

450

*NATIONAL ELK REFUGE*  
*Jackson, Wyoming*

*ANNUAL NARRATIVE REPORT*

CALENDAR YEAR 1981

*US Department of Interior*

Fish and Wildlife Service

**National Wildlife Refuge System**



Back row: Betty Parrish, Everett Russell  
 Front row: Jim Griffin, John Wilbrecht, Kevin Ryan

NATIONAL ELK REFUGE PERMANENT EMPLOYEES

<u>Employee</u>	<u>Position and Grade</u>	<u>Status</u>	<u>Entered on Duty</u>	<u>Terminated</u>
John E. Wilbrecht	Project Leader GS-485-13	PFT	07-31-77	
Kevin Ryan	Asst. Refuge Manager GS-485-09	PFT	12-04-77	
James M. Griffin	Outdoor Recreation Planner, GS-023-09	PFT	06-03-79	
Betty L. Parrish	Administrative Officer GS-347-07	CS	01-11-81	
Karla J. Engwicht <sup>1/</sup>	Clerk-typist GS-322-04	CS	10-19-80	12-12-81
Russell Robbins <sup>2/</sup>	Wildlife Research Biologist, GS-485-12 (Jackson Field Sta-DWRC)	PFT	06-28-68	10-18-81
James W. Flower	Bldg and Grounds Maint. Foreman, WS-04739-09	PFT	03-24-58	03-21-81 (retired)
Roger D. Pape	Engr. Equipment Mechanic WG-5803-11	PFT	03-30-67	
Robert R. Rowley	Biol. Technician (Wildlife) GS-404-05/00	PFT	12-18-67	
Everett F. Russell	Biol. Technician (General) GS-404-06	PFT	06-15-80	
David J. Trudeau	Biol. Technician (Wildlife) GS-404-05	CS	02-22-81	

<sup>1/</sup> Transferred to Northwest Montana Fisheries Center, Kalispell.

<sup>2/</sup> Transferred to Fairbanks, AK, as Refuge Mgr, Arctic NWR.



*Bio. Aid Dale Farley and Bio. Tech MarJean Heisler*



*Mechanic Roger Pape and Bio. Techs Bob Rowley and Dave Trudeau*





*Irrigators Sam Williams, Vernon Burnside, and Bill Wells*

NATIONAL ELK REFUGE TEMPORARY EMPLOYEES

<u>Employee</u>	<u>Position and Grade</u>	<u>Status</u>	<u>Entered on Duty</u>	<u>Terminated</u>
MarJean K. Heisler	Biol. Technician (Wildlife) GS-404-6	TFT	10-13-81	
Holly A. Gill	Biological Aid GS-404-03	TFT (30-day)	07-20-81	08-15-81
Marilyn M. McElheney	Biological Aid (Wildlife) GS-404-4	TFT	01-19-81	04-04-81
Monica M. Mueller	Clerk-typist, GS-322-04 (Jackson Field Sta-DWRC)	TFT	11-16-80	08-08-81
Correy Stapleton	Biological Aid GS-404-03	TFT (30-day)	07-20-81	08-18-81
Vernon Burnside	Biol. Aid (irrigator) GS-404-03	TFT	05-17-81	08-31-81
William B. Wells	Biol. Aid (irrigator) GS-404-03	TFT	05-17-81	08-31-81
Samuel Williams	Biol. Aid (irrigator) GS-404-03	TFT	05-17-81	08-31-81



# VOLUNTEER SERVICE

<u>Employee</u>	<u>Position</u>	<u>Status</u>	<u>Entered on Duty</u>	<u>Terminated</u>
Holly Gill	Student volunteer (Biological Aid)	TFT	06-04-81	07-18-81
Correy Stapleton	Student volunteer (Biological Aid)	TFT	06-04-81	07-18-81
Jesse B. Chipley	Volunteer (Visitor Center Interpreter)	TPT	12-23-81	
Donna K. Kreienseck	Volunteer (Visitor Center Interpreter)	TPT	12-19-81	
Marilyn M. McElneney	Volunteer (Visitor Center Interpreter)	TPT	12-23-81	



