisions about the Refuge, including the development of such a report, before they are finalized. Such input was not obtained for the report. Courts will decide the issue.

Other



"There are strange things done in the midnight sun to the men who moil for moose." (Adapted from *The Cremation of Sam McGee* by Robert Service). F. Mauer

This weatherport, flown to Lake Last in the Sheenjek River valley in early September, 1994, was to be a base camp for moose capture work conducted in mid-October. When delays occurred in receiving the immobilizing drugs, the project was rescheduled for late March, 1995 (see D.5, p. 14). The weatherport had been erected in the vicinity of a perennial spring, but it appeared to be outside the area where ice formed during winter and therefore would be o.k. to use in the spring. Wrong! In February, it was discovered that, barring a very rapid case of global warming, the weatherport would not be available in March (see photo on p. 64). So the moose capture operation had to be based at the Canadian village of Old Crow. The ice field finally melted in late July and a local pilot landed there. When he opened the door of the weatherport, he was greeted by a solid block of ice that completely filled the enclosure. He removed the weatherport shell, but it took another month for the ice to melt so the floor materials could be flown back to Fairbanks.



“He saw in a thrice it was jammed in the ice and he wondered where they would stay.” (Adapted from the *Cremation of Sam McGee* by Robert Service). F. Mauer

4. Credits

Introduction	Phil Garrett
Table of Contents, Lists of Tables and Figures	Tom Edgerton
A. Highlights	Phil Garrett and Tom Edgerton
B. Climatic Conditions	Phil Garrett
C. Land Acquisition	Harvey Heffernan
D. Planning	
1-3	Tom Edgerton
4,6	Roger Kaye
5	Individual Researchers/Compiled by Janet Jorgenson
E. Administration	
1,5, 8	Eleanore Patterson
2,3	Donna Christensen
4	Tom Edgerton
6	Dave Sowards and Tom Edgerton
7	Roger Kaye

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9,10	Harvey Heffernan
11	Tom Edgerton
12,13	Roger Kaye
G. Wildlife	
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9-11,14-17	Pat Reynolds
H. Public Use	
1,6,7	Cathy Curby and Tom Edgerton
2-5,18,19	Cathy Curby
8,9	Harvey Heffernan
10-16	Roger Kaye
17	Dave Sowards
I. Equipment and Facilities	
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6	Cathy Curby
8	Tom Edgerton and Harvey Heffernan
J. Other Items	
1,2	Harvey Heffernan
3	Phil Garrett and Fran Mauer
4	Tom Edgerton
K. Feedback	Jim Kurth
Appendix and Information Packet	Tom Edgerton

Typing: Individual section contributors

Tables 1-5 and Figures 1-2: Individual section contributors

Tables 6 and 9: Harvey Heffernan

Tables 7-8: Tom Edgerton

Computer formatting and insertion of photographs: Cathy Curby

Photo captions: Tom Edgerton and Fran Mauer

Compiling, formatting, photo layout, and editing: Tom Edgerton

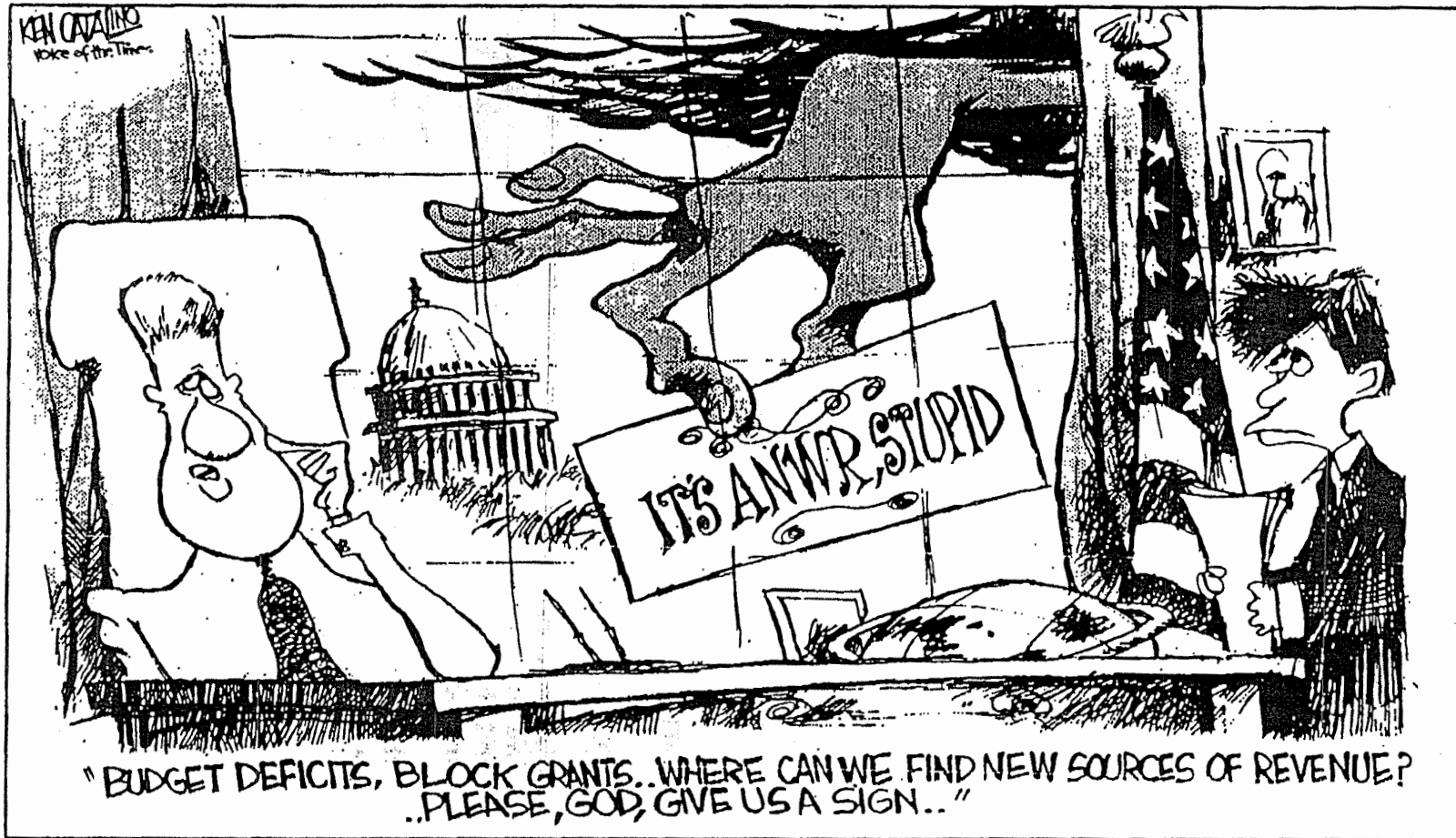
K. FEEDBACK



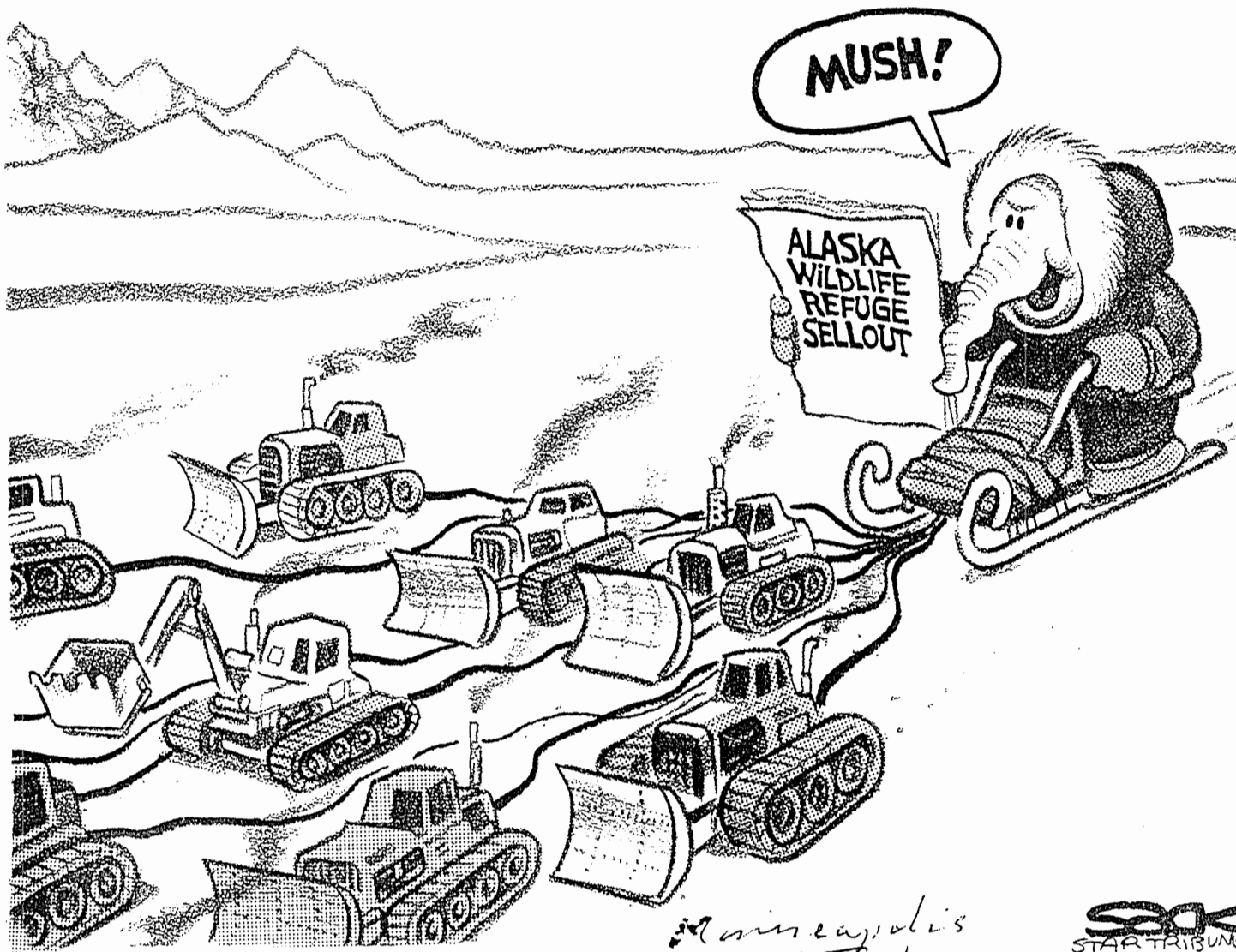
The perfect way to end a day - and a report!

M. Emers

Voice of The Times

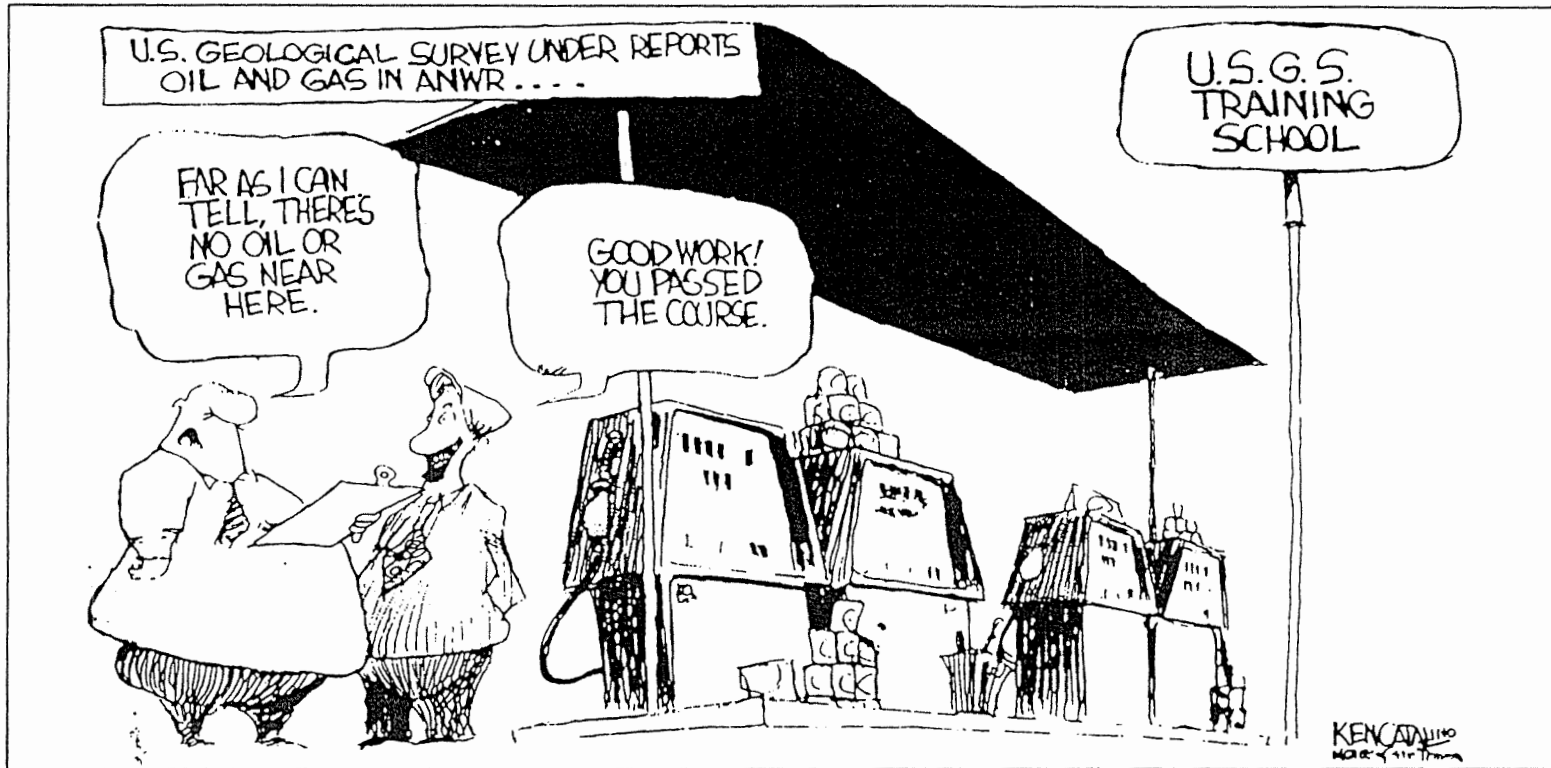


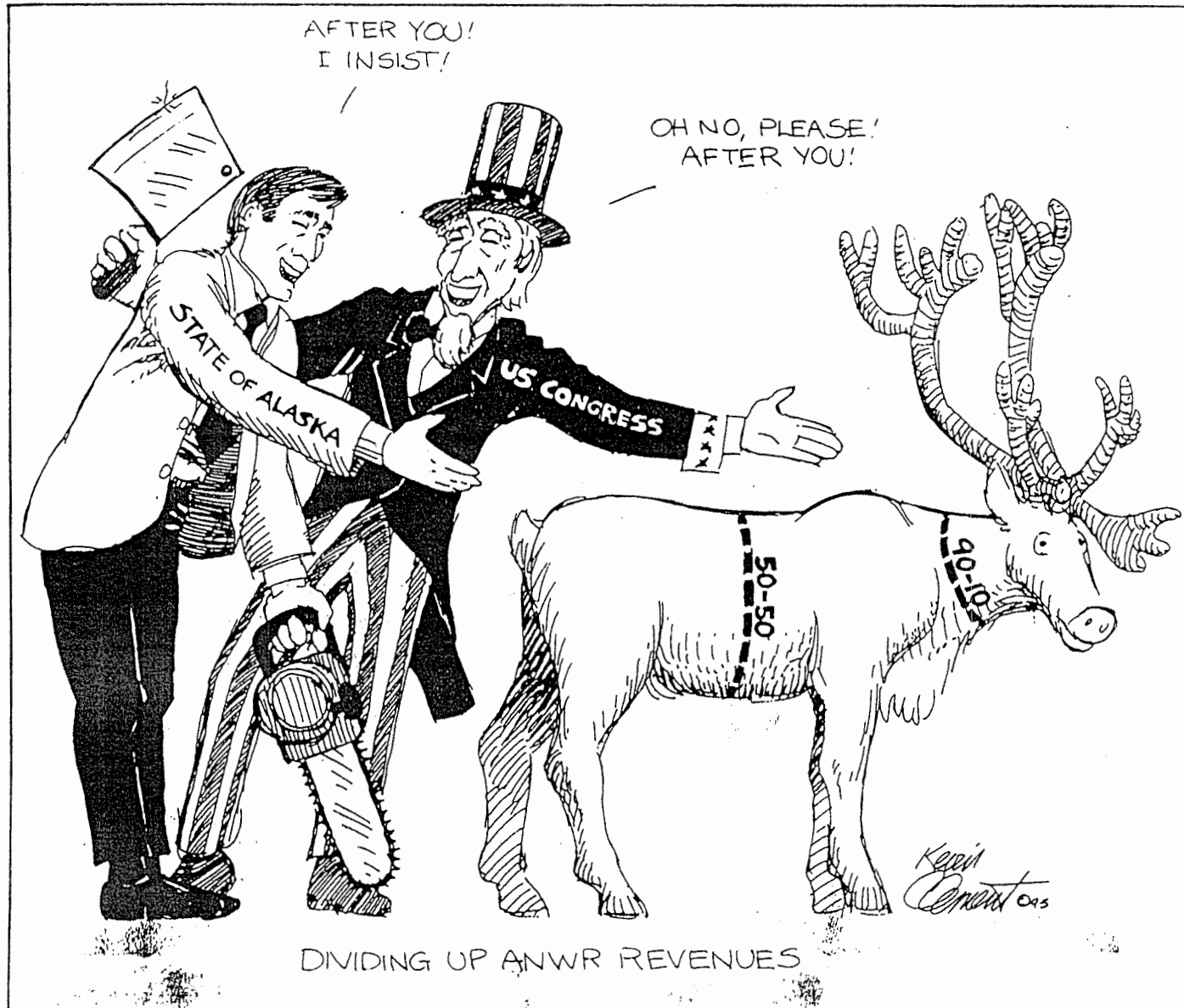




Minneapolis
Star Tribune Oct. 1, 1993

STK
STAR TRIBUNE





DIVIDING UP ANWR REVENUES

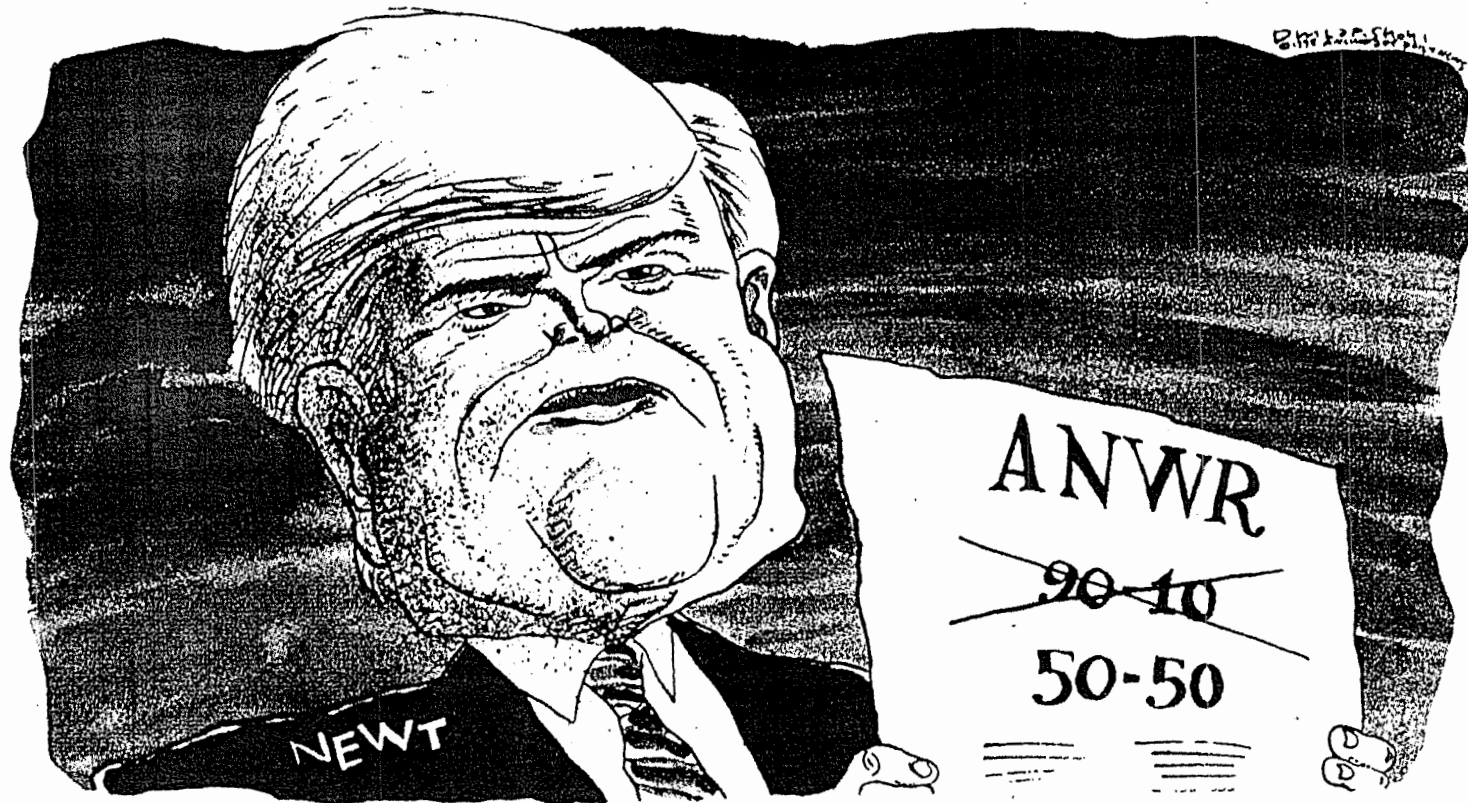


WHAT CONCERNED LOWER 48 BIOLOGISTS THINK OF WHEN THEY HEAR
ABOUT THE GREAT ALASKAN "PORCUPINE" HERD.

Voice of The Times



OPINION



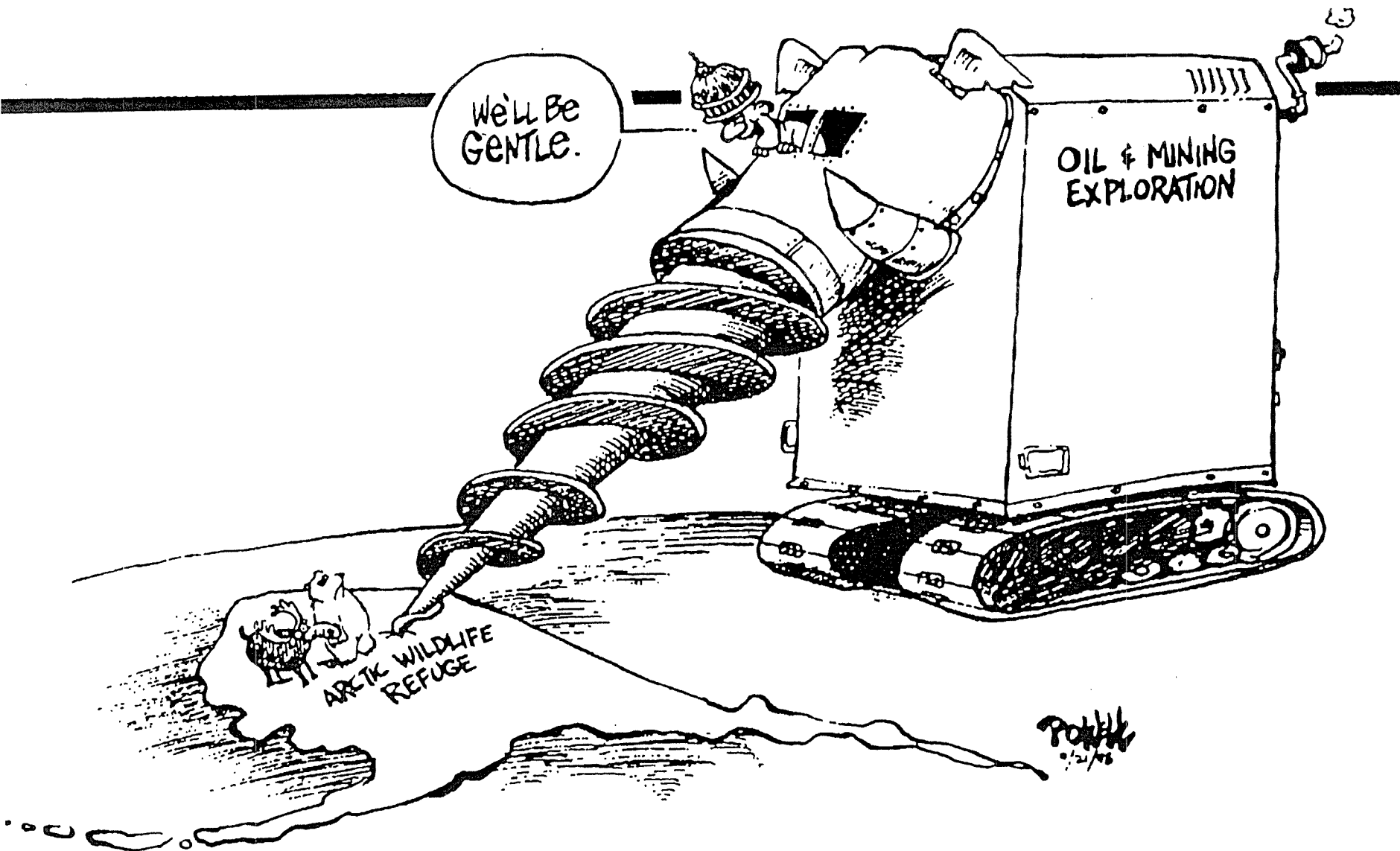
THE CONTRACT WITH ALASKA.

We'll Be
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OIL & MINING
EXPLORATION

ARCTIC WILDLIFE
REFUGE

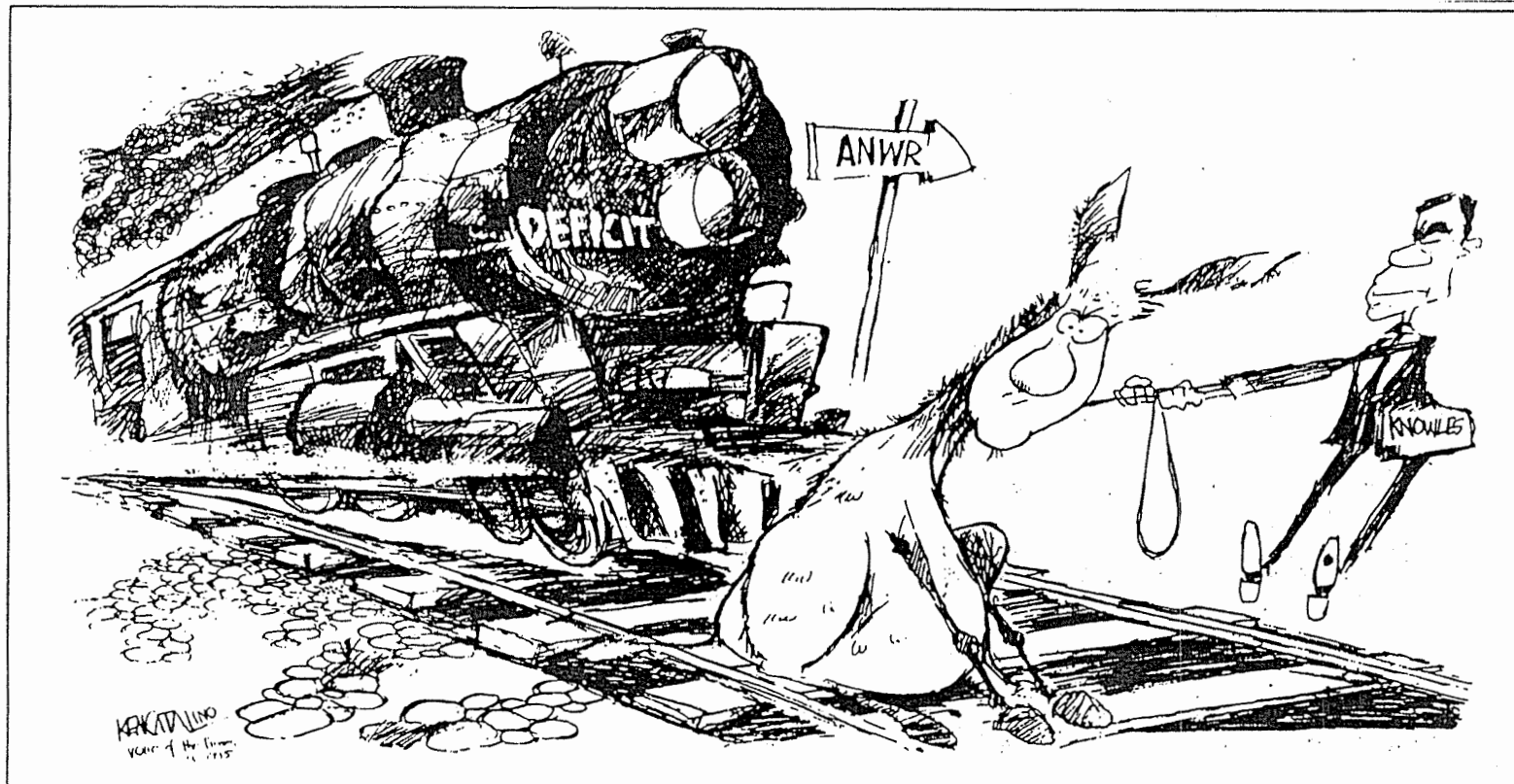
Potter
9/21/78



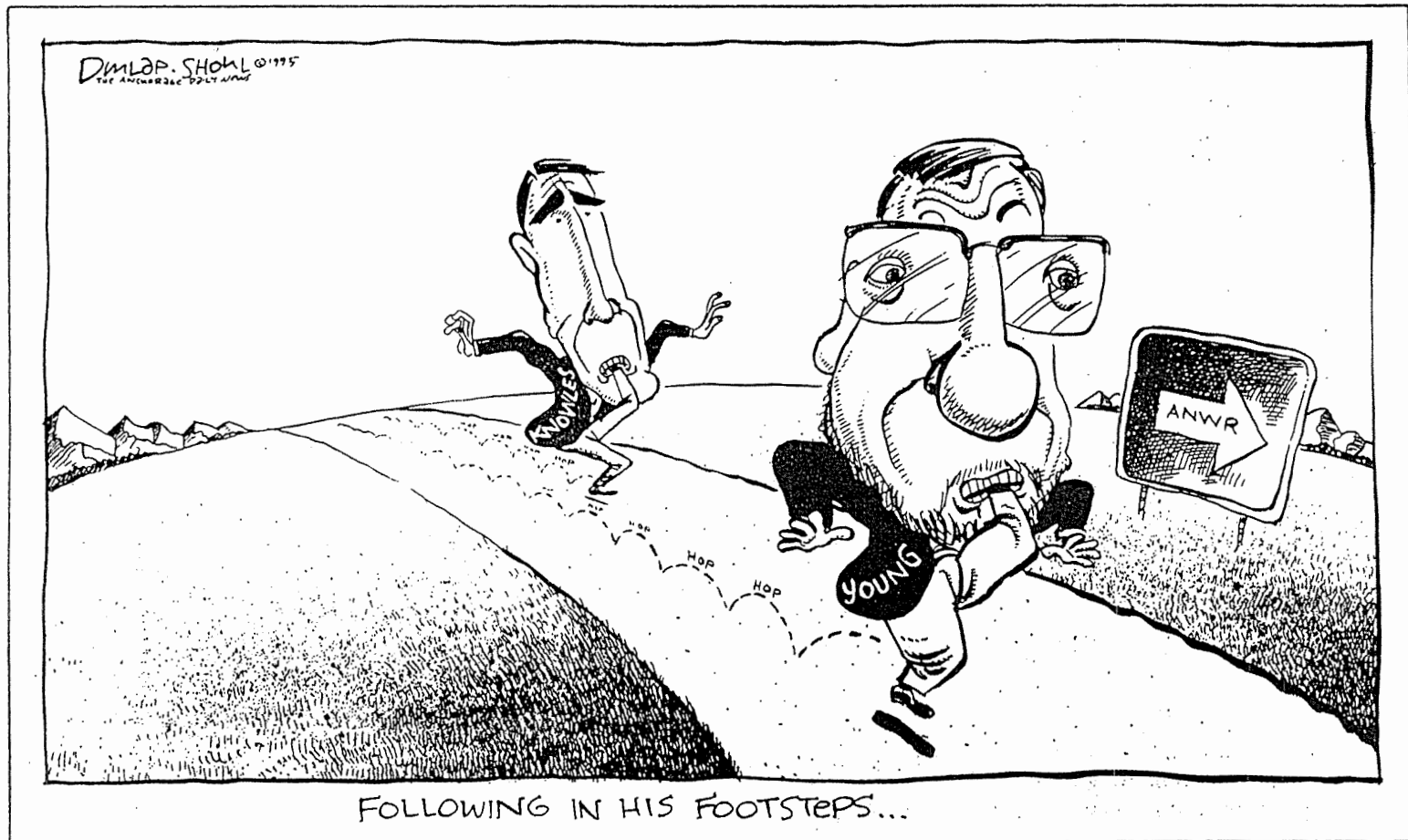


"How big a zbo do we need to keep the liberals happy?"

Anchorage Daily News Wednesday, November 8, 1995



OPINION

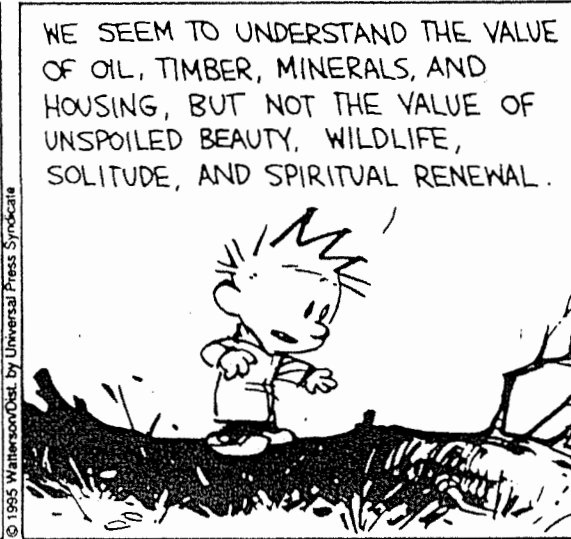
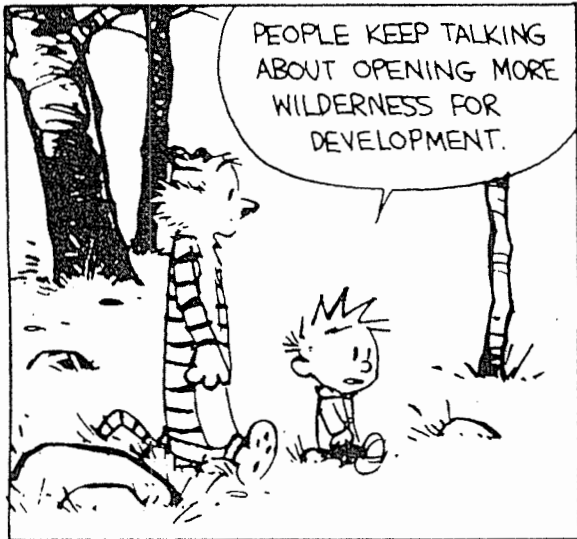


OPINION



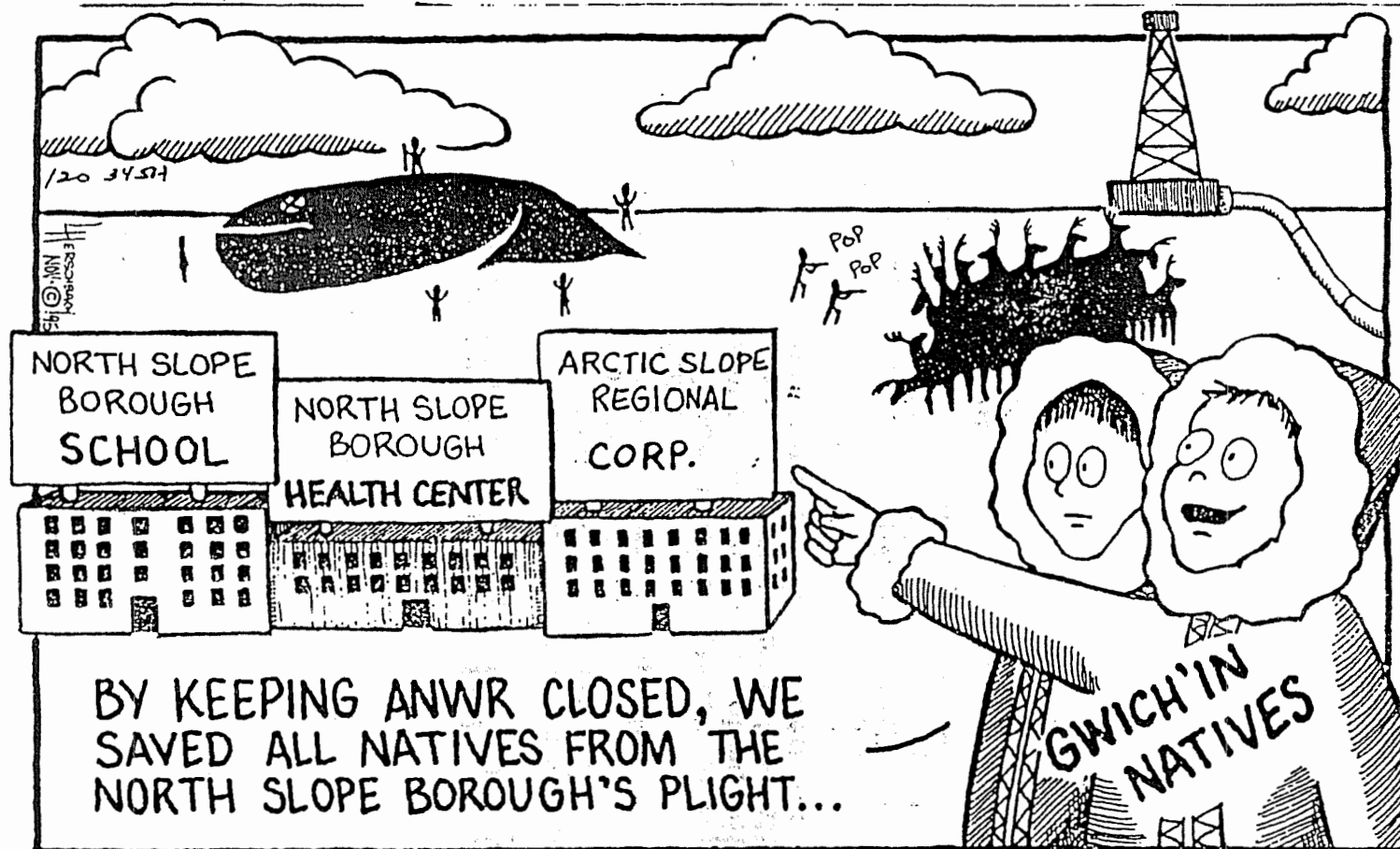
ALASKA CALLS THE SIGNALS ON ANWR.

CALVIN and HOBBS



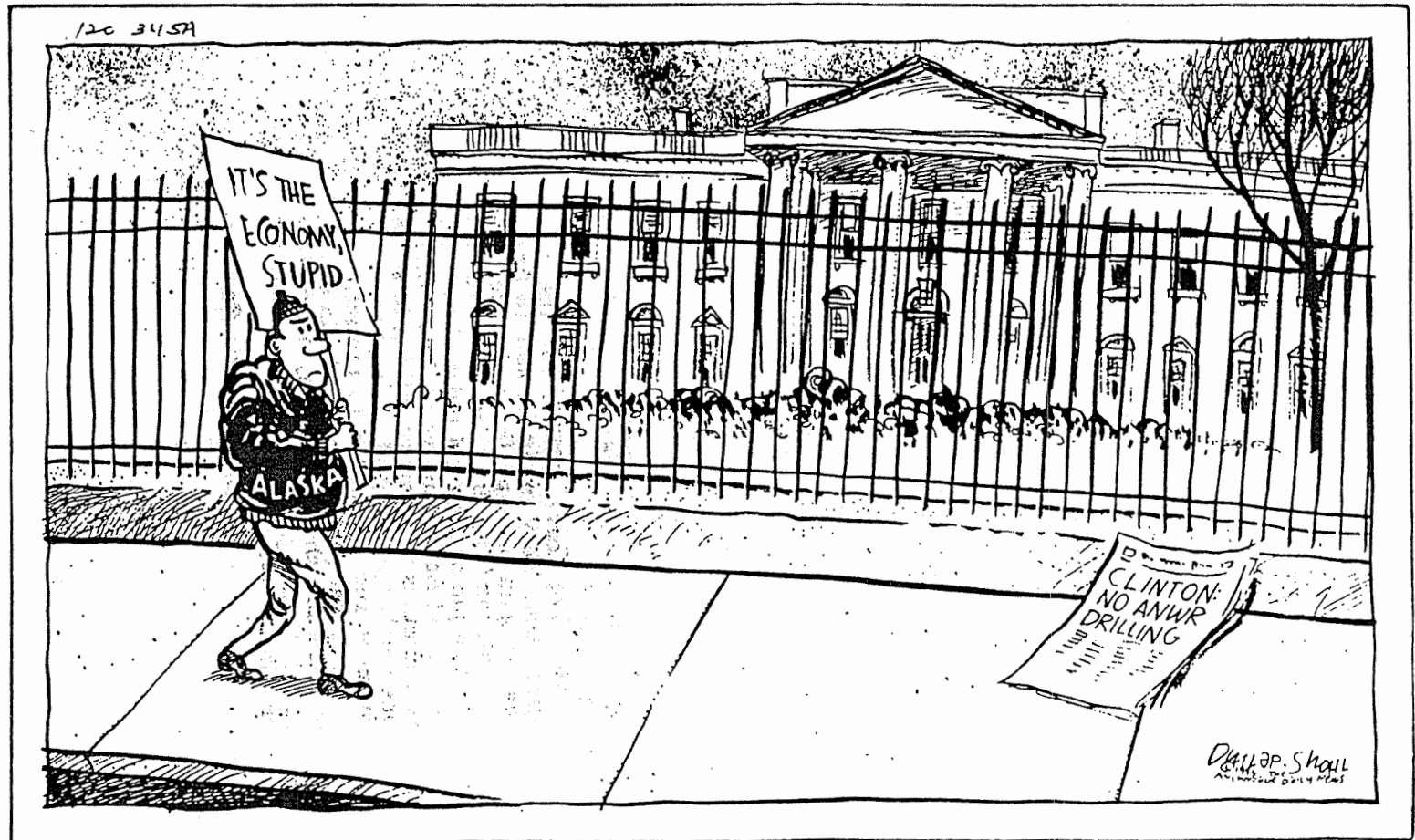
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OF COMMERCE



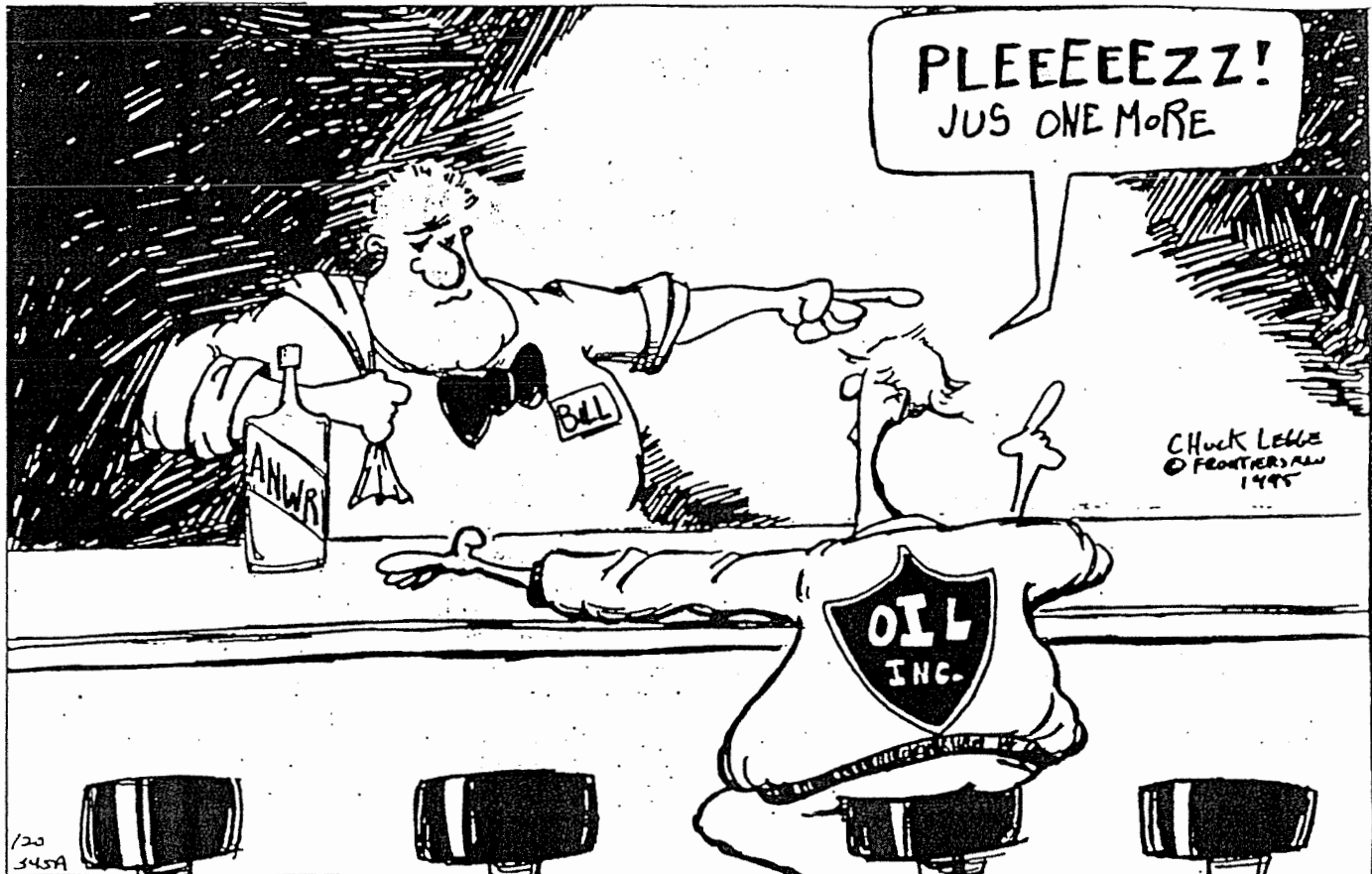
Date DEC 10 1995

Anchorage Daily News



Date DEC 18 1995

Frontiersman



Date DEC 21 1995

Homer News



Science projects get high marks at state competition

Students affiliated with Eielson, projects in tow, made a scientific pilgrimage to Anchorage for the Alaska State Science and Engineering Fair last month.

After competing in the district competition, five area students traveled to the state fair and their projects impressed judges.

Receiving a first-place ribbon for his rockets project was Anderson Elementary School first-grader Joseph Tomczak.

Kendra Howe, also an Anderson first-grader, fared equally well with her first-place "How Hamsters Form Habits" project.

Eielson resident Zachary Murray, a third-grader at Badger Road Elementary in North Pole, received a first-place ribbon for his project on introducing plastic recycling in Fairbanks. His plea was supported by donated items, such as a jacket and high-grade carpet composed entirely of recycled plastics. His brother, Kyle Murray, a Badger Road kindergartener, took home a second-place ribbon for his interesting rainbows project.

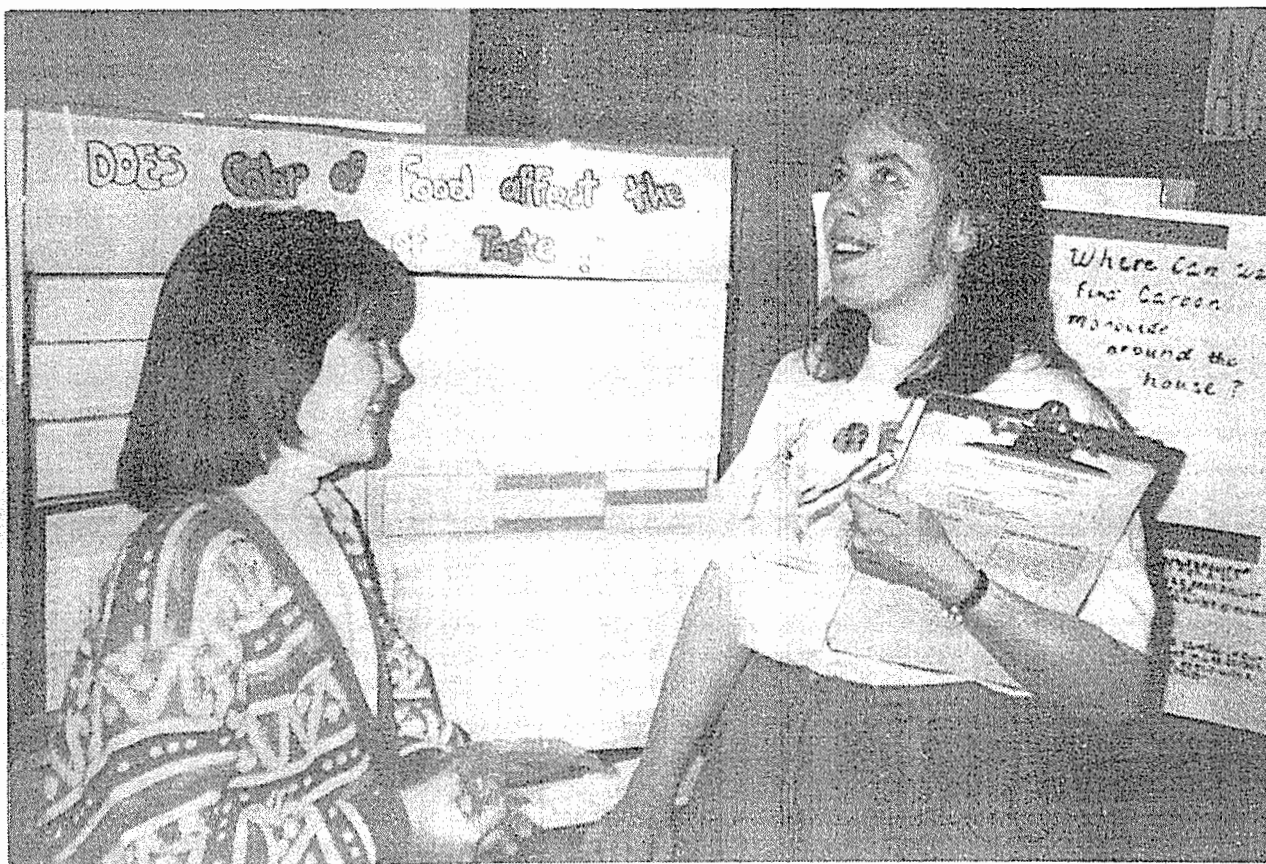
Taylor Elementary School sixth grader Amy Lindsay's unique project "Does the Color of Food Affect the Perception of Taste?" involved candy taste tests and blindfolds. Her efforts earned her a first-place ribbon.