*YACC Enrollee Maria Offer*



*Clerk-typist Karla Engwicht  
(transferred to Kalispell, MT)*

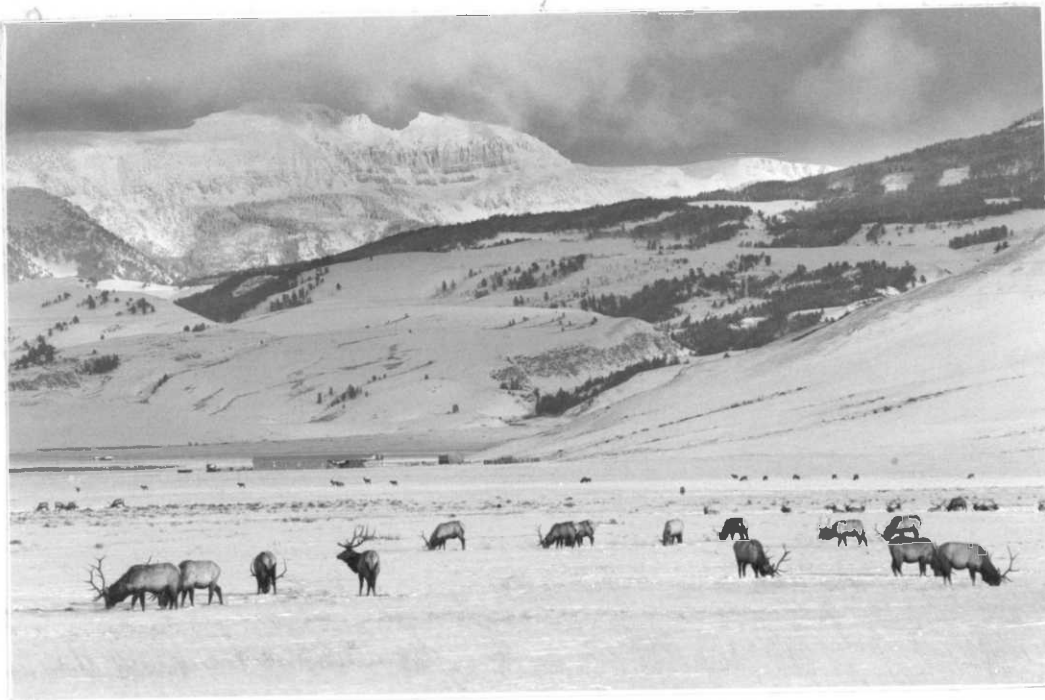
# YACC Employees

<u>Employee</u>	<u>Position</u>	<u>Status</u>	<u>Entered on Duty</u>	<u>Terminated</u>
Dale Farley <sup>1/</sup>	Visitor Center Interpreter	PT	12-21-81	
Lora Gregory	Visitor Center Interpreter	FT	11-24-80	02-27-81
Ron G. Jacobson	Biological Aid	FT	05-14-81	07-17-81
Rosemary A. Jones	Biological Aid (Jackson Field Sta-DWRC)	FT	10-27-80	08-21-81
Maria Offer	Biological Aid	FT	09-21-81	
Jody E. Petersen	Biological Aid	FT	08-18-81	08-20-81

<sup>1/</sup> Jackson NFH employee worked as Interpreter at Visitor Center three days a week.



Russell (Buzz) Robbins at his "North to Alaska" party.



REVIEW AND APPROVALS

Joe E. Wilcox 5/18/82  
Submitted by Jackson FWS Project Date

Robert C. Brown 5/25/82  
Area Office Review Date

Marvin L. Munk 6/2/82  
Regional Office Review Date



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#### A. HIGHLIGHTS

- Secretary Watt visits Jackson Hole in September and again in December. Refuge hosts him on Sleigh Ride and at Visitor Center.
- Land acquisition policies and alternatives explored at Senate Hearing.
- Prescribed burns successful on 1,249 acres.
- Mild 1980-1981 winter - no supplemental feeding of elk.

#### B. CLIMATIC CONDITIONS\*

Weather data for 1981 is shown on Table 1. Total precipitation was 16.4 percent above normal. A record 6.26 inches of rain fell during the crucial growing season of May and June and combined with the effects of prescribed burning (1,249 acres) in April, helped make it a good year for forage production (a 40 percent increase from the previous five years average (Table 5a)).

During July, August and September, moisture levels fell below normal; however, a pattern of thunderstorms seemed to develop every two weeks or so over the northern half of the Refuge. This contributed further to the excellent forage conditions there. (Since the Forest Service weather station is on the southern end of the Refuge, this rainfall was not recorded).

The winter drought of 1980-1981 produced a new low in snowpack conditions- 10 percent below the previous record. Normally, the snowpack supplies 75 to 85 percent of this area's streamflows. As a result, mid to late summer irrigation activities were somewhat reduced.

Snowfall and amount of ground accumulations were below normal during the winter - spring period and about average during the fall - winter period. The frost-free period totaled 29 days (24 July through 22 August)\*.

\* Everett Russell

Table 1. Weather Data From the Bridger-Teton National Forest Headquarters  
Located at the Southeast Boundary of the National Elk Refuge,  
1981.

	PRECIPITATION (Inches)			TEMPERATURES (F <sup>o</sup> )		
	<u>Normal</u>	<u>1981</u>	<u>Snowfall</u>	<u>Max</u>	<u>Min</u>	<u>Average</u>
January	1.69	.70	8.1	44	-6	20.7
February	1.01	.41	3.0	55	-23	25.8
March	1.10	.55	.5	53	11	33.1
April	1.15	1.24	.5	71	13	41.3
May	1.47	4.69		74	18	45.7
June	1.76	1.57		88	31	55.0
July	.75	.39		90	30	61.4
August	1.09	.85		89	25	60.9
September	1.26	.23		85	22	53.7
October	1.09	1.70	3.0	70	11	38.7
November	1.19	2.95	7.7	60	-10	30.3
December	<u>1.73</u>	<u>2.51</u>	<u>11.0</u>	<u>50</u>	<u>-9</u>	<u>25.7</u>
TOTALS	15.29	17.79	33.8	90	-23	41.0
				(Extremes)		



"Open" winter scene (February 27) along Kelly Road - north Refuge boundary. Blacktail Butte in background. Normally there's 2 to 3 feet of snow in this area. (35 mm slide file - 2-27-81, JEW).



Buzz Robbins inspecting grass near shop, south end of Refuge, illustrating "open" winter. (35 mm slide file - 2-27-81, JEW).



## C. LAND ACQUISITION\*

### 1. General

On February 4 Secretary Watt wrote and invited the Western Governor's to identify parcels of federally owned land which could meet community needs "for expansion and for other public purposes." On February 13 the Governor of Wyoming notified all county officials "to assemble such requests from various school boards and departments in their jurisdiction and report back to his office by March 20."

Within days, the following requests for National Elk Refuge lands were made:

1. 20 acres for a Town of Jackson park, generated by the Recreation Department
2. 5.53 acres North Park-transfer to Town of Jackson, generated by the Recreation Department
3. 2.27 acres Wyoming Highway Department easement for Visitor Information Center, transfer to Town of Jackson
4. 4.00 acres for nursing home, requested by Nursing Home Task Force
5. 4.00 acres for historical museum, requested by Teton County Historical Society

These requests were transmitted to the Governor on March 18 by the Teton County Commissioner and on April 8 the Governor sent requests for 59 units of Wyoming government to the Secretary. In all, it was reported that "nearly all contacted states have responded with itemized land requests." A total of "335 community requests" added up to "approximately 600,000 acres of Federal land."

Some considerable national and local opposition surfaced regarding the requests for Refuge land. The Wyoming Division of the Isaak Walton League wrote the County Commissioners and the Wildlife Committee of the Jackson Hole Alliance for Responsible Planning went on record opposing these requests (see copy of letters included). In addition, the Technical Committee of the Jackson Hole Cooperative Elk Studies Group on April 15, released a statement in opposition to the proposed land transfers. This statement was endorsed by the entire Cooperative Elk Studies Group, Advisory Council members (Wyoming Game & Fish Department; Grand Teton National Park-NPS; National Elk Refuge-FWS; and the Bridger-Teton National Forest-USFS). Copies were forwarded by the Director of the Wyoming Game & Fish Department (WGF) to the Governor's office. In addition, the Jackson Hole Alliance for Responsible Planning requested to Governor's office to insure the statement was forwarded to the Secretary.

On July 29 the Director-FWS was requested by the Bureau of Land Management (BLM) to comment on Refuge lands identified by the Governor of Wyoming. On October 1 the Regional Director-Denver indicated to the Director that "our review of the requested areas indicates that if they were divested, exchanged, or permitted, such action would have a negative impact on the Refuge and our recommendation is that these requests cannot be accommodated." To date we have not seen the Director's recommendations to BLM, the agency charged with analyzing the requests.

\* John Wilbrecht

In addition to these "requests" several other "suggestions" or inquiries regarding the transfer of the National Elk Refuge to the State of Wyoming-WGF Department surfaced. A letter addressed to one of these "suggestions" from Assistant Secretary for Fish and Wildlife and Parks, G. Ray Arnett on May 29, stated that "... the Department of the Interior has no plans to transfer the management of wildlife refuges to the states. The National Wildlife Refuge System will continue to be managed to preserve fish, wildlife and their habitat."

In summary, it is our interpretation that Secretary Watt's intent was to include only BLM or "public lands." However, the letter to the Governors did state "identify parcels of federally owned land ...."

#### "Land Protection Policy" Formulation

The area received a lot of national attention when in mid September Secretary Watt visited the valley to address the Western Governors Conference. Interestingly, at this same time, the Wilderness Society with former Secretary Cecil Andrus, Senator Gaylord Nelson and President Bill Turnage were also meeting in the valley. Also, the National Park Inholders Association under the leadership of Charles Cushman was meeting with in-holders of Federal lands. Cushman had recently been appointed by Secretary Watt to the National Parks Advisory Board. The overall impact and ensuing announcements from the Secretary, Mr. Cushman and Ric Davidge, another recent Watt appointment to chair the Land Policy Group, gave hope to the in-holders that the heavy hand of federal land acquisition programs would now be changed.

Earlier in the year, Secretary Watt had placed a moratorium on all federal land acquisition and froze the LWCF and suggested they be used for National Park maintenance. In September, Secretary Watt said locally that he believed the government could "provide land protection without fee acquisition." Mr. Cushman also announced that the Department of Interior's new policy would "emphasize protection rather than acquisition." At the in-holders meeting Mr. Davidge announced that eight study areas had been established across the country. These "would be reviewed when the land protection policy is restructured." It was obvious that a new land acquisition policy was being formulated and renamed "land protection policy."

In mid October the "Grand Teton/Jackson Hole Case Study Team," one of eight earlier suggested by Mr. Davidge, was operational and began its review of federal lands, specifically Grand Teton National Park and adjacent portions of the NER. Project Leader Wilbrecht was requested to join the Core Planning Team "Other Agency" as a representative. The "Task Force Team" was "to examine various resource protection strategies on lands both within and immediately adjacent the park. The Secretary's Office has directed the Service (NPS) to explore a full range of protection options and recommend strategies."