Congratulations to the above winners and all the science fair participants. A special thanks from Taylor Elementary School to the "Food Factory" restaurant and Eielson AFB "Burger King"



(Left) Cathy Curby of the U.S. Fish and Wildlife Service samples a piece of candy, as part of her judging duties at the Alaska State Science and Engineering Fair in Anchorage last month. (Bottom) Amy Lindsay watches as Ms. Curby tries to determine if food color really does affect the perception of taste. Amy's project, which received a first-place rating, asked just that question.

courtesy photos



Senate takes opening shot at ANWR

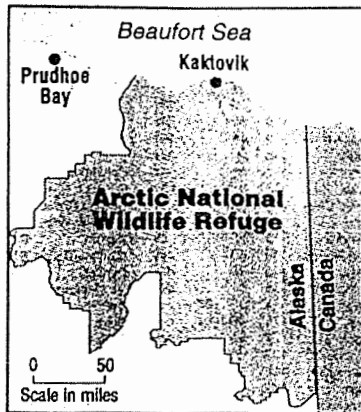
Budget vote today
1st, easiest place
to defeat drilling

By DAVID WHITNEY

Daily News reporter

WASHINGTON — Efforts to open the Arctic National Wildlife Refuge to oil development could face a showdown vote today as the Senate moves toward authorizing drilling to raise money to help balance the federal budget.

Alaska and the North Slope oil industry have long advocated opening the refuge's 1.5 million acre coastal plain to drilling.



KEVIN POWELL / Anchorage Daily News

The area is considered the most promising location in America for a giant discovery and its development could sustain the

state's oil-dependent economy well into the next century as production from Prudhoe Bay declines.

But the coastal plain also is important habitat for caribou, polar bears and other wildlife. Environmentalists have been conducting a nationwide campaign since 1987, when the Reagan administration first proposed development, to permanently protect the area as wilderness.

Environmentalists managed to drum up enough opposition to kill development legislation when Democrats were in charge

Please see Back Page, **ANWR**

Continued from Page A-1

of Congress.

Now, with Republicans in charge of the House and Senate and the pro-development Alaska congressional delegation calling the on natural resources policy, the refuge's development has renewed momentum. Its inclusion in the budget could make development even harder to stop.

Last week, the House approved a budget measure that counts on \$1.25 billion in lease revenues to help balance the federal budget by 2002. The Senate will vote today on a budget measure that pegs revenues from the refuge at \$1.4 billion over the next five years.

Drilling opponents have launched an all-out effort in the Senate to derail the development train.

Delaware Republican Sen. William Roth planned to offer an amendment to strike the refuge revenues, replacing the money with taxes on foreign millionaires living in the United States.

Democratic critics, led by Arkansas Sen. Dale Bumpers, will propose amendments to prohibit Congress from counting as income any

proceeds from the sale of federal assets, such as oil from the arctic refuge.

Environmentalists concede that they may not have the votes to win.

"This is their opening shot to develop the refuge and our opening shot to defend it," said Scott Kearin, director of the Alaska Wilderness League. "I don't know if we can win it directly but we'll demonstrate some support against drilling."

While today's vote will be a key signal of the direction the Congress is moving, by itself it won't determine the refuge's fate.

The House Resources Committee, led by Alaska Rep. Don Young, and the Senate Energy and Natural Resources Committee, headed by Alaska Sen. Frank Murkowski, still would have to pass development legislation.

But the inclusion of the refuge in a budget measure will set the stage for the two committees to include their development legislation in a massive budget package that Congress will pass later this year and send to President Clinton for his signature.

In that budget battle, Clinton has indicated that his biggest issues will be

protection of education programs, Medicare financing and ensuring that no tax breaks are approved for the wealthy. All else is on the table.

In that massive budget package, called "budget reconciliation," the refuge's development will become a relatively trivial matter that will be much more difficult to eliminate. And unlike other measures in the Senate, the budget package could not be blocked by parliamentary procedures such as a filibuster.

The best course for the Clinton administration, which opposes drilling in the refuge, is for the development provision to be defeated today.

Interior Secretary Bruce Babbitt said he has been making calls to key members urging them to vote for the Roth amendment.

"This administration has been and will continue to be supportive of the development of domestic U.S. oil and gas resources," Babbitt wrote. But he said the coastal plain should not be developed because its wildlife resources are "unique and irreplaceable."

The administration's message may not find much of an audience, however.

Republicans may block Roth from taking the floor today to argue against development, meaning his amendment will come up without any debate.

At a Republican luncheon Tuesday, Alaska Sen. Ted Stevens threatened to retaliate unless Roth backed off. Stevens' press aide, Mitch Rose, confirmed that the senator told Roth that if he persisted in "attacking the economic future of Alaska," Stevens would launch a crusade to undo large tax breaks Roth has won for Delaware.

Later, Murkowski held out hope that Roth would back off. If not, he said, it is possible that the Roth amendment would be packaged with other Democratic challenges to the sale of federal assets in attempt to kill them all in a single vote.

Environmentalists charged that the Alaskans were trying to silence debate on a key environmental issue, saying they are treating the federally owned refuge as if it were state property.

"Clearly this is a sneak attack," said Pam Miller of the Wilderness Society. "The Alaska delegation should debate this as stand-alone legislation and not have this as just a few sentences in a massive budget bill."

Wilderness and development, like oil and water, don't mix

Ever since President Eisenhower's Interior Secretary Fred Seaton set aside the Arctic National Wildlife Range through an administrative order just before Eisenhower left office, Alaska's congressional delegation has zeroed in on this World Heritage wilderness area with all the weapons at their command, attempting to open it up to oil exploration and development.

From its inception in early 1960, Sens. Bob Bartlett and Ernest Gruening led the attack against this withdrawal. Sen. Gruening tried his own stealth attack, first denying funds for U.S. Fish and Wildlife Service management of the range, then attempting to secure Senate approval of a bill which would mandate that any conservation unit which had not been funded for five years would be returned to the public domain. The Senate turned him down.

Such Machiavellian maneuvers by Alaska's congressional delegation have persisted. Currently, both Rep. Don Young and Sen. Frank Murkowski, in their roles on House and Senate Natural Resource Committees, have launched a perfidious one-two punch, first by sneaking a bogus income figure into the Republican budget resolution, forecasting over \$2 billion income from oil leases on ANWR's coastal plain (the "1002" area from ANILCA legislation).

Once they had this line item in place—and had mustered a bare majority of committee votes of both houses to keep it in place—they added insult to injury by a semantic sleight-of-hand, referring to the Arctic National Wildlife Refuge as "The Arctic Oil Reserve." The major flaw in this back-door assault on the integrity of the refuge is the lack of open, public debate on the issue. The Republican majority in Congress steamrollered this provision into the budget, but this is far from the final word.

Sen. Murkowski is boasting about his success in securing Congressional approval to divert Alaska oil from U.S. refineries to ones in Japan, and his colleagues and our current state of Alaska administration are jumping on his bandwagon. However, the ban on exporting Alaska oil was essential back in the early '70s to obtain congressional



Celia
Hunter

approval of the trans-Alaska pipeline. Then the big pitch was national security, and less dependence on foreign oil sources.

Why should we Alaskans accept the destruction of the vibrant biological treasures contained in the coastal plain of the refuge just to add some totally problematical quantity of crude oil for shipment to foreign countries?

The oft-repeated assertion that the oil industry knows how to "do it right" this time overlooks the many instances in which Alyeska and the oil industry have been exposed in repeated and serious failures to maintain safety standards, and for flagrant violations of regulations, ever since 1974 when the pipeline was authorized.

The tragic Exxon Valdez oil spill demonstrated the oil industry's lack of preparedness to deal with the hazards inherent in ocean oil transport. While new safeguards in the form of tug escort vessels, adequate radar surveillance, and an increased quantity of emergency crews and equipment were belatedly put in place for Prince William Sound oil transport, the ending of the oil export ban will provide many additional hazards due to the shipping of oil to Japan along the rugged Alaskan coastline.

The claim that oil exploration and development can be accomplished in an environmentally safe manner on the coastal plain flies in the face of reality. These claims depend upon a subjective evaluation of what constitutes an unspoiled Arctic environment. The change between the present wilderness character of the plain and construction of an oil industrial complex similar to Prudhoe Bay will be irreversible.

As a starter, consider the impact of thousands of human beings using a vast armada of vehicles, bulldozers, and other construction equipment, rolling across the arctic tundra

landscape. Pipelines, gravel pads, water and gravel sources, will create severe impacts affecting every living species of animal and plants now existing on the coastal plain.

Think about wolves—they can't exist where they are considered "varmints"—their need for big wilderness is an integral part of their survival. Polar bears also need large areas, including access to shoreline denning areas, just where oil activity will be highest. Why are predators virtually nonexistent in the vicinity of Prudhoe Bay? Human attitudes toward most predators condemn them at sight.

As for the claim that regulations will soften the impact of this human invasion of wilderness, our congressional delegation supports elimination of all regulations which might force business to protect the environment.

Deregulation of industry with effective environmental protection is an oxymoron. The oil industry operates more safely today because an alert and committed environmental movement has made sure it does. If you doubt this, look at the sad state of oil pipelines and oil installations in the ex-Soviet Union, which lacked a strong and effective environmental community.

Wilderness is a state of existence for a landscape and a state of mind in the human psyche. Americans, and especially Alaskans, cherish the freedom of living within easy reach of wilderness, not merely because of the recreational potential but also for its importance for solitude and spiritual rejuvenation. You can't have a true wilderness with "environmentally responsible" oil development, any more than a woman can be "a little bit pregnant."

Whatever oil lies beneath the coastal plain will still be there and will become increasingly valuable as other sources of oil, both foreign and domestic, are exhausted. And the wilderness resource of the coastal plain will likewise be more and more valuable as a reference point for understanding our world.

Celia Hunter has been active in the Alaska conservation movement since 1960.

AFN vote gives delegation muscle in refuge battle

By KIM FARARO

Anchorage Daily News

An Alaska AP Member Exchange

ANCHORAGE—The Alaska Federation of Natives board was wrestling with a painful issue: Should it continue to avoid taking a position on opening the Arctic National Wildlife Refuge to oil drilling? Or should it choose a side in a controversy that pits its members against each other?

In the end, the board voted to back oil drilling in the Arctic National Wildlife Refuge. But it was a split and painful choice.

Jacob Adams, president of Arctic Slope Regional Corp., pushed for the state's largest Na-

tive group to support drilling, a move he said would benefit the state's ailing economy. Sarah James, a leader for Alaska's Gwich'in Indians, argued the group should respect her people's right to protect the caribou they hunt for food on the refuge.

National political heavyweights also weighed in, piping their voices into an Anchorage hotel meeting room via speaker phone.

U.S. Sen. Ted Stevens, R-Alaska, called with a personal plea for a vote to open the refuge.

Ada Deer, President Clinton's top official on Native issues, asked for a no vote to protect the caribou and the untouched wilderness. She

See REFUGE, Page A-7

REFUGE: AFN vote gives delegation support in fight

Continued from Page A-1

found out about the vote just hours before and personally called AFN to request time to speak.

Finally, the federation board voted 19-9 Tuesday to support drilling.

It's unclear how much of a difference the AFN vote will make in the battle over the refuge. It's just one of many tactical moves expected this summer as Congress debates the issue.

A vote in August could end a years-long tug-of-war between environmentalists, who value the land that supports caribou and other wildlife, and oil companies, which believe the last great U.S. oil field might lie beneath the refuge's coastal plain.

Right now, pro-development forces have the advantage. Alaska's congressmen won a key battle recently when they earned enough votes to roll authorization for the refuge opening into the budget bill, where it is immune to filibuster and difficult for the president to veto.

But even the Alaska delegation

admits the strategy isn't foolproof. The votes to allow ANWR into the budget bill were close.

To shore up support, the delegation is relying on a combination of old and new strategies.

Opponents say the AFN vote was one such maneuver.

Congress already knew that Arctic Slope Regional and its Eskimo shareholders support refuge development; now Alaska's oil boosters can say that those North Slope Natives—who own land in the refuge—have statewide support.

"The vote was important to Stevens because he'll use it to try to discredit the opposition of the Gwich'in," said Bob Childers, a consultant for the Gwich'in Steering Committee.

A worried Deer said: "(The vote) will certainly be a factor in the discussion. But people need to evaluate this for what it was. It was not a unanimous vote."

Another element of the pro-development strategy are trips to Alaska for U.S. House and Senate members and their aides this sum-

mer. The tours, often financed with state funds, usually include a stop at the North Slope to show that development over time has become less environmentally damaging, and include arguments that ANWR development would generate jobs across the country.

Oil industry supporters at the ANWR lobbying group Arctic Power have also enlisted Roger Herrera to work full time in Washington, D.C. Herrera, who worked for British Petroleum on the ANWR issue before retiring, is now spending much of his time lobbying—a task even opponents say the well-connected and polished Herrera is eminently prepared for.

Noticeably quiet are the oil companies that stand to benefit from drilling in the refuge. The state hasn't asked the companies to keep a low profile, Herrera said, though he acknowledged it's clear the public has mixed feelings about the industry.

Arco and BP, Alaska's two biggest oil producers, say this is really an issue best fought by Alaska resi-

dents, but won't say why. Insiders speculate that BP fears it can't ask Congress for both ANWR and an end to the North Slope oil embargo. It's hard to argue ANWR is necessary for the nation's security while asking to export Alaska oil.

Alaska's other senator, Republican Frank Murkowski, meanwhile, continues attempts to compromise with the Gwich'in. So far, his efforts have been rebuffed. In a recent meeting with James in Washington, D.C., he offered to help persuade the oil companies to provide transportation from Gwich'in villages so her people could get oil jobs more easily.

James says she told him the tradeoff wasn't worth it. Her people could lose their subsistence lifestyle if industrialization chases the Porcupine caribou from their traditional birthing ground in the refuge. All the Gwich'in would get in return, she said, are the Slope's lowest-paying jobs, if that. The oil industry, she said, has broken promises before to hire Natives.

No drilling in Arctic refuge

*Don't raid Arctic National Wildlife Refuge
in absence of a national energy policy*

Raiding the Arctic National Wildlife Refuge to dig oil wells and build pipelines would add a congressional blessing to gluttony and waste.

This harsh verdict grows out of a preponderance of the evidence:

- The United States doesn't seriously conserve oil by direct means.

- It doesn't cut America's thirst indirectly by heavily taxing oil imports — now more than 50 percent of domestic consumption.

- No national emergency based on oil shortages is impending. Even U.S. differences with Iran and the Gulf War-induced embargoes of Iraq have not turned the United States or its allies into oil beggars.

- The oil raid on the wildlife sanctuary slipped into the budget resolutions of both houses of Congress without national discussion of how it would fit into any sort of U.S. energy and transportation policies.

- The sale of oil leases would have microscopic effects on reducing the budget deficit.

- No indication has emerged that the United States has secured approval from Canada to back down on the joint commitment to set aside one of nature's complete ecosystems, home to an enormous herd of caribou.

- Congress is repealing its ban on foreign exports of oil from the Alaska North Slope. So the region's oil probably would benefit foreign customers and oil companies far more than U.S. consumers and taxpayers.

Rushing into oil development along Alaska's north slope in the wildlife refuge is not in the U.S. national interest.

This opposition has little to do with wildlife preservation. Visits to the north slope oilfields show that the oil industry can be remarkably sensitive to that fragile ecosystem. Furthermore, technology has reached the point that the oil-drilling footprint on the Arctic tundra would range between tiny and small. And caribou have shown that they can thrive near oil pipelines.

However, opening the wildlife refuge in the absence of urgent need is premature and wasteful and feeds a national addiction.

For a country without a resolute energy policy, tapping the wildlife refuge's oil reserves is the moral equivalent of handing a bottle of booze to an alcoholic. It is an invitation to go on another binge. It cancels the visit to the treatment center.

Let's take the cure, not find excuses to dodge it.

The Oregonian

Portland OR June 26, '95

Denver sings strong tune after visit to ANWR

By MICHAEL DREW
Staff Writer

Country singer and environmental activist John Denver passed through Fairbanks International Airport on Sunday morning, a guitar slung over his shoulder, on his way to a tour of the Arctic National Wildlife Refuge.

Denver flew to ANWR at the request of the Northern Alaska Environmental Center, based in Fairbanks.

Sylvia Ward, center director, said they hope Denver can promote keeping ANWR closed to oil drilling after a first-hand look at how beautiful it is.

Before his tour, Denver said

he didn't know a lot about ANWR and would know more after seeing the land.

"I first have to look at the country and see for myself what the debate is all about," Denver said.

After his trip, Denver said the decision to open ANWR should be made by the American people, not Congress.

ANWR is beautiful, he said, and the country should start reducing its dependence on oil instead of drilling in ANWR.

"We have to find a way to live and survive when oil is no longer available," he said. "When are we going to do something to start that transition?"

Increased conservation would be one method to satisfy the country's energy needs without resorting to ANWR drilling, Denver said.

"You can gain more revenue (through savings) than all other energy sources combined," he said.

Denver said there was a sense of urgency to his visit as it came on the heels of visits to the area by Alaska Sens. Frank Murkowski and Ted Stevens and other congressional officials.

Congressional enactment of a budget measure that calls for money from oil leases in ANWR means a drilling bill could reach Congress by Thanksgiving.

Denver said he doesn't like Alaska politicians trying to get the opening of ANWR past the

American people by concealing it within the overall federal budget, thus forcing President Clinton, who has said he doesn't want to open the wildlife refuge, to veto the entire budget to keep ANWR closed.

"It's an attempt to slide it by the people as a budget item," he said. "I resent that as an American. It's a lack of integrity."

Ward said it's too early to tell the effect Denver's visit will have on opening ANWR.

"It's a great debate and everybody has an opinion," she said. "We're just doing what we can."

Developers have been wanting to open ANWR's coastal plain to drilling for

years, believing it to hold the greatest chance of finding new oil in Alaska.

However, environmentalists and some Native groups have fought the opening, saying the refuge is too valuable as habitat for polar bears and caribou to risk development.

"We've got to make some changes," Denver said. "I don't see how opening ANWR benefits the American people. It benefits oil companies and puts money in the pockets of a few Alaskans, but I don't think it benefits most of the population of Alaska."

Denver has been in Alaska for five days, he said, spending a couple of days in Anchorage.



JOHN DENVER

Fairbanks Daily News-Miner

7/3/95

Fairbanks, Alaska

Sunday

July 9, 1995

HEARTLAND

M A G A Z I N E

Fairbanks Daily News-Miner



EARTH QUEST

WILDLIFE SCIENCE

Campers explore Alaska's wildlife

Story and photos
by PATRICIA JONES

Annette Donaldson tried to guess how long ago a forest fire had swept up the wooded slope where she was standing, as mosquitos swarmed her hooded head.

Donaldson, from Delta Junction, was spending the sultry June morning with a group of other teen-agers and instructors, exploring forested land about five to eight miles from Circle Hot Springs Resort, near Central.

They were looking for evidence of a wildfire that had raged through the area, leaving its black signature at the base of most birch trees.

Donaldson tried to pester the answer from Harold Harrell, an administrative employee at the federal Bureau of Land Management, who had witnessed the fire. It was the first he had responded to upon taking the job, he said.

Donaldson figured Harrell had become a firefighter as a young man.

"I know! I know! The fire was here 18 years ago," she announced.

In fact, it had swept through the area just two years ago, and Donaldson would soon learn where to look for clues—at the trees, ground cover and dirt.

Joan Foote, an instructor with the Institute of Northern Forestry, showed Donaldson how to count growth rings by slicing off a birch shoot.

"I can't see any difference," Donaldson told Foote. "I only see two rings."

"Ah-ha! What do you think that means?"

Donaldson's face lit up with realization.

"It burned two years ago," she crowed with delight.

The lesson was part of a two-week course of woods and wildlife studies that Donald-

son had signed up for, along with 19 other rural students from the Interior and northwestern regions of the state.

The science camp, called Earth Quest, was organized to give rural students an opportunity to learn natural resources management techniques from the people who enforce the rules in Alaska.

"The main goal is to give kids an opportunity to work alongside professionals, check out what they do, learn something and have fun," said Dave Schmitz, a National Parks Service ranger and coordinator for Earth Quest, which he described as an in-depth camp.

"We used other camps as examples, but decided we wanted more field work in ours," Schmitz said. "I think Earth Quest is a little more in-depth in the field modules."

Participants were based in the Central area, living in cabins at Circle Hot Springs Resort. The lesson plan included lectures about fires and forests, fish and aquatic ecology, mining and geology, and wildlife.

Some were classroom lectures, but most were presented in the woods, on the rivers or creeks, or hiking around the resort.

To keep the ratio of students to instructors low, the 20 campers were divided into two groups that rotated through the five education modules. Most sessions had two or more instructors, as well as camp counselors, to guide the students through various exercises.

Students also went on a two-day camping trip to the Coal Creek recreation area in the Yukon Charley Rivers National Preserve, spent a day floating on Birch Creek between Central and Circle, toured a

(Continued on Page 10)



Aaron Merritt of McGrath looks for birds during a float trip down Birch Creek, near Central. During the daylong trip, Merritt and five other teen-agers saw or heard more than 20 different bird species, including a bald eagle, several Canada geese, mallards, herring gulls, several Swainson's thrush, dark-eyed juncos, and orange-crowned and yellow-rumped warblers.



Students and in-

CE

, wild lands



Orville Huntington, a Fish and Wildlife employee, captains a rubber raft down Birch Creek.



Tricia Douglas, center, finishes off a bag of M&M's while Gladys Mekiana takes notes during a fish and aquatics ecology lecture.



structors unload rubber Zodiac and Avon rafts at the end of a Birch Creek float trip, just below the Steese Highway bridge.



Tricia Douglas of Shungnak looks for tiny water life in some weeds she scooped from a tailings pond near Central with aquatics instructor Keith Mueller, a Fish and Wildlife employee.

(Continued from Page 8)

local gold mine, mucked around in a pond off the Steese Highway, and explored the wooded hills beyond the hot springs resort, to learn about the effects of fire on a forest.

All of the lectures during the two weeks were geared to help students understand how natural resource managers develop firefighting plans in the Interior.

At the end of Earth Quest, students assumed different roles in a made-up scenario and created a fire management plan for a designated section of land.

Roles included a gold miner, timber company officials, people who wanted to use the land for recreational purposes, environmental advocates, federal and state land managers, and a mediator.

Camp planners encouraged the stereotyped groups to compromise and find consensus, another lesson of the two-week program.

"I learned a lot of things that I couldn't learn in a classroom . . . I never counted rings to find out the age of a tree and never knew what a tree bore was," Donaldson said. "When I first looked at this camp, I thought it would probably be a bunch of nerds, bookworms, but it was great."

The experience made her think, she said.

"I want to work harder on my grades so I can get a job in the future," said Donaldson.

The underlying goal of the camp is to encourage students like Donaldson, particularly those who already have considerable outdoors savvy, to join the state's natural resources management team.

"We want to break down misconceptions about people working in the agencies, and also spark interest in them becoming actual natural resource managers," Schmitz said.

Those inspired to seek higher education in related fields can then look forward to going back to their villages and applying what they learn to real-life situations, he said.

"A lot of the kids did say they changed their attitudes and are really interested in some career in natural resources," Schmitz said. "On career night, we were not soli-



Joshua Ernst, left, Darron Arrow and Flora Cleveland look for water bugs in a tailings pond near Central during the first week of the Earth Quest science camp.



Christopher Clift, a Delta Junction teenager, counts growth rings from a spruce tree sample.

citing . . . we talked about how we got where we are, talked about our education and experiences, what's desirable and meaningful."

Camp counselors and planners included rural and Native people who are already involved with natural resource agencies. They became role-models for students considering similar work in the future.

One such mentor was assistant camp coordinator Tomika Itchoak, a former Nome resident and a University of Alaska Fairbanks student pursuing a career in rural development.

Targeting rural and Native youth as potential wildlife managers makes sense because they have a vested interest in the land, according to Itchoak.

"They can use the knowledge they have from their parents and grandparents about the natural resources, get an education and be able to manage the resources rather than send someone from Utah to Barrow to do the job," Itchoak

said.

Rural kids' natural abilities are great assets for natural resource officers, according to Roger Seavoy, a camp instructor and a state Fish and Game employee.

"They already have that intuition and knowledge because they've been around this all their life," Seavoy said. "There are things they already know that a person coming from the city will have to learn."

It was important to Schmitz to provide rural students with an uplifting experience.

"Some kids who don't have a couple of positive experiences in their junior or senior year don't seem to have the drive to make positive decisions about college and their future," he said. "With this, they can see others doing this work and say, 'I could do this.'"

□ □ □

More than 15 different groups pitched in to plan, pay

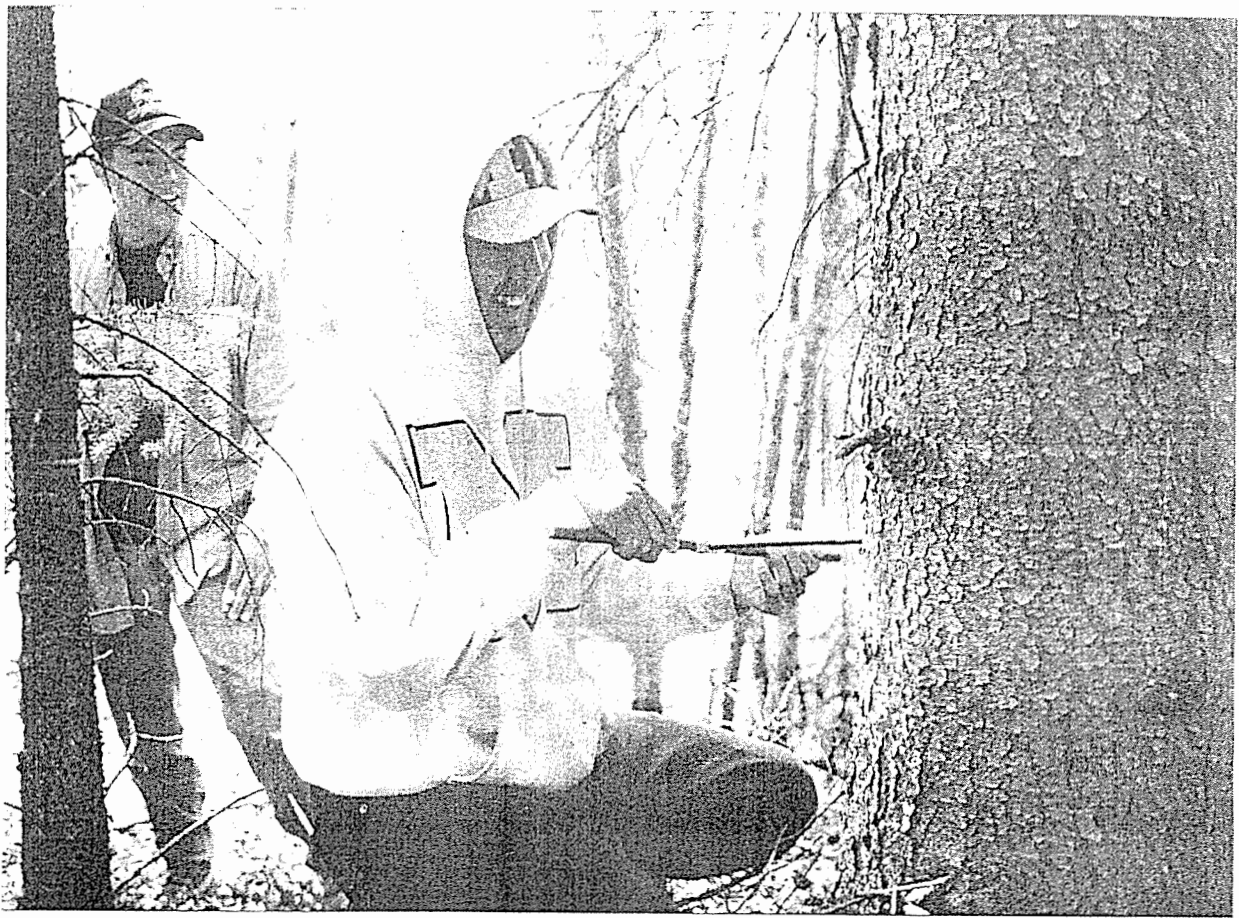
for and run the inaugural camp, intended to become an annual offering. They comprised an odd brew of local, state and federal agencies, Native corporations and private businesses—organizations not noted for collaboration. They would more likely be arguing about quotas, hunting and fishing seasons, who can use what land and other natural resource issues.

With Earth Quest, organizers found common ground, to the point of bragging about reaching consensus.

"Everyone got along really well. No one person was trying to dominate another," Itchoak said.

Through their roles as organizers and instructors, park rangers, Fish and Game officers, and Fish and Wildlife employees hoped to dispel the stereotypes rural residents often assign to government workers.

"One of our goals was for the
(Continued on Page 12)



Harry Patkotak of Wainwright uses a tree bore to take a white spruce sample. Christopher Clift, from Delta Junction, waits to count growth rings on the sample.



Annette Donaldson of Delta Junction looks at a cut birch sprout held by Joan Foote, an Earth Quest instructor from the Institute of Northern Forestry.

(Continued from Page 11)

kids to see the person under the badge or under the uniform," Schmitz said. "Instead of having a negative reaction, they know that we're just people doing our jobs and in this case, doing it well, as the kids can see."

Campers were visibly disappointed when Heather Johnson, a wildlife instructor from the Koyukuk-Nowitna Refuge Complex, left the resort after several days.

They begged her to stay longer, and jokingly threatened to throw her into the resort pool otherwise.

"She was really cool," said Misty Drew, from Barrow.

"We got too attached to her," Donaldson said. "Her voice—man, you can hear her every-

where in the woods."

Other less dynamic instructors were labeled "boring" by the kids; the mix is real life, Schmitz said.

□□□

Planners centered the camp at Circle Hot Springs primarily because the pool could help attract and entertain the teenagers, Schmitz said.

Side trips, such as the Yukon River trip to the Coal Creek campground, a float trip on Birch Creek, and the fire and forestry field were within close proximity.

Students also toured a placer gold mine, operated by local resident Bob Cacy. Ironically, miners and other residents in the Central area are known for their anti-government views, and can be quite vocal about

them.

Schmitz acknowledged that, but added, "... maybe this will show them they are wrong."

"I was called quite a few names up there by some individuals," he said. "This camp shows them government people are investing in the kids."

"The people saying negative things are not doing anything for the kids and obviously we are doing something for the kids."

At least one parent had doubts about sending a youngster to a camp run by government agencies, but was pleased with the outcome.

"No one else expressed reluctance," Schmitz said.

Students paid a \$25 registration fee to attend camp. Other costs were covered by the agencies, which paid \$800

for each student sponsored.

"The expenses were quite a bit more than that," Schmitz said. "We had some in-kind services and we used equipment and aircraft from the agencies."

None of the speakers charged for their services, and agencies covered costs associated with the participation of their employees.

An exact cost has not been tallied, but Schmitz estimated the budget for the two-week camp (not counting donated equipment and traded services) at \$32,000, twice the sponsorship fees collected.

"The main thing is, we got 20 kids from the four corners of the state there and back safely with only a sprained ankle and we took care of that," Schmitz said.

Instructor Jim Deininger, a

BLM geologist, was a more serious casualty. He was blinded in one eye after it was struck by a rock fragment during the Coal Creek camping trip, when another instructor broke a rock with a hammer during a demonstration. A helicopter at the scene flew him to Eagle, and from there, he was transported by plane to Fairbanks.

In a telephone interview, Deininger called it "a real freak accident."

"I won't have stereo vision anymore," he quipped, but concluded that camp staff were well-prepared to deal with his emergency.

"Everything was handled pretty calmly and efficiently," said Deininger.

□ □ □

While most adults would groan at the thought of supervising and entertaining 20 teen-agers, Schmitz doesn't.

"If I had 20 students like these kids, I'd go back to teaching," he said. They showed respect, and did not question the camp's policy keeping it alcohol-, tobacco- and drug-free.

"If any of them smoked before camp, they were able to put it away for two weeks, which shows commitment," Schmitz said. "They knew we meant business."

Campers, meanwhile, have forged friendships they say will continue beyond camp. Donaldson has already heard

from several of her colleagues.

"Man, I never had so much fun in my life," Donaldson said. "The last day I cried so much—we all just clicked."

In addition to studying natural resources management, they compared lifestyles, and even taught the adults a thing or two about rural living.

Picking at her uneaten, Gladys Mekiana said she missed caribou meat, a staple at home in Anaktuvuk Pass.

"You know, they say that if the caribou comes too close to the village, someone will die," Mekiana said.

That prompted her and Itchoak to compare legends they grew up with, some with similar story lines but subtle variations.

Harry Patkotak, nicknamed "Mr. Michigan" because of his taste in sportswear, also found camp food lacking. Back home in Wainwright, whale is a favorite.

"I miss eating some of my subsistence food—blubber keeps you warm in the winter," Patkotak said. Walrus meat, boiled and flavored with Heinz 57 Sauce, is another treat.

A home-school student taking classes through the Fort Yukon school district, Misty Glassburn, 17, is already thinking about pursuing a career in natural resources management.

(Continued on Page 14)



Eagle Resident Issac Juneby, left, explains gold mining techniques during a tour of the control room at the Coal Creek dredge to Misty Drew and Thea Brower, front, and Cliff Semaken, Aaron Merritt and counselor Pat Snow, in back. Juneby grew up at the mine site and worked at the gold dredge as a young man.



Delores Huffman, a Huslia teen, gets close to a photocopy of an aerial photograph to count caribou. Huffman pokes a pin through the paper at each spot the animals show up on the photo.

(Continued from Page 13)

But because her parents are gold miners, she brought a measure of skepticism with her to camp.

"I want to have some of both worlds—stay in the woods but try to make a living," Glassburn said. "I love the woods. I've been raised with a remote lifestyle. I prefer to be in the woods."

Glassburn said she would like to help make governmental changes from within the system, rather than battle the numerous regulatory agencies her parents deal with at their gold mine in the Central area.

"I'd like to get a job where I could help people, not just make them jump through so many hoops," she said.

"The government agencies should try to be for the people, not for the government. There's a lot of anti-mining people because they think mining damages fish habitat, but I see miners do a lot of hard work and they don't treat the land negatively."

Not all campers felt as intrigued as Glassburn. Clifford Semaken, a Huslia student, found the camp "sort of boring."

"I already knew most of it," he said. David Salmon, the elder that came to talk to us—that was about the best."

Working as a natural resource manager doesn't interest him.

"Too much work for too little money—it's a boring job, counting birds," he said.

Itchoak thinks the students will stay in touch, and their newfound friendships will serve them well.

"That's important, if they stay in this field, to have someone from Delta Junction know someone in Barrow," he said.

"It gives them contacts for the future."

"We're giving them this opportunity and these resources," Schmitz said. "Whatever they do with it, is up to them."

Patricia Jones is the News-Miner's business reporter.



Fish and Game employee Sam Patten teaches students how to recognize different bird calls before beginning a float trip down Birch Creek.



Cliff Semaken, a Huslia teen, counts caribou on a copy of an aerial photograph, while counselor Pat Snow records the number. More than 200 caribou were captured on the photograph.

LOS ANGELES TIMES 7-10-95 PG. A-1

COLUMN ONE

Chill Falls Over Arctic Refuge

■ The GOP Congress may allow long-thwarted oil drilling in Alaska's most-celebrated caribou calving grounds. For many, the economic lure outweighs any threat to wildlife and native culture.

By FRANK CLIFFORD.
TIMES ENVIRONMENTAL WRITER

AICHILIK RIVER VALLEY, Alaska—Every summer a wind-raked, bug-ridden stretch of Arctic desolation briefly transforms itself into the Alaskan equivalent of a seeming East African savanna.

It is that way again this year. An extravaganza of caribou, grizzly bears, wolves, foxes and musk ox has begun its promenade through the Arctic National Wildlife Refuge, as if the looming prospect of an oil field in the midst of wilderness was one more crystal mirage on the polar horizon.

But the counterrevolution in Congress that has been firing away all year at environmental sacred cows is about to head north. With Alaska's fiercely anti-wilderness delegation now heading key committees, pressure is mounting to

open the Arctic refuge for oil exploration, as well as renew heavy logging in the state's southeastern rain forests and permit commercial development in the heart of Denali National Park.

It is no sure bet that the Arctic refuge, America's largest wildlife preserve and the end point for an annual migration of 160,000 caribou, will have to make room for an industrial park. But the odds against oil pipelines and service roads crisscrossing 1 million acres of tundra are shorter than ever.

For more than a decade, oil companies, Alaskan politicians and many of the state's residents have

RETHINKING THE ENVIRONMENT

25 years after Earth Day

■ One in an occasional series

wanted approval to drill in the northern tier of the refuge, in the heart of calving grounds for one of Alaska's biggest caribou herds.

When Democrats led Congress, opening the refuge to oil crews was a dead issue. But in the Republican sweep last fall, Alaska's pro-oil delegation gained new power. Sen. Frank H. Murkowski became chairman of the Energy and Environment Committee. Sen. Ted Stevens is a high-ranking member of the Appropriations Committee. And Alaska's only congressman, Rep. Don Young, chairs the House Resources Committee.

In May, senators in favor of drilling made a deft move and tied opening the refuge to the pending federal budget bill. As a result, proponents of drilling may be able to avoid the noisy debates and filibusters that opponents used to block Arctic oil exploration in the past. President Clinton has pledged not to permit drilling. But it will be

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ALASKA: Wildlife Refuge May Face Oil Exploration

Especially hard for him to live up to the pledge if it means vetoing the entire budget this year.

Focusing on the fate of the caribou, which are returning now to the refuge as they do every summer, the debate over the preserve is one of those classic conflicts over environmental values that appears to have little room for compromise.

A congressional nod to the oil companies would open up 1.2 million acres of coastal plain along the Beaufort Sea for energy exploration. That represents about one-tenth of the refuge, but it is a critical fraction. It's where caribou have been drawn for centuries to calve at the end of an arduous late-winter migration over icy rivers and snowfields.

The loss of traditional calving ground could be devastating, according to one federal study, which estimated that over time the herd size could be diminished by more than 40%. Smaller herds elsewhere in Alaska have adapted to oil fields, but wildlife biologists say there has been a decline in reproduction.

The refuge herd isn't the only large one in Alaska, but it is certainly the most celebrated. Its annual journey over hundreds of miles from its winter range along the Porcupine River in western Canada, and the caribou's importance to native culture in the Arctic, has made the herd the object of international study, television documentaries and children's books.

A steep decline in the herd size would be a blow to the balance of nature in the refuge, where the caribou provide sustenance to grizzlies, eagles and wolves, as well as people.

The Gwich'in, one of the first tribes of native people to inhabit North America, rely on hunting and trapping the Porcupine River caribou to get through the harsh winters in half a dozen isolated villages in Alaska and northwestern Canada.

Their leaders have traveled to Washington more than once to proclaim their opposition to oil drilling in the refuge, fearful of its effect on caribou reproduction.

"One of the last traditional native lifestyles could perish with the caribou," said David Klein, a professor of wildlife management at the University of Alaska.

Natural Splendor

Even if the caribou adapt, there is general agreement that an oil field would change the character of the refuge in ways that cannot be camouflaged or fully mitigated.

"Even if it's done in an environmentally sensitive way, you're not going to have what you have today," conceded an aide to one of Congress's leading drilling proponents.

"You'll have things sticking up in the air, people and noise, and the normal risks of air and water pollution associated with oil and gas drilling," said the aide, who asked not to be identified.

For biologists who study the Arctic and the trickle of backpackers and river runners who brave the white-knuckle bush plane flights, mosquitoes, polar wind and boot-soaking terrain is like a sojourn in an American Serengeti.

It's a world strewn with shed antlers and polished bones indented with some predator's teeth marks. The rivers are whiskered with the fur of thousands of molting caribou. The only noise is the grunting of lost calves calling for their mothers or the slightly demonic chatter of a willow ptarmigan guarding its earthen nest.

"You're in this teeming outdoor laboratory on top of the world," said Debbie Miller, author of a book about the refuge who spent 13 summers exploring it. "Nothing beyond you except polar bears and bowhead whales."

But leaving this place alone means abandoning a potential energy bonanza. The optimists say the refuge could conceal the nation's third largest oil field, smaller only than the Prudhoe Bay find 150 miles to the west and the East Texas discoveries of the 1930s.

Estimating how much oil is in the ground anywhere is pure guess work, but 3 billion barrels comes up a lot in discussions of the refuge's potential. (Since 1930, East Texas has produced 5.4 billion barrels.)

Federal government reports have calculated the chances of finding recoverable oil in the refuge at 20% to 50%. Oil experts say there are no better prospects anywhere else in the country. Still, it's a gamble.

No one will know for sure what's down there until the drills bite into the permafrost. The result could be nothing but a scarred landscape and a huge reclamation bill for the oil companies. "It could turn out to be the most expensive dry hole in history," said Daniel Yergin, an energy consultant and author of a Pulitzer Prize-winning book on the history of oil.

Nonetheless, if oil is found and pumped into the existing trans-Alaska pipeline, it could slow the nation's dependence on foreign oil and offset the steady decline of Prudhoe Bay reserves.

Prudhoe and adjacent North Slope fields are the main domestic source of oil and drive the Alaskan economy. About 85% of the state's general revenue is related to oil.

About two-thirds of Prudhoe's oil is gone, and many experts predict that, barring a major new find, it will cease to be an economical source by the early part of the next century.

Drilling in the refuge, which Alaska's senators routinely refer to as the "Arctic Oil Reserve," has become a special cause in a Congress determined to

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remove the "no trespassing" signs erected by environmental laws—from the Endangered Species Act to the 1980 Alaska National Interest Lands Conservation Act.

The lands conservation act more than doubled the size of the refuge, which was created two decades earlier. Combined with Canada's adjacent Northern Yukon National Park, it ranks among the largest protected wild lands on earth.

Throughout Alaska, the act put 108 million acres of mountain ranges, rain forests, rivers, lakes and tundra—an area the size of California—off-limits to

most commercial access and development.

But Alaska is so big it still has an area of at least that size open to develop. Some residents insist that is plenty of elbow room for a state with 600,000 people.

But from the days of the Yukon gold rush, Alaskans have been obsessed with the prospect of frontier bounty. And if America can still boast of an untapped frontier, it's in Alaska's vast federally protected lands, in the Arctic and elsewhere.

Timber interests want permission to log in the heart of the Tongass National Forest that sprawls across southeast Alaska. The Tongass is the last intact stretch of America's only temperate rain forest, which once extended down the Pacific coast to Northern California.

In Denali National Park, where grizzly bears stop traffic the way they once did in Yellowstone, the state's senators are talking up the idea of a 90-mile railway and 800-room back-country hotel that would turn some remote recesses of the park into a modern tourist mecca.

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Alaskans themselves seem to be of two minds when it comes to wilderness development.

Along the southeastern peninsula, where logging restrictions in the Tongass and sawmill closures have cost jobs, many towns continue to prosper. And some residents fear that a return to clear-cutting policies—in which swaths of forest are denuded—would do more harm than good.

In Sitka, where population and employment have grown despite a recent mill closure, restaurant owner Bryan McNitt credits tourism and commercial fishing—two industries that would not fare well, he said, if the lush coastal forest was opened to intense logging.

"Heavy logging is a threat to the streams where the salmon spawn," McNitt said, "and a threat to wildlife habitat, and that's what the tourists come to look at."

Defenders in Minority

Alaskan defenders of the refuge, however, suspect they are in a minority.

Aside from a handful of professional outfitters and bush pilots who get paid to lead trips into the refuge, there's little economic incentive to keep the oil rigs out.

But even if there were other interests, they would be hard-pressed to compete with the oil industry. Thanks to oil, there's no state income tax and every man, woman and child in Alaska receives a dividend check averaging about a \$1,000 a year. Support for drilling in the refuge cuts across political and cultural lines.

Gov. Tony Knowles, a Democrat elected with the help of some environmental organizations, is in favor of oil exploration. In June, over the protests of the Gwich'in, the Alaska Federation of Natives voted for the first time in favor of drilling after extensive lobbying by state political leaders.

Oil company spokesmen insist that an oil field in the refuge would bear little resemblance to Prudhoe Bay's labyrinthine sprawl—8,400 acres of five-foot thick gravel roads and drilling pads sprawled across an area the size of Rhode Island.

In any new oil fields, industry officials in Alaska promise fewer roads, exposed pipelines and buildings.

"I think people would be quite surprised at how small our footprint is becoming," said Arco biologist Michael Joyce.

Proponents of drilling also make the point that the coastal plain, where any oil field would be located, is easily the least interesting portion of the refuge.

It is certainly less scenic than the snow-dappled mountains and sinewy foothills that lie just beyond the potential exploration zone. But any development that occurred on the treeless plain would be easily visible from the mountains above the coastal plain.

Moreover, the necessary roads and airstrips would drastically improve access to the refuge, making it much cheaper for tourists and hunters to enter a region that has remained mostly unchanged because of its isolation.

Prudhoe Bay, its airfield open to commercial jets, has become an increasingly popular tourist destination, drawing several thousand tourists annually to the once remote Arctic coast.

For wildlife experts, it is hard to imagine that kind of activity on the green tundra carpet of the coastal plain. And harder still to imagine a huge herd of caribou continuing to bear its young in the midst of such activity.

"No one knows what will happen the first time 50,000 caribou approach a pipeline or a road," said Fran Mauer, a federal wildlife biologist who has studied caribou in Alaska for nearly 20 years.

If the herd chooses not to calve near the oil field, it has two options—to migrate east toward Canada or south into the foothills of the Brooks Range. That's where they have gone in the past when late spring snow has kept them off the coastal plain, say Mauer, Klein and others who have studied them.

But the hills are a hazardous place to calve—in the hunting grounds of grizzlies and wolves.

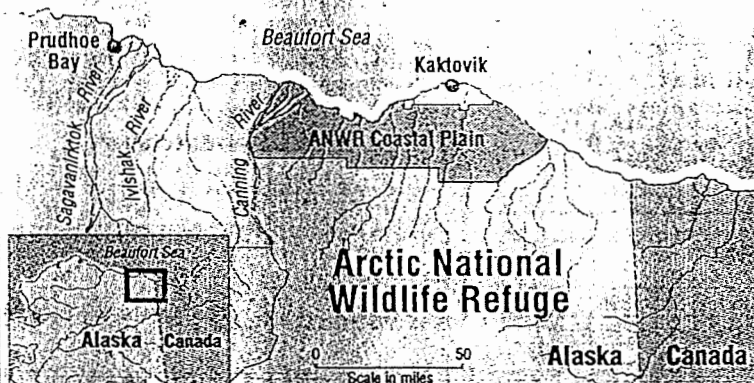
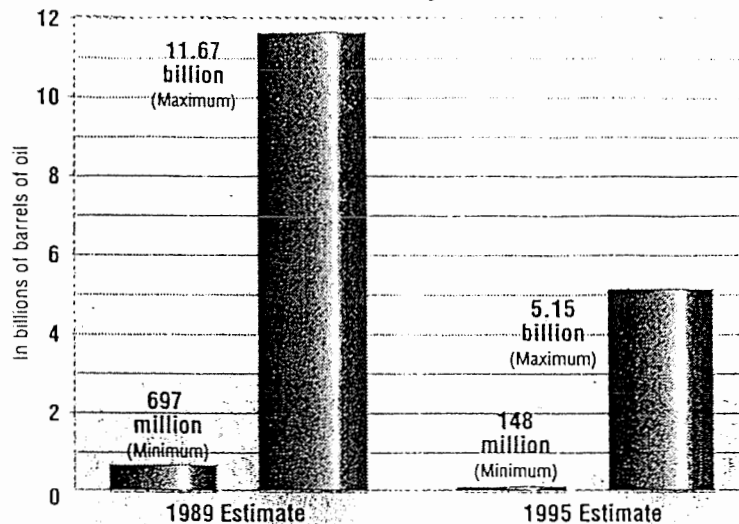
Traditionally, the caribou have moved off the plain into the hills to feed on early blooming cotton grass, but only after the newborn calves were strong enough to have a fighting chance at survival.

Such was the case last month near the mouth of the Aichilik River Valley. In the space of a day, four bears and a wolf marauded the herd without success.

One chase was a breathtaking spectacle as a fleet blond grizzly galloped magnificently after an unwary calf that had strayed 50 yards from its mother. Coming to its senses at the last possible moment, the calf sprinted to the safety of the herd. The big bear ambled off.

"If that had happened a week ago, when the calf was a newborn, it wouldn't have made it," Mauer said. "It doesn't take much to change the odds up here."

Estimates of ANWR oil, 1989 and 1995



Current North Slope Fields

● Prudhoe Bay	13 billion barrels
● Kuparuk	2.3 billion barrels
● Endicott	0.6 billion barrels
● Point McIntyre	0.3 billion barrels
● Milne Point	0.2 billion barrels
● Lisburne	0.2 billion barrels

Source: U.S. Geological Survey

RON ENGSTROM / Anchorage Daily News

New report cuts ANWR oil estimate

Agency notes its figures may be altered in future

By HELEN JUNG

Daily News business reporter

A new draft report from government geologists drastically slashes previous estimates of how much recoverable oil exists in the Arctic National Wildlife Refuge coastal plain.

As the push to open the refuge to oil development gains momentum under the Republican-led Congress, the new numbers — acknowledged by the researchers as very rough estimates — are stirring up both oil development supporters and opponents in the hunt for the next Prudhoe Bay oil field.

The 1.5-million-acre region is believed by many to be North America's best hope for a huge oil strike, and oil industry supporters have pushed for years for congressional permission to drill. Congressional committees chaired by Sen. Frank Murkowski and Rep. Don Young, both pro-drilling Alaskans, are expected to write legislation next month to open the refuge area for development as part of a budget measure for the federal fiscal year that begins Oct. 1.

The draft report, developed by the U.S. Geological Survey, estimates

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ANWR: Report slashes oil estimates; officials say figures could change in future

Continued from Page A-1

the refuge has a 95 percent chance of holding at least 148 million barrels of recoverable oil and a 5 percent chance of holding 5.15 billion barrels or more. That's a huge reduction from 1989 USGS estimates that put the range at 697 million to 11.67 billion barrels.

The numbers are also far less than the top estimate made in 1991 by the federal Bureau of Land Management, which assessed a chance, although slim, of the area holding as much as 9 billion barrels of recoverable oil. That study

gave a 46 percent chance that the region holds 3.6 billion barrels of oil, said BLM spokesman Dave Vickery.

The USGS study was put together so quickly — in three days — at the Interior Department's request that the numbers will probably be significantly revised, said Ken Bird, a geologist on the research team. The agency is taking a closer look that could take up to a year.

"Making resource assessments is a very, very subjective, very uncertain business, and when you do an assessment using a different methodology ... I

can guarantee you the numbers will be different," he said. This report is "very much almost a back-of-an-envelope type of assessment."

Still, the study concluded that oil deposits in ANWR are likely smaller than previously believed.

The report boosts the hopes for those opposed to drilling in the refuge, such as the Gwich'in Steering Committee. The 15 Gwich'in Indian villages in northeast Alaska and northwest Canada oppose development on the coastal plain, which is a calving ground for caribou, an im-

portant subsistence food.

Good odds for striking oil from a business standpoint are shaky odds from a public-policy standpoint, said Bob Childers, senior adviser for the Gwich'in Steering Committee. "A one-in-10 chance, even one-in-15, may be a perfectly reasonable way to invest large sums of money over long period of times. ... A one-in-15 chance for public policy, when there are other resources at stake, is pretty bad."

The timing of the USGS findings appears to be politically motivated to derail support for opening the refuge, said Chuck

Kleeschulte, spokesman for Murkowski.

"You have any number of estimates," he said. "There will always be different predictive techniques, different computer models. The only way to know is to open ANWR and explore it. ... Probably all the estimates are wrong in one respect or other."

Deborah Williams, special assistant to the secretary of the Interior for Alaska, denied the study was done for political reasons.

"This is a very important piece of information in the debate," she said.

"As people weigh the benefits of opening the refuge to oil and gas development vs. the benefits of not doing so, they should use the data in this equation."

The numbers aren't bound to sway those who are committed to opening the refuge.

"The new numbers out of (Department of the) Interior won't change our assessment of coastal plain oil and gas potential," said Arco Alaska Inc. spokesman Ronnie Chappell. "We're hopeful that someday there will be a competitive oil and gas lease sale."

Governor launches big push for ANWR

By BRIAN O'DONOGHUE
Staff Writer

On a day when Gov. Tony Knowles declared a new offensive to unlock the Arctic National Wildlife Refuge to oil development, the North Slope's largest producers went out of their way to tell Fairbanksians that Big Oil's appreciation for Alaska is again rising.

"There is no better time than now to open the refuge to drilling and do it right," Knowles said Tuesday in Juneau, announcing a new "stepped-up state initiative" to persuade the nation that oil development won't ruin the refuge.

The governor said the state will mail out 8,000 informational booklets to key professionals around the country, touting advances in technology that would reduce the footprint left by drilling. In addition, Knowles said he plans to write each of his fellow governors, then follow up with personal meetings during a national conference this week.

Knowles' intervention comes as major oil producers are demonstrating renewed interest in the state, which has seen recent declines in oil patch employment and exploratory investment.

As recently as a year ago, BP Exploration (Alaska) President John Morgan said he didn't dare

ask his corporate bosses in London to consider new Alaska investments. But that climate is changing, Morgan said during a visit to the News-Miner Tuesday, thanks to increased oil prices and favorable political developments.

BP is particularly encouraged, he said, by this week's congressional action to lift Alaska's oil export ban, an action brought about by the state delegation's current strong position in the Republican-controlled Capitol.

"I guess we should say the guys earned their keep this week," said Morgan, who expects BP to save 50-cents a barrel shipping Alaska crude it can't refine on the West Coast to closer markets in the Pacific Rim.

Both Morgan and Arco Alaska president J.K. Ken Thompson are cautiously optimistic about the Alaska delegation's attempt to open the North Slope's protected wildlife refuge to exploration.

"Our D.C. staff feels there is a 60 percent probability that the new congress will pass and Clinton will veto it," said Thompson, also in town Tuesday to celebrate his company's 40th year of business in the state.

Regardless of what happens with ANWR, Arco plans to invest \$980 million over the next five years. Most of that money will go

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ANWR: Knowles launches big push

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into new wells and improvements on existing fields, he said, noting \$155 million is reserved for seeking new prospects.

"I assure you we're not finished with discovery because we'll continue to be the largest explorer in Alaska," Thompson told members of the Fairbanks Chamber of Commerce.

BP's Morgan isn't so sure Clinton will stand in the way of exploring the refuge. He applauded the ANWR-opening strategy of Alaska's all-GOP delegation, which inserted money from projected lease sales within the refuge into the nation's budget.

"That doesn't sound stupid to me," Morgan said. "Seems to me well worth a shot."

For now, BP aims to concentrate on increasing recovery from Alaska's existing major fields and tapping smaller North Slope prospects, most notably Badami.

Morgan said oil producers are intrigued by reports of raw crude seeping from the coastal plain of the Arctic National Wildlife Refuge. But the promising area isn't even listed as a prospect for development on maps posted at BP headquarters in London. That omission piqued Knowles'



MORGAN



THOMPSON

interest during a promotional trip he made following his November election.

"Why isn't ANWR on there?" the governor asked at the time.

"It's easy," Morgan said, describing the conversation confirmed by Knowles staff Tuesday. "We don't have places on that list that aren't accessible."

The governor's overseas trip

was intended, in part, to encourage BP to take another look at Alaska investments. The administration's subsequent success at winning approval for royalty adjustments on new marginal fields is a good first step, said the company's Alaska chief.

"Our sense is the new administration has been listening to the industry," Morgan said.



NEWS SUMMARY

U.S. Department of the Interior

Office of Communications

Tuesday, August 22, 1995

Los Angeles Times

MONDAY, AUGUST 21, 1995

Commentary

A Senseless Scheme Aims at a Priceless Arctic Treasure

■ **Environment:** Opening the last north coast sanctuary to drilling would yield, at best, six months' worth of oil.

By BRUCE BABBITT

The Arctic National Wildlife Refuge is the last protected fragment of the great coastal plain where North America slopes down to the polar ocean. More than 85% of this unique area is already open to oil exploration and development.

But apparently that is not enough.

Certain segments of the oil and gas industry, emboldened by electoral changes, are now asking for everything—for the right to invade our last Arctic sanctuary for the sake, even by the most optimistic estimates, of six months of national oil consumption.

I spent some time in the Arctic refuge in 1993. The tundra, a thousand shades of emerald and jade, sparkled in the soft light of the midnight sun. On a field of cotton flowers and saxifrage, musk oxen circled to protect their calves as a pack of wolves stalked nearby. It was late summer and the caribou had already trekked southward into the passes of the Brooks Range; the tundra was touched with the scarlet hues of autumn, and the snow geese would soon be coming down from Wrangell Island to fatten up before the long flight southward.

One night at Peters Lake, I read the words of author Barry Lopez: "Twilight lingers—the ice floes, the caribou, the

'Opening the Arctic Wildlife Refuge to oil drilling is the equivalent of offering Yellowstone National Park for geothermal drilling or calling for bids to construct hydropower dams in the Grand Canyon.'

musk oxen, all drift, the stillness, the pure light—you can feel the silence stretching all the way to Asia."

Should Congress vote to end the long-standing protection of the heart of one of our premier wildlife refuges, it will inevitably shatter the balance of land and life into a thousand fragments.

Advocates of opening the Arctic refuge to oil development often have based their argument on national security. This argument is weak because no single oil discovery, even a large one, would fundamentally alter our nation's oil security situation.

The Clinton Administration recognizes the importance of U.S. energy security and will continue to support steps that, as shown by past experience, can help us minimize the risks associated with short-term supply disruptions. Sacrificing the Arctic refuge is not one of them.

Drilling proponents also have tried to argue that exploring, producing and shipping oil on the fragile Arctic coastal plain can be accomplished without damage to the wildlife values that the refuge was established to protect.

But their "environmentally safe" argument is as empty as the "national security" one. The Alaska congressional delegation wants to change the name of the Arctic National Wildlife Refuge to the "Arctic Oil Reserve."

The American people will see right through this name change. They will understand that even those who are dedicated to opening this area to the oil industry recognize, correctly, that development will be its death knell as a wildlife refuge.

As their key arguments collapse, oil development proponents have resorted to arguing that opening the refuge would raise \$1.4 billion for the U.S. Treasury over a five-year period. That revenue projection contains more than its fair share of wishful thinking. It assumes that the Treasury will get one-half of any lease sale revenue. Yet the state of Alaska maintains that it is guaranteed no less than 90% under the

Alaska Statehood Act and is suing the federal government to confirm this principle. If that holds, the projections for the U.S. Treasury drop to \$280 million.

Also, those numbers were based on the assumption that oil prices would rise. Instead, oil prices have dropped nearly 50% since 1987, when the Reagan Administration proposed leasing the coastal plain of the Arctic refuge. Then, oil prices in 2000 were expected to be \$38.60 per barrel (adjusted for inflation and in 1995 dollars). Now, however, oil prices in 2000 are expected to be \$19.13.

Lastly, new information has led the U.S. Geological Survey to conclude that earlier high estimates of petroleum resources should be revised downward.

In short, those who would open up the coastal plain can no longer argue on the grounds of national security, environmental safety or fiscal responsibility.

What's most disappointing, though, is that they simply miss the larger, long-term and ethical vision. Opening the Arctic Wildlife Refuge to oil drilling is the equivalent of offering Yellowstone National Park for geothermal drilling or calling for bids to construct hydropower dams in the Grand Canyon. We can, and surely will find a better way both to produce energy and to conserve our natural heritage.

Bruce Babbitt is secretary of the Interior.

Study Condemns Arctic Oil Drilling

Interior Department Says Activity Would Upset Alaskan Ecology

By Tom Kenworthy
Washington Post Staff Writer

A new study by the Clinton administration concludes that drilling for oil in the Arctic National Wildlife Refuge in northern Alaska would do significantly more damage to the region's fragile ecology and wilderness character than previously thought.

Both the Senate and the House of Representatives passed measures in favor of allowing oil-drilling in the refuge as part of their budget resolutions.

"The irreplaceable and enduring value of the Arctic Refuge to the nation as a world-class natural area and wilderness is far greater than the short-term economic gain to be garnered from industrial development," concludes a draft of the study prepared by the Department of the Interior. The report has not been released, but a copy was obtained by The Washington Post.

The report, prepared by the Fish and Wildlife Service at the request of the Alaska office of the Interior Department, examines new scientific information compiled since a comprehensive environmental review was conducted in 1987 during the Bush administration. That document played down the environmental consequences and recommended a drilling program to harvest the estimated 3.2 billion gallons of oil then thought to be recoverable from the refuge's coastal plain on the Beaufort Sea.

The new study was commissioned strictly to examine the potential environmental effects of oil-drilling, not its possible local or national eco-

nomic benefits. However, in a separate report last June, the U.S. Geological Survey reduced its estimate of the maximum potential oil yield from the coastal plain by more than 50 percent.

Calling the refuge "the outstanding example of remaining American wilderness," the new study said petroleum drilling would have greater adverse impacts than earlier believed on the huge Porcupine caribou herd that migrates through the area, on physical resources such as scarce water supplies, and on the fragile vegetation of the tundra.

"The refuge is the only conservation area in the nation that provides a complete range of Arctic ecosystems, functioning in balance to perpetuate wildlife populations," says the analysis.

The new report by the Interior Department is likely to bolster the administration's view that drilling should continue to be banned in the 19-million-acre refuge, which is home to one of the continent's largest caribou herds, muskoxen, brown bears, polar bears and many species of birds and marine mammals.

In congressional testimony earlier this month, Interior Department officials told a Senate panel that Secretary Bruce Babbitt would recommend that President Clinton veto any budget legislation that includes drilling in the 1.5-million-acre coastal plain of the Arctic refuge. Calling the coastal plain "an irreplaceable piece of our national heritage" Babbitt has predicted that oil exploration and development there would disrupt the "ancient pageant of wildlife

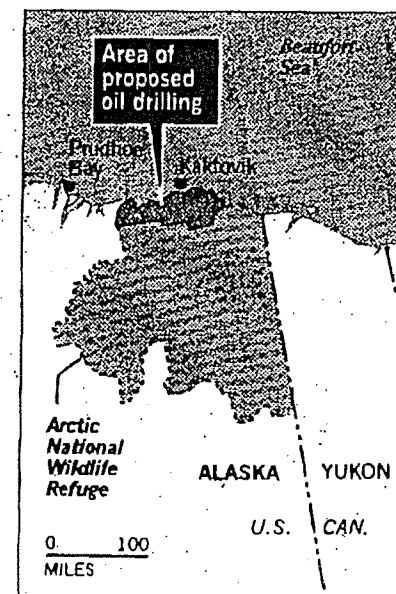
moving through the seasons of an enchanted landscape."

The new, gloomier analysis of the potential environmental consequences of drilling in the refuge seems unlikely to deter Congress. The House and Senate committees charged with turning the oil-drilling recommendations passed by both houses into actual legislation are headed by Alaska Republicans, Sen. Frank H. Murkowski and Rep. Don Young, who are firmly committed to drilling. And the senior Democrat on the Senate Energy and Natural Resources Committee, Sen. J. Bennett Johnston (D-La.) has predicted that proponents of drilling in the refuge have enough votes to prevail.

Nonetheless, the new Interior Department analysis will add fuel to an emotional argument that has persisted for 15 years, ever since Congress left the question of oil-drilling in the refuge unresolved when it passed the 1980 Alaska National Interest Lands Conservation Act.

Conservationists adamantly oppose oil-drilling in the refuge, comparing the grandeur of its massive annual caribou migration to the world-famous migration of wildebeest herds on Africa's Serengeti plain. To many Alaskans, however, the refuge is a barren plain frozen during 10 months of the year and swarming with ravenous mosquitoes during the other two.

Murkowski and other Alaska politicians have endorsed opening the refuge to drilling as a key component of U.S. energy policy, saying it will guard against dependence on foreign oil supplies and boost domestic employment.



The new Interior Department study, however, dwells less on the practical and more on the metaphysical allure of the Arctic coastal plain.

It particularly criticizes the earlier report's conclusion that oil development would result in "no appreciable decline" in the 300,000 caribou in the Porcupine herd. "The cumulative effects of reduced access to habitat providing preferred forage, predator avoidance, or insect relief for the [herd] caused by full development of the . . . area would result in a major, adverse impact on the herd," predicts the analysis.

And it attacks the conclusion of the earlier report that the coastal plain's wilderness quality "is not unique."

"From many vistas within this area," the new report says, "visitors can enjoy awe-inspiring views of 9,000-foot, snow-clad peaks, glacial valleys, braided rivers, rolling tundra meadows and terraces, shallow lakes, beaded streams and sea ice—an opportunity not available elsewhere on American soil."

Old Crow Flats a moose mecca, biologist says

By Doug Urquhart

For the past five months, Fran Mauer, a biologist with the United States Fish and Wildlife Service, has been documenting one of the most intriguing ecological discoveries in the history of northern wildlife.

And of all species, it con-

Wildlife Service counted 722 moose in several of the major river drainages where the animals winter.

Another remarkable feature of this migration is that the longest straight line distance was about 200 kilometres for a moose which left the Sheenjek drainage and crossed the Coleen River Valley — not to

The astonishing distances travelled by what is typically considered a pretty stay-at-home species puts one in mind of the Porcupine caribou herd which, in fact, could be spring travelling companions of the migratory moose as they head to the 1002 section of the Arctic Refuge to bear their young. The irony of this situation

the Arctic Refuge will encourage Canada and the U.S. to cut a deal: we'll tend your garden and you tend ours — migratory moose for migratory caribou.

What could be better. Doug Urquhart is secretary-treasurer of the Porcupine Caribou Management Board.

in caribou almanac

cerns the moose — about which almost everything appeared to be known and none of it is very exciting.

As part of its mandate to manage wildlife in Alaska's Arctic National Wildlife Refuge, the service has been monitoring moose there since the early 1970s.

Through such studies, the service learned that, during winter, moose become concentrated in valleys of the Brooks Range where it has been counting them since the mid-1970s.

However, it also became apparent that these same valleys contained relatively few moose during the rest of the year.

The question of where do the moose go in spring intrigued Mauer and his interest was piqued when Yukon biologist Rick Farnell suggested the Brooks Range moose were coming from the Yukon.

Although originally proposed as a study in 1992, it was not until early April of 1995 that Mauer was able to radiocollar 57 moose (44 cows and 13 bulls) in the Sheenjek, Coleen, and Kongakut rivers of the Arctic Refuge, plus the Firth River in Canada's Ivvavik National Park.

A week later, Mauer returned to check on the moose and found that most of them were gone. Of the 12 collared in the Kongakut, nine had already left.

Periodically, through May, Mauer tracked the movements of these and other moose, all of which wound up in the Yukon's Old Crow Flats.

Although scientifically cautious in his pronouncements, after discussing his findings with other biologists, Mauer is confident in classing these unusual moose as a bona fide migratory population.

He further notes the most unusual aspect of their behavior is that the majority of animals on the winter range are migratory as opposed to a minority in other populations where this has been observed.

Of the 57 moose originally collared, 70 to 75 per cent migrated. Plus, we're talking serious numbers here.

In 1991, the U.S. Fish and

mention the Continental Divide — to reach Old Crow Flats in the Yukon.

This far exceeds movements previously recorded for moose such as those of the Tanana River near Fairbanks, which travel some 50 kilometres to and from the foothills of the Alaska Range and the White Mountains.

But why go to all this trouble to reach Old Crow Flats? As Mauer puts it, Old Crow Flats is a 'moose mecca' because of the abundance of food available, both as aquatic vegetation in the numerous shallow lakes and luxuriant willow growth in partially drained lake beds.

And there may be other reasons that so far only the moose know, such as fewer predators or better escape habitat, etc.

will not be lost on anyone familiar with the 1002 issue: we have the Alaskans' calving ground and they have ours.

Fortunately, the Alaskan moose calving grounds in Old Crow Flats is fully protected by Vuntut National Park.

This park was created through the Vuntut Gwich'in land claims settlement and required the extinguishment of oil leases held by six major oil companies in Old Crow Flats.

The opposite situation applies to the Porcupine caribou calving ground in the Arctic Refuge, which presently has no oil leases on it but which could be blanketed with development in the near future if the Alaskan delegation has its way.

But perhaps this revelation in the ever-expanding sage of

ANWR revenue split divides opinion

By BRIAN O'DONOGHUE

Staff Writer

Alaska's leadership is angling to open the Arctic National Wildlife Refuge to development using a hook baited with revenues, potentially reckoned in the millions, promised in the statehood compact.

A provision in the 1959 Statehood Act gives Alaska 90 percent of royalties, bonus payments and other income from any lease of federal lands. But state leaders are now offering to drop Alaska's cut of any refuge oil income to 50

percent in hopes of selling the deal as a federal money-maker.

Spurred by Alaska's delegation, Republicans in Congress are discussing language for the pending budget bill that counts ANWR revenue in the nation's seven-year deficit-reduction formula.

In a recent teleconference with Alaska reporters, Sen. Ted Stevens acknowledged the suggested 50-50 split conflicts with the terms spelled out in the law that put Alaska's star on the U.S. flag.

"It probably does," Stevens

said, adding: "One approach is to not get it passed at all."

He portrayed the change under consideration as a temporary political measure. "My concept," Stevens said, "is we should get exploration going now, then the compact can be enforced in court. Once the state actually receives less than 90 percent—then we can sue."

But Senate President Druce Pearce and John Shively, Alaska's commissioner of Natural Resources, gave Congress a different message when they testified

this July in support of opening the refuge to development.

"I was asked if we would agree to 50-50 and I said that we would," Shively recalled. "As Sen. Pearce told the committee, 50 percent of something is better than 90 percent of nothing."

Shively added that from his personal perspective Alaska's fortunes have changed since Congress felt compelled to endow an impoverished new state with the generous slice of mineral revenues. "We're not poor anymore. It seems to me that it's not un-

reasonable to share those revenues equally."

Big money is at stake in the Slope field, state oil economist Roger Marks made the following calculations: If that oil were selling for, say, \$22 per barrel on the West Coast, netting \$16 a barrel at the wellhead, Marks

said, the state's standard one-eighth oil royalty assessment would amount to about \$200,000 a day. Alaska's cut would be \$180,000 under the terms spelled out in the compact's 90-10 formula. Given a scenario in which

ANWR wells pump 100,000 barrels a day, representing the production of a nice-sized North Slope field, state oil economist Roger Marks made the following calculations: If that oil were selling for, say, \$22 per barrel on the West Coast, netting \$16 a barrel at the wellhead, Marks said, the state's standard one-eighth oil royalty assessment would amount to about \$200,000 a day. Alaska's cut would be \$180,000 under the terms spelled out in the compact's 90-10 formula. Given a scenario in which

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ANWR: Royalties carrot

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mula, he said, but only \$100,000 a day under the 50-50 ANWR split now under discussion.

Marks notes that the formula change also affects the Permanent Fund's share of potential ANWR revenues.

"Fifty percent of all royalties go into the Permanent Fund," the economist said, referring to the state statute that increased the fund's share of oil revenues from fields developed after 1980. "Obviously, 50 percent of 50 percent is less than 50 percent of 90 percent."

Given the magnitude of the dollars involved, Attorney General Bruce Botelho said he would like to see the state Legislature, if not the public, ratify any alteration in the compact formula, a proposal also endorsed by Shively.

"Giving up 40 percent without a fight is a very weighty call," Botelho said.

He said Sen. Steven's open-ANWR-now, sue-later strategy carries the risk of offending other states and the court. "But that's just one lawyer's opinion."

Botelho's predecessor, Fairbanks attorney Charlie Cole, prefers to examine the current ANWR revenue debate in light of the federal government's historic violation of the compact, through imposition of development restrictions on the refuge and other vast pieces of Alaska. "If those withdrawals had taken place the day after statehood," Cole said, "the people would have said they were duped. The state would have likely come apart."

Based on that history, Cole said the court would probably understand if the state struck an ANWR deal while pursuing the full 90 percent share as part of its ongoing lawsuit over federal violations of the compact. "We could say that while we make that (50-50) compromise, we retain the right to sue."

Gov. Tony Knowles' press secretary, Bob King, said that while his boss supports the compact suit, the administration is ready to deal.

"We would agree with legislative leaders that it's best to pro-

ceed with ANWR development now. We would agree that 50 percent of something is better than 90 percent of nothing."

Former residents of the governor's mansion say the potential jobs and economic potential flowing from refuge oil warrant flexibility.

"If that's the only way we can get a green light for development, then do it," fellow Democrat Steve Cowper said of the revenue tradeoff. "I think that's a call the governor and the congressional delegation have to make."

Knowles' Alaskan Independence Party predecessor, Walter J. Hickel, said he could accept a 50-50 revenue split, but only if the state pursues the court case or receives other compensation. "Let the courts decide what's fair. I have no problem with that," Hickel said, "but it's a taking."

North Pole Republican Rep. Gene Theriault recently spent several weeks Outside pressing Alaska's case for opening the refuge. The royalty issue came up several times, he said, most notably by a Minnesota opponent of refuge exploration. Theriault said he could see the man's argument that his constituents saw no benefit from lease deals awarding 90 percent of the revenues to Alaska. "But I would hate to give something up unnecessarily," Theriault said, "and to have something imposed on us is unacceptable."

Rep. Tom Brice, D-Fairbanks, argued for insisting on the 90-10 split when the Legislature passed a resolution supporting congressional action to open the refuge. He was voted down as the Republican leadership warned that any reference to the revenues due Alaska would kill chances of lifting development restrictions in the refuge.

Given the current climate, Brice said he might consider a congressional commitment to invest any revenue siphoned from the state's 90-percent entitlement in managing federal lands in Alaska. But that's his bottom line. "I don't see the use of opening it up, if we don't get our fair share."

Fish/Wildlife confirms refuge monument talk

By A. B. STODDARD
States News Service

WASHINGTON—Officials of the U.S. Fish and Wildlife Service confirmed Tuesday that the White House may propose designating the Arctic National Wildlife Refuge a national monument.

While briefing reporters on a recent Fish and Wildlife study of ANWR, officials refused to comment on the prospects for such a plan but said recently published reports that President Clinton may seek to make the refuge a monument are true.

Jim Kurth, refuge manager for ANWR, said he had nothing to do with policy making and has simply conducted a recent review of the 1987 Legislative Environmental Impact Statement on ANWR in order to provide up-

dated data so that his department could better manage the refuge.

But, he added, "There have been discussions at the White House."

The Sept. 11 issue of Newsweek quoted White House officials as saying such a plan was being discussed as a means to stall or block attempts currently underway in Congress to open the refuge to oil drilling.

Both the House and Senate passed budget blueprints directing the two resources committees, chaired by Alaska Republicans Rep. Don Young and Sen. Frank Murkowski, to raise \$1.3 billion in new federal revenue over five years—and ANWR leasing is the likely source for that revenue.

Under the provisions in the budget plan, ANWR's coastal plain would be opened for drilling

under a 50-50 profit-sharing arrangement between the Alaska and federal treasuries.

Under the Alaska National Interest Lands Conservation Act of 1980, executive power to create permanent monuments in Alaska was limited to withdrawals of less than 5,000 acres. An executive order creating such a monument would have to be considered by Congress within a year.

Under the Fish and Wildlife report, drilling in ANWR would have major, and therefore detrimental, impact upon the refuge. The 1987 study, commissioned by the Reagan administration, also found that exploration and development would result in major environmental impact. But the Interior Department concluded from those findings that drilling could be accomplished in an environmentally sound manner.

The Interior Secretary makes conclusions for policy based on the findings of scientists in reports such as the ones released on ANWR. But since much of the new 1995 findings matched the 1987 data, officials said, it is not likely that the correct conclusion was reached eight years ago.

"That seems quite illogical to us—that you could have long-term impact on habitat availability and not think that's adverse," said Kurth.

Clinton included opposition to ANWR drilling during his 1992 presidential campaign. Although sources within the administration have said it is not a top priority for Clinton, he is likely to use it as a bargaining chip or continue to oppose opening ANWR in order to maintain the political support of the environmental community.

ANWR plans offer 50-50 royalty split

By ROD BOYCE
Staff Writer

Resource committees in the U.S. House and Senate each released their proposals Friday for opening part of the Arctic National Wildlife Refuge to oil and gas exploration, and both have Alaska sharing royalties equally with the federal government.

The House proposal, by Resources Committee Chairman Don Young, R-Alaska, also requires the Interior secretary to "promptly" set up an oil and gas leasing program that ensures "expeditious" exploration and development of the refuge's oil. The secretary would have 12 months from the bill's becoming law to begin selling leases.

In the Senate proposal, by Energy and Natural Resources Committee Chairman Frank Murkowski, R-Alaska, the secretary would have two years to

begin selling leases.

The 50-50 royalty split differs markedly from the Statehood Compact, which says the state is due 90 percent. How to reconcile the two, and still convince Congress to open the refuge, is the object of debate among state lawmakers.

The House and Senate proposals portray opening the refuge as a way to reduce the federal deficit, raising \$1.3 billion for the government through lease sales. To that end, Young and Murkowski are following a strategy of including the opening in a budget resolution. Should ANWR drilling survive into a final budget bill, President Clinton would have to veto the entire federal budget to block drilling.

"After years of review it is clear that we have the technology to safely explore and produce oil

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Fairbanks Daily
News-Miner

9/16/95

ANWR: Both congressional panels offer 50-50 royalty split

Continued from Page A-1
from the arctic coastal plain," Murkowski said in a prepared statement. "It is time to go on with the process, to benefit not just our national security interests and economy, but also the environment."

Young said the House measure includes several safeguards to protect the environment of the 1.5 million-acre coastal plain, where drilling would be authorized.

"Under the environmental provisions of our legislation, if the bill was approved today, oil and gas development would not occur until 10 to 15 years from now so that these regulations could be fully developed and implemented," Young said, also in a prepared statement.

The House panel takes up the issue Tuesday, the Senate panel on Wednesday.

Other provisions of the House proposal include authorizing the Interior secretary to seasonally halt exploration to protect the Porcupine caribou herd's calving areas, and allowing the secretary to designate up to 30,000 acres of the plain as a special management area. The Senate version allows up to 60,000 acres to be withdrawn.

The Senate version permits exploration only from Nov. 1 to May 1 and prevents some activity during the June and July caribou calving period. It also requires that a minimum 300,000 acres of the plain be available for lease at each offering.

The House proposal seeks to make a 1987 federal study the preeminent environmental document governing ANWR, saying it is "adequate and legally sufficient" for all actions on the coastal plain in bringing oil and gas to market. The Senate ver-

sion also relies on the 1987 study.

That bothers John Lawrence, staff director for Democrats on the House committee, who says the language could circumvent statutes concerning pollution control and land management.

"This substitutes a very superficial standard that would serve as the complete resource management criteria for a very sensitive and controversial area," Lawrence said.

House Democrats will try to amend the measure, Lawrence said, but he didn't expect much success.

Dan Kish, an aide to Young on the Resources Committee, said turning the 1987 study into law is a way of staving off lawsuits. Once law, according to Kish, no one could have a basis for a claim that environmental studies have been inadequate. "This is an intent to make sure other land laws

aren't used by creative lawyers to stop ANWR."

The wording is also intended to convince the Congressional Budget Office that ANWR money will be there for deficit reduction, Kish said. "...Shall we have this thing in court for 20 years while creative lawyers find sympathetic judges?"

Sylvia Ward, executive director of the Northern Alaska Environmental Center, said the House and Senate measures are

flawed. "It's obvious the language requires drilling in the refuge. It's not just that it allows it, it requires it."

Ward took issue with wording in the House bill calling for the Interior secretary to adopt regulations to achieve "reasonable protection" of fish and wildlife, and environmental and subsistence uses of the coastal plain.

"Reasonable according to who?" Ward asked. "It's not defined."

Oil work could cause caribou decline

Studies say drilling ANWR could push caribou toward poor habitat, predators

Editor's note: The following is an edited excerpt of the U.S. Fish and Wildlife Service's recent assessment of the expected environmental impacts of oil drilling in the Arctic National Wildlife Refuge. The excerpted section, written in part by biologists in Fairbanks, describes the potential effects upon caribou.

The "LEIS" to which this excerpt refers is the acronym for Legislative Environmental Impact Statement, a report required by Congress in 1980 when it exempted the coastal plain from the wilderness designation it applied to the remainder of the former Arctic National Wildlife Range. The exemption, in Sect. 1002 of the Alaska National Interest Lands Conservation Act, was inserted because of the coastal plain's high oil potential.

The LEIS was completed in 1987, during the Reagan administration. It concluded that full oil leasing and development of the coastal plain would have major environmental effects. However, it recommended a drilling program because the risks were acceptable if certain protections were in place. This updated report released by the Clinton administration counters that recommendation, concluding that ANWR is a unique area biologically and that we cannot easily avoid the harmful effects of oil development.

Caribou use

The coastal plain of the Arctic Refuge, including much of the 1002 area, is the most important area for high-density, concentrated calving by the Porcupine Caribou Herd. In 1995, 92 percent of the herd calved in the 1002 area.

The (1987) LEIS does not adequately portray the full extent of caribou use on the coastal plain. For example, the LEIS states, "From year to year, the distribution of caribou on these calving grounds varies considerably, with most calving usually taking place in the area between the Hulahula River and the Canadian border." This implies that the area west of the Hulahula is of low importance for caribou.

Although from 1972 to 1986, concentrated calving occurred west of the Hulahula River in four of 15 years, data collected between 1987 and 1995 show that concentrated calving occurred in this area in five of nine years. In addition, the distribution and habitat of the Central Arctic Caribou Herd includes nearly the entire 1002 area west of the Hulahula. It is significant that additional data collected since 1987 show important calving areas west of the Hulahula River.

The generalized development scenario used to assess environmental impacts included three major (oil) prospects, one of which is located entirely west of the Hulahula River. These new data indicate that a more extensive area than identified in the LEIS is important to caribou when considering the impacts of oil and gas production.

While the LEIS provides considerable discussion on calving distribution and habitat, very little information is presented regarding caribou use of the coastal plain after the calves are born. The LEIS simply says, "Post calving movements and aggregations show considerable annual

variation." No specific examples or maps are provided. Information regarding caribou distribution and movement during the post-calving period was available in the Baseline Report Series, but was not included in the LEIS. Nearly every year, all PCH females and calves use the 1002 area for post-calving activities and, in most years, the majority of bulls also use the area during late June and early July.

Caribou movements studied after the LEIS illustrate a more extensive and dynamic use of the area by the Porcupine herd than the LEIS presents. Large post-calving aggregations of Porcupine caribou, sometimes consisting of most of the herd, gathered in the Canning River delta area from late June to early July in six of the last nine years.

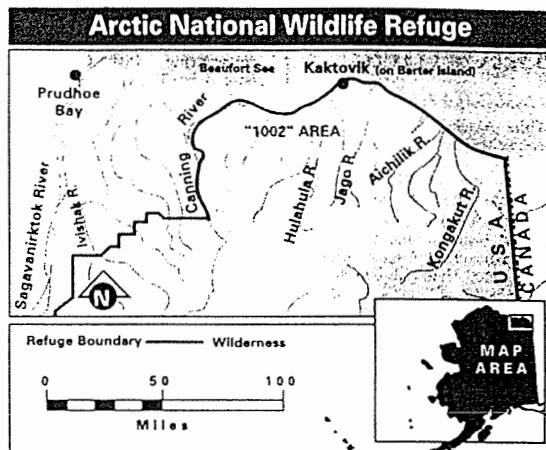
Habitat

The LEIS determined relative habitat values . . . by overlapping multiple years of calving concentration maps. Since only calving distribution maps were used, information about post-calving distribution and movement was not included, and thus the analysis inappropriately truncated the geographic scope and frequency of caribou interaction with the development infrastructure.

Habitat research since 1987 provides new data about the distribution of various coastal plain habitats and the quality of their forage. In addition, use of satellite imagery has permitted study of the movement of caribou on the coastal plain relative to snow melt and vegetation phenology (annual variation). Although some of these data are still being analyzed, research has documented that:

- the caribou have a broader use of the coastal plain for calving than the LEIS depicted,
- snow melt and "green-up patterns" influence caribou calving sites each year,
- the concentrated calving area, where 50 percent of the calves are born, in any year imparts a higher level of predator protection,
- the primary forage species (during calving), *Eriophorum vaginatum* (cottongrass), is higher in nutrition, more digestible, and more available within the 1002 area than in the peripheral areas when caribou are present, and,
- caribou seek ridge tops on the coastal plain for insect-relief habitat, in addition to the coastline and mountains the LEIS noted.

Analysis of the multi-year data set from radio-collared adult females indicated that birth sites and caribou distribution are associated with snow melt patterns and early plant phenology. The herd selects the high density portion of the calving ground annually based on areas with the highest rate of plant growth in the two weeks immediately following calving. The new plant growth is highly digestible with a high protein content. This is the period when protein and energy demands on caribou cows, for lactation, are the highest of any time of the year.



Development impacts

The LEIS assessed the effects of development on caribou as being related to the actual acreage impacted by roads, pipelines and drill pads, often called the "footprint" of development. The LEIS assumed a 3-kilometer sphere influence from development would affect 37 percent of the Porcupine herd's concentrated calving area. Both the effects on calving and post-calving habitats caused by the development infrastructure should be considered. When caribou's complete use of the coastal plain is considered, development affects a larger area than the LEIS depicted by considering only areas of concentrated calving.

By focusing on the "footprint" and a sphere of influence immediately adjacent to it, the real impact of the development infrastructure is minimized and underestimated. The effects the development infrastructure have on movements and access to preferred habitats are the primary factors that will determine the impact to the herd's population dynamics. The development scenario used to assess impacts is oriented on a general east-west axis with two corridors connecting marine facilities at Camden Bay and Pokok Lagoon. This alignment would interact with caribou movements from uplands to the coast to avoid insect harassment as well as westward movements before calving, and eastward movements when the herd moves toward the British Mountains in Canada. If the infrastructure were oriented north-south there would also be extensive interaction with these predominant east-west caribou movements. Investigations with the Central Arctic herd at Prudhoe Bay have shown that the propensity of caribou to cross structures is inversely proportional to the size of the group encountering the structure—that is, large groups have lower success in crossing structures. Since the Porcupine herd is 10 times greater in size than the Central Arctic herd, the probability of large groups occurring in the 1002 area suggests a greater incidence of negative interactions between caribou and the infrastructure. In this case, the "footprint" becomes a barrier and reduces access to habitats beyond the 1, 2-, or 3-kilometer sphere of influence identified in the LEIS.

In all probability, a barrier effect will occur to some extent, causing displacement of the herd.

The LEIS agreed that a change in distribution of the Porcupine herd could reasonably be expected. There is limited coastal plain habitat available because of the proximity of the mountains to the sea. Therefore, displacement would be to the foothills south and east of the 1002 area. This would:

- displace the herd to the area of highest predator density,
- reduce the amount and quality of preferred forage species available during calving, and,
- restrict access to important coastal insect-relief habitat.

The potential increase in predation from this scenario with the herd at its present population level would have a negative, albeit minimal, impact on the population. On the other hand, reduced food resources due to displacement and potential increased energy expenditure, due to encountering the infrastructure, could have a more noticeable impact. Failure to obtain insect relief would contribute to poor physical condition. The Alaska Department of Fish and Game, in conjunction with the 1002 research program, found that viability of the calf was associated with fall weight of the female. Reduced parturition (birth) rates or calf survival will have a negative impact on the population dynamics of the Porcupine herd.

The LEIS acknowledged the potential for a population decline resulting from loss of habitat and reduction in habitat values. It simply concluded, "No appreciable decline is expected as a result of development." That conclusion is speculative, cannot be substantiated scientifically, and does not logically flow from the concerns about habitat. Likewise, attempts to precisely predict a numerical population decline would also be speculative. Current studies indicate, however, that the ability to freely locate the calving ground where conditions are most favorable influences calf survival. Small disruptions to free calving ground location may have demonstrable repercussions for herd dynamics. A reduction in annual calf survival of less than 5 percent would be sufficient to change a positive rate of increase in the Porcupine herd population to a declining rate. It is reasonable to conclude that the cumulative effects of reduced access to habitat providing preferred forage, predator avoidance, or insect relief for the Porcupine caribou caused by full development of the 1002 area would result in a major, adverse impact on the herd.

JACK ANDERSON and MICHAEL BINSTEIN

Mixing Politics and Policy

Before spending an evening watching a movie in the White House theater last month, several members of the Clinton Cabinet lingered to pan the performance of the Republican-controlled Congress.

Interior Secretary Bruce Babbitt bemoaned a recent House vote that gutted the Environmental Protection Agency's authority to enforce clean air and water regulations. That's when U.S. trade representative and Clinton confidant Mickey Kantor jumped in with a political observation:

"Bruce, you've got it all wrong. That's the best thing that ever happened to us. We've got to keep losing ones like that so we can use it [in next year's election]." Kantor, Commerce Secretary Ronald H. Brown and Clinton himself are unique for their ability to see a seamless web between politics and policy. In that sense, the effort now underway by Republicans to open up Alaska's Arctic National Wildlife Refuge to oil and gas drilling could be a political geyser for Democrats.

Until recently, there's been a bipartisan consensus that some wildlife and natural beauties cannot be assigned a dollar value. In 1959, the Eisenhower administration called the refuge area "one of the most magnificent wildlife and wilderness areas in North America . . . a wilderness experience not duplicated elsewhere." Now some Republicans want to transform this part of our national heritage and even rename it from the Arctic National Wildlife Refuge to the Arctic Oil Reserve.

Although this is a GOP payoff to the oil industry, White House officials are strategizing over how to reap political dividends. The handling of the issue is one of the subplots behind the looming train wreck—the shutting down of government—if the president and Congress can't pass a budget before the Oct. 1 start of the fiscal year.

The government has shut down nine times in the past 14 years because Congress and the president were stalemated over spending plans. Clinton administration officials note that the first time was in 1981, when President Ronald Reagan stood his ground, defined his presidency and soared in the polls.

Congressional Republicans threw down the gauntlet earlier this year by counting an assumed \$1.4 billion in revenue from projected refuge oil lease

sales as part of their balanced budget plan. As a result, Congress is faced with the fait accompli of drilling as part of the budget reconciliation process or with finding the money elsewhere.

The question being hotly debated at the White House is whether the refuge issue might resonate enough with the electorate to justify a presidential veto, even if it risks a train wreck. Some of Clinton's political advisers, who have awakened belatedly to the grass-roots appeal of environmentalism, believe it could be a big political plus. They are pitted against other advisers, who argue that Clinton should save his fire for a showdown over Medicaid and Medicare.

"The usual ranks are shattered all over the place [on the Arctic refuge]," one senior administration official told us. "During the past two years, when there's been an environmental issue, Babbitt loses with the political people in the White House. Now they don't see [Babbitt] as Typhoid Mary every time he walks into the place."

Refuge drilling bill scores again

*Fairbanks Daily
News-Miner
9/21/95*

McClatchy News Service

WASHINGTON—Legislation to open Alaska's Arctic National Wildlife Refuge to oil drilling sailed through the Senate Energy and Natural Resources Committee Wednesday without a serious challenge.

The measure, approved 13-7, is designed to raise about \$1.3 billion through leases in the refuge's 1.5 million-acre coastal plain. Republican backers say the money is needed to help balance the federal budget by 2002.

The House Resources Committee approved similar legislation Tuesday after rejecting, 27-12, a Democratic amendment to keep the refuge closed to development.

The refuge is regarded by environmentalists as the most significant arctic ecosystem that hasn't been spoiled by drilling. But the oil industry, citing its environmental record in nearby Prudhoe Bay, says the refuge's potential oil riches can be exploited without any significant disturbance of wildlife.

The drilling provision now will

be added to a massive budget measure to be worked out by the Republican-controlled Congress and sent to President Clinton in the next few weeks. The president has said he is opposed to opening the refuge, but the White House has not said whether the drilling provision alone would be enough for him to veto the budget bill.

The Senate's development provision was written by Alaska Sen. Frank Murkowski, the energy committee chairman. It was backed by nine of the panel's 11 Republican members and four of its nine Democrats.

The only amendment, offered by Minnesota Democrat Paul Wellstone, would have required the Interior Department to prepare an environmental impact study before any leasing could occur.

Murkowski said that the environmental risks of exploration were fully studied before the Reagan administration proposed opening the refuge in 1987, and that additional environmental

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studies will be conducted before any development occurs. Wellstone's amendment was defeated, 15-5.

The refuge's coastal plain is

considered the most promising location for a giant oil discovery. According to some studies, the area could contain nearly as much oil as Prudhoe Bay, the largest oil field in the United States.

To meet the \$1.3 billion revenue target, oil companies will have to pay twice that sum for drilling rights since half the money will go to the Alaska.

Roger Herrera, a lobbyist for pro-development Arctic Power, was elated by the development measure's smooth progress.

Fairbanks Daily News-Miner 9/28/95

Senator hits media for anti-drilling stand

By A.B. STODDARD
States News Service

WASHINGTON—Sen. Frank Murkowski of Alaska said Wednesday the national media has given environmentalists the spotlight in the congressional fight to open the Arctic National Wildlife Refuge, ignoring the arguments in favor of drilling there.

While addressing members of the U.S. Chamber of Commerce, Murkowski said environmentalists and the Gwich'in Indians, who fear drilling would harm the Porcupine Caribou Herd on which they subsist, have permeated press coverage and drowned out the voice of proponents.

"We haven't been able to get this point across to the American people," said Murkowski, whose bill to allow leasing in ANWR has been attached to the budget reconciliation legislation aimed at reducing the federal

deficit by 2002.

Murkowski said although environmentally sound drilling in ANWR is possible, it is not widely understood.

"They think it's going to be desecrated, raped, pillaged, ruined and so forth," he said of the public. He accused the environmental community of "selling short the ability of American technology and ingenuity to meet the challenge of the environmental sensitivity of this area."

Environmentalists say favorable press coverage is a simple reflection of widespread public opposition to opening the refuge.

The potential harm to caribou and other wildlife that could result from drilling in the coastal plain—the rallying cry of both the Gwich'in and the environmentalists—has won opponents the attention they sought, according to Murkowski said.

"Clearly this is a bogus issue, but it's very, very effective because it's warm and cuddly and the environmental community found it an effective fund raiser," Murkowski said.

"We don't have the money to basically buy the media, to get our story out," he said.

On Wednesday, a quarter-page advertisement funded by the Wilderness Society appeared in the front section of The Washington Post, adjacent to the well-read Insider federal column. The advertisement cost \$12,782, according to the paper.

The ad takes the form of a pre-written statement and urges readers to "clip and send" it to members of Congress. It reads: "I support the president's pledge to veto oil and gas drilling in the Arctic National Wildlife Refuge. Don't destroy America's last great wilderness."

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Alice Rivlin, director of the Office of Management and Budget, last week announced that President Clinton would veto any budget reconciliation bill containing ANWR drilling. Murkowski said that doesn't mean the end of the fight to open ANWR.

Pam Miller of the Wilderness Society said Murkowski's portrayal of pro-industry lobbyists as financially inferior to their opposition was "a cheap shot."

Arctic Power, the group lobbying to open ANWR, received nearly \$1 million from the state of Alaska for its efforts, Miller said.

"His side has the largest corporations in the world," she said, adding that the oil companies are contributing to Arctic Power through donations by the American Petroleum Institute.

Roger Herrera, lead lobbyist for Arctic Power in Washington, estimated his group had not spent more than \$10,000 on four ads it had placed so far in newspapers in Colorado, Hawaii and the Capitol Hill publication Roll Call. "They weren't full page ads."

"It's completely and utterly frustrating—the lack of response," he said. "It's like throwing it into the bottomless pit."

Herrera said he has submitted many letters to the editor that were never printed in national newspapers. In addition, he said he has met or requested to meet with editorial boards of major publications, only to find that editorials are written in opposition to drilling in ANWR.

"It's just lines lifted from the environmental rhetoric," Herrera said.

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Managing EditorSAM BISHOP
Editorial Page Editor**ANWR: Our message**

The New York Times editorial of Aug. 28, reprinted on this page Tuesday, rehashed the familiar arguments in opposition to oil development in the Arctic National Wildlife Refuge. There were the usual inferences that vast populations of wildlife were threatened by such work. But such ideas have a tenuous factual basis, so, after calling our congressmen a few names, the editorial closed instead on a point that safely defies rational debate: ANWR is simply one of the last great undisturbed places on earth, so leave it alone.

To make that point, the editorial borrowed the words of Interior Secretary Bruce Babbitt, who said opening the refuge would be the ethical "equivalent of offering Yellowstone National Park for geothermal drilling, or calling for bids to construct hydropower dams in the Grand Canyon."

Such words push this decision onto another plane. When you start arguing in such terms, it just doesn't matter how much oil is there or how caribou might be affected by drilling for it. The facts don't matter. You're going straight for the gut emotional response. You're talking to those commuters stuck on the smoggy Santa Monica freeway at 98 degrees, overwhelmed by humanity and pollution and concrete. Geez, they say, hearing Babbitt's soundbite from their radios, we have to protect those last great places from all this.

It's effective political strategy, because it's so difficult to argue. What's the response? Should we claim ANWR is not a Yellowstone or a Grand Canyon? Many Alaskans are tempted to say as much. After all, most of the coastal plain is not particularly scenic. While it is important to caribou for a few weeks each year, it's not by itself a biologically productive area.

But you don't get far in these debates by cutting down nature—it sounds mean-spirited. And such talk doesn't inspire confidence when you're trying to prove that Alaskans are environmentally sensitive. Opponents need simply to point to such statements for evidence that you're not. Then The New York Times can refer to your record on the environment as "legendarily retrograde," the terms applied to Sen. Frank Murkowski and Rep. Don Young. (For some reason, Sen. Ted Stevens was excused.)

A better strategy is for Alaskans and their representatives to publicly recognize that ANWR is indeed a great place, and that is precisely why we won't ruin it or its wildlife. We will develop the oil there with the latest field-compressing, pipeline-hiding, road-reducing technology. The caribou and other wildlife will co-exist with oil development as they do at Prudhoe Bay. There may be some effects, but nothing that would threaten the integrity of their populations or of the surrounding ecosystem.

This won't be an easy argument to win, given the emotion on which the decision will turn. But the country's representatives may have a more sympathetic ear than at any time in recent history. Let's make sure they hear the right message from us.

Date SEP 21 1995

USA TODAY

Client No. 120

Alaska lands at issue in conservation clash

By Linda Kanamine
USA TODAY

Alaska, the nation's last great frontier, is at the heart of a fight over the federal government's new direction in overseeing public lands, mineral caches and wildlife.

The conservation showdown has been building since Republicans' election victories last year put more pro-development lawmakers in charge of key committees.

House and Senate panels approved two measures Wednesday, putting them on a fast track for final passage:

- One measure opens 1.5 million acres of the 19 million-acre Arctic National Wildlife Refuge to oil and gas exploration.

- The other reopens thousands of acres of giant trees for harvest in the Tongass, the state's largest national forest. Logging there would increase by 75%.

The move is part of an effort to reverse harvest bans enforced by the Forest Service to protect spotted owls in the Pacific Northwest.

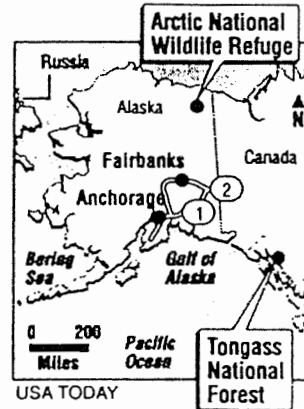
The Alaska issues are just two in a line of key environmental votes, ranging from who should own public lands to how polluters are regulated, scheduled for votes in the next few weeks. It's no surprise that the Alaska issues are at center stage.

Three Alaska Republicans lead the debate: Sen. Frank Murkowski and Rep. Don Young chair natural resources committees, and Sen. Ted Stevens is second in charge of the Senate Appropriations Committee.

Opponents "sell America short," Murkowski says. "American ingenuity and technology is up to the job of opening up (the arctic refuge) safely, creating thousands of new jobs and reducing our dependency on imported oil.

"Let's keep our jobs and dollars here at home."

Environmentalists, long a force on Capitol Hill, are



about to find out whether they still have muscle.

Most of their might is going toward stopping drilling in the Arctic National Wildlife Refuge. They call it an "American Serengeti" that harbors caribou, musk oxen, wolves and polar bears. They dispute drilling advocates' estimates that there are up to 9 billion barrels of crude that could raise \$1.3 billion in lease fees over the next five years for the federal government.

"It's outrageous," says Alaskan Sara James of the Gwich'in tribe. "It looks like (environmentalism) no longer exists. They have to realize that without it, they don't have a future for the next generations."

Sue Libenson of the Alaska Rainforest Campaign says several million acres of public Alaskan land is being given away through the back door. She says attaching changes to budget bills rather than holding public hearings "is a real sleazy way of doing it."

Other budget decisions have left the conservation agenda lagging as negotiators voted to end a year-long moratorium on sales of federal land for as little as \$2.50 an acre to people holding valid mining claims.

Says Allen Smith of the Wilderness Society in Alaska: "We have a wrecking crew in there bent on throwing out 50 years of environment and conservation law."

Veto Threatened Over Arctic Drilling

Budget Reconciliation Proposal Would Open Refuge to Oil Industry

By Ann Devroy and Dan Morgan
Washington Post Staff Writers

President Clinton will veto omnibus spending legislation being prepared by Congress if it allows oil and gas drilling in the environmentally sensitive Arctic National Wildlife Refuge in northeastern Alaska, the White House announced yesterday, adding another veto threat to a growing list.

Environmentalists have pushed hard for Clinton to try to protect the wilderness either with a veto or by designating it as a national monument. Alice M. Rivlin, Office of Management and Budget director, delivered the warning in a letter that declared, "Opening this coastal plain to oil and gas development would impact these pristine lands in . . . adverse ways."