The Team recognized to some measures and strategies recommended for the Park could have an effect on the NER, especially the elk migration routes on the north end near Kelly. In addition, the Team solicited input from many sources, including the Forest Service and county officials.

# Congressional action needed for land transfers

AC  
JH NEWS  
4-1-81

Congressional action will apparently be required before any land within Grand Teton National Park or the National Elk Refuge can be transferred to local government.

Last month, Interior Secretary James Watt announced that he would consider transferring federal lands to local communities to help them expand. Watt also said the program would be used to improve relations between the federal government and local governments.

Local officials then compiled a shopping list of properties they would like if the transfer program is realized. All requests by the town and county are for lands in either Grand Teton National Park or the National Elk Refuge.

Jack Stark, superintendent of Grand Teton Park, and John Wilbrecht, manager of the elk refuge, said such transfers would require congressional approval. "The Secretary of the Interior does not have that exclusive right," Wilbrecht said.

The requests included transfer of the controversial Jackson Hole Airport to the local community, sites for fire stations at Moran and Kelly, 20 acres on the refuge for a public park, and transfer of North Park—where the information center is located—from the refuge to the town and county.

Stark said he feels the program is specifically aimed at transfer of lands from the Bureau of Land Management to communities such as Rock Springs. "I would think BLM lands, not park lands, would be the thrust of this," Stark said.

Wilbrecht was clearly more disturbed by the local requests. "I couldn't believe that no one ever came to the refuge to talk to us," he said. "There have apparently been several meetings on this and I was never invited to attend."

Looking at the North Park request, Wilbrecht said that he was surprised. "That has been a city park since the 1930s," he said. "We even went to the



**Wilbrecht:** "We are trying to preserve what little lands the elk have left."

extent of destroying some pretty good wetlands to create those ponds. All of this has been set aside and dedicated so I don't know why the town would like that given to them unless they intend to change the use."

The 20-acre parcel requested by recreation director Jack Frappart runs along Broadway from the refuge headquarters to the road through the refuge. According to Frappart, it could be used as a city park and as space for more ball fields.

"We are trying to preserve what little lands the elk have left," Wilbrecht said, adding that the Jackson Hole elk herd has only 25 percent of its original habitat in the valley.

"We keep pushing the elk further and further back and these lands help create a buffer zone," Wilbrecht said. "I'm surprised that people who care so deeply about the elk herd haven't gotten more involved in this issue."

The refuge manager also pointed out that lands in both Grand Teton Park and the National Elk Refuge were purchased with taxpayers' dollars, unlike BLM lands, which are largely public domain.



# RS TO THE EDITOR

## Distressed

To the Editor:

We are distressed to learn that the Teton County Parks and Recreation Department, in response to an initiative by Interior Secretary Watt and inquiries from Governor Herschler, has requested that 20 acres be withdrawn from the National Elk Refuge and transferred to the county for use as a public park.

As you know, the Izaak Walton League of America has a long-standing concern for the Jackson Hole elk herd, dating back to our 1927 donation of nearly 2,000 acres in establishing the core area of the refuge.

We find it impossible to believe that, with the nation's most magnificent open spaces only minutes away, the good people of Jackson Hole suffer any critical deficiency of public park amenities. It certainly isn't in the best interests of the people of Wyoming to encroach upon the last remaining winter sanctuary of the world's largest elk herd for such a petty and frivolous purpose.

On behalf of the Wyoming Division of the Izaak Walton League, and League members everywhere, I respectfully urge the board to withdraw this unseemly request.

Jack Hayes,  
President  
Wyoming Division  
Izaak Walton League  
of America  
Cheyenne

## Jeopardize

To the Editor:

We strongly urge the request by the Town of Jackson to have two parcels of National Elk Refuge lands transferred to town ownership not take place. Such a transfer would jeopardize the important current uses of these lands and establish an exceedingly dangerous precedent for ownership and management of the National Elk Refuge in general.

Town officials have indicated these two parcels would, under their ownership, become city parks. Despite the concern of Interior Secretary Watt that federal land managers have not

been responsive to local community needs, here the record speaks to the contrary. One of the parcels has been serving as a park since the 1930s. The idea of further developing this parcel for tourists was first put forth by refuge manager Almer Nelson in 1954. In 1955, an agreement to construct the park was signed by the National Elk Refuge, State of Wyoming, Teton County, and the Town of Jackson, with the National Elk Refuge eventually doing most of the work. Dedicated in 1975 as North Park, with a memorial plaque to Olaus Murie, the land remains an open haven for tourists and waterfowl alike.

It is difficult to understand the desire of town officials to own this land if they truly wish to retain it as a park. A commitment to the continuation of the park has been amply demonstrated by the National Elk Refuge. However, there is serious cause for concern about the future of North Park if ownership were to change.

Transfer of the second parcel, which lies along Broadway between the refuge headquarters and the refuge road, would involve the direct loss of elk winter range. Already reduced to approximately 25 percent of its original size, this winter range is really even smaller than it appears. Buffer zones exist along all roads in and bordering the elk refuge which, due to human disturbance, are not readily used by the elk. If the town were to alter the use of this parcel, the buffer zone here would simply be pushed back, forcing the elk off more refuge land.

The prospective loss of more winter range comes at a time when the National Elk Refuge is developing a strong program of economizing on supplemental feeding. As most Jackson Hole citizens are aware, tremendous costs to taxpayers are involved in supplementally feeding the elk. For example, during an average winter 8,000 elk are supplementally fed for 75 days at a cost of nearly \$250,000. By refining the feeding process, including moving the elk to areas with available natural forage, the refuge is attempting to reduce daily feed levels, thereby reducing the overall costs. The removal of land and natural

forage from the Refuge will only make this program more difficult and expensive.

It is likely that few people in Jackson Hole care to see the elk herd diminished. The outstanding ecological, esthetic, scientific, and monetary benefits of the elk have been stated many times, yet the message sometimes ricochets rather than penetrates. For monetary reasons alone, the Town of Jackson should be the National Elk Refuge's strongest defender.

A precedent to remove lands from the National Elk Refuge could well open the way to destroying one of man's few successes in his efforts to coexist with wildlife. As is written on the plaque in North Park, Olaus Murie said, "Man has need of wilderness." To millions of Americans, elk represent real wilderness.

Michael Wells  
Thomas M. Campbell III  
John L. Weaver  
Wilson

Tim W. Clark  
Denise Casey  
Franz J. Camenzind  
Jackson

William J. Barmore, Jr.  
Moose

The Jackson Hole Cooperative Elk Studies Group prepared and presented to them a detailed statement outlining critical private lands and their importance and effects on wildlife in the valley.

On December 10 in Denver, the Team presented its preliminary findings to representatives of the Secretary's Office. The FWS was encouraged that the preliminary work had identified the Wilson property south of Kelly as an "area of concern." They ranked the area very high in priority of acquisition - as high or higher than any area in the study. A Final Case Study Report will be completed by mid April 1982.

#### Alternative Approaches to Land Protection Workshops and Hearings

On July 9-10 in Washington, D.C., the Senate Committee on Energy and Natural Resources, Subcommittee on Public Lands and Reserved Water, chaired by Wyoming Senator Malcomb Wallop, held a "Workshop on Public Land Acquisition and Alternatives." The participants looked at a number of acquisitions or land preservation "tools" including the use of easements, tax credits, land exchanges, public-private partnerships, etc.

As a result of this workshop, and at the request of area residents and ranchers, Senator Wallop scheduled a field hearing in Jackson on August 28. The same Subcommittee chaired by Mr. Wallop held the joint hearing with the Senate Committee on Finance, Subcommittee on Energy and Agricultural Taxation. The primary objective of the hearing was "to consider alternative approaches to land protection in Jackson Hole."

The local federal land managers were requested to testify on "the current status of land acquisition and protection in their areas and contiguous to the federal areas and a status report of current cooperative and individual plans for the areas." A copy of Project Leader Wilbrecht's Statement is included herein.

A report from Senator Wallop's office regarding the hearing summarized it as follows:

Local residents explored a number of ways in which the scenic agricultural lands in Jackson Hole could be preserved, including scenic easements, new tax incentives and land exchanges. The proposals would keep the ranchlands in private ownership and give the owners the tools to protect them from development. "I want to take the ideas we generated both in Washington and in Jackson to see what can be done to protect areas like Jackson Hole, instead of having the government come in and buy these areas up," he said. "The government doesn't need to own the land to protect it and, frankly, we can't afford it anymore."

Of interest in the many land acquisition scenarios being played in the valley was the formation of the Jackson Hole Land Trust in October 1980. It was established "to help landowners wishing to maintain the scenic, wildlife and agricultural resources of their land to find private alternatives to development." They reported that "by year's end they had helped landowners set aside nearly 300 acres at a direct cost of \$12.75 per acre."

## 2. Fee Title

### Teton Wildlife Ranch

Frank Calkins (Tract 128) - Calkins became concerned in March when information about Secretary Watt's offer of federal lands to the states became known. He contacted the WGF District Office and our Central Office Realty to receive assurances his life-use agreement would be honored if the state took over the Refuge.

Geier (Tract 131) and DeLeva (Tract 130) - In mid February, Mr. Phillip Geier of Braternahl, Ohio contacted our Regional Realty Office informing FWS that he had a contract with Jackson Hole Realty to sell his 5 acre lot along with an offer of \$200,000 from a prospective buyer from Aspen, Colorado. We learned in early March that the buyer backed out as he may have been concerned about the fact that FWS considers the property an in-holding with objective of acquisition. The realtor also indicated Mr. Geier "was really not interested in selling," but didn't indicate if they would build. At the end of March and later the property was again offered for sale via newspaper ads.

No action was noted on the DeLeva tract.