Key House and Senate committees this week approved an end to the ban on exploitation by 1997 as part of a huge omnibus reconciliation bill being put together to implement the Republican plan for balancing the budget by 2002. The committees have calculated that the federal government could raise \$1.3 billion from the sale of drilling rights over the next seven years without damaging the environment.

But Rivlin warned that Clinton would veto the budget reconciliation package if the provisions are included.

The veto threat came as the White House and congressional GOP leaders continued a back-and-forth negotiation over a short-term spending package to keep the government fully in operation past Oct. 1, the start of the fiscal year, even if the 13 annual financing bills have not been enacted.

The White House has rejected a GOP stopgap plan unveiled this week and sought a meeting, probably today, to seek a compromise. In rejecting the

GOP measure, White House Chief of Staff Leon E. Panetta said it would target some of Clinton's spending priorities, such as education and the environment, for elimination or deep cuts.

The Republican proposal would use the lower of spending figures approved by either the House or Senate for each budget line item. The White House has proposed an across-the-board cut. Accepting the GOP proposal, officials said, would imply Clinton's acceptance of the stingiest Republican proposal in every program, with exceptions only for those set to be abolished. They would get minimal funding until a broader deal is worked out.

Under the GOP formula, funds for the Securities and Exchange Commission and the National Labor Relations Board would be 20 percent and 30 percent below 1995 for as long as the stopgap plan was in force.

Although Republicans want the "continuing resolution" to last only until Nov. 13, it could be extended. If the White House and Congress cannot resolve budget differences, it conceivably could remain in effect for the entire fiscal year. "We are not going to be blackmailed into accepting their priorities," Panetta said.

Conflict over the stopgap measure is only a mild preview of battles to come when the Republican-led Congress presents Clinton with its long-term budget reconciliation plan.

Under the plan, the House Resources Committee and Senate Energy and Natural Resources Committee must come up with \$4 billion in new revenue by 2002. This week both panels, chaired by Alaskans, Rep. Don Young (R) and Sen. Frank H. Murkowski (R), used the process to propose the Arctic drilling, along with numerous other changes opposed by environmentalists.

The Arctic refuge is an important breeding habitat for the Porcupine caribou herd and other wildlife. But oil companies have coveted its 120-mile-long coastal plain for years, expecting to find large oil and gas deposits.

Opponents of drilling in what is one of the last untouched Arctic ecosystems maintain the federal revenue would be much less than the \$1.3 billion projected. Alaska is entitled under its statehood act to 90 percent of oil revenue from in-state drilling. The legislation before Congress calls for a 50/50 split in revenue from the refuge, and many believe the state would quickly file suit to get 90 percent.

Rivlin said in her letter that drilling in the area potentially would violate a U.S.-Canada environment treaty. She said it would disturb the pristine area, risking oil spills, pollution and damage that could impair wildlife for decades or centuries.

Murkowski's committee yesterday finished its budget work by approving changes to laws governing the issuance of titles to mining claims on federal land that Sen. J. Bennett Johnston (D-La.) contended do "not pass the straight-face test."

Murkowski acknowledged that a new requirement for mining companies to pay a 2.5 percent royalty on "net smelter return" would raise a total of only \$12 million by 2002, but said it was a "good faith" effort to reform mining laws. Industry representatives stressed that the proposal was more onerous than a House version.

FOR MORE INFORMATION

For updates throughout the day on budget votes, see *Digital Ink*, The Post's on-line service. To learn about *Digital Ink*, call 1-800-510-5104, Ext. 9000.

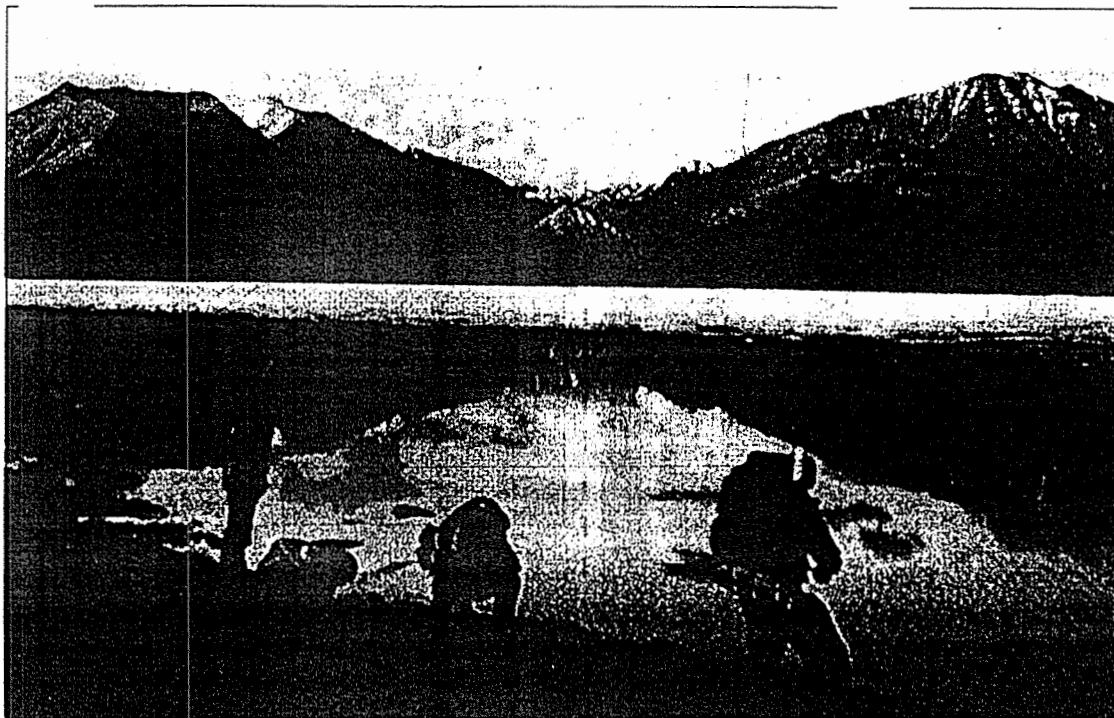


Photo courtesy Arctic National Wildlife Refuge

PICTURESQUE PACKERS—Backpackers take a break at a lake in the Arctic National Wildlife Refuge with nearby mountains reflected in the water.

Alaskans have a lot to learn about national wildlife refuges

I bet you didn't know National Wildlife Refuge Week is coming up Oct. 8-14.

Neither did I until the folks over at Yukon Flats National Wildlife Refuge called and told me about it a few weeks ago.

I'll admit I didn't give it much thought at the time. In fact, I didn't think about it again until Yukon Flats refuge manager Ted Heuer called me a week later to remind me I had promised to do a story on it.

I'll give the feds this much: They're persistent.

At first I was reluctant to write about national wildlife refuges because, quite frankly, I don't know anything about them.

"Are you sure you want to write something about this?" my wife asked me skeptically. "Do you know what a national wild-



Tim Mowry

life refuge is?"

"No," I replied.

I learn something new every week as outdoors writer for Alaska's second-largest newspaper. This week, I learned about national wildlife refuges in Alaska.

Among other things, I learned:

- There are 504 National Wildlife Refuges in the United States, with at least one in every state. West Virginia was the last state to get a refuge.

- There are 16 national wild-

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REFUGE: Alaskans have lot to learn about ANWR

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life refuges in Alaska totaling more than 77 million acres. Nine of the refuges were created in 1980 with the passage of the Alaska National Interest Lands Conservation Act, which added lands to the seven existing refuges in Alaska. The passage of ANILCA doubled the size of the National Wildlife Refuge System to more than 87 million acres.

- The 16 refuges in Alaska comprise 88 percent of all lands in the National Wildlife Refuge System.

- The three National Wildlife Refuges headquartered in Fairbanks—Arctic, Kanuti and Yukon Flats—make up approximately one-third of the lands in the entire National Wildlife Refuge System.

- Only two refuges in Alaska have roads leading to them—Kenai and Tetlin.

- If you explored 1,000 acres a day, it would take 209 years, working seven days a week, to ex-

plore all the refuges in Alaska.

- Waterfowl banded in the Yukon Flats refuge have been seen in Russia, British Honduras, Guatemala, Costa Rica, Venezuela and Mexico, as well as 45 of the 50 states.

- More than one-third of the Kanuti refuge has burned since 1990.

- The largest refuge in Alaska is the Yukon Delta at 19,624,458 acres, which is bigger than Rhode Island, Connecticut, Delaware, Hawaii, New Jersey and Massachusetts combined. The Arctic refuge is a close second at 19,049,236 acres.

- The smallest refuge in Alaska is the Izembek on the Aleutian Islands, at 320,893 acres.

- The Arctic refuge is home to all three species of North American bears—black, brown and polar.

- The Kanuti refuge has the longest run of sheefish in Alaska.

The purpose behind National Wildlife Refuge Week is to educate the public, especially in Alaska, about the refuge system.

"Up here I think there's a lot of misinformation about what people can and can't do in a national wildlife refuge," said Tom Early, refuge manager for Kanuti.

You can hunt, fish, camp, hike, raft and canoe on wildlife refuges in Alaska, if you can afford to get to them.

"A lot of people think refuges are closed and that's a misconception," said Tom Edgerton, outdoor recreation planner for the Arctic National Wildlife Refuge.

Granted, you can't ride four-wheelers in them or build cabins and live in them or buy any of the land they include, but as the Rolling Stones once sang, "You can't always get what you want."

Many Alaskans, displaying an anti-fed attitude, say wildlife re-

fuges are simply the government's way of locking up millions of acres of land and throwing away the key to development and private enterprise.

They point to the heated controversy surrounding oil drilling in ANWR as a prime example. Advocates say there are billions of barrels of oil under the ground and the oil could be obtained in a responsible, environmentally safe manner. Critics say any development would pose a threat to the calving grounds of the huge Porcupine Caribou Herd and should never be permitted.

While I might not know much about national wildlife refuges, I do know one thing: I'm glad I don't have to make that decision.

News-Miner outdoors editor Tim "The Mouth" Mowry is planning a trip in one of the Interior's three national wildlife refuges sometime in the next year.

Fairbanks Daily
News-Miner

10/6/95

ANWR armies

Both sides
using big guns,
ammunition

By A.B. STODDARD
Staff Writer

WASHINGTON—Lobbyists seeking to open part of the Arctic National Wildlife Refuge to oil drilling—and their counterparts working to prevent them—are pouring hundreds of thousands of dollars into airlines, phone lines, fax machines and mailboxes to influence lawmakers.

At the middle of it all are Alaska's congressmen, who are trying to overcome efforts by environmentalists and the Gwich'in Indians seeking to prevent drilling in the refuge. So far, the anti-drilling side has been joined by the Episcopal Church, the Canadian government, the Garden Club of America, John Denver and former President Carter.

With ANWR leasing included
See ANWR, Page A-6

Fairbanks Daily News-Miner

10/8/95

ANWR: Both sides putting up money, clout as showdown approaches

Continued from Page A-1

in both the House and Senate versions of the comprehensive budget bill, and a veto threat by President Clinton, the coming months are likely to hold an ANWR showdown.

As the budget heads to the floor of each chamber, both sides are counting votes and pondering the seriousness of Clinton's threat. Since neither side is certain of victory, they are lobbying for votes around-the-clock.

This week, the Gwich'in Steering Committee placed posters in six Washington subway stations in opposition to opening ANWR and warning of harm to the Porcupine Caribou Herd on which the Gwich'in subsist. The

cost was \$12,000, according to Bob Childers, an adviser to the committee.

"We want to be visible" to lawmakers, said Sarah James, the Gwich'in committee's executive director.

Last week, an advertisement paid for by the Wilderness Society appeared in the front section of The Washington Post, adjacent to the well-read Insider federal column. The advertisement, which cost \$12,782, pledged support of Clinton's veto threat and invited readers to send the ad to members of Congress.

This week, Arctic Power, the lobbying arm for the pro-development side, bought an ad in the

Capitol Hill newspaper Roll Call for \$3,750. The ad asks "Would you support a lunch program that feeds 735,000 and brings in \$1.3 billion?"

Roger Herrera of Arctic Power said similar ads will run in The Washington Post and Roll Call next week. He would not comment on the cost of the next ad series.

Both sides describe their movements as grass-roots and say they collect money from individuals. Each also claims the opposition has more money with which to plead their case.

Arctic Power enjoys financial backing from the oil industry and receives \$450,000 from the state of Alaska. The group also receives donations from its 12,000

members, most of them in the oil and gas industry.

Herrera, who worked for British Petroleum for 30 years, said Arctic Power's lobbying budget is less than that of its ANWR opponents. "I don't think they have any shortage of money."

Pam Miller of the Alaska Coalition said that's not true. The coalition includes the Alaska Wilderness League, the Wilderness Society, the Sierra Club, the Canadian Arctic Resource Committee and the Canadian Nature Federation.

Miller said her group's budget is run "on a shoestring" and added the salary for the coalition's one full-time staff person "doesn't match what Arctic

Power is getting paid and, what their lobbyists are getting paid." She declined to provide numbers.

James, of the Gwich'in Steering Committee, said when Arctic Power has flown members of Congress to Alaska to tour ANWR, they meet with only pro-development Inupiat Eskimos.

"They show them only the places they want to show them. It's all a setup," James said. "They go out and wine and dine the people they want to convince. That's not a grass-roots campaign."

The Gwich'in Steering Committee, which James said works with a \$150,000 annual budget and employs three people, has the support of the Canadian government. Numerous Canadian

Gwich'in have been sent to lobby on Capitol Hill.

Others are traveling the country to gather signatures on caribou hides that will be brought to Washington in two weeks and placed on display, according to Pam Chappell at the Canadian Embassy.

While Herrera at Arctic Power disagrees with arguments that development would harm the caribou, he said he takes his opposition's campaign seriously.

As an example of a successful tactic used by environmentalists, Herrera cited the description of the coastal plain as "the Serengeti of the north." The image was one not based in reality but nevertheless able to draw strong emotion, he said.

REVIEW & OUTLOOK

End the Arctic Stalemate

Now that President Clinton has a cease-fire in Bosnia behind him, it's time to turn his attention to a domestic conflict: the 15-year-long battle over opening a small coastal strip of the Arctic National Wildlife Refuge to oil exploration and drilling. Alaska Governor Tony Knowles, a fellow Democrat, thinks President Clinton could help secure "a declaration of peace" in the conflict between hard-line environmentalists and the 75% of Alaskans who support drilling in ANWR (popularly called "Anwar").

Governor Knowles is viewed as an ecological extremist by many conservative Alaskans, but he told us in a recent meeting that opening ANWR makes sense on both environmental and economic grounds. The 20-by-100

Congressional committees estimate that ANWR lease sales would generate \$1.3 billion for the federal government.

Some 92% of the Maine-sized ANWR area is forever off-limits to development. The rest was specifically set aside by Congress in 1980 for possible oil exploration. But this hasn't stopped environmental groups from trying to slap a wilderness label on even this small remainder. The area is used by migrating caribou and other wildlife.

Local Eskimo leaders such as George Ahmaogak, the mayor of the

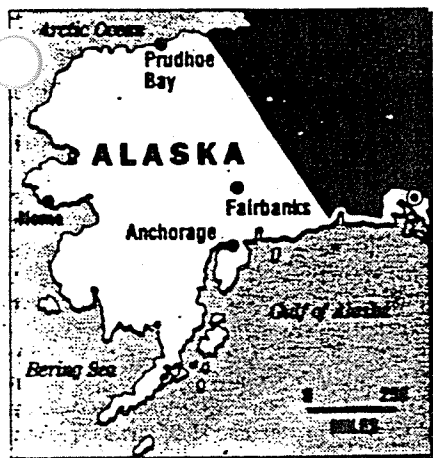
North Slope Borough, back development of the coastal strip. "Our people have an ageless respect and concern for our land," he says. "As Alaskans we deserve the right to responsible development of the resources we have here." He notes that the Prudhoe Bay development has been an unqualified environmental success. In the 17 years since drilling began at Prudhoe Bay, the local caribou herd has quadrupled in size to 23,000 animals. The 800-mile-long Alaska pipeline has had a superb safety record.

Nor would oil exploration and production disturb much of ANWR. With Prudhoe Bay as a guide, the best estimates are that less than 23 square miles—an area the size of Dulles Airport near Washington—would be affected by drilling pads, roads and other construction. Test drillings have shown that all equipment can be removed once the oil is extracted and the ground reseeded, so that in a few years there'll only be trace evidence that anything was disturbed.

Bills to allow exploration in ANWR's coastal plain passed both House and Senate committees last month. Development of ANWR makes sense regardless of how much oil America imports, and Congress is scheduled to vote on the issue later this month. The Beltway environmental groups are fighting to keep all of ANWR in perpetual cold storage. Rep. Bill Richardson, a New Mexico Democrat, says ANWR is "a unique area" and is "an American issue, not an Alaskan issue."

That is environmental arrogance. It ignores the needs of real Americans, many with low incomes, who have to drive to work every day and are not likely to ever fly 800 miles north of Anchorage to stare at the stark, wind-swept terrain of ANWR.

President Clinton has recently announced he'll sign legislation ending the 20-year-old, outdated ban on the export of Alaskan oil to Japan and other nearby markets. The ban on prudent exploration of a small sliver of ANWR is similarly antiquated. If President Clinton wants to show he is indeed a "New Democrat" who knows how to balance economic rationality against the absolutist environmental groups, he should broker a compromise that both preserves ANWR's wilderness status while accommodating the needs of people in the region. That, too, would be a diplomatic breakthrough.



mile coastal plain is basically a frozen desert, wind-swept and bleak even in summer. There are no trees, few flowers and a lot of mosses and lichens. Yet this area may contain the last major oil reservoir in North America, one that could rival the nearby Prudhoe Bay discovery that has produced 25% of the nation's domestic oil since the late 1970s. The Interior Department estimates the odds of a major find at one in five. That compares with the oil industry's typical success rate of one in 50.



Wendy Hower/News-Miner

LOOKING FOR CARIBOU—Arctic Village elder James Gilbert, 85, demonstrates the telescope he uses to search the surrounding domes for caribou. All his life, he has been "hach'oaaya"—looking for caribou. Gilbert said the caribou should return any day now.

'Caribou people' standing firm

By WENDY HOWER
Staff Writer

ARCTIC VILLAGE—When the caribou come, James Gilbert is sure to see them first.

All his life, the 85-year-old elder has been "hach'oaaya"—the one who looks for caribou. Gilbert spends about 10 minutes a day surveying the snow-dusted foothills of the Brooks Range with the aid of a telescope outside his cabin door.

"Anytime" this month, Gilbert said in Gwich'in, the caribou will return.

Gilbert, one of three elders in this village of 70 people, has led his people since the late '80s in a fight against opening the Arctic National Wildlife Refuge for oil exploration and drilling. Seven weeks after Sen. Frank Murkowski flew in to entice villagers with the prospect of oil revenue and jobs, the village's opposition remains firm.

Gwich'in people oppose opening ANWR because of what they see as a threat to the caribou, which give birth to their young on ANWR's coastal plain, the area targeted for oil exploration.

"No development is the only way to be safe for the Porcupine caribou calving ground," said resident Sarah James, the leading drilling opponent for the Gwich'in, by telephone from Washington, D.C. "It's the birthplace. It's a sacred place."

Arctic Village and Venetie, which lie near the refuge, and 15 other Gwich'in communities in Ca-

nada and Alaska, are united to keep ANWR closed, James said.

"We're the caribou people and we speak with one voice," said James, in the nation's capital this month testifying about ANWR before congressional committees. "We're born to protect the Porcupine Caribou Herd and we'll probably die taking care of it."

Native hunters themselves do not venture into the caribou calving

ground for fear of harming the herd. Villagers scoff at oil developers' and politicians' claims that new technology would reduce the impact of exploration and drilling equipment on wildlife and land.

"Diivadzaai Haanagohaii kwaai!" proclaims the multicolored sign just in-



Wendy Hower/News-Miner

HOME-TANNED HIDE—Fannie Tritt Gemmill, community health aide and first-council member in Arctic Village, shows off a home-tanned caribou hide.

ANWR faces key test

Young denies loss of Gingrich's support

The Associated Press

ANCHORAGE—An effort to open a part of the Arctic Refuge to oil development may rest with the usually low-key U.S. House's Rules Committee, which is expected to consider it and other budget matters in the coming weeks.

The Republican-led House's proposal for next year's federal budget is headed to the committee, and it's there the leadership will decide whether to keep the oil drilling language.

Most Democrats, already have promised to oppose drilling in the refuge, and President Clinton has promised to veto any budget bill that contains the provision.

But with a small band of moderate Republicans in the House also questioning the measure, its success is looking less certain.

The New York Times reported Saturday that House Speaker Newt Gingrich already has decided to dump the oil drilling provision as a way to appease party moderates.

Steve Hansen, a spokesman for the House Resources Committee, chaired by Alaska Republican Don Young, disputed that report.

"There's a lot of rumors circulating around at this point, but as of yesterday it was still in there," he said Saturday. "Young has been in constant contact with Gingrich and (House Budget Committee Chairman John) Kasich."

Kasich, whose panel approved ANWR drilling Thursday, said the bill will be modified by the leadership next week, when the measure goes before the Rules Committee.

"What goes in and what goes out is frankly a matter of intensity," the Ohio Republican said.

side the entrance to Arctic Village High School—"Leave our caribou alone." In this cluster of red buildings that dominates the village, every child from age 3 knows "vad-zaih," the Gwich'in word for caribou.

In writing class Thursday, 14-year-old Jonathan Head worked on a story about ANWR and interviewed 10-year-old Daniel Tritt.

"ANWR—what do you think about it?" Jonathan asked. "Do you want it open or closed?"

Daniel answered, "I want it closed."

Jonathan pressed the issue: "What effects do you think opening ANWR would have on the environment?"

Daniel looked down at his desk, saying, "We wouldn't see that much caribou anymore."

The Council of Athabaskan Tribal Governments, which includes the 17 Upper Yukon River communities, passed a resolution urging President Clinton and Congress to designate ANWR's coastal plain as wilderness.

Not all Natives are united on the issue, however. The coastal community of Kak-tovik, located on ANWR's coastal plain, and Morris Thompson, chief executive of Doyon

See CARIBOU, Page A-8

CARIBOU: Villagers stand firm against oil development in Arctic refuge

Continued from Page A-1

Ltd., the Interior's for-profit regional Native corporation, have come out in support of opening ANWR.

The Republican-dominated Congress is holding up the promise of ANWR oil as a solution to the nation's budget deficit.

"I'm scared, really," said Fannie Tritt Gemmill, community health aide and first-council member for the village. "Yes, I'm scared for my children and their

children."

If ANWR opens, the Porcupine caribou will share the fate of the near-extinct Great Plains buffalo, Gemmill said. She considers the threat to ANWR a continuation of 500 years of oppression by Westerners against Native Americans.

"They destroyed the whole United States," she said. "Why don't they keep this little piece of land as natural as it is?"

Angela Peter, secretary for the

Arctic Village Council, said her ancestors migrated with the caribou for thousands of years and that the calving ground must be left alone.

"All they want is dollar bills," Peter said. "We can't live on that."

In the school gymnasium at lunchtime Friday, in between bites of spaghetti, Sheena Tritt, 9, talked about ANWR.

"Nobody's going to take our caribou away," she said.

Across the table, 11-year-old Cynthia Gilbert, nodded, saying, "Because if they kill all the caribou there won't be anything to do for the boys."

Indeed, village men are talking about the fresh meat they will bring home with the caribou herd's return. The village freezer, a low-slung building on the main road, has 25 freezers with room for a winter's worth of meat.

"That's the most exciting time," said Gregory Gilbert. "Everyone excited, with their heart, you know—caribou time."

The best part is the juicy caribou tongue, villagers say. Arctic Village Chief Steven Tritt talked about saving the contents of the caribou's stomach—a delicacy—for the elders.

Tritt, as village spokesman,

emphasizes the role of caribou in his people's way of life. The Porcupine caribou herd is increasingly smaller because of airplanes and other Outside influences, he said. Arctic Village hunters are careful not to waste caribou, he said. "We only hunt what we need."

Villagers bristle at what James described as Murkowski's suggestion that they are poor and need jobs and income from ANWR oil.

All of the villagers do live in cabins with no running water.

"We're not poor. We feel rich in our heart," James said. "We're happy in our home and we have happy families."

Lincoln Tritt remembers his grandmother's warnings about encroaching developers. ANWR, he said, is "the last piece of pure land left."

"We live with this land long enough to know," Tritt said,

"whatever they do will cause lots of disturbance here."

Tritt said oil exploration and drilling activity would expose caribou to chemicals and disease. That would cause animals to behave differently, he said, and would adversely affect the land.

"When Murkowski was here, we told him exactly what's going on with the planet," Tritt said. "But he can't afford to let reality get in the way of his job."

Two out of three oppose refuge drilling, poll says

The Associated Press

A national poll released this week found that 67 percent of respondents were opposed to opening the Arctic National Wildlife Refuge to oil and gas exploration. The poll surveyed 1,000 Americans in late September and showed opposition fell across political boundaries and included Republicans, Democrats and independents.

The Time magazine and Cable News Network poll came in the middle of key congressional deliberations that could send legislation to open the refuge to President Clinton's desk. Some moderate Republicans have opposed the measure, and White House officials have said Clinton will veto it.

The poll was produced by Yankelevich Partners of Claremont, Calif., which conducted the survey in random telephone interviews, according to Erin Cox, a senior associate at the firm.

The poll asked, "Do you favor or oppose legislation which would open up the Arctic National Wild-

Bush backs development

The Associated Press

WASHINGTON—Former President George Bush, who says America learned a "major lesson" about foreign oil dependence during the Gulf War, has announced his support of development in the Arctic National Wildlife Refuge.

"We must not become totally dependent on foreign oil," the Texas Republican said in a prepared statement Wednesday. "Right now, we

have good and reliable friends in the Middle East, but it is only prudent that we find and develop our own petroleum reserves."

Bush, who lost a bid for reelection in 1992, said oil and gas exploration along the 2,000-square mile coastal plain would generate jobs.

life Refuge in Alaska to oil and gas exploration." The question made no mention of either the claims of environmentalists that exploration would harm wildlife, or the claims of developers that the refuge's coastal plan represents North America's last best hope for a major new oil strike.

Pollsters reported 67 percent of respondents opposed the opening, 20 percent favored it,

and 13 percent were unsure.

Among Republicans, 64 percent opposed the opening. Among Democrats, 65 percent opposed. Among independents, 74 percent opposed.

The poll had a margin of error of 3 percent, according to Cox.

Alaska's congressional delegation has led the charge to allow development within the refuge, and state polls have shown resi-

dents here remain solidly behind the delegation.

A May 1995 poll by Dittman Research Corp. of Anchorage found that 75 percent of Alaskans favored opening the coastal plain, with only 19 percent opposed and 6 percent unsure. That support has been consistent over 10 years of polling, said Dave Dittman, the corporation's president.

Dittman said he wasn't surprised that the national poll showed such strong opposition because the question didn't give respondents any sense of the region's oil potential or the relatively small percentage of refuge acreage that might be developed.

Jack Hession, Alaska representative of the Sierra Club, said the poll is a "big boost to preserving the refuge. It has been obvious to us for some time that those are the sentiments of the American people."

A poll commissioned by the Wilderness Society last summer found that 70 percent of Americans opposed refuge oil development.

Oil field herd decline put at 23%

State study can't identify cause of drop in caribou

By BRIAN O'DONOGHUE
Staff Writer

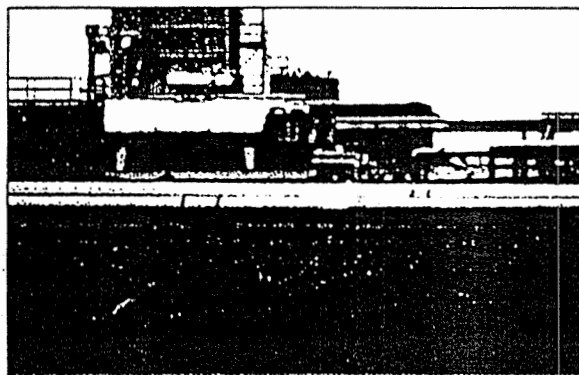
The caribou herd frequenting Alaska's North Slope oil fields, one whose rapid growth is often showcased by advocates of oil exploration in the Arctic National Wildlife Refuge, has sustained a population drop of nearly 23 percent since 1992, according to the latest census by state biologists.

"What data we have seems to indicate that the decline is occurring in the oil field area," said Ken Whitten, a wildlife biologist with the state Fish and Game office in Fairbanks. "We know that's where the problem is, but we don't know what's causing it."

Three years ago, the last time it was counted, the Central Arctic herd numbered 23,444 caribou. The new count of 18,093 caribou, compiled from examination of 70 to 100 aerial photos taken this July, provides the first confirmation of a decline in the herd. Caribou biologists, most notably Ray Cameron, have warned that calving rates appeared lower in the portion of the Central Arctic Herd summering near the Prudhoe Bay fields.

The timing of the Central Arctic census report is politically sensitive because Alaska's congressional delegation is fighting to open the nearby coastal plain

See CARIBOU, Page A-11



Mike Mathers/News-Miner

CHARACTERS OF THE SLOPE—A lone caribou stands out against the backdrop of a facility at the Kuparuk Oil Field during late summer of this year. New census figures reveal that the Central Arctic Caribou herd on the North Slope has declined by 23 percent since 1992.

Split AFN faces vote on ANWR

The Associated Press

ANCHORAGE—Already split over the wisdom of drilling for oil and gas in the Arctic National Wildlife Refuge, the Alaska Federation of Natives heard a cautionary tale from a Clinton Administration official about selling natural resources.

Ada Deer, the U.S. Interior Department's assistant secretary for Indian affairs, warned Alaska's Natives not to leave their children a scarred landscape for the sake of oil money.

AFN, holding its annual convention this week, is set to vote

See AFN, Page A-11

CARIBOU: Declining

Continued from Page A-1

of the Arctic National Wildlife Refuge to oil exploration. While the herd ranges outside the refuge, pro-development politicians have touted its growth during the 1980s as an example of the oil industry's benign coexistence with wildlife.

Political sensitivity was evident Friday as the herd count, which state biologists completed Wednesday, was first leaked to an Alaskan opponent of refuge drilling by a federal agency.

"The photo census was done last summer, it wasn't any big secret," refuge manager Jim Kurth said after a U.S. Fish and Wildlife employee faxed the state census figures to the development opponent in Washington.

State biologists were awaiting approval from Juneau to release census figures, but that was held up as Fish and Game Commissioner Frank Rue and other department officials attended a Board of Game meeting in Anchorage.

"We just wanted to let our bosses know before they read it in the paper," Whitten said of the delay.

Debbie Reinwand, director of Arctic Power, a state and industry funded group lobbying for refuge development, said she expects environmentalists to seize upon the herd's decline. But she doesn't believe it will affect the debate when Congress takes up the budget bill next week.

"This place is in an absolute budget frenzy," Reinwand said from her hotel in Washington. "Budgets, Medicare—there are so many other issues at the forefront right now that ANWR is not part of the discussion."

Prospects for opening the refuge are riding, she said, on agreements Rep. Don Young, and Sens. Frank Murkowski and Ted Stevens, have reached with other members of the Republican leadership to include \$1.4 billion in refuge lease income as part of a deficit-reduction measure.

"This isn't going to affect the process much," Reinwand said. "That herd has still, depending on whose number you use, grown three- to six-fold in the last 20 years."

Royce Chapman, an aide to Young, also pointed to the herd's historic growth since oil began flowing through the trans-Alaska pipeline in 1979.

"It's probably one of those cyclical things," he said. "If it's sitting at 18,100 now, that's still a six-fold increase. I hardly think that's a reason to be concerned—that's nature."

Caribou herds do fluctuate. The population of the Porcupine Caribou Herd, whose calving area on ANWR's coastal plain has become the focus of the refuge development debate, has dropped to 150,000 in recent years from a high of 190,000 and now appears on the rebound, Whitten said. But biologists monitoring the Central Arctic Caribou are concerned about trends in the herd's reproductive vitality near the oil fields.

Census photos taken three years ago showed 62 percent of the Central Arctic Herd located near the oil fields, on the west side of the Sag River. This summer only 47 percent of the herd was detected in that area, Whitten said. Winter migrations across the frozen river might account for some of that range movement, but it also lends sup-

port to a divergence in calving rates, first reported by former state biologist Cameron.

During a seven-year study, Cameron observed that 83 percent of his radio-collared cows had calves in mid-June on the east side of the Sag River. On the west side of the river, near the oil fields, he found only 63 percent of the radio-collared cows had calves.

"There's no way to prove one way or another that it's connected to the fields," Whitten noted. He added, however, that state biologists believe that predation from wolves and Prudhoe Bay's two dozen resident bears has a minor role.

"The low (calve) production we're seeing seems to be linked to poor nutrition in the cows," Whitten said. "It looks more like a summer range grazing problem."

Kurth, the Fairbanks-based ANWR manager, is in Washington, D.C., providing lawmakers and administration officials with background on the refuge. He said it would be wrong to infer that his office was playing politics by releasing the information to a development opponent Friday.

"I can't imagine how someone would say that releasing herd information done on the caribou by scientists is partisan," Kurth said.

But the fax sent out on federal refuge office stationery included more than the herd numbers from the state's latest census.

"...the whole drop in numbers was in the oil field area. That info will not be in the (state's) official release, but will be available if people call and ask for it," the hand-written fax reads. "So it sounds to me that you should call and ask for it as soon as the official release is out. Good luck."

The state's first official survey in 1979 showed about 6,000 caribou in the Central Arctic herd. By the mid-1980s, the herd's official population had climbed to between 13,000 and 14,000 caribou, before peaking at more than 23,400 in the 1992 census.

"If it had continued growing at a constant rate we would have about 50,000 caribou by now," Whitten said last summer.

AFN: Vote today

Continued from Page A-1

this morning on the issue. Delegates will be given of the option of supporting, opposing or remaining neutral on the issue.

"First let me say I believe it is reprehensible to try and balance the budget by risking damage to the environment, the wildlife and traditional ways of some villages," Deer said. "There are better ways to balance the budget than risk that which is sacred and pristine."

She warned AFN that her tribe, the Menominee in Wisconsin, forfeited control over some of its most beautiful land when it agreed to let developers build a resort.

"This was a high price to pay for we lost a significant amount of prime land and also a sense of tribal autonomy, which became a fleeting concept," she said.

For most Alaskans the questions is a no-brainer. If oil is found along the refuge's coastal plain it would mean millions of dollars in state revenues, would prolong the trans-Alaska Pipeline's life and give the state's economy a boost for years.

But for Natives the equation isn't so simple. The Arctic Slope Regional Corporation, owned by North Slope Natives, has a long history with the oil industry, profits from it, and supports ANWR drilling.

In the Interior, Athabascan Indians are sympathetic with concerns the Gwich'in have about damage development could do to the Porcupine caribou herd and the herd's calving ground. The Gwich'in hunt the herd for subsistence.

Deer, who will travel to Gwich'in settlement of Arctic Village this weekend, told AFN that its executive board's vote in June to support drilling was a mistake.

Julie Kitka, AFN's president, wouldn't make a predication on how Saturday's vote would turn out. But she did say the topic troubles many Natives, who perceive it as a question of Native unity.

The convention's decision Saturday shouldn't have much effect on the drilling proposal's fate. That rests with Congress and the White House.

The drilling language is a part of the Republicans' budget balancing bill, which will go before the House Rules Committee on Tuesday and could face a vote before the entire body later in the week.

President Clinton has promised to veto any budget bill that allows for oil and gas exploration in ANWR.

Deer was appointed by Clinton to her Interior Department post.

In other action at the AFN convention Friday, the Interior Department and Alyeska Pipeline Service Co. signed an agreement to boost training and job opportunities for Alaska Natives.

The deal supersedes a 1974 agreement requiring the recruiting and hiring of Natives for jobs on the trans-Alaska oil pipeline.

Alyeska is promising to spend \$25 million during the next 12 years on scholarships and job training.

Officials say the goal is to boost Native employment to 20 percent of the pipeline work force. It stands at 8.5 percent now.

Date **OCT 22 1995**

Juneau Empire

Client No. **128**

Native federation backs ANWR drilling bill

120 620 680

■ Resolution's consideration marked by sharp debate

By JIM CLARKE

THE ASSOCIATED PRESS

ANCHORAGE — The Alaska Federation of Natives wrapped up its annual convention Saturday with a morning of sometime bitter debate that ended with an endorsement of oil and gas drilling in the Arctic National Wildlife Refuge.

Gwich'in Natives, who could lose the most if the refuge's coastal plain is opened to development, urged convention delegates

to remain neutral on the matter.

For months Gwich'in leaders have fought the oil industry effort to explore in ANWR, arguing that they rely on a caribou herd that could suffer if its calving grounds are disturbed by oil development.

After three hours of debate the state's largest Native group rejected a resolution to stay neutral, 4,479-3,461. A resolution backing ANWR development then was approved by a voice vote.

"They turned on us. They didn't give us an opportunity to get back up and plead our side one more time," said Steve Ginnis, chief of the Fort Yukon Native village, a

They turned on us. They didn't give us an opportunity to get back up and plead our side one more time. We're talking about our livelihood here.

Steve Ginnis,

Gwich'in chief of the Fort Yukon Native village

Gwich'in. "We're talking about our livelihood here."

But drilling supporters argued that opening ANWR gives Natives a chance for jobs and economic

growth and concerns over the Porcupine herd are overblown.

"The caribou have a natural seven to 10 year cycle, and this (decline) is just part of it," said

Delbert Rexford, an assistant in the North Slope Borough mayor's office and a shareholder of Arctic Slope Regional Corporation, which profits from the oil industry.

"We feel that a lot of the statements and figures made by the Gwich'in the past few years have been misleading," he said.

The AFN's decision is symbolic, but it comes just as Congress is ready to vote on the ANWR provision as part of a Republican budget-balancing bill. Royalties from drilling leases would generate about \$1.4 billion for the federal treasury, supporters say.

Please turn to Native, Page A6

Native . . .

120 620 680 Continued from A1

They also argue that drilling in the refuge can be done without harming the environment. The House of Representatives' Rules Committee is expected to discuss the matter Tuesday. If it clear that committee the entire House would vote next week.

President Clinton has vowed to veto any budget bill that include the ANWR drilling provisions, and Alaska's all-Republican congressional delegation acknowledges that it doesn't have veto-proof majorities on either side of the Capitol.

During Saturday's debate delegates were lined up five-deep at the three microphones available to speakers. But after their defeat, drilling opponents quickly drifted out, leaving paper cups, wrinkled agendas and copies of the resolutions.

They also left bitter.

"This was a wonderful display of democracy," Will Mayo, president of the Tanana Chiefs Conference, said sarcastically. "I'd like to thank everyone for turning their back on the Athabascan people ... they chose to ignore the subsistence issue to turn a buck."

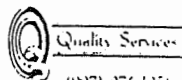
Ginnis said he's worried that drilling proponents will use the

vote to say all Natives support oil and gas exploration.

"We respect the people that want to open ANWR but it's sending the wrong message to Congress if they say that people are united. The votes indicate that we're not united."

AFN also re-elected co-chairmen Willie Hensley and Albert Kookesh in balloting Saturday.

In other action, the convention agreed to endorse U.S. Rep. Don Young, R-Alaska, and U.S. Sen. Ted Stevens, R-Alaska, in their 1996 re-election efforts. The group sent back to its executive board a measure opposing all candidate endorsements.



(907) 274-1056

Date **OCT 25 1995**

Fairbanks
Daily News-Miner

Client No. 120

Congress tackles ANWR question

Senators complain benefits overlooked

120 345A 775 620

A.B. STODDARD
States News Service

WASHINGTON—On the eve of congressional budget debate that could lead to oil drilling in the Arctic National Wildlife Refuge, Alaska's U.S. senators began a final lobbying push that included attacks on the national media.

At a Tuesday news conference, Republican Sens. Frank Murkowski and Ted Stevens complained that benefits of opening ANWR had been absent from media coverage of the budget reconciliation bill, which includes \$1.3 billion in revenue from leasing in the coastal plain of ANWR.

Murkowski said environmentalists have been successful in skewing the public debate. He was joined in a Tuesday news conference by Stevens, Alaska Natives, Alaska House Speaker Gail Phillips and Alaska Senate President Drue Pearce.

"What has been underplayed by the national media is the significance of the importance of this issue to the nation," Murkowski said. He also complained that Alaska's congressional delegation is being portrayed in a bad light since a new debate on ANWR opened in the 104th Congress.

"We're somehow being associated with rape, pil-

Congress prepares to start voting on budget.
Clinton promises veto. Page A-6

lage and ruin. We find that relatively offensive," Murkowski said.

While Stevens referred to the environmental community as "formidable" opponents, he said the media is repeating what he said were lies about the legislation currently before Congress.

"If you would stop lying ... we would get some true answers," Stevens said when asked about some polls that show a majority of Americans oppose drilling in the refuge.

"The coastal plain has never been closed. In 1980 it was left specifically open to oil and gas exploration. It was never wilderness or a wildlife refuge and it is open to oil and gas leasing," Stevens said.

Both the House and Senate versions of the budget reconciliation bill, which aims to eliminate the federal deficit by the year 2000, would authorize leasing. The bills also provide a \$245 billion tax cut and reduce spending on Medicare and Medicaid by \$452 billion.

See ANWR, Page A-10

ANWR: Debate today

120 345A 775 620

Continued from Page A-1

President Clinton, who has threatened to veto the present budget reconciliation package for the cuts it makes to the nation's health care system, has also stated his intent to veto any budget reconciliation legislation containing ANWR drilling.

Environmentalists, hoping Clinton will adhere to that threat, fired back Tuesday with their own last-minute announcement.

This week Arctic Power, the lobbying arm for pro-drilling forces, mailed a pamphlet to the media called "ANWR: A to Z." The group hopes to "pique the humor, interest or curiosity of some jaded press people who have lost interest in the story," according to Roger Herrera, Washington coordinator for the group.

The group used names and phrases after each letter of the al-

phabet in the booklet. For example, "S is for Stevens," and "B is for (Interior Secretary Bruce) Babbitt."

Herrera said the booklet was produced with desktop publishing software "for peanuts in terms of cost" and that approximately 1,000 copies were mailed to mostly national news outlets. He said it was the most efficient way to contact major newspapers that have so far refused to run the group's letters to the editor.

"We tried much more direct means for months and they were simply ignored," he said.

Murkowski said Tuesday he is still attempting to meet with the editorial board of the New York Times to convince them to print a letter to the editor from the Alaska delegation. The New York Times, in a September editorial, opposed ANWR drilling.

Deer pledges ANWR battle

Interior official anti-drilling

By PAULA M. STORY
The Associated Press

In her first public response since the Alaska Federation of Natives ignored her stance against drilling in the Arctic National Wildlife Refuge, Interior Department Assistant Secretary Ada Deer vowed to use her influence to bar exploration.



Deer

But in an interview Monday at the University of Alaska Anchorage, Deer, who oversees Indian Affairs, said she also could be realistic.

"This is a political year and government is sensitive to these issues," she said.

Delegates to the AFN convention Saturday voted down a resolution to remain neutral on arctic drilling — a resolution Deer publicly endorsed — and went on record favoring exploration on the coastal plain.

President Clinton and Interior Secretary Bruce Babbitt also have opposed arctic drilling. The issue is part of a budget resolution scheduled for congressional vote as soon as this week.

Deer said she expected proponents to work at every level of government to lift a congressional ban on drilling. Deer, who spoke to AFN Friday and toured the refuge and the Gwich'in community of Arctic Village during the weekend, led a group discussion and lectured Monday at UAA.

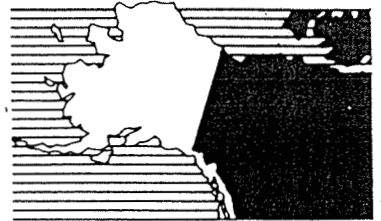
DEER: Interior official vows to fight drilling in ANWR

Continued from Page B-1

Deer said she was not surprised by the AFN vote, dismissing it as a reflection of Native "corporate culture."

AFN leaders voted in June to support arctic drilling, and since then the Gwich'in have pursued a campaign to let policymakers know the vote did not represent all Alaska Natives.

Deer said it was that



response that educated her about the divisiveness of the issue among Natives. She complained that the Alaska delegation had made it seem as if Natives were united in support of development.

Please see Page B-3, DEER

Date **OCT 26 1995**

Fairbanks
Daily News-Miner

Client No. 120

ANWR drilling foes, supporters square off

By **MAUREEN CLARK** 120 620
The Associated Press

ANCHORAGE—On the eve of a congressional vote on a budget bill that would open the coastal plain of the Arctic National Wildlife Refuge to oil drilling, supporters and opponents fought over how much money it would add to the federal treasury.

The White House Office of Management and Budget Wednesday released a letter from budget director Alice Rivlin Wednesday that said oil development in the refuge would produce significantly less revenue than the Congressional Budget Office has estimated.

"In contrast to the CBO estimate of \$1.3 billion net over the seven-year budget period, we believe the best estimate of net revenues to be only about \$850 million," Rivlin said in a letter to Rep. George Miller, D-Calif., the ranking minority member on the House Resources Committee.

Rivlin said the administration's lower estimate is based upon more recent oil price projections than those used by the Congressional Budget Office. The administration also used new data from the U.S. Geological Survey that cuts the amount of recoverable oil in the refuge.

Senate Energy Committee Chairman Frank Murkowski, R-Alaska, said the letter amounted to what he called a "mad dash" to derail legislation that would balance the federal budget.

"They are using a politicized, back-of-the-envelope USGS study that has been thoroughly discredited," Murkowski said in a written statement. Murkowski said his committee would investigate the USGS reassessment of oil reserves in the refuge.

Drilling opponents also released a new national poll Wednesday that shows broad opposition to drilling in the refuge.

The survey, conducted for The Wilderness Society, found that 57 percent of those questioned

opposed the measure. The survey was conducted Oct. 14-16 among 802 registered voters likely to vote in November. The margin of error is 3.5 percent.

"I think it's very consistent with polls throughout the years that Americans do not want to see the last remaining Arctic area open to oil drilling," said Kevin Harun, the executive director of the Alaska Center for the Environment.

But Debbie Reinwand, the executive director of Arctic Power, a pro-drilling group supported by the oil industry, said she was not surprised by the poll's results. She said many people in the Lower 48 don't understand the issue.

"People really have no concept of what you're talking about," Reinwand said. "But when you tell them we're talking about an area of just 6,000 acres, then they start to go with our way of thinking."

Debate on the budget balancing bill opened Wednesday in the Senate and House. Rep. Don Young sparred with Rep. Miller over the provision that would open the refuge. Miller attacked the measure as a giveaway.

"They say it's an emergency, that we must open up the Arctic wildlife refuge to oil drilling because America imports half of its oil. Well they also have legislation here to allow the export of Alaska oil to Japan and other countries on the Pacific rim so it's not for America, it's for their corporate clients," said Miller.

But Young countered that development would help Alaska Natives and reduce dependence on foreign oil.

"These are people that had little or nothing before the development of oil and now have what they think is their right due off their land," said Young. "But more than that we are now importing \$1 billion a week of foreign oil."

ANWR plan survives Congress

The Associated Press

ANCHORAGE—U.S. Rep. Don Young says he has been trying to get the Arctic National Wildlife Refuge open to oil and gas drilling for the past 4 years.

On Thursday, he finally got a measure through on his side of the Capitol, the House of Representatives. And less than 24 hours later, a provision that would allow oil and gas exploration on ANWR survived efforts to remove it from the Republican budget plan in the Senate.

An amendment was offered by Montana Sen. Max Baucus that would have stricken the ANWR provision. It was voted down by a margin of 51-to-48.

Baucus, a senior Democrat on the Senate Environment and Public Works Committee, is a longtime opponent of ANWR development.

The Senate was continuing to slog early Friday through a pile of amendments to the landmark spending measure, which would shrink social

■ Interior business leaders see good news in opening of refuge to oil and gas drilling. See Page B-1.

spending, cut taxes and balance the budget by the year 2002. An up or down vote by the Senate was expected later in the day.

Once the budget bill clears the Senate, as expected, it will go to the White House, where President Clinton has promised a veto.

Supporters have said opening ANWR's coastal plain to drilling would mean about \$1.3 billion each for the federal government and the state. The Clinton administration released data this week indicating that it could produce \$850 million for each government.

Opponents of the move—including Allen Smith, executive director of the Wilderness Society of Alaska—said two recent polls showing broad opposition to drilling should strengthen Clinton's resolve if the president has any thought

of compromise on the issue.

"These guys are trying to turn back the clock, and it's going to catch up with them at the polls next year," Smith said of congressional Republicans.

Alaskans blanketed Capitol Hill this week in last-minute efforts to corral support for drilling. They included a dozen North Slope Inupiat Eskimos, three state legislators and lobbyists for Arctic Power, a pro-drilling group funded by the oil industry.

Debbie Reinwand, Arctic Power executive director, said House Speaker Newt Gingrich and Senate Majority Leader Bob Dole both stopped by a strategy session and dinner the Alaskans were having in the Capitol building Thursday night.

See ANWR, Page A-12

Sides prepare in face of veto

By A.B. STODDARD
States News Service

WASHINGTON—As the Senate moved to pass a massive budget bill authorizing drilling in the Arctic National Wildlife Refuge on Friday, a looming veto threatened by President Clinton motivated opponents and proponents to continue their separate battles.

"We have to continue the fight," said Sen. Frank Murkowski, R-Alaska, adding, "We might have to start this process again."

Clinton is expected to send the budget reconciliation bill, which seeks to end the federal deficit by 2002, back to Congress because of proposed cuts to Medicare, Medicaid and agricultural subsidies. It is hard to estimate when

See VETO, Page A-12

ANWR

Continued from Page A-1

The two most powerful men in Congress had encouraging words for the measure's prospects, Reinwand said.

The visits encouraged supporters, she said, because they are trying to figure out how to keep ANWR from becoming a disposable bargaining chip in negotiations with the White House.

"One of the things we've already started doing is having legislative leaders talk to people around Gingrich and Dole about this," Reinwand said.

After the House approved the budget bill 227-203, without debating the ANWR provision, Young, R-Alaska, took a moment to savor the victory.

"I think it shows what we can do when we work together," Young said. "We've got good leadership, and frankly I'm pleased with what we were able to accomplish."

"Remember, we're a one-man delegation fighting a lot of adversary organizations across the country, including the administration and a bunch of cabinet members that are flat lying."

Young has accused Interior Secretary Bruce Babbitt and Office of Management and Budget Director Alice Rivlin of skewing the amount of oil in the refuge and the amount of money federal leases would contribute to reducing the debt.

Sen. Ted Stevens, meanwhile, who was presiding over the Senate when it struck the motion that would have tabled the ANWR provision, called it "an historic day for Alaska."

"I applaud those who ignored the misrepresentations of the administration and the extreme environmental organizations and voted for jobs and energy security," the Alaska Republican said in a prepared statement.

Continued from Page A-1

ANWR will become a bargaining chip between the GOP leadership in Congress and the President.

Environmentalists gathered outside the Capitol on Friday for a news conference sponsored by American Oceans Campaign.

Speakers criticized Congress for attaching the ANWR drilling provision to the budget bill and reiterated their hope for a presidential veto.