### Teton Valley Highlands

Only the Dickey tract (147) had any activity this year as FWS-Regional Realty notified Mr. Dickey in January that we had failed to receive approval to purchase his 10 acre lot and our Agreement with him expired on December 1, 1980. On August 10, we noted a realty ad in the local paper offering the lot for \$371,000. On September 10 the ad offer was \$350,000 and we found out on September 11 the lot had been sold. We have no information on the new owner or the price paid.

We continue to participate in the road maintenance costs on this unit. Costs to date are: (FY '81=\$779); (FY '80=\$760); (FY '79=\$1,657).

## 3. Easements

Hugh Soest - Twin Creek Ranch (Tract 125): The FWS was unsuccessful in 1980 in obtaining the necessary dollars to acquire "conservation easements" on 40 acres offered by Mr. Soest and 5 acres of Up-With-People (donated to them by Soest) of the Twin Creek Ranch. To date, FWS has 42.89 acres of the ranch in easement.

Up-With-People listed their 5 acres with local realtors for \$200,000 beginning January 29, 1981. The FWS offered \$81,000 and U-W-P accepted only to be told the Secretary had cut off all land acquisition funds!

In April, Regional Realty was contacted by Mr. Soest proposing a land exchange for easements on Twin Creek. Realty has been working on various refuge tracts in Wyoming and Montana and with the BLM in identifying tracts suitable for exchange.

Statement of John Wilbrecht  
Project Leader  
Jackson Fish and Wildlife Service Project  
(National Elk Refuge - Jackson National Fish Hatchery)

before

Field Hearing of the Senate Public Lands  
and Reserved Water Subcommittee  
Jackson, Wyoming  
August 28, 1981

Early History and Establishment

In order to clarify the purpose of the National Elk Refuge, I wish to begin by briefly reviewing some of the early events leading up to its establishment. In 1884, the first settlers moved into Jackson Hole Valley and by 1909 ranchers and homesteaders had settled on large portions of the elks' ancestral winter range. The greater parts of the lands in the valley were either used for crops or hay or grazed by livestock in summer months. This left insufficient forage for elk to winter on. Estimates of elk numbers wintering in Jackson Hole between 1887 and 1911 range from 15,000 to 30,000 animals. Inevitable conflicts between elk and ranchers developed and although the elk received some assistance from generous ranchers it was on too small a scale to be effective. The only recourse left to the elk was to raid haystacks or die and as it turned out they did a tremendous amount of both.

The severe winter of 1909 brought the elk situation to national attention as an estimated 20,000 to 30,000 descended into Jackson Hole. The plight of these animals was extreme and ranchers' hay supplies were threatened with complete destruction. The local citizens appealed for help and in 1910 the Wyoming Legislature appropriated \$5,000 to purchase feed for elk. The supply was inadequate and many hundreds of elk died that winter.

Through the interest of the citizens of Jackson Hole, appeals for assistance were disseminated throughout the United States. In answer to these appeals, the Wyoming Legislature on February 17, 1911, passed a Memorial requesting the U.S. Congress to cooperate with the State by making an adequate appropriation for "feeding, protecting and otherwise preserving the big game which winters in great numbers within the State of Wyoming."

Congress responded on March 4, 1911, by appropriating \$20,000 "to be made available immediately for feeding and protecting the elk in Jackson Hole and vicinity, and for removing some of them to stock other localities."

U.S. Biological Survey biologists, working with the local Wyoming game warden, investigated the elk problem and recommended that a refuge be established near the town of Jackson.



The National Elk Refuge was created by an Act of Congress on August 10, 1912, which appropriated \$45,000 for the purchase of lands and maintenance of a winter elk refuge. On March 4, 1913, Congress appropriated an additional \$5,000 for the purchase of private lands and granted authority for inclusion in the Refuge of public domain lands.

### Early Land Acquisition

Negotiations began at once with private landowners. A series of Presidential Executive Orders in 1914-16 reserved 1,750 acres of purchased lands and 1,000 acres of Public Domain lands for the Refuge. Thus, by 1916, the Refuge encompassed 2,750 acres.

Depredation problems continued to plague local ranchers as insufficient hay was raised on these limited Refuge lands and elk could not be prevented from eating their haystacks.

National attention was again focused on the plight of the elk. In Chicago in 1922, the Izaak Walton League of America was founded and the first major project on a national scale was the solicitation of funds from the people of the United States to purchase land as winter range for the elk of Jackson Hole. A total of \$36,500 was raised for this purpose and in 1927 the League donated the purchased lands, 1760 acres, to the Government for an addition to the National Elk Refuge.

By 1927, the Refuge was 4,510 acres in size, still insufficient lands upon which to manage the elk herd and to provide food to prevent starvation and depredations on private lands.

On June 15, 1935, the U.S. Congress passed an Act called the "Six Million Dollar Fund" which designated these monies be used to purchase wildlife lands throughout the United States. As a result of considerable public support given to the expansion of the National Elk Refuge winter range, approximately 16,000 acres of private lands were acquired.

Presidential Executive Orders in 1935 and 1936 added an additional 3,222 acres of Public Domain lands. Recent land acquisitions (1972-1979) have added 460 acres in fee and 45 acres in conservation easements. Thus to date, the total lands within the refuge is 24,289.47 acres. This represents about 25 percent of historic elk winter range within Jackson Hole.