Rep. George Miller, D-Cal., Interior Secretary Bruce Babbitt and actor Ted Danson, of "Cheers" fame, mixed with representatives of Arctic Power—the lobbying arm for opening ANWR—who assembled wearing T-shirts that said "Just Drill It."

The football game-like atmosphere—complete with cheering, jeering and a mascot dressed as a kangaroo romping around the crowd—revealed that ANWR is a political football likely to be punted back and forth for weeks to come.

According to signs featured by both sides at the news conference, ANWR is either a hostage of the oil companies or of "rich environmentalists."

"We have only just begun," said Pam Miller of the Wilderness Society, after expressing "outrage" at the congressional approval of ANWR drilling.

Sen. Ted Stevens, R-Alaska, said he is confident that ANWR drilling is on its way to becoming law.

"Alaskans have never failed in the U.S. Congress when we have been united," he said, adding that the ANWR debate has resulted in a rebirth of the spirit of statehood. "It's a good, good feeling."

Stevens added that he has been assured by House Speaker Newt Gingrich, R-Ga., and Senate Majority Leader Bob Dole, R-Kansas, that ANWR will remain in the legislation despite the veto threat.

Oliver Leavitt, an Inupiat Eskimo who supports drilling, said he was elated that Congress had voted in favor of oil drilling in ANWR but said he worried the opposition could still harm the chances of it becoming law.

"Most people in Congress are afraid of environmentalists in their state," said Leavitt, adding that political pressure from environmentalists will probably keep Clinton committed to his veto.

"I think he's going to try real hard," not to give up on it, Leavitt said.

Roger Herrera, D.C. coordinator for Arctic Power, said he thought Clinton would veto the legislation because of the social spending, but is not likely to repeat his veto solely because of ANWR.

"Mr. Clinton will be pragmatic as always," said Herrera, donning a "Just Drill It" T-shirt.

The Columbus Dispatch

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EDITORIALS

Budget follies

Wildlife-refuge plan should stand on merits

The contentious debate over whether to allow drilling for oil in the Arctic National Wildlife Refuge has no place in the federal budget-reconciliation bill. Lawmakers on the conference committee that will have to meld House and Senate versions of the legislation should remove the proposal from the compromise measure.

Alaskans, although they have a congressional delegation that numbers only three, have gained undue influence on this national issue because one of them, Frank H. Murkowski, is chairman of the Senate Energy and Natural Resources Committee, and another, Don Young, heads the comparable committee in the House.

Although the refuge is federal property, belonging to all Americans, Alaskans would receive 50 percent to 90 percent of the royalties collected from oil companies for use of the land.

Some Republicans eye this money as a possible source in their campaign to reduce the budget deficit, but any figures attached to this income are no better than best guesses.

Meanwhile, the number of opponents to the drilling plan keeps growing and includes Canadian government officials; Democrats and moderate Republicans in Congress; the Gwich'in Indians, who supply 70 percent of the protein in their diets by hunting the caribou that depend on the refuge; the Episcopal Church, which counts Gwich'in Indians among its many members; and, of course, environmental and conservation organizations.

In addition, a recent national poll showed a clear majority of Americans (58 percent) don't want to tap the refuge.

Perhaps most important, President Clinton — in an atypical strong stand that would appear to allow him little room to do

his usual waffling — has promised "to veto any bill that opens the Arctic National Wildlife Refuge to oil and gas drilling."

This clear statement was part of a Monday letter to Senate leaders from Office of Management and Budget Director Alice Rivlin, detailing the president's objections to that chamber's budget-balancing bill.

The effort to move the nation's balance sheets out of the red and into the black is too important to allow it to be derailed by the inclusion of measures that are strictly separate issues.

The question of whether to preserve or exploit the wildlife refuge deserves a full hearing, with careful consideration given to the most current scientific information and

economic analysis and effects of existing laws.

Much has changed since Congress last gave this proposal serious consideration in 1991.

In fact, Congress itself and the president, by agreeing to end the ban on exporting oil from Alaska to other countries, have eliminated the most important argument for drilling in this pristine wilderness. The claim that using the refuge's resources is necessary to reduce Americans' dependence on imported oil just won't wash anymore.

If Alaskan crude oil starts going to the highest bidder, then you can expect it to be headed for Japan instead of BP and other gas stations in the lower 48.

This might be a big benefit to Alaskans, but it is difficult to see many rewards for other Americans. And motorists might expect to see the prices at the pumps start soaring, when oil that has been strictly domestic goes international.

Obviously it is time to get this pork for Alaska out of the federal budget bill.

The question of whether to preserve or exploit the wildlife refuge deserves a full hearing, with careful consideration given to the most current scientific information and economic analysis and effects of existing laws.

Get real, Alaska: ANWR is not the answer

■ **Editor's note:** The following column appeared in the Washington Post earlier this week.

JESSICA MATHEWS

Alaskans think they have a terrible financial problem. To solve it they propose to ruin the last protected fragment of the arctic coastal plain — part of the Arctic National Wildlife Refuge — by opening it to oil drilling.

Here's the problem. Alaska has no state income tax, no sales tax and the lowest fuel taxes in the nation. It has the highest per-capita income from the federal government of any state. State spending is twice the national average. And it has an \$18 billion savings account, the Permanent Fund, that provides an annual Christmas-in-October check of a little less than \$1,000 for every man, woman and child. You might think of it as Saudi Alaska.

Here's the bad news. The North Slope oil revenues that underwrite this easy living are drying up, and the state now has a half-billion-dollar deficit that's heading skyward.

One can still think offhand of about 49 governors who would love to have a fiscal problem like Alaska's. Solutions leap to the mind. Impose a small sales tax. Raise the fuel tax a bit. Cut the most egregious spending frills. Use some of the income from the oil-funded savings account for the purpose for which it was created instead of as a universal bonus entitlement. Alaskans have a different answer. Drill ANWR — and hope that puts off the day of reckoning for a

few more years.

In an unguarded moment of honesty, Alaska's congressional delegation — Sens. Ted Stevens and Frank Murkowski and Rep. Don Young — made the linkage explicit in a recent letter to constituents. The relevant passage says, in full: "Oil revenue funds about 85 percent of the state's budget, but Prudhoe Bay is in decline. The administration is threatening to veto legislation to open the coastal plain."

The other arguments for drilling in the refuge range from flimsy to specious. For years, a favorite has been that it would enhance national security by reducing the country's oil import dependence. That won't wash anymore since Congress and the administration have agreed to lift the 22-year-old ban on exporting Alaska oil. If we need to reduce oil imports, why export our own?

The best case Presidents Reagan and Bush could make for opening ANWR was that chances were one in two that its production would rise in a few years to 4 percent of U.S. oil use, dropping to 1 percent five years later and less thereafter. Not surprisingly, Congress didn't find that a compelling reason to make an irreversible sacrifice of the wilderness. If in some presently unimaginable future the nation absolutely required ANWR's oil, it would still be there for the taking.

Since then, the U.S. Geological Survey has slashed the expected find by more than half. An offshore well drilled in one of the most promising areas was a bust. Another hit oil but not in developable quantities, though the company, Atlantic Richfield, is still enthusiastic.

Meanwhile, the expected market in which ANWR oil would have to compete has turned from tight to squishy. Projected oil prices for the year 2000 are down from \$38 to \$19 per barrel. That turns the industry's 5-year-old projection, which it is now shamelessly recycling, of 700,000 jobs created nationwide, from highly unlikely to laughable.

The last-resort claim is that drilling won't make much difference to this narrow plain that is the biologically crucial part — the birthing, denning, feeding and nursery ground — of a much larger, fragile and unique arctic ecosystem. But no matter how environmentally sensitive the effort, 400 miles of roads, 11 production facilities, four airstrips, two ports, massive gravel mining and housing for several thousand, plus associated emissions and toxic wastes are not what most people expect of wilderness. Neither will the plants and animals.

What's left? A short-term fix that might or might not prolong the oil-welfare state. Not much there to arouse support,

even in Washington. So the state's powerful congressional delegation, whose members chair both the House and Senate Natural Resources Committees, came up with a sweetener. They propose to give half of the hoped-for leasing revenue to Washington, which helps make the numbers work in the Republicans' deficit-reduction plan. Congress shouldn't count on the money, however, since some state officials promise to sue for any split less than the 90 percent they believe is guaranteed by Alaska's Statehood Act.

Alaska's congressmen want the name of the Arctic National Wildlife Refuge changed to the Arctic Oil Reserve. It's revealing that what's gone is not just wildlife, but the national interest as well. Until Congress acts, they unilaterally have adopted the new acronym, AOR. If the ANWR proposal does pass, the delegation has a lot more to follow, including development in the Tongass National Forest and turning back 70 million acres of federal lands to the state.

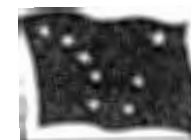
Instead, Congress should give the ANWR proposal the treatment it deserves. In the spirit of adopting new acronyms it could send along a message as well: GRA. Get Real, Alaska. The rest of us would trade for your troubles. Face the real choices now — ANWR isn't the answer.

□ Jessica Mathews is a senior fellow at the Council on Foreign Relations in Washington.



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Feds buoyed by Young comment on 50-50 split

The Associated Press

WASHINGTON—The Interior Department said Friday that congressman Don Young's waffling on whether the state will or won't back a 50-50 split in any arctic refuge drilling revenues would aid the White House as it tries to stop development on the coastal plain.

Michael Gauldin, an Interior Department spokesman, told the Alaska Public Radio Network that Young's comments on a Fairbanks radio show—claiming

Alaska would sue for a 90-10 share—helped make a case to retain the congressional ban on exploration. Young, R-Alaska, has since distanced himself from the comments.

"It sends very confusing messages to the rest of Congress, many of whom are putting themselves on the line and are beginning to wonder what's really going on," Gauldin said Friday.

The GOP-led Congress has inserted a provision to develop the Arctic National Wildlife Refuge

coastal plain as part of the pending budget bill. President Clinton has vowed to veto a bill that includes the measure.

On Friday, Sen. Frank Murkowski, R-Alaska, worked to buttress Alaska's case, telling the Senate that it had "a commitment" from the state to accept a 50-50 revenue share. Gov. Tony Knowles and state lawmakers have gone on record formally endorsing the split.

"Our word is good," Murkowski said.

Young has done some quick backpedaling after telling Fairbanks radio KFAR that the state could sue to get its 90 percent share of revenues if oil and gas leasing on the refuge is approved.

In a message Thursday to House Speaker Newt Gingrich, Young said he "misspoke" while responding to a question.

Leasing the refuge's 1.5-million-acre coastal plain to oil and gas exploration would bring in an estimated \$2.6 billion dollars, the Congressional Budget Office has

said. Congressional leaders want half of that money to help balance the federal budget by the year 2002.

That comes even though under the statehood compact, Alaska is entitled to 90 percent of all the mineral money from federal lands. Congress has power to alter that percentage.

Young told Gingrich he remains committed to the 50-50 split.

"While I regret my comments, I stand by my commitment,"

Young wrote.

Gingrich has made it clear that if there isn't a 50-50 split, refuge development won't be in the bill.

When Republican moderates began complaining about the provision last week in the face of veto threats by President Clinton, Young was able to convince Gingrich to keep it in the budget bill.

Young handed him written assurances from state leaders that

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YOUNG

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they would work to amend the statehood act to make the 50-50 share legally binding.

At a news conference last week, Young said he was solidly in favor of the 50-50 split. "The state believes so strongly that this is the right thing to do ... that they are willing not to pursue this case in court," Young said. "I think it's a step forward. It's the appropriate thing to do."

But on KFAR on Tuesday, Young took the opposite view. "My decision has been that, all right, we'll take 50-50 and then we'll go after the rest of it at a later date," he said in response to a question. "If necessary, we'll do it through the court system. But there will be a way that we get our just dues."

Critics of refuge drilling say Young is being less than candid.

"Who's being fooled, Congress or Alaskans?" asked Sylvia Ward, director of the Northern Alaska Environmental Center in Fairbanks.

Observers said it remains to be seen if drilling opponents will be able to use Young's comments to score points against development during the rest of the Congressional budget-approval process.

Native tribes in opposition over ANWR

Gwich'in fear oil; Inupiat don't

By ALLANNA SULLIVAN
The Wall Street Journal

ARCTIC VILLAGE — After a tortuous journey through the mud and underbrush, Sarah James stands on the lip of a mountain and scours the terrain below for caribou.

From her village, which in the distance looks like a smudge pressed into the Arctic landscape, seven caribou were spied earlier in the day. As the first of the migration north, they were allowed to pass unhunted; the elders of James' Gwich'in Indian tribe say that to kill those first caribou is a sign of disrespect and will discourage the herd from following.

But now, with a raw wind whipping across the tundra, where patches of grass and scraggly bushes are already winter gray, there isn't a hint of the animals anywhere.

"Maybe they will come tomorrow," James said, her long gray hair blowing across her face.

Maybe not. If the oil industry has its way and is allowed to drill in the Arctic National Wildlife Refuge, the Gwich'in say, the caribou migration on which they depend could be devastated.

For years, the bitter debate over development of the wildlife refuge has centered on broader environmental concerns, such as what would happen if there were an oil spill similar to the 1989 disaster involving the Exxon Valdez. The oil companies, for their part, defend their environmental record and say that new technology will allow them to develop new finds in the Arctic without doing serious damage.

These days, though, much of the controversy is about caribou — specifically the Porcupine caribou herd, which roams northern parts of Alaska and Canada. At about 150,000 strong, the herd is to the Gwich'in what the buffalo were to the Plains Indians in past centuries: the center of their culture and subsistence. And part of the 19 million-acre wildlife refuge, where the oil companies are frantic to sink their wells, is the site of the birthing grounds — the virtual nursery — for that herd, the Gwich'in say.

"Development of the refuge would be a form of genocide against the Gwich'in," said James, who lives in Arctic Village, one of 15 Gwich'in settlements sprinkled along the U.S.-Canada border.

Scientists say it is unlikely the Porcupine herd would be wiped out if there were oil development in the wildlife refuge. But the disturbance caused by drilling there could well result in a lower birth rate and cause the herd to shrink. A smaller herd wouldn't travel as far to forage, perhaps altering its migratory path.

"And if the caribou don't pass near the Gwich'in, they don't exist for those people," said biologist Kenneth Whitten, who spends much of his time tracking caribou migration for Alaska's Fish and Game Department. "They can't afford to charter planes to track them down," as sportsmen do.

But the battle here doesn't just pit the Gwich'in against Big Oil. Another Alaska Native group, the Inupiat Eskimos of the far north, backs the industry in its efforts

Anchorage Daily News

11/4/95

ANWR: Natives in opposition over oil development

Continued from Page E-1

to have Congress open the refuge to drilling.

By Alaska Native standards, the Inupiat have gained enormous riches from the huge quantities of oil tapped from their lands strung out along the edge of the Beaufort Sea. But they say their situation is just as desperate as that of the Gwich'in, many of whom live in destitute villages.

With the output from the oil fields of the North Slope slowly dwindling, the Inupiat say, it is crucial that the refuge be developed. Although the federal government controls the refuge, the Inupiat hold subsurface mineral rights there, which could well provide them a windfall if the land is successfully drilled. That would allow the Inupiat to keep enjoying the lifestyle to which they have grown accustomed.

Financial planners in the northernmost Eskimo town of Barrow warn that revenue available to the Inupiat — the bulk of it derived from property taxes the oil companies pay to the North Slope Borough — would drop from \$326 million this year to \$230 million in 2005 without drill-

ing in the wildlife refuge.

A project just getting under way, to hook up all North Slope villages to running water and sewage lines, could be their last major capital endeavor. Within a decade, the Eskimo nation would be able to do little more than maintain what infrastructure they have. And with the rugged climate sure to take its toll, how long they would be able to do even that is in question.

"We don't want to return to the poverty and hardship of our past," said Brenda Itta, an influential Inupiat who remembers as a child hauling blocks of ice by dog sled for miles to melt for drinking water. "If the refuge isn't opened, it will be devastating to the Inupiat."

At this point, it appears likely the Inupiat will be the winners in this struggle, the Gwich'in the losers. A provision to open the wildlife refuge to development is included in the versions of the budget that have cleared both the U.S. House and Senate. The Senate plan has some steps designed to mollify the Gwich'in, including stipulating that the oil companies can't drill during the time the Porcupine caribou give birth. Still,

the Gwich'in worry that even these measures won't be enough to prevent a major disruption of the herd's migration pattern. And they are counting on President Clinton to make good on his threat to veto the Republican budget.

Meantime, tension between the two groups — whose closest villages are only 100 miles apart — has escalated. The Gwich'in, who claim to have been in this part of the world since before the Roman Empire marched on Egypt, say the Inupiat are simply tools of the oil companies. The Inupiat, who are presumed to have crossed the land bridge from Asia many thousands of years ago, say the Gwich'in are pawns of the environmental community.

The environmentalists "think having the aboriginal Gwich'in on their side is glamorous," said Joe Upicksoun, an executive with Arctic Slope Regional Corp., an Eskimo-run company based in Barrow with an interest in energy projects. Sitting behind his desk in the company's headquarters, he clenches his fists and grimaces. "It really gets my goat."

The fight has spilled into the halls of Congress, where members of the

Gwich'in and Inupiat have been buttonholing every lawmaker they can. They have called news conferences, run newspaper ads and scrapped with each other for support from other Native groups.

The Inupiat also played host all summer to various members of Congress at the behest of the oil lobby. They treated the visiting dignitaries to feasts and cultural dances in a tent pitched on a dirt-packed beach that the Inupiat sometimes use for their whaling festivities. Although the Inupiat hunt caribou — not the Porcupine herd — their cultural identity is most closely tied to twice-yearly expeditions for bowhead whales, using sealskin umiaks.

The Inupiat also showed the visiting lawmakers what oil dollars have done for them. Barrow is hardly Paris on the Beaufort, with its muddy unpaved roads that wind willy-nilly past

Please see Page E-9, ANWR

An arctic dream

Imagine this ANWR discussion

Don: Hey guys, we really pulled it off! I've been working for 24 years to drill in the Arctic Refuge.

Frank: We fooled them big time. Most people think we've just opened up the Arctic Oil Reserve, not the Arctic National Wildlife Refuge.

Ted: C'mon Frank, I've been studying this issue for years. The coastal plain was never part of the wildlife refuge. Plus, it's a frozen wasteland. I just can't figure out where those extremist environmentalists got those beautiful pictures of the caribou with the Brooks Range in the background.

Guest Opinion



Roger (Arctic Power): They superimposed the caribou, and those pretty mountains, too. Just a figment of their imagination.

Frank: Even if most of America is ticked off about drilling in our greatest wildlife refuge, the footprint will be small, right Roger?

Roger: Of course it will be small. We plan to have buried pipelines, invisible roads and removable drilling rigs. If the caribou come around, all road and air traffic will cease. Drilling rigs, buildings and vehicles will be immediately airlifted by giant helicopters. Really Frank, you won't see anything on the coastal plain that could possibly disrupt wildlife. We're going to airlift garbage on a daily basis, too. And any humans or wildlife near production facilities will be given complimentary ear plugs.

Ted: But what about those oil spills. Everyone talks about oil spills and toxic wastes at Prudhoe Bay. Heck, I haven't seen any during those oil company tours.

Roger: We have some new technology. A giant vacuum machine will hover over each production pad. The vacuum will instantly suck up any spilled crude or wastes, up to 20,000 gallons a second. There won't be ANY oil spills, Ted.

Frank: I think next year I'll propose another name. How about the National Wildlife and Oil Refuge System. Funny thing that people ever came up with a dumb idea of preserving an area just for wildlife.

Don: No kidding. And don't forget all that money that will come into the state coffers, especially after we sue for our 90 percent share. Maybe we should call it the National Wildlife Refuge and BIG BUCKS System.

Frank: And jobs. Research shows we can reduce the number of homeless in Philadelphia and lower the number of crack babies by opening the Arctic Refuge. And think of all those Texans out of work.

Ted: Most of all, think of energy security. Especially in Japan.

Roger: I wonder if Clinton will really veto the budget bill over this piece of Arctic wasteland.

Don: (Expletive!) If he does, it will be another 24 years before we get this close.

Debbie: You've got that one right Don.

Debbie Miller is a 20-year Alaska resident, author of "Midnight Wilderness: Journeys in Alaska's Arctic National Wildlife Refuge" and a founding board member of the Alaska Wilderness League. Any resemblance characters in this article may have to real people is strictly intentional.

Letters to the Editor

The Fairbanks Daily News-Miner welcomes letters to the editor, P.O. Box 70710, Fairbanks, Alaska 99707. Each letter must carry the name, address and daytime phone number of the writer. Letters may be no longer than 250 words, and no one may publish more than one letter every 30 days. The Fairbanks Daily News-Miner reserves the right to edit or reject any letter.

Arctic oil debate is often at emotional level

Scripps-McClatchy

ATAKTURUK RIVER—Roger Herrera slides his feet through the wet, lush blue-green grass lining the ledge overlooking this remote river valley. The bottom of his pants stain dark from the dampness. It's late summer, and the day is cold, overcast.

He likes this weather. Sunny days are dangerous. The beauty, he says, seduces even those who ought to know better, who ought to understand that oil development here would mean wealth and jobs and progress.

Once, eight years ago, British ambassador Antony Acland had such a reaction.

Herrera, then in the employ of British Petroleum, was lobbying to open the refuge to oil production, a job he does now for the development organization Arctic Power. Acland was his guest.

That July day dawned well for Herrera. It was cold and miserable.

Herrera and the ambassador flew first

to the refuge's only exploratory well, the only one to test claims that this refuge may hold one of the nation's last big oil fields.

The way Herrera tells it, the ambassador stepped from the helicopter to inspect the well, drilled by BP and Chevron on Native-owned land. Shivering, Acland said: "This is not a very nice place. I think you must have this land for your drilling, Roger. You must."

Next stop was this bluff, 50 miles to the southwest and home to a rock outcrop so soaked with oil you can sometimes smell the crude. Heading here that miserable July day, the helicopter burst from the coastal fog into a blue-sky, arctic-spring day.

The men carried their lunch to the bluff and sat down, dangling their legs over the edge. To their left, the Brooks Range towered. To their right, the Arctic Ocean shimmered. Fifty feet below, thousands of caribou funneled through the river valley, heading toward the

Arctic Ocean.

The ambassador put down his sandwich.

"Roger," he said, "this place is much too beautiful for oil drilling. You mustn't drill here. No one must."

Stunned, Herrera asked: "Don't you remember what you just said back at the well?"

"I do," said the ambassador. "And I've changed my mind."

The ambassador's reactions are much like those that today are fueling the debate over drilling in the Arctic National Wildlife Refuge. More than a detached discussion based on reports and studies, the debate, as played out in public forums, Congress, newspaper columns and letters to the editor, often starts and ends on what a person feels about wilderness or economic development.

The refuge's 1.5 million-acre coastal plain was deliberately left out of the part of the refuge that Congress declared off-limits to development 15 years ago. That

plain is rich in wildlife and potentially rich in oil.

At the time of the ambassador's visit, the first effort to open ANWR to drilling was heating up in Congress. By 1989, the issue was believed to be headed toward passage.

Then on March 24, 1989, the Exxon Valdez stove up on Bligh Reef. With the oil spill came widespread attacks on the industry for failing to live up to its environmental obligations, and on the state and federal governments for neglecting their oversight responsibilities.

The effort to open ANWR went into hibernation. Then, just as suddenly as it did with the Exxon Valdez, the climate reversed itself this year. Republicans took over Congress and Alaska's long-term Republican delegation assumed key leadership roles. And state voters elected a Democratic governor with substantial environmental credentials who also favored opening the refuge.

Budget bills approved by both the

House and Senate would allow exploration in the refuge. The bills are now in conference committee, where differences in the two versions are being negotiated. But President Clinton says he will veto the budget if it contains the ANWR provision, and some moderate Republicans, fearing an environmental backlash, are urging that it be removed.

Now back in England, Acland, the provost of Eton College, says he knows the refuge has two competing values and believes he was more ambivalent about development than Herrera recalls.

"That day, the sun came out, the colors were marvelous, we saw a herd of caribou, and it all seemed so primeval," he said in a recent telephone conversation. "One had to ask oneself if it was right not to spoil it exactly, but to exploit it. But, on the other hand, oil is a fuel source in the world the way we've ordered it."

Date **NOV 15 1995**

Anchorage Daily News

Client No. 120

Congress reconciles ANWR bills

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By **DAVID WHITNEY**
Daily News reporter

WASHINGTON — House and Senate conferees have agreed to include a provision in a massive budget bill that opens the Arctic National Wildlife Refuge to oil drilling, but some of the stronger environmental-protection provisions in

the Senate-passed version have been softened.

The compromise budget measure is expected to be voted on by the House on Thursday and by the Senate on Friday. It will then go to President Clinton, who has vowed to veto the package, setting the stage for negotiations between the White House and Congress on a final budget bill.

Clinton has announced that he will veto any budget bill that includes provisions opening the refuge to drilling. But Alaska proponents of drilling haven't given up hope that if partisan differences over larger issues such as Medicare, welfare reform and tax cuts can be resolved, the drilling provision still might survive.

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ANWR: Congress compromises on bill to open refuge

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Final action on the compromise budget package was expected by the conferees late Tuesday or early today. Alaska lawmakers were withholding comment until work on the package is done.

The Congressional Budget Office estimates the drilling provision will produce about \$2.6 billion in lease revenues. All proceeds from leasing and development would be divided equally between the state and the federal government.

The federal share, however, would be less than \$1.3 billion because the compromise measure calls for setting aside \$30 million from the federal share

to pay economic assistance to the North Slope Borough and the city of Kaktovik. Up to \$5 million a year would be available to them help prepare for the impacts of development.

Some environmental protections in the version approved by Sen. Frank Murkowski's Senate Energy and Natural Resources Committee were weakened during negotiations with Rep. Don Young's House Resources Committee.

Murkowski's bill, for example, would have permitted the Interior Department to prohibit drilling in up to 60,000 acres of the refuge's coastal plain to safeguard critical wildlife habitat.

Young's bill had called for only a 30,000-acre

set-aside. The compromise settled on 45,000 acres. U.S. Fish and Wildlife Service biologists in 1986 identified 242,000 acres they described as critical calving areas for caribou.

Seasonal closures of the calving areas to drilling still would be permitted, however.

Murkowski's bill also would have permitted more studies of the environmental impacts of oil development after the first lease sale but before subsequent sales and any development or production.

Young's bill would have not permitted any further environmental reviews. The compromise prohibits any further environmental studies during all phases of the leasing program but

permits them before development and production.

Among other changes agreed to by the conferees:

- The first lease sale would occur within 20 months of the bill's enactment. Young's bill had called for the first lease sale within a year, while Murkowski's bill set the first sale for two years after enactment.

- A provision was dropped from Young's bill that would have imposed fines of up to \$10,000 a day on administration officials who delay the issuance of drilling regulations or the first lease sale.

- The federal share of any money raised in excess of \$2.6 billion would be spent equally on parks and wildlife refuges.

Canadians count on Clinton's vow

Gwich'in from Old Crow says drilling in ANWR would hurt caribou

By PAUL KORING
Toronto Globe and Mail

OTTAWA — A few hundred Gwich'in people in the northern Yukon are counting on a promised veto by President Clinton to protect the calving grounds of a huge Porcupine caribou herd from oil and gas development and prevent perhaps the greatest threat in 20,000 years to the Gwich'in way of life.

"It would kill our caribou... and the people will starve and there will be nothing left in Old Crow," Edith Josie, a 73-year-old Gwich'in from Old Crow said Thursday after returning from a 10-city lobbying tour in the United States.

The Indians say their traditional way of life is at stake, along with the survival of one of the few remaining migratory herds of barren ground caribou. Both the U.S. Senate and the House of Representatives have passed measures that would allow oil drilling inside Alaska's Arctic National Wildlife Refuge. Backed by Alaska senators, the oil industry, some Inuit groups and deficit cutters in Washington, the proposal to allow drilling in the supposedly protected reserve has drawn oppo-

sition from the Canadian government as well as Gwich'in people on both sides of the Alaska-Yukon border.

Josie, who was made a member of the Order of Canada in recognition of her column "Here are the News," which has been famous in the Arctic for decades, said disruption of the Porcupine herd would be ruinous for Old Crow and a handful of other Gwich'in villages in Yukon and Alaska.

Old Crow, 155 miles north of the Arctic Circle, is one of the few remaining Indian settlements in North America still largely dependent on traditional hunting patterns. Every spring and autumn, Old Crow hunters kill hundreds of caribou from the 150,000-strong Porcupine herd, the main source of meat for the settlement's 200 people.

"Everyone, they don't like development to go through," Josie said. "You know it will spoil the land and the caribou will die off."

Last month, Clinton vowed to "veto any budget reconciliation bill that includes opening the (refuge) to drilling."

In a letter lending sup-

port to senators engaged in a losing effort to amend the bill, Clinton said Congress was faced with a "clear choice between protecting a unique, biologically rich wilderness and pursuing a misguided energy policy."

Proponents of renewed drilling, including the Arctic Power group based in Washington, D.C., say the threat to the Porcupine herd is overstated and that an estimated \$1.3 billion in anticipated revenues from the sale of drilling leases would help balance the U.S. budget. Roger Herrera, a director of Arctic Power, also says Canadian opposition to development in the park is disingenuous.

In an interview with the Journal of Commerce last month, Herrera said: "They say they are protecting the caribou herd, but they fail to mention what they have done to destroy it on their side of the border," referring to the Dempster Highway, which runs from Dawson City to the Mackenzie Delta. However, while there was opposition to the Dempster on grounds that it would disturb the migratory pattern of the Porcupine herd, the highway was completed

more than a decade ago without apparent ill effects.

Meanwhile, the proposed oil leases cover the area where tens of thousands of female caribou congregate annually to give birth. Canada and the United States also have a 1987 treaty that is supposed to protect the herd in perpetuity and commits both governments to "conserve them for future generations."

Despite Clinton's assurances, Ottawa has been very concerned that budgetary pressures in Washington may triumph. In September, Canada's ambassador to Washington sent a diplomatic note asking that "every effort is made to reject development and instead seek permanent wilderness protection." Foreign Minister Andre Ouellet subsequently raised the issue with Secretary of State Warren Christopher.

The issue is further complicated by support from some aboriginal peoples in Alaska for the proposed new drilling. Alaska's coastal Inuit, the Inupiat, support the issuing of oil leases because it will provide increased revenues from oil company taxes.

Stevens lays into Babbitt on national TV

By STEVE RINEHART

Daily News reporter

Republican Sen. Ted Stevens tied into Interior Secretary Bruce Babbitt on a nationally televised debate Monday night, accusing him of distortion and calling him a liar.

Alaska's senior senator, renowned for his temper, appeared to grow angry as he challenged Babbitt at every turn on ABC's "Nightline" program on Republican environmental initiatives. When Babbitt denounced the Republican congressio-

nal majority for trying to close national parks and weaken the Clean Water Act, Stevens retorted, "That's just not true, Bruce."

When Babbitt accused the Republicans of pushing legislation to require more logging in the Tongass National Forest, Stevens exclaimed:

"That's not true and you know it! That's typical of the lies coming out of this administration."

And when Babbitt charged that the Republicans dodged open debate about oil

drilling in the Arctic National Wildlife Refuge — attaching the ANWR language to a budget bill "in the dark of night" — Stevens shot back:

"I am getting so tired of your lies," he said. "You're a Cabinet officer. I'm under oath. You're under oath. Why can't you tell the truth!" Part of the argument was over semantics.

For example, Stevens insisted the Tongass logging legislation, part of an Interi-

Please see Page B-3, **STEVENS**

STEVENS: Babbitt called liar

Continued from Page B-1

or Department budget bill that failed in the House last week, would not increase logging. It would just restore allowable cutting levels to what the Forest Service recommended in 1991.

However, that proposal was later scrapped by the Clinton administration because of concern about how the logging would affect wildlife; the allowable timber harvest has since declined. Stevens' legislation would have raised it back to the 1991 recommendation.

Stevens also countered Babbitt's assertion that the ANWR drilling provision — now held up in budget negotiations — would destroy the heart of the Arctic refuge. The potential drilling area was never really closed, the senator said; it was just set aside for future study about oil development.

Drilling opponents counter that, if the refuge was never considered closed to oil development, an act of Congress would not now be necessary to open it.

The "Nightline" exchange ended without an iota of agreement, and spokesmen for both officials continued the argumen-

on Tuesday.

Calling their opponents liars is a recent Republican strategy intended to discredit the opposition, said Mike Gauldin, spokesman for Babbitt.

"That may sound rather shocking to someone in Alaska, as it would in Arkansas, where I come from," he said. "But in Washington it happens quite a bit, lately."

Babbitt, he said, was taken aback by Stevens' attack: "It was just not courteous. The secretary is a gentleman."

Stevens' aide Mitch Rose would not say whether the senator was as angry as he appeared to be on screen. He said Stevens was reacting to what he sees as an unrelenting national campaign by conservation groups to distort information about Republican environmental proposals.

"We would rather have debates on the facts," Rose said, but "sometimes you have to get down and wrestle with them."

On Tuesday Stevens' office fielded calls from around the country and from Alaska, mostly in support, Rose said. "A lot of Alaskans said, 'Way to go.'"

QUALITY SERVICES

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Client No. 120

Alaska Natives have vital interest in ANWR decision

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Sen. Ted Stevens, who was a guest on ABC's "Nightline" last Monday night, said it well. He called a spade a spade when he said Secretary of the Interior Bruce Babbitt wasn't being completely forthright and candid about concerns the Clinton administration has for ANWR and the environment.

Babbitt was called a liar. And he had no defense. Stevens literally chewed him to pieces on national television. It wasn't the most delicate of presentations. But it was effective — in Stevens' own style.

For sure, most people in America think the whole refuge, once opened, will be overrun with oil derricks and oil pipelines. That's just not true. A little more than 2,000 out of millions of acres of land are to be included in the current plan for development.

I don't see a great deal of commotion in that. But to hear Babbitt tell it, the



**JOHN
TETPON**

last crown jewel of the nation would be forever ravaged and damaged. Which of course is one of the reasons Stevens said Babbitt wasn't telling the whole truth and nothing but the truth.

Opening the coastal plain of the Arctic National Wildlife Refuge to oil and gas development won't solve all the problems in rural Alaska. But it won't hurt, either.

While naysayers and pessimists continue to contend

that any kind of oil and gas development will never help Alaska Natives because very little benefit has come to us from resource development in the past, it should be noted that Native people and Native corporations are more savvy now (compared with 1971 when the land claims act was passed) than most liberals (who still want to save us) would have us believe.

The Native community is involved in the ANWR debate because we have to be. We want a part in the decision-making process. While our participation has left a bad taste in some quarters, it is our choice. That's called self-determination.

Not all tribes in Alaska want to see the kind of economic-development progress that is needed. The Gwich'in have their point of view. They are entitled to it. If I were a member of the Gwich'in tribe and had to depend upon caribou for my survival,

I'd probably be on the front lines, too. I think each of us would.

The Inupiat of the North Slope also have their opinion. They're the ones, more than you or I in Anchorage, who must be involved in the issue of whether their homeland shall become the primary source of jobs and income for the people who live and work there.

Babbitt also tried to make political hay out of the way in which the ANWR bill is being handled. He said it was being done behind closed doors and in the dark of night because it's being tied to

Although development of the coastal plain isn't, and won't be, the panacea for all of Alaska's economic problems, it is probably one of the very first times Native people have been at the table when Alaska's economic future is being discussed.

the national balanced-budget bill.

That is not new. Nearly every bill that's ever passed in Congress is tied to something else. That's the nature of politics, pure and simple.

Although development of the coastal plain isn't, and won't be, the panacea for all of Alaska's economic problems, it is probably one of the very first times Native people have been at the table when Alaska's economic future is being discussed.

We weren't there when plans for gold mines were

talked about; neither were we there when the fish canneries were being built. I don't think we want to be absent this time around.

Finally, there's something to the reality that nearly all of Alaska's immense wealth — and that of Anchorage — comes from rural areas. I think Native people — who live out there — have a bigger stake in that than anyone else.

□ John Tetpon, a former reporter, works for the Alaska Federation of Natives.

An ANWR appeal

JUNEAU—As President Clinton and Congressional leaders sort out their differences on the budget reconciliation bill, there's one provision on which both sides can be a winner: environmentally responsible development in Alaska's Arctic National Wildlife Refuge.

Oil and gas likely hidden under this remote sliver of land along Alaska's far northeast corner could make a major dent in the nation's budget and trade deficits and create hundreds or thousands of jobs, most in the continental United States. Despite predictions by some environmentalists, drilling there can be done right.

Most Alaskans make a living from the land, and have a special bond with it. Throughout the vast remoteness of much of the state, Alaskans depend on subsistence hunting and fishing to put food on their tables. For many, this subsistence fulfills a centuries-old cultural imperative.

For these reasons, we believe our environment and economy are complementary, not contradictory. This bond means we



Tony Knowles
Guest Opinion

have gone to extraordinary lengths to balance the development of resources with protection of the environment. That's why, while other states have dammed their rivers or polluted them, Alaska has the world's greatest wild-salmon fishery. That's why wildlife flourish near Prudhoe Bay, where a quarter of American's oil is produced.

A sound resource policy is based on good science, conservation and broad public support. We have applied this test to logging in southeast Alaska's Tongass National Forest. In the face of intense political pressure, we have insisted on protecting the forest for those who depend on it for subsistence, tourism, fishing, mining, recreation—as well as loggers.

This same balance and respect for our land would be exercised in the Arctic refuge. The Interior Department has estimated that less than a tenth of 1 percent of the 19 million acres would be directly affected by development.

Technology has advanced so dramatically that the development "footprint" would be small. Today's Alaska's oil industry technology is the laptop, microchip version of its worldwide counterparts.

We have the technology to do it right, but do we have the political will? I will insist on strict measures to protect the refuge's habitat and wildlife, and on a financial guarantee from oil leasers to return the affected areas to their natural state.

Because the Arctic refuge is a national treasure, all Americans deserve to benefit from its assets.

According to the predictions of the Congressional Budget Office, the development would generate leasing income of \$1.3 billion, based on \$24-a-barrel oil by the year 2010. Royalties on production could total far more.

In addition, a portion of the federal government's share of revenues should go to a National Heritage Trust. At a time when some are proposing to sell national parks, these proceeds could be used to preserve them and other critical habitat.

Alaska's political leaders have agreed to reduce the state's share of revenues from 90 percent to 60 percent for this project. (When Alaska joined the union, Congress recognized that development of natural resources was the only way to open up a raw frontier, and that's why the state was allotted a 90 percent return on revenue from its federal land.)

Energy Department and other studies predict that the development of the refuge could create 200,000 to 735,000 new jobs. Most will be in factories, refineries and high-tech industries in the continental United States.

Alaskans are committed to finding the right combination to protect the state and use its resources. We will do no less in the Arctic refuge.

The preceding article was published in The New York Times opinion section on Nov. 20. Gov. Tony Knowles, a Democrat, was elected in 1994.

Date DEC 01 1980

Anchorage Daily News

Client No. 120

Answers on ANWR polls apart

120 345A 202 025/0

By STAN JONES
Daily News reporter

A new poll shows most Americans would support oil drilling in the Arctic National Wildlife Refuge if they knew the right facts, according to the pro-development group that sponsored the survey.

Anchorage-based Arctic Power on Thursday unveiled a survey showing that 56 percent of 1,004 Americans in a nationwide sample supported opening the refuge's coastal plain to oil exploration after the group's pollster gave them "reasonable information" on the issue.

Other polls this year — including at least one conducted by news organizations — showed up to two-thirds of Americans opposing ANWR development.

The difference, according

POLL: Arctic Power's version yields different results

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to Arctic Power officials, is that Americans surveyed in the other polls weren't given enough information.

"People were led down a backwards path (by the other pollsters) rather than the nice path of truth and justice we led them down," said Mano Frey, a union executive who is co-chairman of Arctic Power.

Arctic Power officials said they don't have enough money to inform the entire American public the way the 1,004 people in the poll were informed. But they said they do intend to spread the poll results around Washington, D.C., in hopes of convincing Congress and perhaps even President Clinton that there's little political risk in opening ANWR.

"Their constituents are not going to punish any politician on this issue no matter how they vote," said Roger Herrera, Arctic Power's Washington lobbyist.

Legislation that would, among other things, open the refuge, is on its way from Congress to Clinton's desk. He has vowed to veto it in part because of the ANWR provisions.

Skeptics of the Arctic

Power poll question both its methodology and the proposition that it will provide political cover for those who go along with opening the refuge.

"It's incomplete," said Larry Pearson, a University of Alaska journalism professor who follows polling issues and reviewed Arctic Power's list of questions. "It simply doesn't take into account the arguments made by the other side. People were not presented with any of those arguments ... so we don't know how they might react."

Americans contacted for the Arctic Power poll Nov. 20 and 21 were advised of the following points, according to materials furnished by Gordon S. Black, the group's New York pollster:

- Exploration could occur on only 1 million acres of the 19 million acre refuge.

- Less than 12,000 acres would be affected by development.

- About 2,000 acres would be covered by drilling facilities.

- The United States imports more than half its oil.

- The Prudhoe Bay oil fields, which make up 25

percent of domestic oil production, are declining.

- Alaska Natives receive substantial revenues and jobs from Arctic oil production.

- Most Alaska Natives support opening the refuge.

Critics note that the information supplied in the Arctic Power poll omitted a couple of key elements in the congressional debate.

None of the polling questions mentioned the Gwich'in Indians, according to a list furnished by Arctic Power. The Gwich'in, who live on the south border of the refuge and take caribou from a herd that uses the refuge, adamantly oppose oil drilling in ANWR.

Neither did any of the polling questions mention the word "caribou." The chance that development of ANWR could harm the Porcupine caribou herd, which uses the coastal plain as a calving area, has been one of the biggest concerns in Washington.

"There should be a caribou question," said Pearson, the journalism professor. "Probably several caribou questions."

At least three earlier nationwide polls conducted surveys about opening

ANWR this year.

Two were sponsored by the Wilderness Society, which wants to keep ANWR closed. Both showed about 57 percent of those polled opposing oil drilling in ANWR. But, like Arctic Power, the Wilderness Society included some information about the refuge in its questions, rather than allowing people to respond on the basis of whatever they had seen in the news or heard from associates.

Even more opposition turned up in a poll in late September that was sponsored by two media organizations — Time Magazine and Cable News Network — and offered no information about the pros and cons of opening the refuge. It asked: "Do you favor or oppose legislation which would open up the Arctic National Wildlife Refuge in Alaska to oil and gas exploration?"

Yankelovich Partners, which conducted the poll, reported that opening ANWR was opposed by 67 percent of the 1,000 Americans surveyed.

All of the polls — including the Arctic Power poll — claim a margin of error of plus or minus about 3 percent.



Eric Rock/photo

HOT TOPIC—Scott Sterndel poses a question in Mr. Lokken's seventh grade Life Sciences class, addressing the issues of safety and drilling in the Arctic National Wildlife Refuge.

ANWR debate reaches the classroom

By LIZ PAWELKO
Staff Writer

The battle over whether to drill for oil in the Arctic National Wildlife Refuge continues to be waged by congressmen, environmentalists, oil companies and Native groups.

And Jim Lokken's seventh-graders.

What began with a guest presentation by author Debbie Miller has evolved into a heated debate in life science classes at Tanana Middle School. Recently, Miller visited to discuss her book, "Caribou Journeys," set in ANWR. Her talk spurred students to jump on ANWR environmental and oil issues.

Lokken recognized a terrific learning opportunity. His class had heard a bit from the no-drilling side of the argument, so he arranged for them to hear the pro-drilling argument from someone in the oil industry.

Last Friday, Jennifer Parnell, a British Petroleum Alaska environmental scientist, visited the 'on- and dinosaur-poster-lined classroom. At first, she faced a divided class. Fifteen stu-

dents opposed drilling in ANWR; nine supported it.

Parnell conducted an informal discussion with the students covering the issues of why Alaskans need more oil, who will benefit from drilling, and effects on the caribou. The students often took the floor, erupting with responses and stating their beliefs.

Whitney Wood, 12, expressed concerns with the permanent scars the oil industry might leave on the landscape while performing only temporary drilling.

"If it's temporary it seems they might leave a lot behind," she said.

Wood claims, like the rest of her classmates, to have made up her mind over the ANWR issue even before Friday's discussion. She gleaned some information from television or radio news, but received most of her information from the class visitors.

The students also claimed unanimously that nothing could be said or done to change their minds. But, as one of the pro-drillers joked, money could change his mind.

Twelve-year-old Jill Brunner conceded she would end her protest to drilling if it did not harm wild animals around the drilling sites.

Dan Scannell, 12, inherited his wildlife-friendly stance from his parents. "Money is the driving force," he said. "I don't believe on putting a price on life."

Dan went on, "I'd like it if the oil companies only got a little oil and then they'd look like big jerks."

Ian Dixon, 13, took the underdog, pro-drilling stance.

"It'll help Alaska's economy to have jobs," he said. "You can't have a strong enough economy."

The debate rambles on in Lokken's classes, with two films about ANWR on the schedule. One was created by the Northern Alaska Environmental Center and the other by the Alaska Oil and Gas Association.

Lokken hopes his students will take his informal curriculum home with them, talk it over with their parents and form their own opinions.

"Soon they'll vote," he said. "And soon they'll probably be dependent on oil."

Sen. Stevens' frequent gaffs distort debate over ANWR

Alaska's senior senator shouted that Interior Secretary Bruce Babbitt was a liar on the nationally televised news program "Nightline" Nov. 20. But Senator Ted Stevens' own arguments were riddled with misstatement, half-truth and distortion.

The enraged senator claimed the coastal plain of the Arctic Refuge has never been closed to oil and gas development, echoing his assertion, in testimony at an August hearing, that "I am one person in government that has lived through it all. And I can never remember an action of the federal government that has denied that his area should be open to oil and gas exploration."

The senator's memory is faulty. In 1980 Congress declared that:

"...all public lands within the coastal plain are withdrawn from all forms of entry or appropriation under the mining laws, and from operation of the mineral leasing laws of the United States ... Production of oil and gas from the Arctic National Wildlife Refuge is prohibited and no leasing or other development leading to production of oil and gas from the range shall be undertaken until authorized by an Act of Congress." (Sections 1002(i) and 1003, Alaska National Interest Lands Conservation Act; 1980.)

In the absence of the congressional action Alaska politicians now seek, it is clear to many (but not to Sen. Stevens) that the Arctic Refuge coastal plain has been closed to oil and gas development for the past 15 years.

When I went back to the record, I found that the 1980 closure of the coastal plain was the second in recent memory. In 1960, the Interior Department asked Congress to establish the Arctic Wildlife Range to ensure that mineral development, including oil and gas leasing, could be permitted. In an April 22, 1960 hearing, Senator Bartlett

Richard
Fineberg

Guest Opinion



asked why Interior needed legislation when the agency had authority to establish the range administratively by an executive order that would permit mineral leasing and development. An assistant secretary responded:

"That (authority) would since be modified by the policy statement of the Secretary in 1958 on mineral leasing ... there were some areas in the States, for instance, where until 1958 it could have been possible to have mineral leasing. Now it is a policy statement that there shall be no mineral leasing."

Referring specifically to the Arctic Refuge coastal plain, the Interior official continued:

"(W)e ought to keep in mind the area we are dealing with has been closed off from all forms of entry, both mineral leasing and mining law by executive order for a substantial period of time ... the only reason (for this bill) was ... so that we could have ... mining and mineral leasing (in the Arctic Refuge)."

The 1960 Interior Department testimony was that of Ted Stevens—the same man who would now have us believe the Arctic Refuge "has never been closed." The 1960 bill went nowhere; eight months after the hearing, the Arctic National Wildlife Range was created by executive order. Senator Stevens was right about one thing; officials subsequently found oil and gas development incompatible with the purposes of the wildlife range.

The senator's recent television tantrum began when Secretary Babbitt correctly accused the Alaska delegation of tucking Arctic Refuge drilling permission

into the budget reconciliation package to avoid the scrutiny of full debate. Stevens shouted that hearings had been held. But the bill to drill on the coastal plain had not been introduced when the Senate Energy and House Resources committees, chaired by Stevens' junior colleagues from Alaska, held laughably incomplete hearings on the question last summer. How, then, could the particulars be debated? In the August House hearing, Sen. Stevens supported his peculiarly selective memory with the following misstatements:

■ **Porcupine Caribou Herd.** "As a matter of fact, this year none of them calved in that (coastal plain) area." Fact: According to government radio-tag and aerial survey data, more than 90 percent of the herd calved this year on the Arctic Refuge coastal plain. (Preliminary information was available more than a month before the August hearing.)

■ **North Slope oil tanker fleet.** "We now require them to be double hulled." Fact: Approximately eight out of 48 tankers calling at Valdez have double hulls.

■ **North Slope oil projections.** "(I)t will be about 2005 before oil would ... flow from (the Arctic Refuge coastal plain) ... by that time, the through-put of the pipeline will be down to about 100,000 barrels a day." Fact: State forecasters project production in 2005 to be between 640,000 and 1 million barrels per day.

Sen. Stevens' errors are part of a litany of misstatement that mars this debate and provides one of the best reasons why the Arctic Refuge drilling proposal should be removed from the budget reconciliation package. This important public policy issue deserves serious debate, followed by an up-or-down vote on the merits.

Richard Fineberg of Ester has studied Alaska's oil industry for more than 20 years as a reporter, public official and private consultant.

Date DEC 07 1995

ARCTIC SOUNDER

Client No. 120

Game management board meets to discuss Slope wildlife studies

120 345A 0222 0101

By Dimitra Lavrakas

Arctic Sounder

The North Slope Borough Fish and Game Management Committee met last week for two days to discuss wildlife studies being conducted here.

Topics ranged from polar bears to eiders and from fish to moose, with only one being hotly debated: caribou calving grounds in the 1002 area of the Arctic National Wildlife Refuge.

The meetings allow local subsistence hunters to question state and federal wildlife representatives on their data. Hunters receive answers about regulations and data that in many cases does not reflect their own experience.

"There are no calving grounds for caribou," said committee member Eddie Hopson. "We believe ANWR does not have calving grounds. A caribou doesn't say 'oh, oh, I'm going to have my calf, I'd better run up to ANWR.' They have

them where they are."

"This is where the animosity comes in — local and traditional knowledge versus scientific knowledge," said Charlie Brower, executive manager for the committee.

James Kurth of the U.S. Fish and Wildlife Service explained how the census data on caribou was collected.

"Our bottom line is the 1002 area of ANWR is the most important calving area of the Porcupine Caribou Herd," Kurth said.

He was challenged by some members about the use of the word "most," who said that was an imprecise term.

"It's really an important area for the herd, that's all we're trying to say," Kurth said. "The North Slope Borough is 15 percent of the state of Alaska, the 1002 area is 1 1/2 million acres of ANWR's 19.3 million acres."

In his report, Kurth said nearly all of the Porcupine caribou herd

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Wildlife ...

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uses the refuge Coastal Plain every year for calving, foraging and insect relief; 92 percent of the herd gave birth in the 1002 area in 1995; the herd increased to 178,000 in 1989 and declined to 152,000 in 1994; and that recent calf productivity and survival data suggest the herd is stabilized and may be growing again.