### Current Acquisition Efforts

The significance and biological value of the National Elk Refuge is disproportionate to its size. The refuge provides critical winter habitat for up to 10,000 elk, approximately 60 percent of the Teton-South Yellowstone herd.

By the late 1930's, with a few exceptions, most of the major tracts of land lying within the established boundary had been acquired for elk winter range.



From that time to the present, land acquisition has been opportunistic as remaining tracts became available and priorities reestablished. As desirable tracts became available, acquisition was not always possible due to changes in acquisition priorities nationally, limited funding, and speculative purchases.

The refuge is tightly contained within definitive boundaries; i.e., a U.S. Highway, a river, the City of Jackson, and adjacent National Park Service and Forest Service lands. It is 98 percent completed, but the unacquired 2 percent is in 2 blocks that pose definite and different long term problems.

The Fish and Wildlife Service has identified approximately 1,110 acres of private lands remaining within the approved boundary of the refuge. There are about 700 acres on the north end of the refuge and about 410 acres on the southeast corner. A high priority has been put on the acquisition of several of these tracts.

On the north end, acquisition is intended to protect the integrity of the historic elk migration routes to and from summer and winter range. Here, one tract of 354 acres has been identified as being extremely vulnerable to subdivision development. The activity of people associated with adjacent development has a negative effect on the elk and their use of adjacent refuge winter range far beyond the few acres inhabited by houses. The U.S. Fish and Wildlife Service has been working very closely with the landowner in negotiating a purchase. The landowner is a willing seller and had negotiated a purchase agreement with the Service. This agreement expired December 31, 1980, because the Fish and Wildlife Service did not receive acquisition funds. The owner has continued to express an interest in selling this land for the National Elk Refuge. However, if funds for purchase or other preservation techniques are unavailable this land will most certainly be developed.

On the southeast corner of the refuge, three tracts totaling 390 acres have been identified as priority for acquisition because of desirable location, level contour, good soils, excellent availability of water, protection afforded by adjacent hills and their tremendous potential for producing elk winter forage. The acquisition of this property would increase the amount of winter range available to elk and subsequently reduce the dependence on supplemental feeding and its costs. In most winters, supplemental feeding the elk is required because of the limited winter range. For example, on the average, we are required to feed about 8,000 elk for a period of 75 days at a cost of nearly \$250,000. In this area are 2 small, 5-acre privately-owned, undeveloped lots and the other is a 380-acre ranch. These lands lie immediately within and adjacent to the heart of the most desirable elk winter range on the Refuge. In an effort to preserve this last remaining elk winter range and protect it from development, the Fish and Wildlife Service and the owner of the ranch have used "conservation easements" protecting 45 acres of the 380-acre ranch. In addition, within the last year an option for 40 acres of "conservation easements" was negotiated with the owner, but funds were not available to complete it. Presently, the Fish and Wildlife Service is working with the owner exploring land exchange possibilities.

### Summary

In summary, the preservation of elk winter habitat for the Refuge has included a variety of acquisition methods.

These methods are public land withdrawal, fee purchase, donation, land exchange, conservation easements, and fee purchase with life use.

There has always been strong local and national support for the preservation of the nationally and internationally unique and famous Jackson Hole elk herd. This effort would be futile without the continued patience and cooperativeness of the private landowners effected.

The Fish and Wildlife Service will continue to explore the use of accepted and innovative techniques for the preservation of the remaining critical elk winter range. I would be pleased to answer any questions this committee may have.

110° 44'

R 116 W R 115 W

110° 40'



UNACQUIRED TRACTS AS OF AUGUST, 1981



EASEMENT LAND

T  
43  
N

T  
43  
N

43° 38'

43° 38'

T  
42  
N

T  
42  
N

43° 34'