Ken Whitten with the state Department of Fish and Game, said the Central Arctic caribou herd's population has dropped from a high of 23,000 in 1986 to its present count of 18,000. A noticeable effect on their movement was in the Prudhoe Bay area, where during the summer, caribou don't cross the Haul Road because of increased vehicular use.

"We've had some hard winters," Whitten said. "But we are fairly certain that the problem is happening during the summer feeding season. If cows are fat they will most likely get preg-

nant, if thin and malnourished, they won't. The cows coming out of the oil production area are in poorer shape than other caribou outside the area."

Caribou populations on the west side of the road dropped from 14,500 in 1992 to 9,500 in 1995, and on the east side, rose from 8,900 in 1992 to 9,800 in 1995. He could not explain what happened to the missing caribou.

Dave Yokel with the Bureau of Land Management said in his report that it was too early and there was not enough information yet on the effect of the opening of the Haul Road on caribou hunting.

While the issue of caribou may have been controversial, the discussion of the polar bear population was not. U.S. Fish and Wildlife Service representative Scott Schliebe said there are 18 stocks of 22,000-28,000 polar bears in the circumpolar region, with the Alaska population in the range of 3,000-5,000. The present yearly growth rate is 2.4 percent, six years is the average age for first-time reproduction, an average litter is 1.67 cubs

and the survival rate of adults is 97 percent.

"The population may be nearing capacity, but current harvest rates are sustainable," Schliebe said. The quota is 38 males per year and 15 females.

He also discussed the conservation plan for the polar bear in Alaska, which is partly the result of meetings with affected Slope villages last year and was initiated due to Lower 48 public concern about polar bear habitation.

ADFG Biologist Geoff Carroll reported that a proposed joint study between the state and the North Slope Borough Department of Wildlife Management could start in the spring of 1996 to determine the cause of the 50 percent decline in the Slope's moose population over the last four years. Thirty moose would be tranquilized and examined for indications of disease, pregnancy status, contaminants, parasites and mineral deficiencies. An assessment is being made whether there is a need to change hunting regulations to aid in the recovery of the population.

ANWR dreams on wane

Oil drilling may have to wait, says Stevens

By ANDREA CHIPMAN
States News Service

WASHINGTON — Sen. Ted Stevens admitted Friday that a provision permitting oil exploration in the Arctic National Wildlife Refuge is in danger now that President Clinton vetoed the seven-year balanced budget bill.

The ANWR provision is contained in the bill. The president noted his opposition to oil and gas development in his veto this week.

"It clearly is going to be a problem," the Alaska Republican said in a telephone conference with reporters. "There is still a serious risk that it might not be in there."

"It might be that we'll have to wait until we get a Republican president to make sure we can get it," he added.

The Alaska delegation pledged to vote against any budget bill that does not contain the ANWR provision, according to Stevens' press secretary, Mitch Rose.

The ANWR measure narrowly passed the House and Senate this fall, and Stevens acknowledged that chances for reapproval are in jeopardy.

"We do have a couple of senators who told us they are reconsidering their position," Stevens said. "They've not told us they won't vote with us, but we know there is that challenge."

Other members of the state's delegation had mixed views about ANWR's prospects.

A spokesman for Rep. Don Young, R-Alaska, said that the congressman will continue to make the case for ANWR, but that the provision could face problems from the president's strong opposition.

"Congressman Young agrees with Senator Stevens that that is a very possible scenario," said Steve Hansen, communications director for the House Resources Committee.

"However, we're going to continue to do everything possible to outline the national benefits, the benefits to the Eskimo people and the benefits from the oil revenues," Hansen added.

Sen. Frank Murkowski, R-Alaska, remains optimistic about the bill's chances, according to his press secretary, Chuck Kleeschulte.

"Senator Murkowski still is hopeful that we will be able to accomplish this, if not this year, then very early next year," Kleeschulte said. "We have a strong commitment from the legislative leadership to keep ANWR in a second budget bill and we are very hopeful it will happen."

Kleeschulte acknowledged, however, that the framework for a new budget proposal is by no means clear.

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ANWR

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There has been little movement in the budget negotiations since the four-day shutdown of the federal government last month, and the president and Congress have so far failed to bridge the ideological chasm that separates them.

Making negotiations more difficult is the fact that both sides are basing their budget estimates on different government figures and have offered conflicting proposals about the program cuts that need to be made.

Stevens said he will be part of the negotiation process, and that he will fight to get the bill through.

ANWR: Native corporations file suit over administration's opposition to drilling

Continued from Page A-1

fear it would disrupt caribou on which they subsist.

The suit says Deer should have considered all Native interests before opposing refuge drilling, and said she "exploited the minority Native view to perpetuate the cynical myth ... that opening the Coastal Plain is opposed by the Alaska Natives that would be most directly affected."

Deer, a Menominee Indian from Wisconsin, came to Alaska in October and gave an impassioned speech urging the Alaska Federation of Natives to back off endorsing ANWR drilling. The federation, led by Inupiat delegates, voted 2-1 against taking a neutral stand on the issue, and passed a measure asking Congress to lift the drilling ban.

Kaktovik Inupiat Corp. and Arctic Slope Regional Corp. would benefit directly from oil drilling in the refuge. KIC, the village corporation for Kaktovik, owns land adjacent to the federal refuge land; ASRC, the North Slope's regional

corporation, owns the mineral rights beneath KIC's holdings.

The third company, CIRI, says it joined the suit because it is part-owner of oil-field service companies that could get work if oil is discovered.

The suit says the companies didn't have enough input into a report by the federal government critical of ANWR development.

The suit was filed in federal court in Anchorage just days after Sen. Ted Stevens, R-Alaska, said efforts to open the refuge were in trouble. President Clinton vetoed the federal budget bill that included a provision to open the refuge's coastal plain. The president cited that provision as one of the reasons for his veto.

The top Interior Department official in Alaska, Deborah Williams, questioned the motives behind the suit, asking why the plaintiffs scheduled a news conference in Washington, D.C., today. If it were only a legal matter, she said, the issue could be worked out in federal court here.

An attorney for CIRI said the timing of the lawsuit was not meant to rally politi-

cal support for ANWR development. The report attacked in the suit has been public for months, but the attorney, Mark Kroloff, said it took that long to research the law thoroughly to plan the suit.

Williams also said the suit was unnecessary. "This lawsuit could have been prevented by a phone call by CIRI, Kaktovik or Arctic Slope to the Department of Interior," she said the government would have been happy to discuss the report with them.

Kroloff says Williams is missing the point: The corporations wanted to be consulted before the report was written.

He couldn't substantiate the claim in the suit that a majority of Natives support drilling, saying he thought that would be covered at the press conference today. No statewide survey of Natives has been done as far as he knew, and he acknowledged that the AFN vote wouldn't be a perfect representation of Native views. The way the organization is set up, most votes are cast by delegates of village and regional for-profit corporations.

"It's probably as close to a representative vote as we can get, even if it's imperfect," he said.

The report in question was written by the Interior Department and released in late August, after it was leaked to the press. The report summarized recent research of how ANWR development would affect animals and the environment.

The report concluded development could hurt wildlife. A Reagan administration report in 1987 reached the same conclusion, but said drilling wouldn't cause an appreciable decline in the Porcupine caribou herd that calves along the coastal plain.

The latest report said that conclusion couldn't be substantiated, and the Clinton administration has used that to back up its view that the environmental cost of drilling isn't worth the economic benefit.

The lawsuit filed Monday asks the court to force the Interior Department to redo the report, taking the corporations' ideas into account.

Natives sue over ANWR

Corporations claim ANILCA guarantees input on refuge

By KIM FARARO

Daily News business reporter

Three Alaska Native corporations Monday sued Interior Secretary Bruce Babbitt and Ada Deer, the U.S. government's top official on Indian Affairs, over the administration's opposition to oil drilling in the Arctic National Wildlife Refuge.

The corporations contend that the Alaska National Interest Lands Conservation Act of 1980 guarantees them input on decisions about the refuge, and that neither Babbitt nor Deer consulted with them enough. The companies — Arctic Slope Regional Corp., Cook Inlet Region Inc. and Kaktovik Inupiat Corp. — stand to make money if an oil field is developed on the refuge's coastal plain.

The suit also criticizes Deer, the assistant Interior secretary for Indian Affairs, for "taking sides" in the harsh battle between the Native corporations and the Gwich'in Indians who live south of the refuge. The Inupiat corporations argue the refuge can be developed without hurting the environment or wildlife; the Gwich'in

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ANWR forum draws varied perspectives

By BRIAN O'DONOGHUE
Staff Writer

Speakers painted differing portraits of the Arctic National Wildlife Refuge during a free-roaming forum Thursday on proposed oil development amidst the calving grounds of the Porcupine caribou.

Wilderness advocate Debbie Miller called the coastal plain of the refuge the "crown jewel" of America's dwindling wild country. State's rights defender Howard Benson described the refuge's mineral resources as a symbol of Alaska's statehood entitlement. Gwich'in student Ed Alexander characterized the discussed tradeoffs as an uncaring cultural and spiritual assault that he finds hard to understand.

Such clashing perspectives occupied center stage in Schaible Auditorium on the University of Alaska Fairbanks campus as

five panelists debated the merits of ANWR development before a attentive crowd of about 130 people. The discussion was sponsored by the Northern Alaska Environmental Student Union, a newly formed student group.

Benson, the chairman of the non-political Alaskans for Independence, stressed the importance of dealing with other states on an equal footing, in full possession of the land and resources promised under the Statehood Act. David Porter, dean of UAF's School of Management, portrayed ANWR development as an opportunity to demonstrate to the world that minerals can be extracted at an acceptable cost.

"There's no free ride in the extraction of minerals and oil—you are going to disturb things," Porter said. "I'd like to see

us take some leadership in showing how that can be done without doing away with some of the values of wildlife."

Miller, who spent 12 years as a teacher in Arctic Village, argued that the refuge wilderness is itself priceless.

"This is the last place on Earth, in my heart, we would ever want to consider drilling."

Alexander, the son of a Gwich'in tribal leader, said it's unthinkable that the herd, and his people, wouldn't be damaged by development.

"You're out there. You're feeling alive. I think that wildness is what the Gwich'in are about."

Refuge biologist Fran Mauer urged those who talk about creating new wealth through development of the Coastal Plain's resources to take a longer view.

"What we're talking about is keeping an old wealth, a wealth that goes way back in time."

The federal biologist noted that research is mounting about the crucial role the same Coastal Plain area targeted for oil exploration serves for the Porcupine Caribou herd.

"There is no good feasible place for this particular herd to calve if it's displaced," Mauer said.

Porter and Benson challenged the science behind such statements.

Indeed, Benson questioned whether the Coastal Plain truly offers the pristine landscape its defenders claim.

"The refuge has already seen a lot of significant development," Benson said, citing the presence of several abandoned coastal Defense Early Warning line radar sites, constructed during the Cold War. "The military was not very neat about it."

Rep. John Davies, D-Fairbanks, served as moderator for the discussion.

Student organizers sought to offer a balanced debate, with three panelists speaking for, and three others against, refuge development. Arctic Power's representative dropped out, however, leaving three voices opposed to oil drilling—Miller, Alexander and Mauer—matched against a pair of pro-development speakers, Benson and Porter.

Date DEC 18 1995

Fairbanks
Daily News-Miner

Client No. 120

Nation needs ANWR's oil; the refuge won't be ruined

Leases, royalties could give billions

120 120 345A
I have great respect for the views of Celia Hunter, who as a former wilderness lodge owner in Denali National Park has done much to promote environmental protection in Alaska. But on the issue of oil production in the Arctic National Wildlife Refuge she is pursuing a short-sighted agenda that is just plain wrong.

In a recent column (Nov. 16) she said there is no urgency in looking for oil in ANWR. She fails to note that if we start prospecting today, that it will be 10 years before the first oil could be commercially produced—provided we take the time to impose all the environmental restrictions to guarantee that oil production will not harm the environment or wildlife of the North Slope.

From an environmental standpoint the worst possible crime would be for America, in the face of a shutoff of imports, to rush haphazardly into the coastal plain to produce oil quickly in order to meet a national emergency—likely throwing caution to the wind.

Both the Energy Information Agency and the former Congressional Office of Technology Assessment predict that America will be between two-thirds and three-quarters dependent on foreign oil within a decade. That is a good reason to start environmentally sensitive exploration and development now. The longer we wait, the more at risk our energy security, our foreign policy and our economy become.

Hunter says that a delay will permit time for new "revolutionary" technology to be developed to produce the oil. She forgets that the only reason for development of such technology is because of access to new Arctic oil reserves. In the past decade we have already perfected "cold-oil" pumping techniques to often permit buried pipelines, the technique for building ice roads, the

Frank
Murkowski

Guest Opinion



ability to drill up to five miles (directional drilling) to reduce surface disruption, and the ability to reduce the size of oil wellpads by up to 70 percent as compared to the existing Prudhoe Bay field. Prudhoe Bay takes up 4,178 acres. Most estimates are that a major find in ANWR will disturb just 2,000 acres—a "footprint" so small as to not harm any wildlife on Alaska's North Slope.

Hunter argues that the environmental community is rallying to defend the coastal plain. What the community is doing is blatantly using ANWR as a public-relations tool to raise money and seek members. Given that the major environmental groups are Big Business, with assets that exceed \$1 billion and income that exceeds \$600 million a year, the underdog tone of her column is absurd. In a real sense it is Alaska, which is largely carrying the ANWR fight for the good of the nation, that is the underdog while trying to use its resources responsibly.

And she is absolutely wrong that the prospective revenues from ANWR development are "chicken feed." To paraphrase Will Rogers, "A billion here, a billion there, pretty soon you are talking real money." ANWR, by conservative estimates, likely will generate \$2.6 billion over the first two lease sales—half of that going to help balance the federal budget deficit. Some \$2.6 billion happens to be the amount of the entire Head Start program for pre-school children; it happens to equal what we spend each year on Women, Infants and Children's (WIC) nutrition program; it is twice what we spend on housing vouchers for the homeless; and exactly what we spend as a nation for mass transit

grants and subsidies.

More importantly, if ANWR does strike oil, even at existing prices, the total tax revenues from that oil could pump another \$100 billion into the federal and Alaska state treasuries. That is not chicken feed; not counting the total benefits to the economy that will triple that amount.

The truth is that Alaskans overwhelmingly know that we need to open a few thousand acres of the coastal plain, using the best technology possible, in order to permit our children and grandchildren to have an economic future, while enjoying the beauty of Alaska for generations to come.

While the date when Prudhoe Bay will stop producing oil varies, there is no question that the oil will run out. But at least seeing if ANWR has oil now and then carefully producing it if it does, we will fuel an economic engine for this state for another 50 years. Hopefully by then, Alaska will have generated a sustained economy to last our grandchildren and their grandchildren for eternity.

This is not an issue of greed, as Ms. Hunter blithely stated, but an issue of how we can provide for the economy of our state without harming the environment in the least. There are 70-plus million acres above the Arctic Circle. Most all of them are either protected in parks or refuges or protected by the fact they have no resources that anyone might want. All 60 million acres of wilderness already designated in Alaska are being fully protected.

All we are seeking is a right to develop the most likely oil deposit in North America, a tiny area whose highest and best use probably is for energy development. It is doubly good that we already know how to produce that energy without harming the environment. We need to get on with the effort now.

Sen. Frank Murkowski, R-Alaska, has served in the U.S. Senate since first elected in 1980.

Date **DEC 25 1995**

Anchorage Daily News

Client No. 120

The Anchorage Times

Publisher: BILL J. ALLEN

"Believing in Alaskans, putting Alaska first"

Editors: DENNIS FRADLEY, PAUL JENKINS, WILLIAM J. TOIHN

The Anchorage Times Commentary in this segment of the Anchorage Daily News does not represent the views of the Daily News. It is written and published under an agreement with former owners of The Times, in the interests of preserving a diversity of viewpoints in the community.

Finding Christmas joy in Alaska teamwork

By BILL J. ALLEN

In expressing warm Christmas wishes to all of you who have been continually supportive of The Voice of The Times, I look back on a year that produced something very special.

Despite the divisive political rhetoric, disagreements and anger that sadly seem to be a part of daily life in the 49th State, this was a year in which all kinds of Alaskans came together in a common cause.

That's something to celebrate as we gather with family and friends to renew Christmas traditions that are dear to all of us.

Along with the glitter and decorations, along with the holiday music and the gifts under the tree, one of the brightest aspects of this day for me is the memory of the battle that was fought in an effort to win the right to find out whether there really is a big reserve of oil under the coastal plain of the Arctic National Wildlife Refuge.

We won in Congress, but the fight is not over because of the stubborn stance of Bill Clinton. But for the moment, that's not the issue — recognizing that Clinton will be a problem for Alaska as long as he remains in office. So forget, for the time being, the adverse reaction from the White House.



Allen

My Christmas Day joy rests on the fight that was waged in Congress.

On Capitol Hill, the struggle brought together Alaskans from every walk of life, from widely different political perspectives and from all parts of the state.

In the process, a lot of people who thought they were political or economic enemies found out there was a lot to like about each other. In the heat of the battle, new friendships were formed.

During those long weeks in which ANWR was topic No. 1 for Alaskans, I was privileged to be in Washington as a participant on the front line.

It was an experience I'll never forget.

It was good for the Alaska contingent to come away with a victory — one that a lot of people thought never could be pulled off.

But even more, it was a powerful and wonderful opportunity to see Alaskans lay aside some old differences, to put



salve on some old wounds and to work together as partners in a common cause.

And they came away from it respecting each other, liking each other, calling each other friends.

There were oil industry executives and labor leaders. There were legislators and local government officials. There were Native leaders and ordinary folks from the villages. There were men and women who move in high-profile positions back home and there were just plain people from Alaska cities and towns.

They had a ball working together. There were Democrats and Republicans and independents. You would have thought they were all members of the same club. And we all got to see our congressional delegation in action. Believe me, that was something special.

I don't care whether you have some gripes with Frank Murkowski, are sometimes uptight with Ted Stevens, or sometimes believe some of the media criticism dished out against Don Young. I guarantee that you would have been impressed if you had been able to see them at work during the heat of the ANWR battle.

There are a lot of powerful people at the top rungs of the pecking order on Capitol Hill. But the members of our delegation don't take a back seat to any of them. They are right up there in the highest ranks — respected by their peers, strong in their congressional leadership

positions, and absolutely tireless in their pursuit of Alaska's interests.

They are a team — and a darned good one.

And those Alaskans who went back there to help in the ANWR battle became part of the team. Maybe it's trite to say so, but this effort was a demonstration of teamwork in action.

I give special credit to people like Tony Knowles and Drue Pearce and Gail Phillips and Mano Frey — the governor, the Senate president, the House speaker and the state's No. 1 labor man.

Gov. Knowles went an extra mile — taking the case for ANWR directly to the White House, despite Clinton's known opposition, and doing the same in the successful effort to win the president's approval of lifting the North Slope oil export ban. His contribution was very, very significant.

I also pay great tribute to Native leaders like Mayor George Ahmaogak of the North Slope Borough; Brenda Itta-Lee and Oliver Leavitt of the Arctic Slope Regional Corp.; Fenton Rexford, president of the Kaktovik Inupiat Village Corp., and George Tagarook, a Kaktovik city councilman. They displayed courage in telling the real story of life in the Arctic to people in Washington who have no concept of what it means to live in northern Alaska — or anywhere else in Alaska, for that matter.

The state's lobby efforts were led by Debbie Reinwand and Roger Herrera of Arctic Power, and they were wonderful.

All who were there — and there were many more than those I mentioned above — felt enormous support from the folks back home.

And as I kick off my boots and sit back before the fire today, enjoying Christmas with my grandchildren, I'll be thinking of what was accomplished during those weeks in Washington. It showed what Alaskans can do when differences are set aside and they work together on a job of importance to the state.

We have a lot of other challenges on the New Year's agenda, like developing a plan to solve the state's fiscal gap.

Why don't we get together again to work on that? If we do, we'll make a lot of progress — and a lot of new friends.

And isn't being with friends part of what celebrating Christmas is all about?

Bill J. Allen is publisher of The Anchorage Times.

Date DEC 31 1995

Anchorage Daily News

Client No. 120

Best chance for quick drilling may have passed

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By DAVID WHITNEY

Daily News reporter

WASHINGTON — Opening the coastal plain of the Arctic National Wildlife Refuge to oil development was the top goal of Alaska's all-Republican congressional delegation, which in 1995 held key posts to get the job done.

Despite the Republican takeover of Congress this year and the delegation's new powers, development legislation had to be attached to a filibuster-proof budget bill to get it out of the Senate.

After the bill emerged from Congress, President Clinton axed the budget package with a warning that he'd never sign legislation with the provision in it.

The Alaskans were left with a good-news, bad-news message. They claimed credit for moving a development bill out of Congress, further than it had gone before. But unless Clinton buckled during ongoing budget negotiations, which no one was betting on, that might be as far as the provision would get.

Alaska may have to wait until a Republican is elected president before the state — and nation's — best oil prospect can be developed, Sen. Ted Stevens said.

The fight over the refuge and other environmental legislation spawned a growing protectionist movement among House Republican moderates, who by year's end had organized a formidable

backlash against what they saw as early House efforts to weaken the nation's environmental laws.

In November, nearly 100 House members signed a letter to Republican leaders urging them to scrub the drilling provision. Eighteen of the signers were Republicans, including Rep. Sherwood Boehlert of New York, whom House Speaker Newt Gingrich appointed to head a task force reviewing environmental legislation.

"A lot of people think Republicans are anti-environment," Boehlert said. "A lot of people are wrong."

Development advocates regarded this year as the best chance they might have for some time to open the refuge. They might not be able to smoothly attach drilling to much-bigger, must-pass legislation later on. And on its own, as a Senate vote demonstrated, development legislation has virtually no chance.

Arctic Power, the pro-development lobbying organization, said it hoped drilling in the refuge still would slip through on the budget bill if Congress and the White House settled the far larger and more controversial issues.

But environmentalists railed against a sneak attack on the Arctic, saying back-door procedures were being used to silence opponents. That same theme permeated attacks on the drilling provision by the Clinton administration's point

man on the issue, Interior Secretary Bruce Babbitt.

The House took up the budget bill under rules that prohibited drilling opponents from offering amendments to strike or modify the provision. In the Senate, rules prohibited a filibuster that would have permitted opponents to talk the provision to death.

The key vote was in the Senate on motion to strip the drilling provision. It failed 51-48, a victory for the Alaska senators. But the margin was evidence that even with Republicans in charge, they don't have the votes to stop a filibuster on a free-standing development bill.

Despite the apparent ANWR setback, Alaska's congressional delegation scored a win in November when President Clinton signed legislation that ended the export ban on North Slope crude.

The move will let Alaska oil be traded freely on world markets and could pour millions of dollars into the state treasury. The U.S. Energy Department figured that Alaska's income from Prudhoe Bay production could increase between \$700 million and \$1.6 billion over the next six years.

Congress created the export ban in 1973 when it authorized construction of the 800-mile trans-Alaska oil pipeline. The nation was suffering under an Arab oil embargo; Congress sought to keep Alaska oil for domestic consumption.

QUALITY SERVICES

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Client No. 120

The Anchorage Times

Publisher: BILL J. ALLEN

"Believing in Alaskans, putting Alaska first"

Editors: DENNIS FRADLEY, PAUL JENKINS, WILLIAM J. TOBIN

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Chicago Tribune: Drill ANWR or pay Alaska

The following editorial appeared in the Chicago Tribune on Dec. 12.

For 15 years, Alaska and the oil industry have battled environmentalists over the right to explore for oil in the Arctic National Wildlife Refuge.

Now, under their plan to balance the budget in seven years, Republicans want to open a tiny part of the range to development because it will generate \$1.3 billion in leasing income for the U.S. treasury.

Environmentalists oppose any intrusion and have made the refuge a symbol of the Republicans' assault on the environment. Any drilling there, they say, will irreversibly ruin a "pristine" wilderness and shrink the porcupine caribou herd that roams northern Alaska and Canada.

President Clinton has vowed to veto any budget-balancing bill if it contains a provision to allow drilling in the Arctic refuge.

Facing declining oil revenue from the 20-year-old Prudhoe Bay field on

the North Slope, most Alaskans favor drilling, and the state's governor, Tony Knowles, a Democrat, says Alaskans have shown they can balance resource development and environmental protection and should be allowed to try in the refuge.

Clinton should grant Knowles his wish and allow exploratory drilling in the Arctic refuge, but only under guarantees that will preserve the region's wildlife and unique ecosystem.

Such a compromise wouldn't be without risks, although they'd be small compared with the potential benefits. Although they disagree over specifics, geologists contend the odds are good that the area may contain the last major oil reserve in North America.

Furthermore, if oil is found, only a tenth of 1 percent of the 19 million acres in the refuge would be directly affected (92 percent of the area already is protected by law from development). And, in Prudhoe Bay, where the caribou herd increased after drilling, the

oil industry has shown it can grub for black gold and still be sensitive to the ecology.

Technology has improved since then and, in the Arctic refuge, which is under federal control, Congress would authorize the Interior Department to bar drilling in especially sensitive areas during the caribou summer calving season.

Knowles doesn't argue that the oil is needed for national security (although it would be nice to know it's there). It will, he says, help promote growth and jobs. Indeed, the Inupiat Eskimos in the region favor drilling because they've benefited from schools, sewers and roads built with oil revenues. The Gwich'in Indians oppose it because they fear losing the caribou as a food source.

Knowles says Alaskans shouldn't be held hostage by an environmental symbol, and he's right. Clinton should end the siege. If not, he should find a way to compensate the state and people like the Inupiat for the income they will lose.

Date DEC 23 1995

Anchorage Daily News

Client No. 120

Key AFL-CIO official backs ANWR oil drilling

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By DAVID WHITNEY

Daily News reporter

WASHINGTON — A key national labor leader has endorsed oil drilling in the Arctic National Wildlife Refuge after Alaska's congressional delegation promised that it would seek to require union-hire negotiations.

Robert Georgine, president of the AFL-CIO's Building and Construction Trades Department, urged President Clinton to approve "responsible leasing" of the refuge's 1.5 million-acre coastal plain.

In a Dec. 20 letter, Georgine cited studies estimating that the area's development would create 250,000 to 735,000 jobs around the country. Opponents of

ANWR development have questioned those job estimates as too high.

The delegation said it provided no assurance that any work would involve union jobs. The delegation said in a release Friday that all it agreed to was writing a clause into the bill requiring negotiations "that could lead to a labor project agreement."

Arco Alaska spokesman Ronnie Chappell said that if the company eventually is allowed to drill on the coastal plain, "we hope to create jobs for both union and nonunion workers."

In October, five other labor union leaders came out for development. They included laborers, teamsters, electrical workers,

seafarers and operating engineers.

John Katz, Gov. Tony Knowles' top Washington aide, said that with Georgine's endorsement, labor support for opening the refuge "is more than we've ever had before."

The refuge's coastal plain is considered the nation's most likely site of a major oil find. The refuge is located east of the seven North Slope oil fields, which include the two largest fields in North America.

No oil development is allowed on the coastal plain. But this year a Republican-controlled Congress approved a provision to allow drilling when they passed a massive budget

bill. President Clinton vetoed that bill, and he and Congress are negotiating a new bill.

Labor support of opening the refuge is designed to soften opposition to including a drilling provision in this new bill. Labor unions traditionally have had Democrats as their strongest allies in Congress. Most opponents to drilling are Democrats, including Clinton.

A provision in a Republican-written budget package calls for leasing the coastal plain to raise an estimated \$1.3 billion to help balance the federal budget by 2002. Clinton vetoed the measure, citing as one of his reasons the need to permanently protect the

coastal plain.

Alaska lawmakers said Friday they have now assembled the kind of labor endorsement for the refuge's development that they had in 1973 when Congress agreed to build the 800-mile trans-Alaska oil pipeline. The \$9 billion pipeline's construction allowed development of Prudhoe Bay and eventually the other six North Slope oil fields.

The union agreement "could be the catalyst to make development of the coastal plain a reality," said Sen. Ted Stevens, R-Alaska.

"Support of organized labor should convince the

Please see Page B-3, ANWR

ANWR: Wins labor's OK

Continued from Page B-1

president that this is a jobs issue," said Sen. Frank Murkowski, R-Alaska.

Republican Rep. Don Young said that "the White House cannot ignore labor's support."

But Pam Miller, chairwoman of the Alaska Coalition of environmentalists fighting the refuge's opening, said the Georgine letter is not likely to change the president's mind.

"This is a last-ditch effort," Miller said. "Our reading is that Clinton will continue to stand firm."

Georgine's Wednesday letter didn't seem to make any difference at the White House. In a meeting with reporters Thursday, Vice President Al Gore indicated that the administration had not budged in its position and that the refuge remained one of the major budget issues dividing the White House and the Republican-controlled Congress.

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Wright Air Service ATTN: Robert P. Bursiel P.O. Box 60142 Fairbanks, AK 99706	(907) 474-0502 (907) 479-6539 (FAX) 474-0375

Aircraft Access and Transportation Arctic National Wildlife Refuge

Most visitors access the refuge by flying to Arctic Village, Fort Yukon, Deadhorse or Barter Island, then chartering a bush plane to their starting location. Aircraft also may be chartered from Fairbanks, but this is more expensive. Attached is a list of air charter companies that are authorized to operate on the refuge.

What type of aircraft do you need? The type of plane depends on the number and weight of people in your party, the amount of gear, the size and condition of the landing area, and weather conditions. Shorter, rougher landing areas require lighter loads. Do not pressure the pilot into taking more weight than he/she feels the aircraft can safely handle for the existing conditions.

Where can you land? Although you are allowed to land anywhere within the refuge, including sensitive tundra sites, we recommend that you consider using the more durable surfaces (e.g. gravel and sand bars, lakes) that can withstand repeated landings with less aesthetic and environmental impact.

How much will the charter cost? The cost depends on the aircraft's hourly rate and round trip flying time. Poor weather and winds can increase flying time. Some companies have a fixed rate to the more popular locations. Be sure that you understand how costs will be figured before you leave Fairbanks.

What about pickup arrangements? Make sure there is no confusion about where and when you should be picked up. The pilot should know the landing area and be certain that his plane can land there. Discuss options with the pilot in case the area becomes unlandable due to flooding, rain, wind, etc. If multiple trips are needed, be sure that you are not left in the field without survival gear.

What about the weather? Inclement weather is common, especially north of the Brooks Range. Plan an extra day or two on each end of your trip for weather delays. Remember that the weather can be fine at your pickup site but unflyable where the plane is based. If your pilot feels that it is unsafe to fly, believe him/her.

Can aircraft carry canoes and rafts? Float planes may transport canoes, but usually only when there are no people on board. Canoes also must be chartered from Fairbanks since the cost of shipping them to a bush community is extremely high. For these reasons, canoes are not practical in the refuge. Collapsible watercraft are preferred since they readily fit in Cessna and larger aircraft.

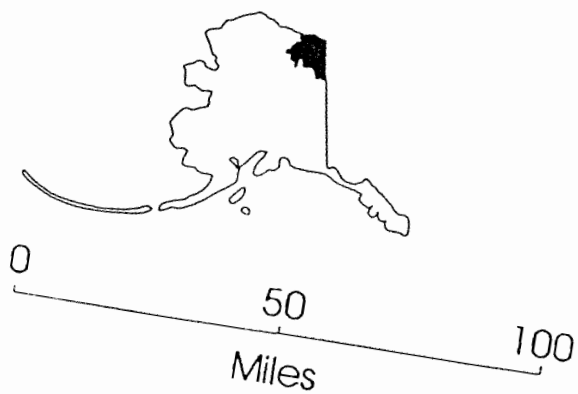
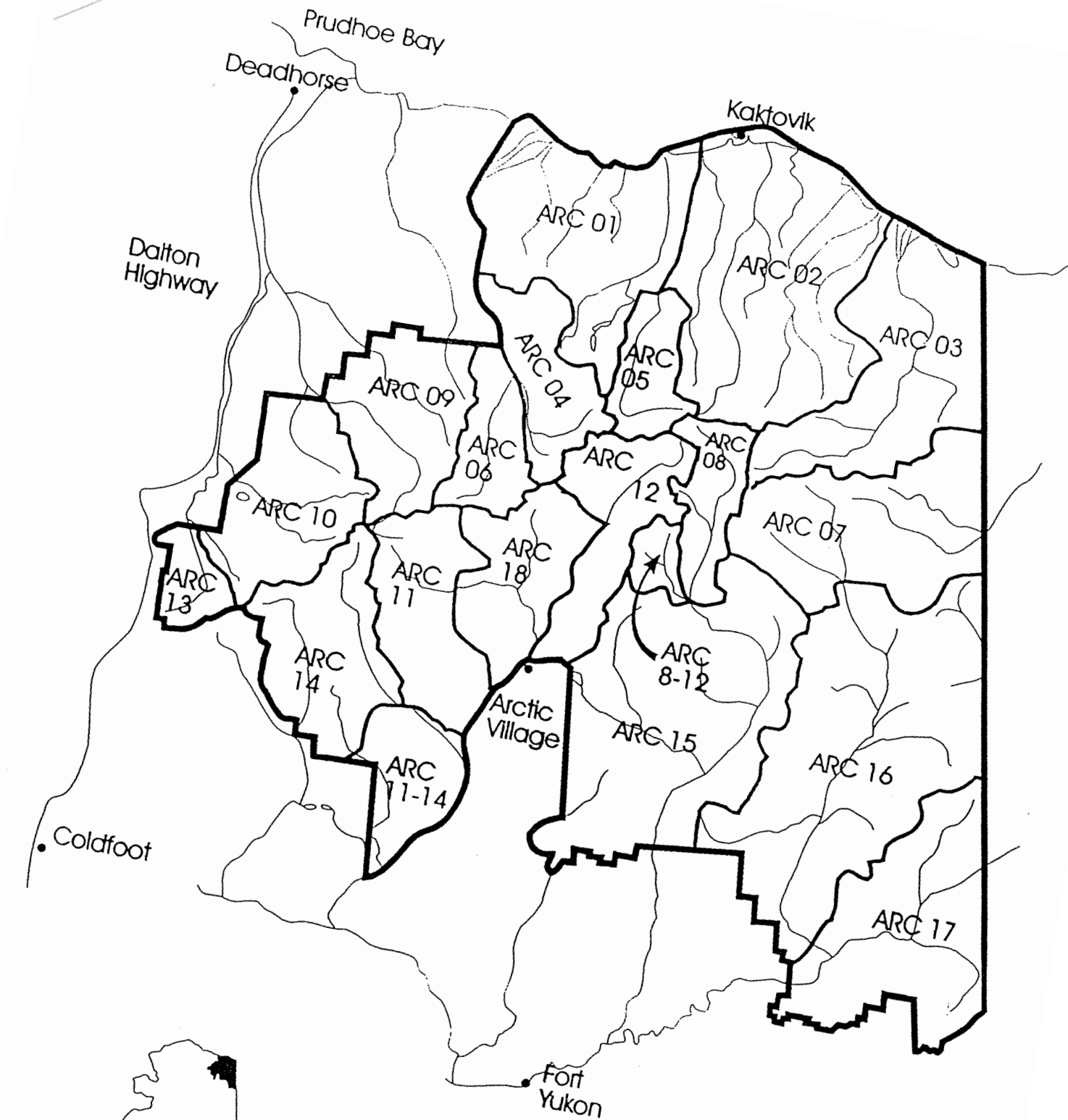
Other concerns? Remember that the altitude and flight path of your trips into and out of the refuge can affect wildlife and other refuge visitors. Work with your pilot to minimize visual and noise impacts that result from your flights.

**List of Authorized Commercial
Hunting Guides
Arctic National Wildlife Refuge
December 11, 1995**

<u>Names, Address and Areas</u>	<u>Phones</u>
Alaska Wilderness Ventures Len Mackler 411 Rhonda Street Fairbanks, AK 99712 (Authorized Guide Areas ARC 1, 4, 10)	(907) 488-3259
A.W. Enterprises Larry Rivers P.O. Box 107 Talkeetna, AK 99767 (Authorized Guide Area ARC 9)	(907) 733-3473
Bristol Bay Outfitters John Peterson 3450 Stanford Drive Anchorage, AK 99508 (Authorized Guide Areas ARC 3, 7)	(907) 278-0994 (Phone or Fax)
Brooks Range Arctic Hunts Eugene Witt HC 33, Box 32810 Nenana, AK 99760 (Authorized Guide Areas ARC 11)	(907) 452-8751
Bushcraft Guide Service Sandy Jamieson P.O. Box 130 Ester, AK 99725 (Authorized Guide Area ARC 16, 17)	(907) 479-3608
Clearwater Outdoor Services Pete Buist P.O. Box 71561 Fairbanks, AK 99707 (Authorized Guide Area ARC 13)	(907) 457-7189
Joe Hendricks P.O. Box 102104 Anchorage, AK 99510-2104 (Authorized Guide Area ARC 6)	(907) 274-3996 (602) 966-1935

**List of Authorized Commercial
Hunting Guides
Arctic National Wildlife Refuge
December 11, 1995**

<u>Names, Address and Areas</u>	<u>Phone</u>
Jacques Adventure Co. Jerry Jacques 4316 Kingston Dr. Anchorage, AK 99504 (Authorized Guide Area ARC 12)	(907) 337-9604
Kichatna Guide Service Harold Schetzle P.O. Gox 670790 Chugiak, AK 99567 (Authorized Guide Area ARC 5)	(907) 696-3256
Max Schwab P.O. Box 295 Talkeetna, AK 99676 (Authorized Guide Area ARC 15)	(907) 733-2681
Joe Want P.O. Box 10044 Fairbanks, AK 99701 (Authorized Guide Area ARC 8)	(907) 457-4736
Patton Witt 252 D Street Fairbanks, AK 99701 (Authorized Guide Area ARC 18)	(907) 452-5509
Chandler River Outfitters Keith Koontz P.O. Box 74877 Fairbanks, AK 99707 (Authorized Guide Area ARC 14)	(907) 488-8402
Art Andreis P.O. Box 55818 North Pole, AK 99705 (Authorized Guide Area ARC 2)	(907) 488-2352



Arctic National Wildlife
Refuge
Guide-Outfitter Use

Latrines

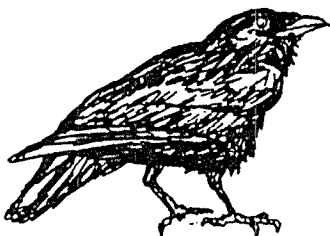
Bury human feces at least 150 feet from all potential water sources. On the tundra, remove a fist-full of vegetation and scoop out a small depression. Mosses, leaves, and snow are natural toilet papers. Burn or pack out all paper products, including tampons and sanitary napkins. Replace the tundra.

Fires

Trees grow slowly in the Arctic; a spruce tree only inches in diameter may be hundreds of years old. This and other factors makes wood scarce or nonexistent in some areas. Gas or propane stoves are recommended for cooking and emergencies.

If you need an open fire, build it on exposed inorganic soil. Fire at other locations will kill plants and create long-term scars. Burn only dead and downed wood.

Erase all traces of the fire before you leave. Remove all foil, wire, and other unburned materials from the ashes and pack them out. Deposit ashes and charcoal in the main current of a river, if possible. Return rocks to their original locations. Using a fire pan will prevent fire scars.



Litter

You can help keep the Arctic pristine. Please pack out what you pack in. If you find litter, carry it out if possible. Do not bury garbage, as it will resurface due to frost action or curious animals. Bears that dig up garbage can begin associating people with food, a potentially dangerous situation. Check with local residents before disposing of garbage in a rural community.

Private Property

Private lands and property are scattered throughout remote Alaska. Check with the area land manager to determine land status.

Private cabins, caches, traplines, and fishnets should not be disturbed. The use of cabins in emergencies is acceptable. If you use supplies or firewood, you must notify the cabin owner and replace the items. The owner may depend on them, especially in winter.

Prehistoric or historic sites usually hold great significance for the local Native people. Respect their heritage and leave the sites undisturbed.

If you visit a rural community during your trip, remember that community privacy is important to many residents. Be sensitive to their lifestyle and activities. Obtain permission to use community facilities and photograph residents or private property.

Wildlife

Observing wildlife in its natural habitat can be one of the most rewarding aspects of your trip. Remember that you are a visitor. Help ensure your safety and protect the wildlife by following these practices:

- * Cook and cache food away from sleeping areas.
- * Avoid strong smelling foods and keep yourself free of food odors.
- * Select campsites away from game trails and fresh bear sign. If a bear repeatedly visits or shows unusual interest in a campsite, move to another area.
- * Give wildlife the right-of-way on game trails.
- * Avoid bears with cubs and moose with calves.
- * Make noise and stay alert in bear country.
- * The Arctic produces fewer fish than other areas. Take only what you will eat; practice catch and release.
- * Use binoculars, spotting scopes and long lenses for watching and photographing wildlife. Keep away from nests and dens.

Natural Heritage

Wilderness areas belong to everyone. By using them wisely and gently, we can preserve their remote, pristine nature for both ourselves and future generations.





Your Arctic Adventure

Arctic Alaska, with its delicate balance of tundra, boreal forest, coastal wetlands, and mountains, contains some of the greatest wilderness in the world. Although it is vast, the arctic ecosystem is extremely fragile, easily impacted by human activities.

Certain standards of behavior are required to preserve the Arctic ecosystem - standards unnecessary in areas with more resilient systems. The techniques presented here will help ensure your safety and minimize your impact on the environment.

Preparations

The Arctic wilderness requires that you be well-prepared and self-sufficient. Equipment, supplies, and emergency services may not be readily available. In many areas it can be weeks or months before you encounter another person.

Your equipment should be sturdy and functional, with adequate repair kits. First aid knowledge and supplies are a must. Signaling devices (smoke flares, mirrors, strobes, signal cloths) should be carried for emergencies.

Leave your itinerary with a dependable person and make firm arrangements with an air taxi operator. Planes may be delayed several days due to weather, so carry extra food. Consult a good backpacking guide for more information.

Groups

Sharing enhances a wilderness trip. However, groups should be small enough to enrich the wilderness experience. Large groups can have especially noticeable and lasting impacts on arctic ecosystems.

Trails

Trails can form quickly in the Arctic, scarring the land. Healing, if it occurs at all, can take years. Groups should travel in fan pattern whenever possible to limit trail formation. Use game trails, but be alert for wildlife in brushy areas. Leave your route unmarked.

Campsites

Campsite selection is the most critical part of minimizing your impact. Gravel bars make excellent campsites. They are durable, well-drained, and often have fewer mosquitoes than upland sites. High water in the spring will also erase signs of your presence. Remember that high water can occur at any time so locate your camp well above current water levels.

If you must choose a vegetated site, select a location with hardy vegetation such as moss or heath plants, rather than fragile lichens. Soft-soled shoes will help minimize impacts. Trenching around tents and using branches for beds or caches are unnecessary.

Move your camp every 2-3 days, or before signs of your presence become noticeable. Make every effort to return the campsite to its natural appearance.

Water

Water sources may contain Giardia lamblia or other intestinal parasites. Take preventive measures by treating or boiling your water. Use a collapsible water jug - fewer trips for water reduces trail formation. Bathe and wash dishes at least 100 feet from water sources and use biodegradable soaps.



forested lake-dotted valley. The river passes Arctic Village and serves as a highway to subsistence hunting, fishing and trapping areas.

Sheenjek River - The Sheenjek, originating from glaciers at the continental divide, drains the south side of the Brooks Range's highest and most massive mountains. This designated wild river flows nearly 200 miles through dramatic mountains and forested foothills to join the Porcupine River in the Yukon Flats National Wildlife Refuge. Single-channeled and relatively calm with numerous access points, the Sheenjek is the most popular of the refuge's south-flowing rivers. Most of the river is class I although a stretch in the upper reaches near Table Mountain is class II.

Wind River - This designated wild river begins across the divide from the headwaters of the Ivishak and flows 94 miles southeast to the East Fork of the Chandalar. Open tundra valleys fringed by limestone and shale mountains characterize its upper reaches. Forested hills, lakes and meadows dominate the lower river.

Other rivers - Many other rivers are scenic and have good wildlife viewing opportunities, but are not generally suitable for floating because of low water levels, extensive braiding and/or lack of aircraft access sites in the headwaters. They include the Aichilik, Egaksrak, Firth, Jago, Katakturuk, Sadlerochit and Tamayariak on the north slope and the Junjik on the south side. Stretches of these rivers may be navigable at certain times but it is difficult to anticipate when such conditions may occur. As a result, one cannot plan successful trips in advance.

Due to its scenery, accessibility and floatability, the Hulahula is the second most popular recreational river in the refuge. The river is generally accessed fairly high in the headwaters at a place called Grassers Strip. A narrow twisting pass across the continental divide between the headwaters of the Hulahula and Chandalar Rivers provides a natural hiking route and a frequently used corridor for airplanes. The river is heavily hunted and fished by Kaktovik villagers.

Ivishak River - A designated wild river, the Ivishak flows from the Philip Smith mountains north for some 60 miles through the refuge. Fed by flows from relic hanging glaciers, the river develops a broad, braided flood plain typical of other north slope rivers. Although scenic, the river's shallow water, poorly defined channel and marginal access results in low use by floaters.

Kongakut River - The Kongakut is the only major refuge river whose entire course is within designated wilderness. Originating high in the mountains of the eastern Brooks Range, the river flows east for some 25 miles before heading north through 60 miles of rugged mountains to the coastal plain. Clear water, scenery, wildlife, fishing and fair access combine to make the Kongakut the most sought after and heavily used recreational river in the refuge.

The river is generally accessed fairly high in the headwaters at a place called Drain Creek. At average flow rates, rapids on the Kongakut are generally class I and II, although there are stretches of class III. Most floaters take out at Caribou Pass (an 8-10 day trip) although a few float all the way to the Beaufort Sea.

Okpilak River - The Okpilak travels north through a classic U-shaped valley in the heart of the most active glacial area of the refuge. The silt-laden river was recommended as a national natural landmark because of its prominent moraines, fans, sand dunes, outwashes and other glacial features. The upper river is too wild and dangerous for most river floaters and the terrain precludes aircraft access. These factors, however, offer hikers an uncommonly tranquil and scenic experience.

Coleen River - The clear, shallow Coleen, which flows south on the east side of the refuge, was a traditional route for Eskimos seeking trade with the Athabaskan Indians. The river's upper tributaries are braided, have poor aircraft access and flow through scenic, but undramatic mountains. Although its forested middle and lower sections have good access, the Coleen is one of the refuge's less floated rivers.

East Fork Chandalar River - The Chandalar is a major Yukon River tributary. The East Fork of the river flows swiftly south from its high mountainous headwaters nearly 60 miles through a wide, mountain-rimmed valley. From there it meanders slowly through a

water later in the season, it can be dangerous to attempt travel through such areas. By mid to late June, the channels are generally carved and melted wide enough to allow passage. However, augeis fields can be dangerous any time during the summer if river levels rise due to rains upstream. Therefore visitors should scout all ice areas prior to floating through to ensure that the river is not flowing under or through tunnels in the ice.

Refuge Rivers

Scenic grandeur, a variety of habitats and landscapes, wildlife, and opportunities for solitude, adventure and challenge all make refuge rivers appropriate and highly sought after for wilderness-oriented recreation. Most refuge rivers are relatively swift and possess boulder-strewn or braided gravel beds, especially on the north slope. Water quality is considered excellent, although rivers are high and turbid during spring and after summer storms. Some rivers, particularly the Hulahula and Okpilak, carry a substantial glacial silt load in the summer. Following is a brief introduction to the primary rivers used by refuge floaters and hikers.

Aichilik River - The Aichilik begins among the high glaciated peaks of the Romanzof Mountains and flows north to the Arctic Ocean. Steep sided valleys of the river's upper reaches provide scenic hiking, but poor access, rapids, braiding and low flows combine to discourage floating. On the coastal plain, the river is the eastern boundary between the 1002 area and designated wilderness.

Canning and Marsh Fork Canning Rivers - The Canning is the longest and has the greatest volume of the refuge's north flowing rivers. Both the Canning and its major tributary, the Marsh Fork, have good headwaters access and flow through scenic glaciated valleys. Through the mountains, the river contains generally flat steady current. The Marsh Fork has short stretches of whitewater. Some 15 miles before the Canning empties into the Arctic Ocean, it becomes extensively braided, widening up to three miles in some areas.

Hulahula River - The Hulahula originates in the highest peaks of the Brooks Range, flows north 40 miles through steep-walled glacial valleys, then abruptly breaks out onto the coastal plain. Swift and turbid with glacial silt in the summer, the river is the most technically challenging of the regularly run north slope rivers. At average flow rates, rapids on the Hulahula are generally class I and II, although there are stretches of class III. Since the lower river is a prime area to see caribou, most floaters travel through at least a part of the coastal plain and some travel all the way to Kaktovik.

FLOAT TRIP PLANNING INFORMATION Arctic National Wildlife Refuge

General

The refuge has no roads and therefore no access for cars, buses or trains. Summer recreationalists generally use charter aircraft to access the refuge, then backpack or float down one of the rivers.

Transportation to nearby villages that serve as departure points to the refuge is by commercial aircraft from Fairbanks or Anchorage. In past years, charter aircraft have been available from Ft. Yukon, Kaktovik and Deadhorse. Planes land on the refuge at various unimproved upland airstrips, river gravel bars and lakes (in float equipped aircraft). Extra time should be allowed for air travel into and out of the refuge due to possible weather delays, especially if visitors travel through the village of Kaktovik. Visitors are encouraged to correspond directly with the various air charter companies and commercial guides regarding availability and entry/exit locations. Information on various trip rates and equipment rentals can also be obtained from commercial guides.

River Floating



Rafts, canoes, kayaks and Klepper boats can all be used on the rivers. However rafts are the most popular due to their easy portability in aircraft. Canoes and kayaks are very expensive to transport (unless they are collapsible) and are more hazardous in whitewater sections found on many rivers, especially on the north slope.

Refuge rivers must always be evaluated and run according to current conditions. River ratings are somewhat subjective and can change slightly depending on the stage of the river at any one time. Although rivers are generally open June through September, the safest water levels and best weather occur during July and early August. Visitors should be cautious of higher-than-average flows which can be encountered anytime of the year, especially after localized heavy rains upstream. Low water can be a concern on the Kongakut and Hulahula in August but is generally not a serious problem. It is possible to line through or portage the most difficult sections of the rivers.

Spring breakup generally occurs on north slope rivers during late May and early June. Water levels are often at flood stage during this time with ice floes and "aufeis" that make navigation hazardous. Aufeis are thick layers of ice formed by successive freezing of stream overflows during winter. During breakup, rivers carve vertical walled canyons through aufeis fields that can be a mile or more in length. During early summer or high

Help celebrate NATIONAL WILDLIFE REFUGE WEEK, October 8-14, 1995

NATIONAL WILDLIFE REFUGE DISCOVERY DAY




Saturday  October 14th  10 am-4:30 pm
at the
Alaska Public Lands Information Center

Did you know that 1/3
of all National Wildlife Refuge lands
in the U.S. are administered out of
Fairbanks?



Yukon Flats, Kanuti, and Arctic National Wildlife Refuges invite you to learn more about the best system of lands in the world devoted to wildlife conservation. Enjoy activities for all ages, films, and slide presentations about each Refuge.

Enter a drawing and you (with the person of your choice) could **WIN** the chance to visit and volunteer at one of the Refuges, helping on a special project such as:

-  banding birds on Yukon Flats Refuge
-  conducting furbearer track counts on Kanuti Refuge
-  monitoring recreational users on Arctic Refuge

The Alaska Public Lands Center is located downtown at the corner of Third & Cushman in Historic Courthouse Square. Admission is **FREE**. For more information call 456-0527.

NATIONAL WILDLIFE REFUGE DISCOVERY DAY
Schedule of Activities

October 14 • 10 am - 4:30 pm

On-going Activity Stations:

- Match Alaska Refuges with their unique characteristics on a large display;
- Design an emblem for the U.S. Fish and Wildlife Service or color the existing emblem;
- Create a scene of your ideal national wildlife refuge using a variety of crafts;
- Be a biologist doing waterfowl counts using a computer program.

Scheduled Activities:

11:00 am - Slide presentation by employee from Kanuti National Wildlife Refuge;

12:00 pm - Movie: In Celebration of America's Wildlife (57 min.)
Follow the Fish and Wildlife Service's successful efforts to restore populations of several of our Nation's Wildlife species.

1:00 pm - Slide presentation by employee from Yukon Flats National Wildlife Refuge;

2:00 pm - Movie: America's Wetlands (28 min.)
Learn about the importance of wetlands to man and wildlife, from the Atchafalaya River swamp in Louisiana to Alaska's arctic tundra.

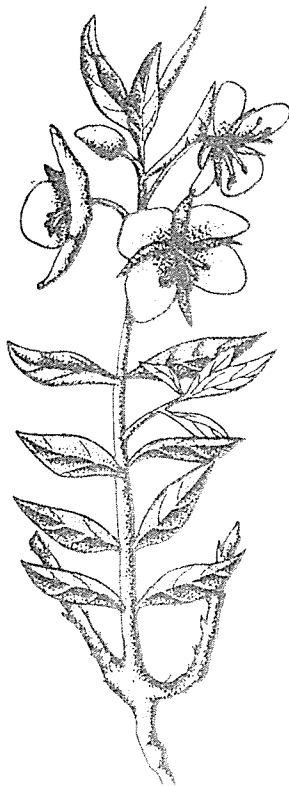
3:00 pm - Slide presentation by employee from Arctic National Wildlife Refuge;

4:00 pm - Movie: Wild Refuge (30 min.)
Explore some of our country's national wildlife refuges and the animals that inhabit them.

Fire: nature's catalyst



Fireweed blooming along the Dalton near mile 114 are a colorful reminder of the fires that swept the area in 1990.



When traveling the Dalton Highway, you'll note many changes in the vegetation. Some are obvious, others are more subtle. Watching for these changes and understanding what causes them will add to your appreciation of the Interior Alaska landscape. It also may help you see more wildlife.

South of the Brooks Range, the highway traverses meadows, fields of fireweed, shrub thickets, birch/aspen woods and spruce forests. This patchwork habitat is the result of wildland fire. Often thought of as a destroyer of forests, wildland fire is actually a natural process that helps keep Interior Alaska habitats healthy, productive and diverse.

Wildland fire can rightly be called nature's catalyst because it sparks changes in plant communities that eventually benefit wildlife. Soon after a fire, grasses, herbs and shrubs sprout from roots and seeds. Insects, birds and rodents feed on this new growth. These animals in turn are hunted by predators such as

hawks, owls and marten. Over the next several years, shrubs, berry bushes and aspen and birch seedlings flourish in the warm, sunny sites. These brushy areas provide excellent forage for moose and snowshoe hare, which in turn attract animals like bear and lynx.

Within 25 to 50 years, the burn becomes a mature birch/aspen forest that attracts many different species of birds. After 50 to 150 years, slow-growing and highly flammable spruce trees take over. Over time, this forest becomes susceptible to insects, disease and fire. Then one day thunderstorms move in, lightning strikes and the cycle begins anew!

All along the highway you can see the habitat mosaic that results from wildland fire. Evidence of four burns is especially visible: mile 26 to 28 (both sides of the road) burned in 1967; mile 50, just south of the Yukon River, burned in 1993. An area near mile 115 burned in 1990. At mile 138, near Prospect, both sides of the road burned in 1988.

As you look for evidence of other old burns, you will see their irregular, often abrupt, edges almost everywhere. The edges vividly demonstrate the prevalence of wildland fire in Interior Alaska, and the diversity and health of the land because of it. Habitat changes require a catalyst. In Interior Alaska, nature provides a catalyst that works quite well.

by Perry Grissom & Tom Edgerton
U.S. Fish and Wildlife Service
Arctic National Wildlife Refuge

HUNTING GUIDE-OUTFITTER REPORT FORM

Arctic National Wildlife Refuge

Special Use Permit No. _____

Company Name _____

Permittee Name (printed) _____

Permittee Signature _____

Date Completed _____

Submit this form along with a copy of the State "Hunt Record" for each client. **DUE DATE: DECEMBER 1st.**

1. Client Name 2. Dates (including partial days) the client was on the refuge.*	Species Hunted	Number of Animal(s) Taken	Approx. Number of days species was hunted. (Note: client charges are not based on this information)	Average number of employees used on the hunt. (Note: charges are not levied for employees)
1.				
2.				
1.				
2.				
1.				
2.				
1.				
2.				
1.				
2.				

* Client charges for the entire contract hunt period (regardless of actual client activity) are based on the most expensive species hunted during the contract hunt period.

Please ensure this report arrives at the Arctic National Wildlife Refuge, 101 12th Ave., Room 266, Fairbanks, AK 99701, by December 1st.

AMERICA'S NATIONAL WILDLIFE REFUGES...

where wildlife comes naturally!

Wild Things



If you travel much in the wilder sections of our country, sooner or later you are likely to meet the sign of the flying goose -- the emblem of the National Wildlife Refuges.

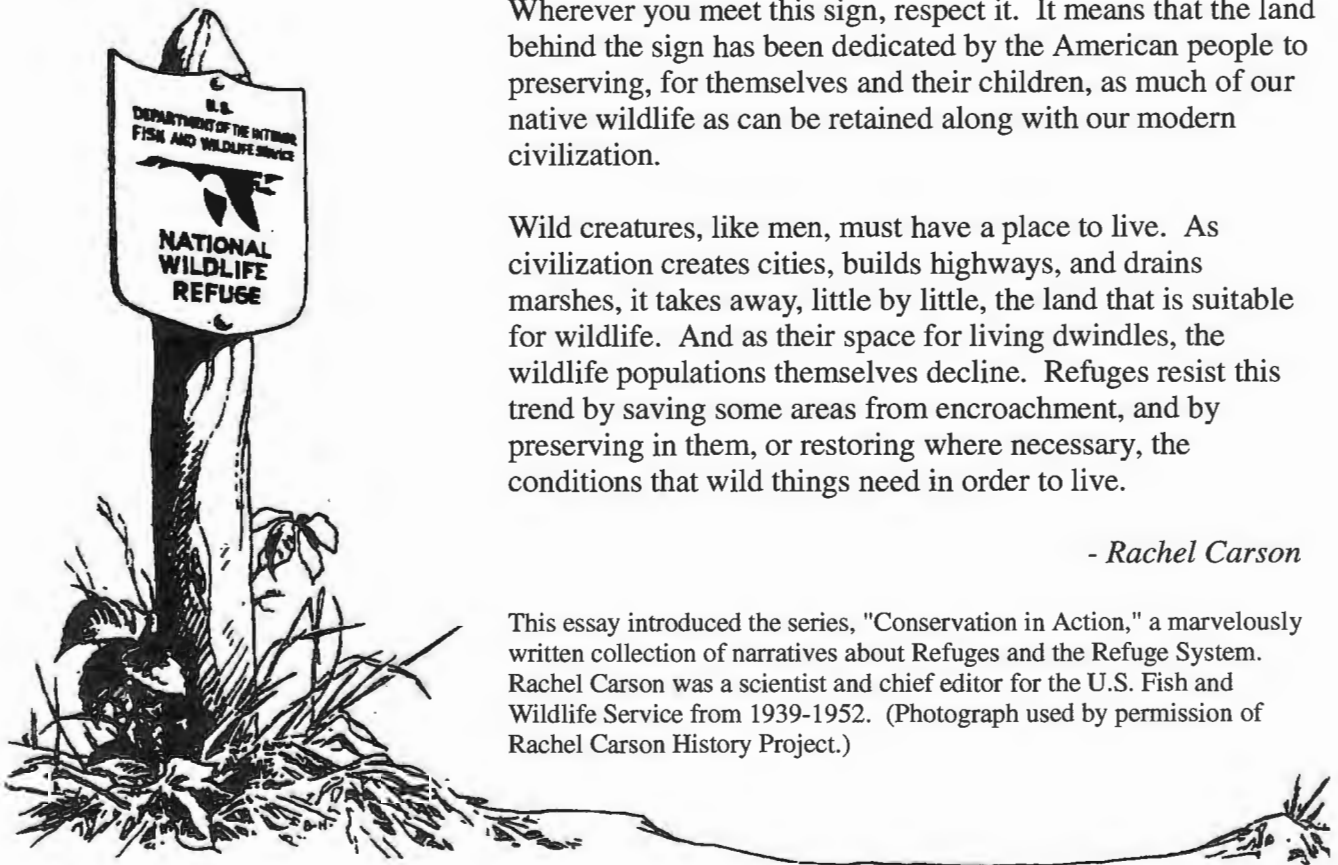
You may meet it by the side of a road crossing miles of flat prairie in the Middle West, or in the hot deserts of the Southwest. You may meet it by some mountain lake, or as you push your boat through the winding salty creeks of a coastal marsh.

Wherever you meet this sign, respect it. It means that the land behind the sign has been dedicated by the American people to preserving, for themselves and their children, as much of our native wildlife as can be retained along with our modern civilization.

Wild creatures, like men, must have a place to live. As civilization creates cities, builds highways, and drains marshes, it takes away, little by little, the land that is suitable for wildlife. And as their space for living dwindles, the wildlife populations themselves decline. Refuges resist this trend by saving some areas from encroachment, and by preserving in them, or restoring where necessary, the conditions that wild things need in order to live.

- Rachel Carson

This essay introduced the series, "Conservation in Action," a marvelously written collection of narratives about Refuges and the Refuge System. Rachel Carson was a scientist and chief editor for the U.S. Fish and Wildlife Service from 1939-1952. (Photograph used by permission of Rachel Carson History Project.)



ARCTIC

NATIONAL WILDLIFE REFUGE

WHAT'S SO SPECIAL ABOUT THE ARCTIC REFUGE?

- It is the Nation's largest and most northerly national wildlife refuge; South Carolina could almost fit inside its borders.
- Eight million acres are designated as Wilderness, more than on any other national wildlife refuge.
- The majestic Brooks Range rises from its coastal plain only 10-40 miles from the Beaufort Sea.
- It includes the four highest peaks and most of the glaciers in the Brooks Range.
- There are 18 major rivers; three designated as Wild (Sheenjek, Ivishak, and Wind).
- It includes three major physiographic areas (arctic tundra, Brooks Range, and boreal forest), which contain a full range of arctic and subarctic habitats.
- Numerous sites have been recommended as National Natural Landmarks.
- It contains the greatest variety of plant and animal life of any conservation area in the circumpolar north.
- 180 bird species from four continents have been seen there.
- Peregrine falcons, endangered or threatened in the lower 48 states, are common there.
- It is home to 36 species of land mammals.
- It protects most of the calving grounds for the Porcupine caribou herd, the second largest herd in Alaska.
- It contains all three species of North American bears (black, brown, and polar).
- Nine marine mammal species live along its coast.
- 36 fish species inhabit its rivers and lakes.
- There are no roads, developments, or trails. You must fly, boat, or walk to get there.
- The spirit of wilderness prevails there.
- It offers outstanding scenery and recreation.



ARCTIC NATIONAL WILDLIFE REFUGE

OTHER SPECIAL FEATURES OF THE ARCTIC REFUGE

- It is as primitive and undisturbed as any conservation area in the Nation.
- North America's farthest north Dall's sheep population lives there.
- It is the only national conservation area that provides a complete range of arctic ecosystems.
- It has two designated Research Natural Areas.
- More than 300 archaeological sites have been found there.
- It contains North America's two largest and most northerly alpine lakes (Peters and Schrader).
- Kaktovik, an Inupiaq Eskimo village, and Arctic Village, an Athabascan Indian community, border its north and south sides.
- Its coast is a major migration route for several waterfowl species.
- Numerous prominent geological formations, including a range of permafrost and glacial features, are found there.
- It contains several warm springs, which support plant species unique to the area.
- The Nation's northernmost breeding population of golden eagles occurs there.
- It borders two Canadian national parks.
- It is used by two different caribou herds.
- Continuous light prevails there from late April to mid-August; the sun stays below the horizon from mid-November to mid-January.
- It has no introduced species.
- Permafrost underlies most of it, helping to keep the landscape wet and productive in summer.
- Huge fields of overflow ice ("aufeis") form along many of its rivers every winter.
- It is open to public use year-round, offering unparalleled opportunities to experience solitude, challenge, and adventure.



ARCTIC

NATIONAL WILDLIFE REFUGE

PORCUPINE CARIBOU HERD

Like antlered gypsies, barren ground caribou are always on the move. Exactly when and where they go is impossible to predict. Most herds, however, are drawn to a specific calving area. The 152,000 member Porcupine caribou herd has such a connection with the Arctic National Wildlife Refuge.

Named for the major river within its range, the Porcupine herd uses an area the size of Wyoming in the Refuge, Yukon, and Northwest Territories. The herd winters in the southern portion of its range, including the Refuge, where they are an important resource for the Gwich'in people.

Twice a year the herd migrates more than 700 miles to and from its traditional calving grounds on the arctic coastal plain. Sometime in April, the caribou head north. The route they take depends on snow and weather conditions.

By early June, the pregnant females reach the calving areas and give birth. Shortly thereafter, most, and often all,

of the herd joins the cows and calves on the coastal plain of the Refuge. In late June and early July, when hordes of mosquitos hatch, the caribou gather in huge groups numbering in the tens of thousands. Seeking relief from the insects, they move along the coast, onto ice fields, and to uplands in the Brooks Range.

The herd leaves the coastal plain by mid-July, heading back

herd will winter on the south side of the Refuge or in Canada.

Hunted by local residents, chased by predators, harassed by insects, challenged by river crossings, and faced with difficult terrain and weather, the Porcupine herd confronts many hardships. Yet it thrives, every summer staging a magnificent wildlife spectacle on the arctic coastal plain. The



east and south toward its fall and wintering areas. Just as no one knows in advance precisely where most of the caribou will drop their calves in the spring, no one knows until it happens whether the majority of the

caribou are a vital part of the natural system that operates there. Unalterably linked to the area, the herd both depends on and enhances the dynamic wilderness that is the Arctic Refuge.

ARCTIC

NATIONAL WILDLIFE REFUGE

CARIBOU AND THE COASTAL PLAIN

The coastal plain comprises only 10 percent of the Arctic Refuge. Yet from May to July, it is the center of biological activity on the Refuge. For centuries, animals from the Porcupine caribou herd have used the coastal tundra to calve, obtain nourishment, avoid insects, and escape predators.

The calving grounds of the Porcupine caribou herd include the northern foothills of the Brooks Range and the arctic coastal plain from the Tamayariak River in Alaska to the Babbage River in Canada. The most often used calving area, however, is on the Refuge coastal plain between the Katakturuk and Kongakut Rivers. Commonly, one-half to three quarters or more of the calves are born within this area.

The Refuge coastal plain is very important to calving success and calf survival in the Porcupine caribou herd. There are two main reasons for this. First, fewer brown bears, wolves, and golden eagles live on the coastal plain than in the adjacent foothills and mountains. As a result, the newborn calves have a better

chance to survive their first week, until they become strong enough to outrun their pursuers.

The Refuge coastal plain also provides an abundance of plant species preferred by caribou. Nutrition is very important to the pregnant cows, particularly after the long winter. The timing of snow melt and plant "green up" on the coastal plain coincides with their calving period. This gives the new mothers access to the most

Central Arctic herd use the Refuge coastal plain when calving is completed. This essential area contains forage and a variety of habitats that provide insect relief, including the coast, uplands, ice fields, rocky slopes, and gravel bars.

Their annual visit to the Refuge coastal plain brings new life and vitality to the caribou. It is an important part of their life cycle. The coastal plain provides the caribou vital



nutritious food when it is most important for their health and the proper development of nursing calves.

The entire Porcupine caribou herd and up to a third of the

nourishment and a better chance of avoiding predators and insects. This relationship is part of the unaltered system that makes the Arctic Refuge such a wondrous place.

Arctic NATIONAL WILDLIFE REFUGE

MUSKOXEN

Inupiaqs call it "omingmak" or "the bearded one." Shaggy and social, with an almost surreal quality, the muskox, more than any other animal, conjures up images of the cold, remote arctic. Seeing one takes you back . . . to the time of the mammoth, the short-faced bear, and the saber-toothed cat.

Muskoxen thrive on the Arctic Refuge coastal plain. This was not always so. They disappeared from Alaska's north slope more than 100 years ago. They were brought back to the Refuge in 1969. Today about 350 muskoxen live on the Refuge, and they have expanded to areas both west and east.

As the only large mammals that live year-round on the Refuge coastal plain, muskoxen are uniquely adapted to a frigid environment. They have to be. Winter lasts nine months of the year, temperatures routinely drop to minus 30 or colder, and winds blow almost constantly. Yet muskoxen stay warm. How? Their long, skirt-like guard hairs and thick "quiviut" wool provide insulation, and

their square, short-legged bodies retain heat. The animals also don't move around much in winter to conserve energy.

In summer, muskoxen feed along rivers on a wide variety of plants. In winter they move to areas with low snow cover to feed on sedges and shrubs.

The entire Refuge coastal plain has muskoxen. In summer, they are concentrated along major rivers including the Canning, Tamayariak, Saddle-rochit, Jago, Aichilik, and Kongakut. Muskoxen are an important part of the Refuge ecosystem, adding to the area's diversity and providing a year-



Adult females, young animals, and some males live in social groups year-round. Other males are solitary in summer and live together in winter. When threatened, muskoxen typically run together to form a tight circle or line. This unusual defensive technique is quite effective against predators.

round food source for predators and other animals.

The once endangered muskox brings a special majesty and aura to the Refuge, one not offered by any other animal. The Arctic Refuge protects habitats for this ice-age relic. It's one of the many reasons this special Refuge was created.

Wilderness ARCTIC NATIONAL WILDLIFE REFUGE

POLAR BEAR

It's a magnificent, powerful, and fearless animal; the world's largest land carnivore. The polar bear is a unique part of our natural heritage - directly connected to the Arctic Refuge. How? Every year, several of these impressive animals come to the Refuge to den and give birth. Many others congregate along the coast of the Refuge in October and November.

These bears are part of the Beaufort Sea population, estimated at 2,000 animals. They use an area extending more than 800 miles along the north coasts of Alaska and Canada. The bears spend most of their time on the drifting pack ice, feeding, resting, and denning. Each year, however, many of the pregnant females come to shore to dig maternity dens in snow drifts.

The pregnant females move onshore in late fall. When and where they go depends on weather, formation of sea ice, and snowdrift patterns. The pregnant bears dig their dens in November, then give birth to one or two tiny cubs in December or January. The

mothers nurse and care for the young until March or early April, when they emerge from the dens. After several days getting used to the outside environment, including short trips to strengthen the cubs, the families leave the dens. They

uniformly along the coast. One reason may be that the Refuge coastal plain and northern foothills have more uneven terrain than areas to the west, allowing snow drifts to form more readily. Within the Refuge, bears have denned in



move back to the sea ice to hunt ringed seals and other prey. The cubs stay with their mothers, learning to hunt, for about the next two and a half years.

Along Alaska's coast, the highest density of polar bear land dens occurs within the Refuge. Many more dens have been found here than would be expected if bears denned

the Canning River Delta, Camden Bay area, and Pokok Lagoon bluffs.

The Arctic Refuge is the only national conservation area where polar bears regularly den and the most consistently used polar bear land denning area in Alaska. These are just two of many reasons the Refuge is such an incredible natural area.

ARCTIC NATIONAL WILDLIFE REFUGE

BROWN BEARS

Brown bears are the undisputed monarchs of the open tundra and mountains of Alaska. On the Arctic Refuge, they live farther north than any others of their species. Also called grizzlies because of the "grizzled" blond tips of their fur, brown bears can be shades of cream, brown, or black.

Brown bears escape the Refuge's long winters by hibernating for up to eight months each year. During this long sleep, bears do not eat or drink. They do, however, give birth and nurse their cubs.

Outside the den, brown bears explore widely for foods that are often in short supply. While spring snows remain, bears eat carrion, ground squirrels, and roots. In early June, some bears, especially sows with young, prey on newborn caribou. This opportunity lasts only a few weeks, until the calves are too nimble to catch. During the summer, brown bears feed mainly on greens. Some search high into the mountains for new growth emerging from late-melting snows. Later, the bears consume large quantities of

berries. When snows return, often by mid-September, the bears again dig for ground squirrels and roots.

Most Refuge brown bears den in the mountains south of the coastal plain. Because the Refuge is underlain by permanently frozen ground, bears select rock caves, or sandy soils that have thawed more than four feet deep. The

resources. As a result, they have small bodies, low reproduction rates, and slowly maturing young. This northernmost population has remained remarkably stable, however. The only enemies these monarchs have are old age, other brown bears, and occasionally man.

Brown bears are plentiful on the Refuge. Listening at night



soils can collapse easily unless the top four inches are frozen, so bears must wait, usually until mid-October, for a hard freeze before excavating their dens.

Brown bears on the Refuge are faced with a long winter hibernation and limited food

through paper-thin tent walls, walking through dense willows, or cresting a hilltop - the possibility of meeting a bear heightens our senses. Without these magnificent animals, the special wilderness quality of the Arctic Refuge would be greatly diminished.

ARCTIC NATIONAL WILDLIFE REFUGE

GRAY WOLF

Wolves have long been a lightning rod for controversy. They evoke passionate feelings in many of us. Some people love them, a few fear them, others prefer that they be shot. On the Arctic Refuge, however, these differences are seldom voiced. Why? The wolf is wild, beautiful, and inspiring. So is the Refuge. The two belong together. People know it and expect it.

Cousin to the dog, the gray wolf is a highly social animal, preferring to live in packs. The pack, dominated by a male/female pair, may include their pups of the year, wolves born the previous year, and other adults.

Gray wolves may be shades of gray, brown, black, or white. Wolves of all these colors roam the Refuge. Some five packs totalling 25 to 30 animals live on the Refuge's north slope east of the Canning River. The wolves are found primarily in the mountains and foothills along major rivers.

The makeup of wolf packs on the Refuge's north slope varies. In summer, many wolves hunt

alone or in pairs. Some are "drifters." Others may switch packs or move to new areas, perhaps following the caribou migration. In winter the packs stay together more to hunt.

Gray wolves mate in late February and March. The pairs then move to maternity dens near rivers in the foothills and mountains. About four to seven pups are born in late May or early June. The pups are weaned during the summer, and the dens are abandoned in July

frequent trips there from May to July when the Porcupine caribou herd is present. After the caribou leave the coastal plain, the wolves stay in the mountains and foothills hunting caribou, along with Dall sheep and moose. Wolves, however, are opportunistic feeders. They will catch small rodents, birds, and ground squirrels if they can.

Natural relationships between predator and prey still prevail on the Arctic Refuge. Here the



or August. By early winter, the pups can travel and hunt with the adult wolves.

Although to date, no dens have been found on the Refuge coastal plain, wolves make

wolf's connection to the caribou and the land continues as it has for centuries. Untamed and free, the wolf is a symbol for the Refuge - a truly remarkable place.

Wild Things ARCTIC NATIONAL WILDLIFE REFUGE

DALL SHEEP

Watchful and difficult to approach, Dall sheep challenge the hunters, wildlife watchers, and photographers who pursue them. The sheep too are challenged - by the harsh alpine environments of Alaska and northwestern Canada. The animals meet this challenge because of several unique adaptations. One place they do well is the Arctic National Wildlife Refuge.

The Refuge contains North America's northernmost Dall sheep population. Year-round residents of the Refuge, the sheep live mostly above timberline on ridges, dry meadows, and steep mountain slopes. There are always rocky outcrops and cliffs nearby. The sheep rarely venture far from this rugged terrain, using it to escape predators, including wolves, golden eagles, bears, and humans. Natural mountaineers, sheep negotiate this terrain with speed and agility. They rarely fall.

Dall sheep eat grasses, sedges, forbs, and dwarf willows. In winter, when these foods are scarce, the sheep add lichens to their diet. The distribution and

availability of forage requires the sheep to move seasonally between traditional summer and winter ranges. On the Refuge, the animals supplement their diet with regular visits to mineral licks. The sheep usually roam in small social units, either maternal ewe, lamb and yearling groups, or groups of rams.

Sheep forage is limited by the cool temperatures and nutrient poor soils of the northern alpine environment. Under these conditions, the sheep mature slowly and have low reproductive rates. Females reach breeding age at three to

Winter weather is the main factor that affects Dall sheep numbers. In sheep habitat, temperatures normally stay below freezing, snowfall is light, and winds sweep many ridges and slopes, keeping snow cover light. These conditions allow the sheep good access to winter forage. However heavy snows, temporary thaws, and freezing rains can create a frozen barrier preventing the sheep from digging for the plants. Conditions like these can cause population "crashes."

Dall sheep walk a survival tightrope, although they do it

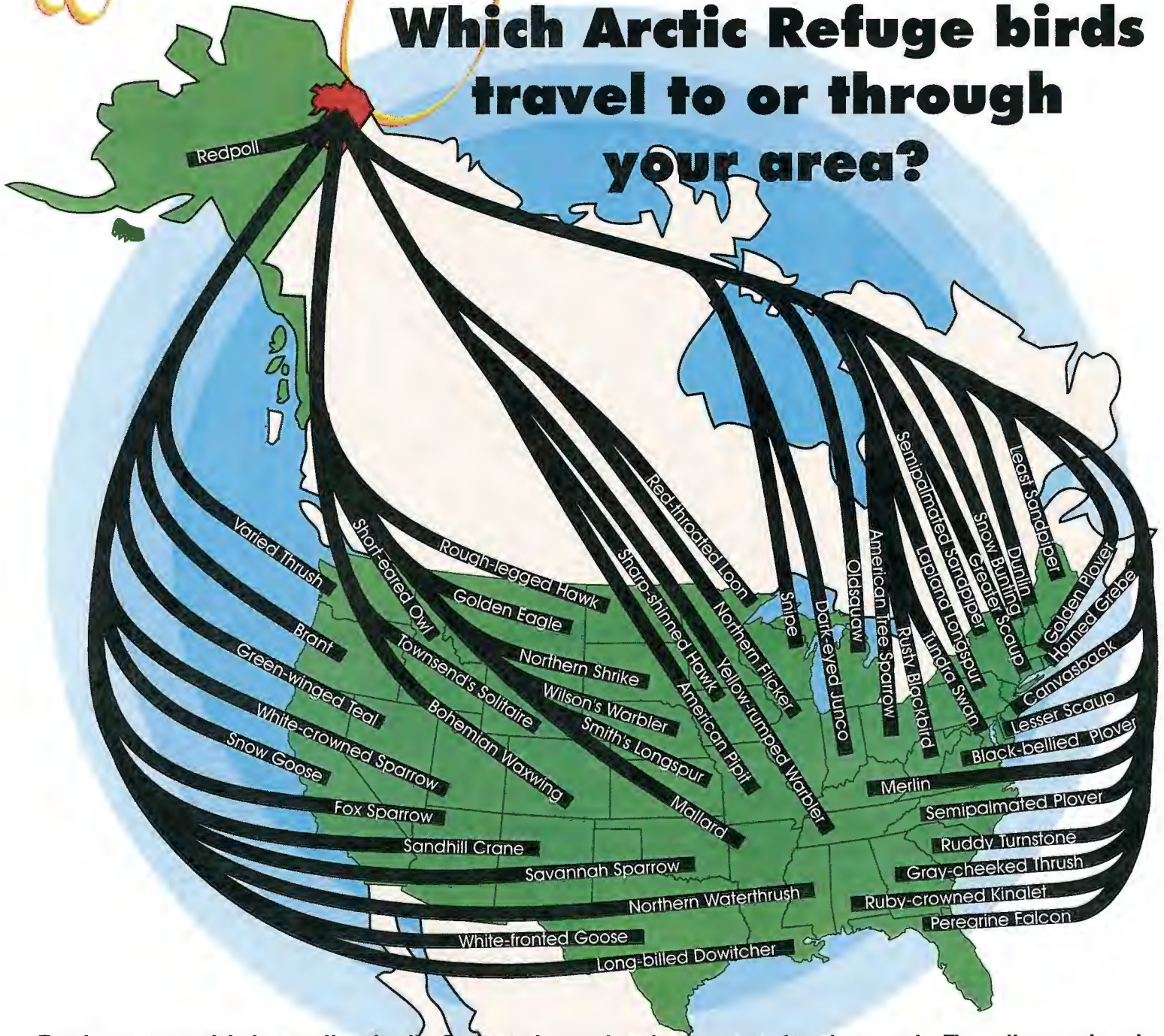


four years and produce only one lamb per year. Males breed when their horns are large enough for them to establish a dominant position in the ram hierarchy, usually at seven to nine years.

rather effectively. They have lived since the Pleistocene in places such as the Arctic Refuge. They are one of the special wildlife assets of this magnificent place.

ARCTIC NATIONAL WILDLIFE REFUGE

Which Arctic Refuge birds travel to or through your area?



Each summer, birds use the Arctic Refuge to nest, raise young, feed, or rest. They then migrate to destinations in the States and beyond. This map shows some birds that may visit your area.

DEPARTMENT OF THE INTERIOR
U.S. FISH & WILDLIFE SERVICE
REGION 7 - ALASKA

AMERICA'S NATIONAL WILDLIFE REFUGES...
where wildlife comes naturally!

Arctic

NATIONAL WILDLIFE REFUGE

SNOW GEESE

To those who have seen it, the cottongrass means beauty and perhaps a dried flower arrangement. But to a snow goose, the plant means fat, energy, and survival. To get it, thousands of these birds fly hundreds of miles to dine at a very special table - the Arctic National Wildlife Refuge.

The geese come from their nesting grounds in Canada. They gather on the Refuge and the Canadian coastal plain for only a few weeks in late August and September.

Having just raised their young, the adult geese are low on energy. The young geese are still growing. All of the birds need to put on fat quickly. Why? Winter storms will soon drive them south along Canada's Mackenzie River to California and Mexico. When the geese leave, they'll fly nonstop more than 1,200 miles before they rest and feed again. The fat will supply the energy they need.

The geese get much of it by eating the underground stem bases of cottongrass, a highly nutritious and digestible plant

food. They look for areas of wet tundra where there are few other plants growing.

The birds feed like crazy - up to 16 hours a day. They eat as much as a third of their weight every day, increasing their body fat by 400% in only two to three weeks - the same as a 150 pound person gaining 30 pounds of fat.

The geese gather in different places each fall. In some years, many of the birds feed on the

Good cottongrass feeding sites are small, patchy, and widely dispersed; there's never much food at one place. The sites make up only about three percent of the Refuge coastal plain. Snow geese, especially young birds, need access to large, undisturbed areas so they can find these sites and get enough food - and fat - to survive migration.

The patchwork of gold and crimson tundra, the cool, crisp air, the waves of snow-white



Refuge coastal plain, often between the Okpilak and Aichilik rivers. In other years, a majority stay on the coastal plain in Canada. Numbers seen on the Refuge range from 13,000 to more than 300,000 birds.

birds against a cobalt blue sky - together this is what makes fall on the coastal plain such a magical time, and the Arctic Refuge such a wonderful and important place.

Arctic NATIONAL WILDLIFE REFUGE

DOLLY VARDEN

Bright green, with red spots and a flaming red belly; the Dolly Varden gets attention. Known until recently as the Arctic char, the Dolly Varden is a renowned sport fish on rivers and lagoons of the Arctic Refuge.

Dolly Varden live in north-flowing Refuge rivers that have year-round springs. The fish use the springs to spawn and spend the winter. Many Dolly Varden are anadromous, wintering in the rivers and summering in coastal marine waters. Others never visit the sea, spending their entire lives in the rivers of their birth.

In late summer and fall, Dolly Varden deposit their eggs in nests scraped into the gravel. The nests are located just downstream from springs, where fresh, cold water percolates up through the river gravel. The eggs mature slowly, hatching into fry in March. These tiny fish remain hidden in the gravel, absorbing nutrients from their yolk sacs, until they emerge in late May. The young fish feed on insects in the water.

Anadromous Dolly Varden may migrate to the sea as early as their second year, but most wait until they are three or four. Fish from the Refuge disperse into nearshore waters west of the Refuge and east into Canada, where they mix with Dolly Varden from other river drainages. They return to freshwater springs each fall.

Dolly Varden in the Refuge usually spawn by age eight, but only half survive to spawn a second time. Those who do may wait two years, while they rebuild the energy reserves they need.

faster and larger than their freshwater comrades. For example, one non-migratory fish measured 12.5 inches, while anadromous fish of the same age and from the same drainage measured 18 and 20 inches. An exceptional Dolly Varden caught in Beaufort lagoon was 32 inches long and weighed 10.6 pounds.

Sparkling like brilliant gems in pristine waters, Dolly Varden provide recreational enjoyment to Refuge visitors, and nourishment to local residents. The fish depend on the freshwater springs and nearby



Although they can live 16 years or more, Dolly Varden over 10 are uncommon in the Refuge. The anadromous fish grow

marine waters of the Arctic Refuge, and are an integral part of its spectacular natural resources.

Wild Things

ARCTIC

NATIONAL WILDLIFE REFUGE

ARCTIC CISCO

It is not a game fish, has an obscure name, can't easily be seen, and has no great claim to fame. Yet the Arctic cisco plays a big role in the arctic. It is a critical link in the marine food chain, provides food for local residents, and brings money to commercial fishermen.

Cousin to Interior Alaska's sheefish, Arctic cisco feed and migrate in summer through the nutrient rich waters of the Arctic Refuge coast. These metallic silver fish eat marine invertebrates, and are themselves an important food source for larger fish and marine mammals. Arctic cisco can reach 20 inches and weigh up to two pounds.

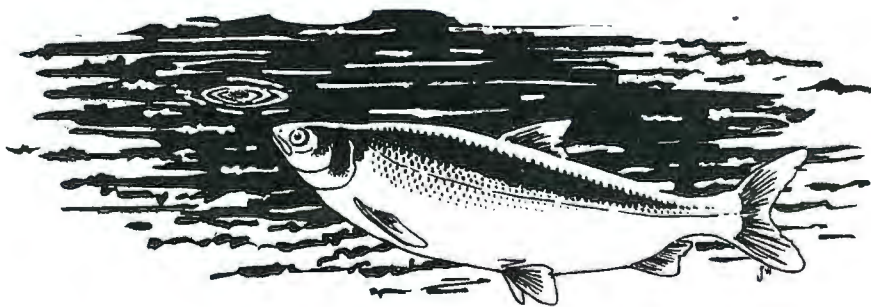
Mature Arctic cisco begin spawning at age eight or nine, continuing beyond 13 years of age. They lay their eggs in Canada's Mackenzie River. After hatching, the finger-length juveniles migrate west along the Refuge coast. Prevailing easterly winds help "push" the young fish to the Sagavanirktok River west of the Refuge, more than 200

miles from where they began. Juveniles overwinter in this river for a few years until they reach the sub-adult stage. They then travel another 100 miles west to overwinter in the Colville River. When they mature, Arctic cisco return each year to the Mackenzie River to spawn and overwinter.

Although fish of different ages overwinter in separate river drainages east and west of the refuge, in summer Arctic cisco of every age are found in

sustenance, however. The Inupiaq name for Kaktovik ("Qaaktugvik") means seining place. The word is a constant reminder of the cisco ("Qaaktag"), and the villager's seining efforts ("Qaaktug"), to catch them.

Sub-adult Arctic cisco from the Colville River are an important commercial resource. Overwintering fish taken from there are sold in Barrow, Anchorage, and a few other locations in Alaska.



abundance in the nearshore waters of the Refuge coast.

An important food resource for Kaktovik Natives, Arctic cisco are netted or seined from August through early September. The fish brings more to the village than

Little-known away from Alaska's northern coast, Arctic cisco help sustain the wildlife and people of the arctic. Similarly, the Arctic Refuge contains coastal waters which sustain this important natural resource.

WILDLIFE ARCTIC NATIONAL WILDLIFE REFUGE

ARCTIC GRAYLING

Always on the lookout for a tasty insect morsel, Arctic grayling are popular with anglers for their willingness to take a lure. This characteristic, however, is more than a special gift from nature. It is one of the grayling's unique adaptations to arctic Alaska.

Sporting an elegant sail-like dorsal fin, Arctic grayling are freshwater cousins of the trout. During the short summer season, they feast on huge numbers of drifting aquatic insects. They prefer to feed in clear flowing rivers so they can see their prey. Grayling use silty glacial rivers as summer migration corridors and for overwintering.

Summer feeding frenzies prepare grayling for the frozen, foodless months of winter. By fall, the fish have large stores of fat, which will provide the energy they need to survive eight months under the ice. Mature grayling also begin producing eggs and sperm in anticipation of spawning the following June.

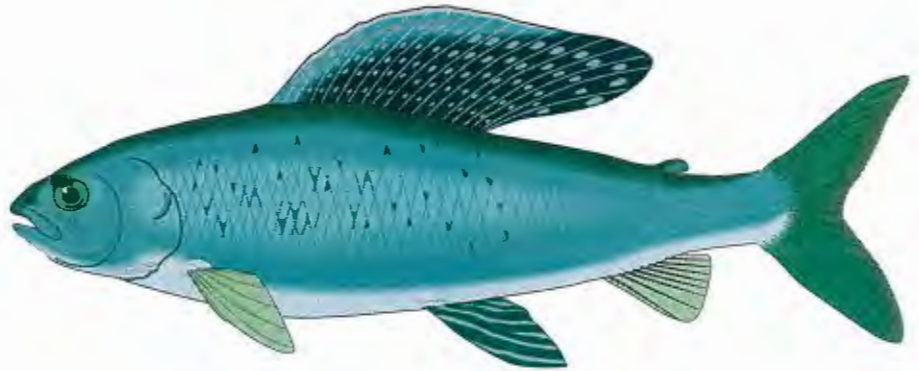
Many rivers on the Arctic Refuge coastal plain are less

than waist deep, and freeze to the bottom each winter. Grayling are found only in the few river systems with deep pools that remain unfrozen under six feet of ice. The grayling survive here because they tolerate the low levels of dissolved oxygen lethal to many other fish.

In late May or June, when spring melt-off opens the rivers, mature grayling swim upstream to their traditional spawning

fish by early July. Poor swimmers, these young fish usually stay in the waters near their spawning areas. Biologists don't know where the juveniles overwinter.

The Refuge's short summers and long winters slow grayling growth. On the coastal plain, grayling don't reach their spawning length of 11 inches for six or seven years, although they can exceed 16 inches and live more than 12 years.



areas. After spawning, they continue upstream to their summer feeding grounds. There they remain until fall, when they return to the overwintering pools.

The grayling eggs remain in the gravel stream beds for three weeks, releasing their half-inch

An angler's dream, a caddis fly's nightmare: grayling are well adapted to survive in the harsh arctic environment. They depend on the clean gravel and water supplies of the Arctic Refuge, and are a valuable component of its diverse natural resources.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1011 E. Tudor Rd.

Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

ARW

AUG 29 1995

Memorandum

To: Special Assistant to the Secretary of the Interior for Alaska

From: Regional Director
Region 7

Subject: Arctic National Wildlife Refuge Report

Attached is a copy of "A Preliminary Review of the Arctic National Wildlife Refuge, Alaska Coastal Plain Resource Assessment: Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement." This report was prepared by staffs of the U.S. Fish and Wildlife Service, with input from the National Biological Service in Alaska.

The report was prepared to determine if the original conclusions of the 1987 LEIS remain valid considering the significant new information that has been collected since the LEIS was prepared. While much new information exists, all studies and analyses have not been completed. This preliminary review can be updated when additional reports are completed. The document is intended to update you, and other Department of the Interior personnel, on the best available information concerning the potential environmental impacts of oil development on the coastal plain of the Arctic National Wildlife Refuge.

Please contact me if you have questions at (907) 786-3542.

Attachment

**A Preliminary Review of
The Arctic National Wildlife Refuge, Alaska
Coastal Plain Resource Assessment:
Report and Recommendation
To the Congress of the United States
and
Final Legislative Environmental Impact Statement
August 29, 1995**

I. INTRODUCTION

In April 1987, the Department of the Interior released the *Arctic National Wildlife Refuge Coastal Plain Resource Assessment: Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement (LEIS)*. The report was prepared in accordance with section 1002 of the Alaska National Interest Lands Conservation Act and the National Environmental Policy Act. The U. S. Fish and Wildlife Service prepared the report in cooperation with U. S. Geological Survey and the Bureau of Land Management. Within the report, sections for each of the features being reviewed contained definitions of major, moderate, minor or negligible impacts for each of the subjects evaluated. The report concluded that the full leasing and development of the coastal plain would have major environmental impacts.

In the eight years following the report, many additional studies of fish, wildlife, and habitats have been conducted to better understand the ecology of the coastal plain of the Arctic National Wildlife Refuge and potential effects of oil and gas development. The Service conducted the following preliminary review of the LEIS to determine if the original conclusions of the 1987 LEIS remain valid, considering significant new data. While all studies and analyses have yet to be completed, additional information strengthens the fundamental conclusion that the Arctic Refuge coastal plain is a vital area for a rich mix of Arctic flora and fauna. This review supports the LEIS finding that there would be major environmental impacts from oil and gas development on the coastal plain.

The following discussion features sections focusing on the biological environment, physical environment, and human environment.

II. BIOLOGICAL ENVIRONMENT

A. Caribou

The LEIS concludes that full leasing and development of the refuge coastal plain would have a major effect on the Porcupine caribou herd (PCH). The impacts described include direct habitat modification, displacement, obstructions to movements which could reduce access to important habitats, and disturbance or harassment. The LEIS predicted a decline in caribou use within 3 kilometers of full development. It further stated that, "Significant declines in

use by maternal cows and calves could occur within at least the 2-km zone." These conclusions remain valid for all the reasons cited in the LEIS, and are supported by research since 1987.

1. Caribou Use of the Coastal Plain

The coastal plain of the Arctic Refuge, including much of the 1002 area, is the most important area for high-density, concentrated calving by the PCH. In 1995, 92 percent of the PCH calved in the 1002 area.

The LEIS does not adequately portray the full extent of caribou use on the coastal plain. For example, the LEIS states, "From year to year, the distribution of caribou (PCH) on these calving grounds varies considerably, with most calving usually taking place in the area between the Hulahula River and the Canadian border." This implies that the area west of the Hulahula is of low importance for caribou.

Although from 1972 to 1986, concentrated calving occurred west of the Hulahula River in 4 of 15 years, data collected between 1987 and 1995 show that concentrated calving occurred in this area in 5 of 9 years. In addition, the distribution and habitat of the Central Arctic caribou herd (CAH) includes nearly the entire 1002 area west of the Hulahula. It is significant that additional data collected since 1987 show important calving areas west of the Hulahula River. The generalized development scenario used to assess environmental impacts included three major prospects, one of which is located entirely west of the Hulahula River. These new data indicate that a more extensive area than identified in the LEIS is important to caribou when considering the impacts of oil and gas production.

While the LEIS provides considerable discussion on calving distribution and habitat, very little information is presented regarding caribou use of the coastal plain after the calves are born. The LEIS simply says, "Postcalving movements and aggregations show considerable annual variation." No specific examples or maps are provided. Information regarding caribou distribution and movement during the post-calving period was available in the Baseline Report Series, but was not included in the LEIS. Nearly every year, all PCH females and calves use the 1002 area for postcalving activities and, in most years, the majority of bulls also use the area during late June and early July.

Caribou movements studied after the LEIS illustrates a more extensive and dynamic use of the area by the PCH than the LEIS presents. Large post-calving aggregations of PCH caribou, sometimes consisting of most of the herd, gathered in the Canning River delta area from late June to early July in 6 of the last 9 years.

2. Habitat

The LEIS determined relative habitat values using an aerial approach involving a polygon generated by overlapping multiple years of calving concentration maps. Since only calving

distribution maps were used, information about post-calving distribution and movement was not included, and thus the analysis inappropriately truncated the geographic scope and frequency of caribou interaction with the development infrastructure.

Habitat research since 1987 provides new data about the distribution of various coastal plain habitats and the quality of their forage. In addition, use of satellite imagery has permitted study of the movement of caribou on the coastal plain relative to snow melt and vegetation phenology. Although some of these data are still being analyzed, research has documented that:

- the caribou have a broader use of the coastal plain for calving than the LEIS depicted
- snowmelt and "green-up patterns" influence caribou-calving sites each year
- the concentrated calving area, where 50 percent of the calves are born, in any year imparts a higher level of predator protection
- the primary forage species (*Eriophorum vaginatum*) is higher in nutrition, more digestible, and more available within the 1002 area than in the peripheral areas when caribou are present
- caribou seek ridge tops on the coastal plain for insect-relief habitat, in addition to the coastline and mountains the LEIS noted.

Analysis of the multi-year data set from radio-collared adult females indicates that birth sites and caribou distribution are associated with snow melt patterns and early plant phenology. The PCH selects the high density portion of the calving ground annually based on areas with the highest rate of plant growth in the two weeks immediately following calving. The new plant growth is highly digestible with a high protein content. This is the period when protein and energy demands on caribou cows, for lactation, are the highest of any time of the year.

3. Development Impacts

The LEIS assessed the effects of development on caribou as being related to the actual acreage impacted by roads, pipelines, and drill pads, often called the "footprint" of development. The LEIS assumed a 3-kilometer sphere of influence from development would affect 37 percent of the PCH concentrated calving area. Both the effects on calving and post-calving habitats caused by the development infrastructure should be considered. When caribou's complete use of the coastal plain is considered, development affects a larger area than the LEIS depicted by considering only areas of concentrated calving.

By focusing on the "footprint" and a sphere of influence immediately adjacent to it, the real impact of the development infrastructure is minimized and underestimated. The effects the

development infrastructure have on movements and access to preferred habitats are the primary factors that will determine the impact to the herd's population dynamics. The development scenario used to assess impacts is oriented on a general east - west axis with two corridors connecting to marine facilities at Camden Bay and Pokok Lagoon. This alignment would interact with caribou movements from uplands to the coast to avoid insect harassment as well as westward movements before calving, and eastward movements when the herd moves toward the British Mountains in Canada. If the infrastructure were oriented north - south, there would also be extensive interaction with these predominant east - west caribou movements. Investigations with the CAH at Prudhoe Bay have shown that the propensity of caribou to cross structures is inversely proportional to the size of the group encountering the structure--that is, large groups have lower success in crossing structures. Since the PCH is 10 times greater in size than the CAH, the probability of large groups occurring in the 1002 area suggests a greater incidence of negative interactions between caribou and the infrastructure. In this case, the "footprint" becomes a barrier and reduces access to habitats beyond the 1-, 2-, or 3-kilometer sphere of influence identified in the LEIS.

In all probability, a barrier effect will occur to some extent, causing displacement of the herd. The LEIS agreed that a change in distribution of the PCH could reasonably be expected. There is limited coastal plain habitat available because of the proximity of the mountains to the sea. Therefore, displacement would be to the foothills south and east of the 1002 area. This would:

- displace the herd to the area of highest predator density
- reduce the amount and quality of preferred forage species available during calving, and
- restrict access to important coastal insect-relief habitat.

The potential increase in predation from this scenario with the herd at its present population level would have a negative, albeit minimal, impact on the population. On the other hand, reduced food resources due to displacement and potential increased energy expenditure, due to encountering the infrastructure, could have a more noticeable impact. Failure to obtain insect relief would contribute to poor physical condition. The Alaska Department of Fish & Game, in conjunction with the 1002 research program, found that viability of the calf was associated with fall weight of the female. Reduced parturition rates or calf survival will have a negative impact on the population dynamics of the PCH.

The LEIS acknowledged the potential for a population decline resulting from loss of habitat and reduction in habitat values. It simply concluded, "No appreciable decline is expected as a result of development." That conclusion is speculative, cannot be substantiated scientifically, and does not logically flow from the concerns about habitat. Likewise, attempts to precisely predict a numerical population decline would also be speculative. Current studies indicate,

however, that the ability to freely locate the calving ground where conditions are most favorable influences calf survival. Small disruptions to free calving ground location may have demonstrable repercussions for herd dynamics. A reduction in annual calf survival of less than 5 percent would be sufficient to change a positive rate of increase in the PCH population to a declining rate. It is reasonable to conclude that the cumulative effects of reduced access to habitat providing preferred forage, predator avoidance, or insect relief for the PCH caused by full development of the 1002 area would result in a major, adverse impact on the herd.

B. Muskoxen

The LEIS predicted a major impact on muskoxen as a result of full development. Information gained from 1987 to the present adds to the understanding of the scope of impacts that would be expected. Additional supporting information provides further insights.

The extirpation of the muskox in Alaska and concern that the species might become extinct worldwide resulted in the return of this animal to the State in the 1930's. After 60 years, the species has been reestablished in areas of its former range in northern Alaska. The muskox population centered in the 1002 area of the Arctic Refuge is the source of animals that colonized adjacent areas in northern Alaska and northwestern Canada.

Muskoxen are one of only two ungulate species adapted to arctic conditions, and the only large mammal present year-round in the 1002 area. This important component of the arctic ecosystem provides continuous food for scavengers and predators and contributes to the biodiversity of the system. Muskoxen are energetically conservative, with a high fidelity to relatively small home ranges, limited daily and seasonal movements, and relatively low rates of reproduction. Most females do not reproduce annually. A single calf is born in late April to May under winter conditions. Females must provide milk to sustain the calf for several weeks before green plants are available in early to mid-June.

The portion of the muskox population that resides within the 1002 area increased throughout the mid-1980's, reaching a maximum in 1986, then decreased and stabilized at fewer than 300. Muskoxen have expanded their range both within and beyond the 1002 area. About 100-120 muskoxen currently occupy the portion of the 1002 area between the Tamayariak and Canning Rivers (west), similar numbers occur along the Sadlerochit River (central) and fewer than 60 muskoxen live between the Jago and Aichilik Rivers (east). Regionally, population numbers continue to increase. Over 700 currently live between the Sagavanirktok River in Alaska and the Babbage River in Canada.

The muskox population on the refuge now supports a limited subsistence hunting opportunity for residents of Kaktovik. As many as 10 bulls may be taken each year. Muskoxen provide a protein source during spring when whales and caribou are not present.

Mixed-sex groups have a high fidelity to relatively small geographic areas, and major shifts in distribution are rare. When dispersing, mixed-sex groups move into areas already colonized by bulls; they are unlikely to move into areas devoid of muskoxen.

In winter, muskoxen select locations where snow cover is minimal and dried sedges and willows are available. In winter, muskoxen stay in small areas and reduce their movements and activities to conserve energy. By contrast, in summer, muskoxen are more active, moving longer distances and using larger areas and a greater diversity of habitats as a strategy to regain body weight lost during the long winter, pregnancy, and lactation. Unless females reach a threshold weight before the rut in August, they do not reproduce.

Muskoxen are vulnerable to potential impacts from oil and gas exploration and development because they are present in the area year round and would be subjected to cumulative effects in both winter and summer. Unlike other large vertebrates that migrate or hibernate, muskoxen actively use the arctic coastal plain during winter. This is possible because of their adaptations to cold, their ability to process low-quality forage, and their energy-conserving strategies including low rates of movement and activity. Energetic costs will be increased if animals move or become more active in response to construction or facilities operations, aircraft and vehicle traffic, and other human activities. Shifts in distribution in winter, caused by human activities, are also likely to result in less forage availability and higher energetic costs to obtain food if muskoxen move into areas of higher snow cover. Increased energetic costs will likely result in decreased calf production and may cause some additional winter mortalities.

The discussion in the LEIS about the effects of stress and disturbance on muskoxen and on the effects of habitat loss on ungulates is still valid, but more information is available on the response of muskoxen to oil field facilities. Muskoxen dispersing into areas adjacent to the Trans Alaska Pipeline corridor are found in locations about 5 miles from a pump station, and 2 miles from the haul road and pipeline.

Assuming a 2-mile sphere of influence, the amount of muskox high-use range that could be affected under full leasing exceeds that described in the LEIS, as muskoxen have extended their range throughout the 1002 area. The full development scenario would result in the loss of availability of a large percentage of high-use habitat. This would have an adverse affect on muskox productivity and population size.

Muskoxen are often found along rivers that would likely be used for extensive gravel extraction and creation of water storage basins. These activities in drainages the animals use would result in their displacement and in permanent habitat loss. If muskoxen are displaced from portions of the 1002 area, subsistence hunters will have reduced opportunities. Areas vacated by muskoxen may not be recolonized by mixed-sex groups for some unknown period of time.

Because numbers of muskoxen within the 1002 area are small, and the animals live in social groups, negative impacts on only a few groups could be significant. If only a few groups of animals are displaced or disturbed, a large percentage of the population would be affected. Small increases in female mortalities can cause a decline in population numbers. Muskox distribution, reproduction and survival are influenced by winter weather and snow depth; effects from oil and gas development will likely be additive in severe winters.

C. Polar Bears

The conclusion in the LEIS that development might have a moderate level of impact on polar bears is still reasonable. Since completion of the LEIS, considerable data have been collected regarding polar bears. Results of radio-telemetry studies spanning 11 years indicate that 45 percent of maternal polar bear dens found on land for the Beaufort Sea population were within the Arctic Refuge, and 34 percent were within the 1002 area. Considering the broad region involved (approximately from Wainwright, Alaska to the Bailee Islands in Canada) the refuge coastal plain is a disproportionately small area for the number of dens documented. These results indicate that the coastal plain of the Arctic Refuge is the most important land denning area for the Beaufort Sea polar bear population.

The LEIS does not include a consideration of the effects of a major oil spill (chronic, acute, and secondary) on polar bear populations, nor does it consider the effects of other intensive developments along coastal areas of Alaska and Canada. If oil development occurs on the coastal plain of the Arctic Refuge, it would provide infrastructure that could encourage new drilling in adjacent offshore waters. The cumulative impacts of Beaufort Sea oil development are a concern with the polar bear population.

D. Brown Bears

According to the LEIS, a moderate decline in the numbers of brown bears using the 1002 area or a change in the distribution could result from the additive effects of direct mortality, decreased prey availability, harassment, and disturbance in denning areas. Brown bears use the coastal plain extensively, particularly east of the Sadlerochit River. Development would result in increased encounters with humans causing additional hunting and mortality attributed to defense of life and property. Concerns about reduced prey availability are speculative and are dependent on effects of development on the PCH.

E. Snow Geese

The LEIS predicted that snow geese would be moderately impacted by full development. It further concluded that direct loss of snow goose habitat to infrastructure would be minimal. The major impact would be aircraft disturbance that displaces geese from feeding

habitats, increases energy expenditure, and reduces the ability of geese to accumulate lipids. The LEIS noted that impacts would be highly variable each year, depending on the size of the staging population.

These conclusions are essentially correct. The most important snow goose feeding habitats occur in small patches that are widely distributed but comprise <3 percent of the 1002 area east of the Hulahula River. Because of the widespread distribution of these sites, they are not likely to be significantly affected by infrastructure. However, the heterogeneous distribution of feeding habitats requires that snow geese have access to large areas of tundra so that they can search for forage. For that reason, disturbance that displaces geese will have a greater affect than habitat loss to infrastructure.

Without controls on aircraft activity, disturbance would have widespread effects on snow goose distribution. Studies in Canada and our observations on the Arctic Refuge indicate that small fixed-wing aircraft and helicopters flush snow geese at distances of up to 4 miles from the flight line. Larger aircraft associated with petroleum development could flush geese at greater distances. The distance that flocks are displaced following disturbance is highly variable but often exceeds one mile. Distribution of snow geese in areas near flight corridors would likely be significantly affected.

The disturbance of staging snow geese would reduce the time they spend feeding, and the loss of habitat in which to feed would adversely affect their accumulation of energy reserves essential for migration, threatening their survival.

The LEIS suggests that approximately 60 percent of the preferred staging area on the Arctic Refuge lies within the 1002 Area. Using a slightly different analysis based on frequency of use, we concluded that approximately 80 percent of the most frequently used area on the refuge is within the 1002 Area. Because of this larger value, the percentage of preferred staging area impacted by development would be slightly higher than indicated in the LEIS.

The LEIS is correct in stating that impacts would be highly variable among years. The numbers of geese on the Arctic Refuge has ranged from approximately 12,800 to 325,000 individuals. Impacts would be greater in years of larger staging populations.

The conclusions of the LEIS regarding impacts to snow geese are still valid and are supported by additional research conducted since 1987.

F. Wolves

The LEIS predicted that the cumulative impact of full development could cause a moderate decline in the wolf population of the 1002 and surrounding area. The number of active dens adjacent to the coastal plain has varied from 3 to 7. Wolf use of the coastal plain is limited and generally associated with the foothills south of the 1002 area. The conclusion in the LEIS that the wolf population could decline due to reduced prey (e.g., caribou) is

questionable, when the LEIS earlier had concluded there would be no appreciable decline in the caribou. Although the conclusion that there will be no appreciable decline in PCH is speculative, it is unlikely, given the present size of the PCH and the relative number of predators, that development would greatly impact wolf populations by changes in herd movement, distribution, or size. The LEIS predicted that additional direct mortality from shooting and trapping could occur because of increased human access. It is reasonable to conclude the effect of development on wolves would be moderate.

G. Wolverine

The LEIS concluded that, "The cumulative effects of displacement, avoidance and reduced food resources could result in localized, long-term changes (a moderate effect) in wolverine distribution. Inadequate controls on access and harvest could possibly reduce by half or more the 1002-area wolverine population. If this occurred, it could result in a major effect on that population." Few data are available on the wolverine population of the 1002 area, and no estimate of total numbers. The conclusion of the LEIS remains a reasonable estimation of impacts on wolverines.

H. Seals and Whales

Since the full development scenario does not involve shipping the oil by tankers, and the development is onshore, the effects on whales and seals is expected to be minor. Barge traffic may increase somewhat during the summer after the whale spring migration has passed and while the seals are pelagic. Seismic work on ice could cause some displacement of ringed seals locally, with the possible loss of some pups.

Again, there is no discussion of the likelihood of onshore production facilities encouraging oil development in adjacent offshore waters. If offshore development is facilitated by the construction of onshore infrastructure, then cumulative impacts need to be considered. Large increases in marine traffic and potential oil spills are the greatest oil development threats to seals and whales.

I. Arctic Peregrine falcon

Since completion of the LEIS, newly collected information regarding status of peregrine falcons in the area indicates the species is increasing and using new nest sites. Pairs with young have been documented at Clarence River, Kongakut River, Ekaluakat River, Hulahula River, Canning River, and on Barter Island, all outside the 1002 area. These locations, except for the Canning River are new nest sites since the LEIS was completed. Adult peregrines have also been observed at locations on the Jago River, and Igilatvik Creek, within the 1002 area, where nesting is likely. Because of the improved status of the Arctic peregrine falcon populations, particularly on habitats located west of the refuge, the species was removed from the threatened list in November 1994. Populations on the refuge coastal plain have been the last to show increase, and are still recovering.

J. Vegetation

1. Landsat-TM Map

The interrelationship of wildlife species and their habitat is complex. The Service conducted many studies examining this interrelationship, including forage availability, snowmelt chronology, phenology, plant biomass and nutritive values. This research was designed to quantify the value of habitats used by caribou and other wildlife species on the arctic coastal plain. The research tried to identify portions of coastal plain that are important during and after calving.

To facilitate this research, the Service produced a LANDSAT-TM map that provides more accurate information on the vegetation types of the coastal plain. Previous maps, from the 1980's, depicted the general distribution of land-cover types. Additional assessment, however, indicated that their site-specific accuracy was inadequate for studies of wildlife habitat. The recently completed LANDSAT-TM map is more accurate. Therefore, the Service now has better knowledge of the distribution and composition of vegetation types of the arctic coastal plain and a better understanding of why these habitats are important to caribou and other species.

2. Seismic Exploration

Previous studies of disturbance from winter seismic exploration on tundra predicted short-term and mainly aesthetic impacts. The Arctic Refuge seismic study has tracked disturbance and recovery from the seismic exploration conducted in 1984 and 1985, with the most recent field data gathered in 1993 and 1994. A random sample of plots on the seismic trails showed that 10 percent of all trails still had measurable disturbance a decade after the exploration. Based on the length of the original trails, including seismic lines and camp-move trails, this translates to approximately 400 kilometers of disturbed trails remaining.

Not all visual impacts are readily apparent to casual observers. Three percent of trails (or 120 kilometers, total) had medium- to high-level disturbance remaining. Recovery of these areas is likely to take many more years. Based on permanent study plots, we found that sites that had been moderately to severely impacted during seismic exploration still showed impacts in 1994. Plots still have changes in plant species composition and increased melting of permafrost, compared to control plots. Over one half of the plots still have increased depth to permafrost a decade after disturbance, even at plots with low levels of initial disturbance where changes to the vegetation were no longer visible, indicating long-term changes to the soil temperature regime.

In some areas, ruts or troughs have formed on seismic trails. This is caused by melting of permafrost and settling of the ground surface, which causes a long-term change in plant composition and the elimination of some plant species.

In the summary of recommended mitigation in the LEIS, no mitigation measures appear to address these concerns. Regulation of any future exploration should include more protective stipulations regarding adequate protective cover of snow, types of vehicles used, and routes used for trails.

3. Rehabilitation (Revegetation)

The summary of recommended mitigation for the 1002 area briefly mentions habitat restoration. However, the document stated earlier that literature reviews of revegetation in Alaska had concluded that areas north of the Brooks Range are the most difficult to revegetate, and successful rehabilitation techniques have not been developed for these areas. This remains true today. Extensive experiments on revegetation techniques at Prudhoe Bay, conducted by contractors for the oil companies, have involved great effort and expense and often have been disappointing or have provided only limited success in small areas. Failure to revegetate naturally or with human help is mainly due to the presence of permafrost, the slow growth and propagation of arctic plants, and the short, cool growing season, particularly close to the arctic coast.

The exploratory drill site that Chevron created on Kaktovik Inupiat Corporation land on the coastal plain in the mid-1980's is the site of the only revegetation effort in the Arctic Refuge. The most advanced techniques were used in this showcase effort, including the construction and later removal (after only a year and a half) of a foam-timber pad on top of flat tundra with no gravel and no disturbance to the tundra surface. Nevertheless, the well-site was still a visible scar on the tundra in 1995.

The pad was reseeded in 1987 when drilling was completed. After that reseeding failed, contractors for Chevron visited the site and continued reseeding almost every summer until at least 1992. Service botanists measured the amount of vegetative cover on the pad as 6 percent in 1990 and 23 percent in 1992. A visual estimate in 1994 indicated 25-50 percent cover. The area of the buried reserve pit adjacent to the pad has much better growth of grasses than the pad. However, the surface, originally dry and graded flat, is now very uneven due to subsurface melting. Ponding of surface water has increased each year since 1987; about 25 percent of the surface area is now covered with ponds. The drilling wastes are supposed to remain frozen to be immobilized, raising the concern that drilling wastes will leach into vegetation and ponds.

4. Cumulative Impacts to Vegetation, Wetlands and Terrain Types

In the LEIS summary of effects, a rating of moderate would be more accurate than minor for impacts on vegetation, wetlands, and terrain types. Studies at Prudhoe Bay have documented extensive cumulative impacts to tundra vegetation from oil development. The impacts cover far larger areas than the surface areas of the pads, roads, and development structures, and have been clearly documented by aerial photographs. The most extensive

impacts are due to changes in water flow through the area due to "damming" by roads--that is, inundation above roads and drying below them, causing changes in vegetation, wetlands distribution, wildlife feeding, and bird nesting habitat over very large areas.

Another cause of vegetation change at Prudhoe Bay is the "dust shadow" along roads. Road dust on the tundra causes earlier snow-melt in the spring, increases melting of permafrost resulting in thermokarst pits, and raises the pH of the soil, killing many common tundra plants and dramatically changing the plant species composition for about 35 feet on either side of the road. Replacement plants are often pioneering, "weedy" species.

Studies of the effects of development on a landscape rarely take into account the cumulative impacts of many phases of development. The industrial complex at Prudhoe Bay clearly has had landscape-scale impacts on the ecosystem. Studies mapping historical changes to the Prudhoe Bay oil field found that indirect impacts can lag behind planned developments by many years and the total area eventually disturbed can greatly exceed the planned area of construction. For example, in the wettest parts of the oil field, flooding and thermokarst covered more than twice the area directly affected by roads and other construction activities.

K. Fisheries

A significant amount of fisheries data from inland and coastal waters of the 1002 area has been collected and analyzed since 1987. Most notably, the documented distribution of Arctic char (or Dolly Varden) in freshwater systems has been expanded. We now know that the Okpilak River provides important habitat for Arctic char. Arctic char were also found in the Akutoktak River, a tributary to the Okpilak River, in small numbers. These rivers were not identified in the LEIS as supporting char.

With respect to coastal fisheries, biologists have synthesized a large amount of data since 1987, both on the Arctic Refuge coast and from the Prudhoe Bay development area. The most noticeable shortcoming of the LEIS is the lack of recognition of the importance of the Arctic cisco fishery in the region, coupled with the dependence of Arctic cisco, for migration purposes, on the nearshore environment of the central Beaufort Sea coast. The Arctic cisco is a significant subsistence resource for the villages of Kaktovik and Nuiqsut. Past surveys show that Kaktovik natives often harvest more Arctic cisco than Arctic char/Dolly Varden. As stated in the LEIS, Arctic cisco are known to migrate from Canada's Mackenzie River to the central Beaufort Sea (the Colville River delta) region for rearing. The harvest in Kaktovik occurs as the adults migrate eastward to return to the Mackenzie River to spawn. The size of this return migration run is dependent on the number of juveniles that were successfully recruited to the Colville River region several years earlier. Thus, the original westward migration by juvenile Arctic cisco is an extremely critical period in the fishery. It is essential to maintain the integrity of the coastal brackish water zone, which is used by numerous anadromous fish species as a migration corridor. The effects of any specific causeway on the local hydrography, as well as the cumulative impact of additional causeways on migrating fish, are unknown.

Except for accidental spills, the most potentially threatening aspect of oil and gas development on coastal fishes is the construction of docks or causeways. Their potential for disrupting the integrity of the brackish nearshore corridor during summer has been a focus of study in the Prudhoe Bay region. While much of the literature from Prudhoe Bay suggests minimal effects of causeways, caution is required in directly extrapolating those results to the 1002 coastal area. The coast of the Arctic Refuge is situated differently in the migration corridor than is Prudhoe Bay and presents a different hydrographic regime. The proximity and volume of freshwater input are different for the two areas. As stated earlier, the cumulative effects of additional causeways on migrating fish are potentially significant. Direct *a priori* application of conclusions concerning causeways in Prudhoe Bay to the entire arctic coast is not supported by the recent literature.

The conclusion of minor effects on coastal and freshwater fisheries in the LEIS is inappropriate unless the recommended mitigation measures can be strictly met. With the current knowledge of the potentially affected aquatic systems, it is uncertain that mitigation measures can be adequately addressed. For example, mitigation measure #8 states that docks and causeways are to be constructed so as not to impede fish movement or alter the coastal hydrography. This would certainly be a sufficient measure--if it were realized. Whether this is possible, or feasible, appears uncertain at this time. To biologically demonstrate the "no effect" status of any given causeway, prior to construction, is problematic. Also especially problematic, considering that all the rearing habitat has almost certainly not been identified, is the mitigative measure listed in the LEIS, "Prohibit spring and summer water removal from fish-bearing waters to levels that maintain quality of rearing habitat." The LEIS conclusion of minor effects on coastal and fresh-water fishery resources is dependent on the general premise of maintaining quantity and quality aquatic habitat. There remains, however, great concern about the feasibility and actual compliance with this requirement, as it remains a biological target that has yet to be clearly defined.

III. PHYSICAL ENVIRONMENT

A. Water Quantity

The LEIS concluded that the dedicated industrial use of the limited natural freshwater sources of the 1002 area would be a major effect. Additional investigations since 1987 substantiate the fact that water in the 1002 area is very limited and the impact upon water resources should be considered major. Ice road construction creates the most significant demand on the water resources during oil and gas explorations. Studies show that at the time of maximum ice development in rivers and lakes (March and April) the quantity of available water in 237 miles of river across the coastal plain is enough to build and maintain only 6.6 miles of ice road. Ice mining--scraping and hauling lake and river ice--would be required as a source of ice particles for ice road construction. Ice mining and diversion of water from lakes and rivers earlier in the winter would increase the depth of freezing within the thaw bulb. This deep freezing would kill mud-dwelling invertebrates important in the food chain of waterbirds and fish during the summer months.

In addition, 10 miles has been considered the limit of economic feasibility for hauling ice and water for road construction. There are only 3 or 4 small lakes in the transportation corridor between the Okpilak River to the Canning River, a distance of 60 miles. Sufficient ice and water are not available. Thus, gravel roads may be necessary.

A transportation system consisting of gravel roads would have significant impacts on water resources. Roads through the coastal plain and to Prudhoe Bay would lie across slope. They would dissect the natural flow of water during breakup, melt permafrost, act as dams, trap water upslope, and cause the downslope areas to become dry. Sheetflow across the tundra during spring snow melt is the primary source of water to recharge the lakes and small ponds important to water birds. A road system would interrupt this recharge of the lakes and cause secondary impacts to habitat for waterbirds that breed in the area.

A road system could also have significant effects on the tundra, both downslope and upslope of the roads. When microsite characteristics (moisture and topography) are altered, the resulting species composition differs from the original community. Surface impacts related to gravel fill usually extend beyond the direct loss of the area covered by the fill. These include impoundments of snowmelt, dust, gravel spray from snow removal, small construction spills, thermokarst, and contaminants from road oiling. The recovery of vegetation following disturbance is related to the intensity of the disturbance and the resulting changes in moisture regimes.

During the winter months, water is more abundant in lakes than in pools located beneath ice hummocks along major river drainages of the 1002 area. In April, when ice is at maximum thickness, 90 percent of the available water is contained in 9 of the 119 lakes surveyed. The lakes are not evenly distributed across the 1002 area. Many lakes are congregated near the mouth of the Canning River, and only two lakes are located in the region between the Katakaturak and Sadlerochit Rivers. Observation of fish presence in lakes was more frequent and widespread than previously suspected.

Although winter water occurs over a widespread area in most of the major river drainages in the 1002 area, the quantities are low. Ice cover of river channels is generally frozen to the river bed in all areas of the coastal plain. Only 9 million gallons of water were estimated to be available along the 237 miles of river channel inventoried. It takes approximately 1.35 million gallons of water to construct and maintain each mile of ice road used to support oil exploration activities and 30,000 gallons of water per day to support an oil exploration drill.

B. Water Quality

Very little information is provided in the LEIS regarding water quality. Most of the descriptive information, other than that for springs, is based on studies elsewhere on the North Slope. Most of that information, particularly descriptions of seasonal changes in water quality, is accurate. Since the LEIS, the Service has obtained a large volume of data about the water quality of ponds and lakes on the Arctic Refuge and at Prudhoe Bay including

impacts of contaminants there. These data provide additional useful information and document the poor buffering capacity (hence susceptibility to water quality changes) of many Arctic Refuge ponds and lakes. These data also disprove one statement made in the LEIS regarding water quality, "Some shallow lakes are turbid during summer, when wind and wave action disturb bottom sediments." Turbidity measurement data from the refuge did not reveal any turbid conditions in any of 36 Arctic Refuge shallow ponds and lakes sampled six times over two years of open-water conditions. The original source of this statement in the LEIS was a study in the National Petroleum Reserve - Alaska and was not supported by any measurement data.

The industrial infrastructure required for oil development would produce sewage that would need to be treated and disposed of properly. Currently 7 large and approximately 10 small sewage treatment plants are working in northern Alaska oilfields. All plants discharge under permits from the Alaska Department of Environmental Conservation (ADEC) and several have NPDES permits from the U. S. Environmental Protection Agency. Six of the large plants discharge into tundra ponds and one, Endicott, discharges to the Beaufort Sea. At the end of 1987, 47 sewage treatment plants were permitted to discharge a maximum of 1,201,650 gallons per day. The reduction in the number of plants is a result of decreased activity in the region and consolidation of some facilities.

Environmental effects of sewage effluent discharges include localized nutrient enrichment of wetland areas, in some instances resulting in algal blooms that increase suspended solids and biochemical oxygen demand, increased metals deposition, and discharges of chlorine.

C. Air Quality

No air quality data for Prudhoe Bay or adjacent oilfields were presented in the LEIS. The close proximity of the Brooks Range to the coast within the Arctic Refuge would create greater chances for inversions and poor air quality episodes and could result in greater entrapment of poor air. The composition of the crude oil and emission equipment design would influence air quality impacts from gas/water/oil separations on the refuge.

Regarding heavy metal and nutrient (nitrogen and phosphorus) impacts, studies have documented enrichment of nutrients and several trace elements in Prudhoe Bay snowpack. The Service has also recently gathered data at Prudhoe Bay and on the refuge to assess the effects of atmospheric deposition on snowpack contaminant concentrations and on the moss, *Hylocomium splendens*. We are still analyzing these 1994 data. However, the snow data indicate significant inputs of some major and trace elements, including heavy metals at Prudhoe Bay at two sites, one near drilling operations and the central compression plant, and the other near the North Slope Borough solid waste incineration facility. Effects appear to be local in that the metal enrichment patterns at the two sites differ substantially and no east-west effects are observed extending into the Arctic Refuge. However, the data suggest significant inputs of nutrients with likely significant effects on the vegetative community. Uptake of certain heavy metals by moss is also occurring.

D. Reserve Pits

The LEIS reviews some of the contaminant impacts of reserve pits and mitigation measures, such as closeout under Alaskan solid waste regulations and requirements. The Service has documented additional impacts of reserve pit fluids. It has also been suggested, but not documented, that caribou may utilize abandoned reserve pits and exploratory sites as salt licks, adding a potential contaminant impact not considered in the LEIS. However, new techniques in waste management now allow for pitless drilling (i.e., no reserve pits). Disposal of drilling wastes can now occur by subpermafrost injection, and drilling cuttings have also been successfully ball-milled, with injection of the fines. If these technologies were to be stipulated for development on the refuge, the impacts from reserve pit fluids would be minimized beyond those estimated in the LEIS.

Statements in the LEIS regarding State of Alaska solid waste requirements for closeout of reserve pits are no longer accurate. The State no longer requires closeout of all abandoned pits, and requirements for closeout have been substantially "loosened" when closeouts are required. To provide the same level of mitigation as described in the LEIS, stipulations would be needed regarding closeouts and solid waste management.

E. Oil Spills

The ADEC has continued to maintain records on the number and volume of oil and other hazardous waste spills on the North Slope since 1987. In general, reporting of spills has increased, indicating a need to revise the description of spills presented in the LEIS. Also, at least two well-blowouts have occurred on the North Slope since the LEIS was prepared. The potential for blowouts and their possible consequences in the refuge were not detailed in the LEIS. Furthermore, the *Exxon Valdez* oil spill occurred after the LEIS was produced and therefore was not discussed in the LEIS.

F. Mitigation

The LEIS relied on mitigative measures to offset many of the adverse environmental impacts of potential oil development within the Arctic Refuge. Many of these mitigative measures are unproven. The LEIS discussion of mitigation states, "Surface effects of seismic surveys can be minimized by confining operations to the winter after the active soil layer is frozen to a depth of at least 12 inches and the average snow depth is about 6 inches." Use of the words "average" and "about" are examples of word choices that reduce the impression of problems. If snow-depth only averages 6 inches, there must be significant areas that have less than 6 inches. In most years that is the case, due to the topography and wind characteristics of the area. The patterns of light snow-cover make it virtually impossible to traverse some areas with surface vehicles without damaging vegetation and soils. The 1984-1985 seismic study resulted in extensive damage precisely because of these factors. In reality, vehicles could not avoid all the areas of light snow-cover as permit stipulations implied. These stipulations are the same ones proposed in the preferred alternative.

Further, statements that the stipulations used for 1984-1985 seismic studies "would result in avoidance or minimization of impacts to vegetation" are optimistic. Experience has shown and extensive data exist to illustrate that damage to vegetation was not avoided in spite of stipulations. Observations at study plot sites in 1994 indicate that the recovery trend at some disturbed sites has reversed towards greater deterioration. This new information requires further study to more accurately predict consequences of future exploration activities.

In terms of mitigating impacts of gravel removal, the LEIS states, "Gravel removal should be prohibited from active fish-bearing watercourses and their tributaries." This does not indicate that it would be prohibited. Furthermore, if removal of gravel were limited to non-fishbearing watercourses, then few riparian gravel sources would ultimately be used, in which case most of the gravel would be extracted from upland sources, resulting in greater impact to landscapes where the visual effects would be very long-lasting.

As for vegetation, the LEIS says, "Localized removal or destruction of tundra vegetation resulting from the construction of gravel pads, gravel roads and gravel mines could occur." Vegetation destruction would occur. The issue of gravel and water required for development and production needs further evaluation. Analysis of data regarding predicted versus actual impacts of Prudhoe Bay oilfields and the Trans Alaska Pipeline completed after the LEIS indicate that the amount of gravel used was 400 percent greater than had been predicted.

In describing surface geological surveys within the 1002 area only, the LEIS does not explain that past surveys have largely focused in the mountain terrain to the south, where various rocks are exposed for investigation and testing. Congress designated this region as wilderness under provisions of the Wilderness Act. It is likely that if full development were authorized, there would be some work in the adjoining Wilderness area. The effect of noise associated with helicopter access in the Wilderness area is not adequately discussed. Accordingly, the LEIS underestimates the impacts to wilderness recreation and the disturbance of wildlife in the wilderness area.

Statements that docks and causeways should be constructed so that along the shore, water transport and water lagoon chemistry are not affected, and fish movements are not impeded, imply that the Prudhoe Bay experience is directly applicable to the Arctic Refuge coast. The coast of the Arctic Refuge is situated differently in the migration corridor than is Prudhoe Bay and presents a different hydrographic regime. Whether such an endeavor is possible, or feasible, is uncertain at this time.

IV. HUMAN ENVIRONMENT

A. Wilderness

The LEIS acknowledged that full development of the coastal plain would result in the irretrievable loss of the wilderness character of the area.

1. Historical Perspective

In the early 1950's, senior National Park Service planner George Collins visited the coastal plain. He found "a magnificent place of beauty . . . not the spectacular beauty of the mountains to the south, but a subtle beauty that comes largely from being part of a much larger, varied and interconnected natural system."

Collins was leading an extensive survey designed to determine which areas in Alaska most deserved formal protection. After traveling extensively throughout Alaska, he concluded that the area now established as the Arctic Refuge provided the nation's finest opportunity to preserve a vast arctic wilderness.

Collins was but the first of many to extol the presence of a complete and undisturbed spectrum of Arctic ecosystems as a primary value of the refuge. Based on Collins' research, in 1957 Bureau of Sport Fisheries Director, D.H. Janzen, declared the proposed range " . . . an ideal opportunity, and the only one in Alaska, to preserve an undisturbed portion of the Arctic large enough to be biologically self-sufficient."

Two years later, before a U.S. Senate hearing on the Arctic National Wildlife Range proposal, Interior Secretary Fred Seaton repeated Janzen's summation, adding,

"It would comprise one of the most magnificent wildlife and wilderness areas in North America . . . Certain portions of the Arctic coast and the north slope river valleys, such as the Canning, Hulahula, Okpilak, Aichilik, Kongakut, and Firth, and their great background of lofty mountains, offer a wilderness experience not duplicated elsewhere."

Wilderness values, along with wildlife and recreational values, are among the three stated purposes of Public Land Order 2214 that established the Arctic National Wildlife Range in 1960. Those values came into focus again in 1973 when, following an agency wilderness review, the entire Range, including the coastal plain, was recommended for wilderness designation.

The issue of refuge wilderness was extensively debated during the ANILCA hearings of the late 1970's. In 1978 the administration's position was stated by Interior Secretary Cecil Andrus in a speech before the Outdoor Association of America:

"In some places, such as the Arctic Refuge, the wildlife and natural values are so magnificent and so enduring that they transcend the value of any mineral that might lie beneath the surface. Such minerals are finite. Production inevitably means changes whose impacts will be measured in geologic time in order to gain marginal benefits that may last a few years."

The LEIS acknowledged the 1002 area's "outstanding wilderness qualities: scenic vistas, varied wildlife, excellent opportunities for solitude, recreational challenges, and scientific and historical values." It did not, however, expand on these values, nor discuss the uniqueness and national importance in the area.

2. Wilderness Qualities

The refuge is the only conservation area in the nation that provides a complete range of Arctic ecosystems, functioning in balance to perpetuate wildlife populations. The area offers more wildlife diversity than any other region of the Arctic. The LEIS states that the 1002 area is the most biologically productive part of the refuge and the heart of wildlife activity. This productivity results from the combination of factors that make the area a unique wilderness: the proximity of mountains to ocean, the landscape diversity, the climate, and the permafrost. The coastal plain has unique ecological qualities vital to species such as caribou, brown bears, muskox, wolves, swans, and snow geese. Several species, such as the caribou, use the area during sensitive and critical periods in their life cycle. Many of the species also are of international significance--for example, the massing of the Porcupine caribou herd is one of North America's greatest wildlife spectacles. Many of these species are sensitive to human activities and require large areas of essentially unaltered habitat.

The 1002 area provides more diverse landforms and varied scenery than any other part of Alaska's coastal plain. Here the Brooks Range is only 20 to 40 miles from the Arctic Ocean. From many vistas within this area, visitors can enjoy awe-inspiring views of 9,000 foot snow-clad peaks, glacial valleys, braided rivers, rolling tundra meadows and terraces, shallow lakes, beaded streams, and sea ice--an opportunity not available elsewhere on American soil. The effect of standing water over permafrost adds further interest and dynamic change to the landscape. Rivers rise rapidly, creating cut banks and new gravel bars. In winter, the frozen soil moves and cracks the surface, exposing underground ice structures, forming polygons and other permafrost features, and creating micro-environments for new plants and animals.

Remote and roadless, the 1002 area and the adjacent fragment of refuge coastal plain Wilderness east of the 1002 area comprise the most pristine of any large segment of arctic tundra remaining in the nation.

3. Impacts on the Wilderness Resource

The LEIS states that, "losses in . . . wilderness values on the 1002 area would be the consequence of a long-term commitment to oil and gas development in the area." However, the LEIS did not address, in any significant way, what those losses would be.

Development also would substantially reduce wilderness qualities in large parts of the adjacent Wilderness, significantly reducing its value. An oil field would be seen by recreationists from the many northern foothills and mountains within sight of the 1002 area.

An oil field would destroy the wilderness value that people derive from seeing the coastal plain. Hearing the attendant sounds of the oil industry, the helicopters and aircraft traffic, would erode the sense of wilderness for miles beyond the 1002 boundary.

The LEIS accurately states that "most recreationists currently visit the 1002 area for a wilderness experience." However, the LEIS significantly understates the effects of oil development on their experience. The fact is that an oil field would eliminate the wilderness experience for almost all of the recreationists, primarily hikers and floaters, who currently use the 1002 area and areas in the adjacent Wilderness.

4. Regional Uniqueness

Almost all of the Nation's coastal arctic environment is open to oil development or currently leased. Along Alaska's entire north slope, only the Arctic refuge coastal plain is currently protected from development. The 1002 area represents only about five percent of the Nation's arctic coastal plain. Protection of the area's unique wildlife and wilderness resources would help to ensure a needed balance with current and expanding development of Alaska's north slope. This is especially important because no other coastal areas in northern Alaska or the Nation provide the unique mix of landscapes, wildlife, habitats, and scenery that the 1002 area does. For these reasons, the area has incomparable and irreplaceable scientific, ecological, historical, and educational values for the American people. The LEIS acknowledged that development would result in an irretrievable loss of the wilderness character of the coastal plain.

V. CONCLUSIONS

The 1987 LEIS assessment of environmental effects of full development of the Arctic Refuge coastal plain predicted a number of major impacts. Reviewing scientific information subsequent to the 1987 report, the information provided in this review concludes that the prediction of major impacts is still valid. This review also concludes that the 1987 LEIS adapted a highly compartmentalized assessment, and considered impacts to species in isolation rather than as interconnected components of a complex ecosystem; a more scientifically sound evaluation requires consideration of the interrelationship of the species and the surrounding environment of the coastal plain. Further, this review concludes that the major impacts predicted in the 1987 report were characterized as acceptable risks in reliance on mitigative measures, some of which are speculative and unproven. Finally, an examination of biological and historical data indicate that, contrary to the 1987 conclusion, the Arctic Refuge coastal plain is unique among the refuges and parks of the United States.

Information received since the 1987 report confirms that impacts from development would be major, and that measures to reduce or remediate those impacts are uncertain. For its biological richness, undisturbed vastness, and fragility as an arctic ecosystem, the coastal plain of the Arctic National Wildlife Refuge is a national treasure, and would be irreparably altered by development.

**TESTIMONY OF THE SECRETARY OF THE INTERIOR
BRUCE BABBITT
BEFORE THE COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ON THE ARCTIC NATIONAL WILDLIFE REFUGE**

August 2, 1995

Mr. Chairman, Members of the Committee,

I very much appreciate the Chairman's personal invitation to appear before the Committee to discuss the Administration's position on maintaining the integrity of the Arctic National Wildlife Refuge.

Mr. Chairman, I commend you for holding this hearing and providing all interested parties an opportunity to be heard. And I urge this Committee to follow these hearings with a full debate of legislation independent of the Budget Resolution and reconciliation process. The fate of the Arctic National Wildlife Refuge is a matter of great national significance, and it should not be summarily treated by this Congress as just another revenue item. The wildlife and wilderness values of the refuge are irreplaceable resources that we have the opportunity to pass on to future generations.

I would like to briefly state the Administration's perspective on the fundamental question before us and then turn to the issue of the revenue projections which appear to be driving this issue in the Congress.

Mr. Chairman, the Clinton Administration supports the U.S. domestic oil and gas industry. We have supported Senator Johnston's efforts to increase oil recovery in the deep waters of the Gulf of Mexico by allowing appropriate royalty incentives. We have also supported the repeal of the ban on exporting Alaskan crude oil, subject to conditions, in order to increase production in Alaska and prolong the life of existing oil fields. We have conducted a number of extremely successful environmentally sound OCS lease sales -- and we plan to conduct more. We have leased more onshore oil and gas acreage annually than was leased in the previous administration. We have worked cooperatively with the industry to address ongoing problems and issues and to streamline necessary regulatory oversight -- both at my Department and at the Energy Department.

Yet this Administration opposes allowing oil and gas development on the coastal plain of the Arctic National Wildlife Refuge and I would recommend to the President that he veto any legislation that would authorize it. This Administration believes that the best interest of the American people and the oil and gas industry is served by a balanced policy consisting of promoting exploration and development, protecting our natural heritage, and fostering the development of conservation and alternative energy sources. So far the proponents of drilling have not offered to consider the Arctic National Wildlife Refuge System in the context of an overall national energy policy, encompassing a review of alternative energy sources and the prospect for conservation.

Instead, the proponents are asking us to offer up the last protected part of the Arctic coastline as part of a plan to eliminate the deficit and balance the budget in seven years, instead of ten years as President Clinton has proposed. In effect, we are being asked to jeopardize an irreplaceable piece of our national heritage over a three year difference in budget projections by the people in green eyeshades.

The Arctic National Wildlife Refuge is the last protected fragment of the great coastal plain where America goes down to the polar ocean. More than 85% of the Arctic coastal plain has already been opened to oil exploration and development. The story of Prudhoe Bay in the central coastal plain is

well known. Less known is that the entire coastal plain west from Prudhoe Bay to Icy Cape and the shores of Siberia is also designated for oil development, most of it within the Congressionally designated Arctic National Petroleum Reserve.

The oil companies could go west from Prudhoe Bay under existing law. Instead they are clamoring to go east, straight into the last protected fragment of the Arctic slope. Perhaps it is a sign of the times that certain segments of the oil and gas industry, emboldened by electoral changes, are now asking for everything, for the right to invade our last Arctic sanctuary for the sake, even by most optimistic estimates, of the equivalent of six months of national oil consumption.

Recognition of the unique wilderness character of the Arctic National Wildlife Refuge, and of the refuge's coastal plain goes back a long way. In 1959, Fred Seaton, the Eisenhower Administration Interior Secretary testified before the Senate calling the proposed Arctic National Wildlife Range "One of the most magnificent wildlife and wilderness areas in North America... a wilderness experience not duplicated elsewhere."

Another of my predecessors, Cecil Andrus, in 1978, encapsulated it most eloquently: "In some places, such as the Arctic Refuge, the wildlife and natural values are so magnificent and so enduring that they transcend the value of any mineral that may lie beneath the surface. Such minerals are finite. Production inevitably means changes whose impacts will be measured in geologic time in order to gain marginal benefits that may last a few years." It was true then!, Mr. Chairman, and it remains true today. I spent some time in the refuge during my trip to Alaska in 1993.

What I saw and heard and felt as I crossed the tundra and followed the streams up toward the mountains can hardly be described. The tundra, a thousand shades of emerald and jade, sparkled in the soft light of the midnight sun. On a field of cotton flowers and saxifrage, musk oxen circled to protect their calves as a pack of wolves stalked nearby. It was late summer and the caribou had already trekked southward into the passes of the Brooks Range; the tundra was already touched with the scarlet hues of autumn, and the snow geese would soon be coming down from Wrangell Island to fatten up before the long flight southward.

One night at Peters Lake, I read the words of Barry Lopez: "Twilight lingers -- the ice floes, the caribou, the musk oxen, all drift -- the stillness, the pure light -- you can feel the silence stretching all the way to Asia."

The Congress is now Proposing to interrupt this ancient pageant of wildlife moving through the seasons of an enchanted landscape. Its action will inevitably shatter the delicate balance of land and life into a thousand fragments, like pan ice in the spring breakup.

Mr. Chairman, it is easy to see why so many Americans want this special place protected. It is harder to understand why we would want to develop it -- because, of the many arguments that have been made for development, none has stood the test of time.

The proposal to develop oil in the Arctic Refuge has most often been justified on national security grounds. This argument was never very strong, for the simple reason that no single oil discovery, even a large one, can be expected to fundamentally alter our nation's oil security situation.

History has shown that national efforts to improve energy efficiency and to buffer short term disruptions through the creation of the strategic petroleum reserve and other mechanisms have had much more impact on our oil security than have additions to domestic supply.

This is so because U.S. production is limited largely by the world price of oil. As stated in a recent Commerce Department report on the issue, "The United States is a high-cost produce

compared to other countries because we have already depleted known low-cost reserves."

The Administration recognizes the importance of U.S. energy security, and will continue to support steps that, as shown by past experience, can help us minimize the risks associated with short-term supply disruptions. We also continue to support a variety of supply enhancement and energy efficiency policies to help limit our long-term oil dependence.

The environmental arguments traditionally made by supporters of development seem to have expired along with the national security argument. Proponents of development have consistently argued that drilling and producing oil on the fragile Arctic coastal plain can be accomplished without damage to the wildlife values for the protection of which the refuge was established.

But this year, I note, your delegation has declared that the very name of the refuge -- the Arctic National Wildlife Refuge -- should be changed, so that the coastal plain -- the biological heart of one of America's greatest wildlife refuges -- would, in your new nomenclature, be called the "Arctic Oil Reserve."

The American people will see right through this name change, Mr. Chairman, and will understand immediately what it really signifies: that even those who are dedicated to opening this area to the oil industry understand that to do so will be its death knell as a wildlife refuge.

The Arctic Refuge is the only conservation area in the Nation that provides a complete range of Arctic ecosystems, functioning in balance to perpetuate wildlife populations. The area offers more wildlife diversity than any other region of the Arctic. The Coastal Plain, as noted in the 1987 Legislative Environmental Impact Statement (LEIS), is the most biologically productive part of the refuge and the heart of the refuge's wildlife activity.

The centerpiece of this living system, the Porcupine River Caribou Herd, depends upon the coastal plain for the most important part of its life cycle, for giving birth to its young, and harboring them until they are able to make the long journey south through the Brooks range to the interior.

The 1987 LEIS, on the basis of which Secretary Hodel made his recommendation to lease the coastal plain, contains a wealth of information on the potentially serious impacts to wildlife and habitat resources that are likely to occur from extensive oil and gas development of this fragile area. Biological studies since 1987 have, if anything, enlarged our understanding of wildlife use of the coastal plain, including by caribou and polar bears, and confirmed the likelihood of significant impacts. There was no question, even in 1987, that full-scale development would devastate the area's wilderness character, and there is no reason to doubt that result now.

For these and many other reasons, Mr. Chairman, it is the view of the Administration, from the President on down, that the wise and responsible course would be to continue to protect the coastal plain of the Arctic National Wildlife Refuge as wilderness, for its wilderness and wildlife values.

Mr. Chairman, I must also tell you that, in the view of the Administration, the revenue estimate of \$1.4 billion in receipts over a five year period is wishful thinking. In our view, this revenue projection is too high as a result of four factors:

- o The State of Alaska has given every indication that it will challenge in court any revenue split other than the 90% share it believes it is guaranteed in the Alaska Statehood Act;
- o World oil prices are far below the levels projected in earlier estimates, thus increasing the necessary size of any viable commercial deposits;

- o Congress should take into account the fact that net returned to the Treasury from projected royalty income are likely to be significantly lowered by offsetting tax losses; and, as you heard at your earlier technical hearing,
- o New information regarding the geological structures underlying the coastal plain has led the USGS to conclude that earlier high estimates of petroleum resources should be revised downward.

Let me review each of these factors in slightly more detail.

The revenue projections from proposed Arctic Refuge leasing and development assume that the Federal Government would share revenues with the State on a 50-50 basis. Current law, which is referenced in the Alaska Statehood Act, gives Alaska 90% of Federal revenues from mineral leasing. The Department has long taken the position that Congress has the authority to change this revenue split. The State of Alaska has long taken the opposite position; namely, that the 90-10 split was in effect a commitment made as part of the Statehood compact that cannot be modified by the Congress without Alaska's consent.

The State of Alaska is currently trying to persuade the Federal courts that its position is correct. Its claim is part of an omnibus lawsuit the State has brought seeking \$29 billion in damages from the Federal treasury for assorted wrongs allegedly committed by the Federal Government. While the Department has full confidence in the legal position we are defending, any litigation involves some element of uncertainty, which has to be taken into account in making revenue projections from leasing of the Arctic Refuge.

As you are aware, Mr. Chairman, previous versions of legislation authorizing the development of the coastal plain have contained provisions to prevent the State of Alaska from bringing suit to force a 90% revenue split for the State. Considering the fact that, if successful, such a suit would reduce the Federal revenue split to 10%, which even in an optimistic projection would amount to only \$28~ million in the budget period for which Congress has assumed receipts of \$1.4 billion, the Administration presumes that Congress would include similar language in any leasing authorization.

Your revenue estimates are also questionable because of changes in the economics of oil. The most notable and important change has been in oil prices and our expectations for future oil prices. As Figure 1 shows, oil prices in real or constant dollars have declined since 1984 instead of increasing as was then forecast.

Furthermore, oil prices projected for 2000 have dropped nearly 50% since preparation of the 1987 study of the 1002 area.

- o In 1987 when the Reagan Administration proposed leasing the coastal plain of the Arctic Refuge, oil prices in 2000 were expected to be \$33 (in 1984 dollars) Adjusted for inflation and expressed in 1995 dollars, this oil price assumption for 2000 would be \$38.60.
- o Now in 1995, however, oil prices in 2000 are expected to be less than \$20.00 (\$19.13 in 1995 dollars is the average of High and Low World Oil Price Projections from EIA Annual Energy Outlook, 1995).

This sharp decline in oil price expectations must inevitably affect the willingness of industry to invest in expensive new prospects, no matter how attractive. Clearly, it should give pause for

thought regarding the revenues being shown for Arctic National Wildlife Refuge leasing in the current proposal.

An additional uncertainty regarding the projected revenue arises from the fact that the net gain to the Treasury is very much affected by the relationship between bonuses, royalties, State severance and conservation taxes and the State's share of Federal leasing revenues. The State of Alaska has many opportunities to take a piece of this pie. Furthermore, since bonuses, royalties and State taxes are deductible expenses in computing Federal income taxes, the net gain to the U.S. Treasury may turn out to be much less than the estimated revenue from sale of these leases.

Given all of these factors, Mr. Chairman, I urge this Congress to reconsider its rush to lease the coastal plain of the Arctic National Wildlife Refuge.

Opening the Arctic Wildlife Refuge to oil drilling is the equivalent of offering Yellowstone National Park for geothermal drilling, or calling for bids to construct hydropower dams in the Grand Canyon. We can surely find a better way to both produce energy and conserve our natural heritage.

Executive Summary

Review of Potential Impacts of Oil Development on the Coastal Plain of the Arctic National Wildlife Refuge

The U.S. Fish and Wildlife Service has conducted a preliminary review of the 1987 *Arctic National Wildlife Refuge Coastal Plain Resource Assessment, Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement (LEIS)*. In the eight years following the report, many additional studies of fish, wildlife, and habitats have been conducted to better understand the ecology of the coastal plain of the Arctic National Wildlife Refuge and potential effects of oil and gas development.

The 1987 LEIS assessment of environmental effects of full development of the coastal plain predicted many major impacts. Reviewing scientific information subsequent to the 1987 report, the information provided in this review concludes that the prediction of major impacts is still valid. This review also concludes that the 1987 LEIS adapted a highly compartmentalized assessment, and considered impacts to species in isolation rather than as interconnected components of a complex ecosystem. Further, the major impacts on significant resources predicted in the 1987 report were characterized as acceptable risks in reliance on mitigative measures, some of which are speculative and unproven. An examination of biological and historical data indicate that, contrary to the 1987 conclusion, the Arctic Refuge coastal plain is unique among refuges and parks of the United States.

Caribou - Full leasing and development of the refuge coastal plain would have a major effect on the Porcupine caribou herd (PCH). Research since 1987 has documented that:

- a reduction in annual calf survival of less than 5% would be sufficient to change a positive rate of increase in the PCH population to a declining rate;
- caribou have a broader use of the coastal plain for calving than depicted in the LEIS;
- each year the PCH selects the concentrated calving grounds based on snow melt and rate of plant growth. The primary forage species (*Eriophorum vaginatum*) is higher in nutrition, more digestible, and more available within the 1002 area than in the peripheral areas during calving season;
- the concentrated calving area (where 50 percent of the calves are born) in any year imparts a higher level of predator protection;
- nearly every year, all PCH females and calves use the 1002 area for post-calving activities, and, in most years, the majority of bulls also use the area during late June and early July;
- displacement of the PCH to the foothills south and east of the 1002 area would subject the herd to the area of highest predator density, reduce the amount and quality of preferred forage species available during calving, and restrict access to important coastal insect-relief habitat.

Muskoxen - Major impacts on muskoxen are predicted because:

- they are present in the area year round and would be subjected to cumulative effects in both winter and summer;
- disturbance could increase energetic costs resulting in decreased calf production;
- full development would result in the loss of availability of a large percentage of high use habitat, which would have an adverse affect on muskox productivity and population size.

Snow Geese - Snow geese would be moderately impacted by oil development on the coastal plain. Without controls on aircraft activities, disturbance would have widespread effects on snow goose distribution. Such disturbance would displace geese from feeding habitats, increase energy expenditure, and reduce the ability of geese to accumulate fats.

Polar Bear - The coastal plain of the Arctic Refuge is the most important land denning area for the Beaufort Sea polar bear population. A moderate impact on refuge polar bears is predicted because:

- polar bears might avoid important denning habitat on the refuge if large-scale industrial activity occurs there;
- cumulative impacts of potential off-shore developments is an important concern for the Beaufort Sea polar bear population.

Brown Bear - A moderate decline in the numbers of brown bears using the area or a change in the distribution could result from the additive effects of direct mortality, decreased prey availability, harassment, and disturbance in denning areas.

Vegetation - Impacts on vegetation, wetlands and terrain types would cover far larger areas than the surface areas of the pads, roads and development structures. The most extensive impacts are due to:

- changes in water flow through the area due to "damming" by roads (inundation above roads, drying below them, causing changes in vegetation and distribution of wetlands, wildlife feeding and bird nesting habitat over very large areas);
- road dust on the tundra causing earlier snow-melt in the spring, increased melting of permafrost resulting in thermokarst pits, and increased pH of the soil, which kills many common tundra plants and dramatically changes the plant species composition for about 35 feet on either side of the road.

Fisheries - A conclusion of minor effects on coastal and freshwater fisheries is appropriate only if recommended mitigation measures can be strictly met. With current knowledge, it is uncertain that mitigation measures can be adequately addressed. Fisheries may be affected by:

- decreases in quantity and quality of the coastal brackish water zone, which is used by numerous anadromous fish species as a migration corridor;
- the unknown impact of any specific causeway on the local hydrography, as well as the cumulative impact of additional causeways on migrating fish;
- spring and summer water removal from fish-bearing waters which would adversely affect the quality of rearing habitat.

Water - Water in the 1002 area is very limited and impacts upon water resources should be considered major. Investigations since 1987 substantiate that:

- ice road construction requires 1.35 million gallons of water per mile. It takes 30,000 gallons of water per day to support an oil drill rig - as much as 15 million gallons may be required to drill one exploratory well.
- at the time of maximum ice development, only 9 million gallons of water are available in 237 miles of river across the coastal plain - enough to build and maintain only 6.6 miles of ice road. Gravel roads may be necessary.
- ice mining and water diversion from lakes and rivers results in an increased depth of freezing, which kills invertebrates important to fish and waterbirds.

Wilderness - Full development of the coastal plain would result in the irretrievable loss of the wilderness character of the area. The refuge, including the coastal plain, is a world-class natural area with incomparable and irreplaceable ecological, scientific, historic, and educational values for the American people. It is the outstanding example of remaining American wilderness.