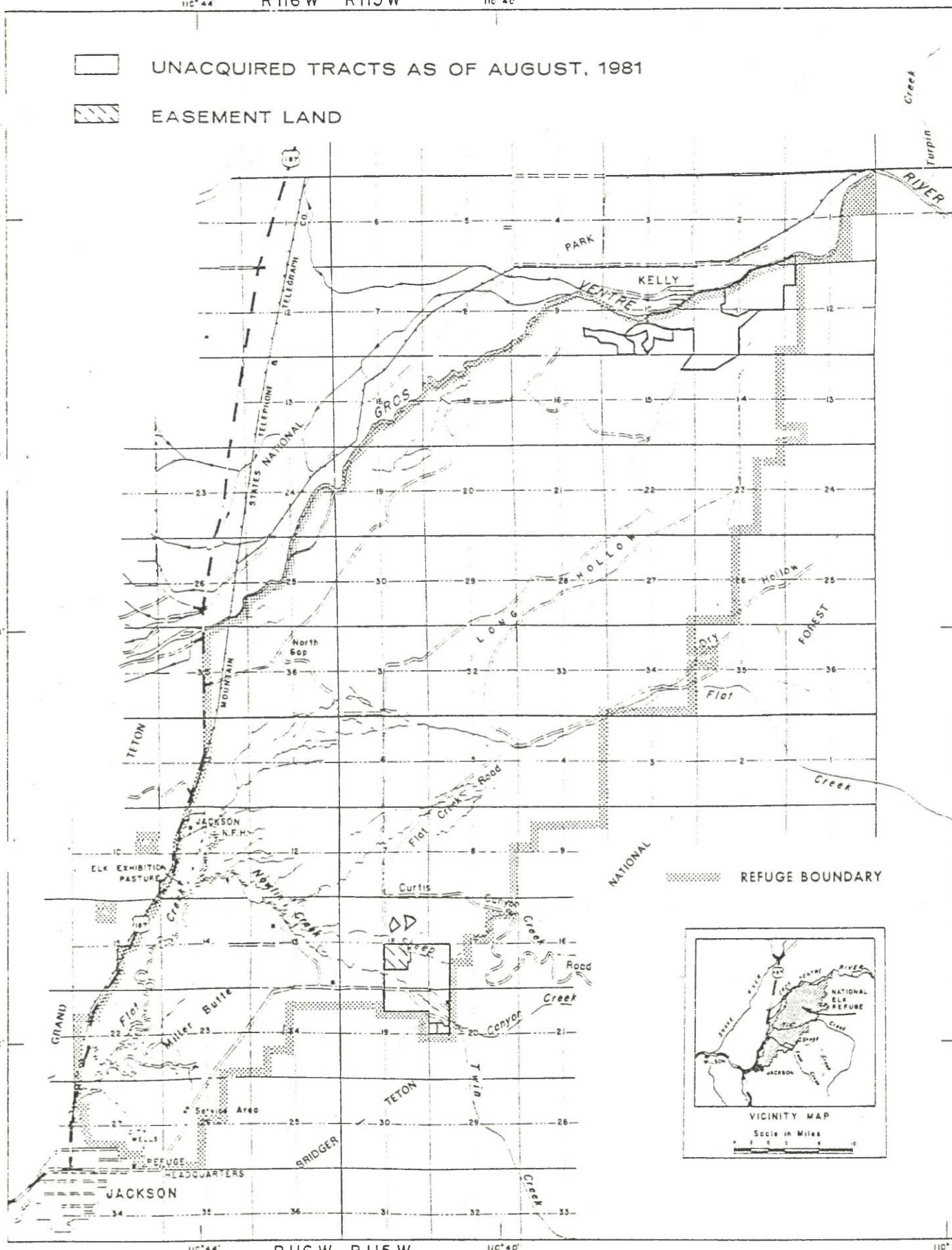
43° 34'

T  
41  
N

T  
41  
N

43° 30'

43° 30'



COMPILED IN SURVEYS AND MAPS FROM  
SURVEYS BY BLM, USFS AND FWS

DENVER, COLORADO  
REVISED, AUGUST, 1981

OCTOBER, 1978

SIXTH PRINCIPAL MERIDIAN



MEAN  
DECLINATION  
1975

6R WYO 74 406

On August 17, Mr. Soest took the first steps toward subdividing 163 acres by submitting a plan to the Teton County Planning Commission. The plan called for 33 lots. Mr. Soest indicated he regrettably was forced to do this as the government had no funds to buy the development rights.

As of the end of the year, the FWS is working feverously to consummate some land exchanges to stave off this threat of development. Contacts have also been made with Up-With-People to include their 5 acre tract in the negotiations.

Teton Valley Ranch (Tract 122B - 354.09 acres) - With the expiration of the purchase option on December 31, 1980, the FWS notified Phil Wilson that plans to purchase were no longer viable due to lack of acquisition funds and the freeze put on federal land purchases using LWC Funds by Secretary Watt February 18. In response, on June 12, Attorney Stan Hathaway, representing the Wilsons, wrote to Secretary Watt suggesting three alternatives to acquisition:

- "(1) Implement the agreement to purchase entered into the 21st day of December, 1979.
- (2) Exchange the portion of Teton Valley Ranch desired by the Fish and Wildlife Service for lands owned by the Fish and Wildlife Service adjacent to the Town of Jackson.
- (3) The Interior Department declare that it has no objection to the development of the subject area by the owners thereof under existing laws and regulations appertaining thereto.  
(In other words, get off the backs of property owners)."

Assistant Secretary Arnett responded on July 7 indicating the FWS would be willing to explore exchange opportunities for "other lands throughout the U.S." and the FWS realizes that "Mr. Wilson is free to do as he pleases with his property." Mr. Arnett also stated:

"However, as stewards of the Nation's fish and wildlife resources, the Service has an obligation to make known its views and maintains the right to participate in the Jackson area planning process and oppose development when it would be detrimental to the elk herd."

In addition, on December 8, 1981, Secretary Watt wrote to Mr. Hathaway stating that (1) purchase at this time was "out of the question; (2) exchange of Refuge lands near Jackson would result in an intrusion into already existing "winter pasture" and; (3) the Secretary would not "withdraw our objections to development. . . unless there is no other alternative."

Secretary Watt suggested the option of "exchange of BLM lands elsewhere." Mr. Watt also stated that "I would like a chance, for only so long as the Wilsons deem it productive, to try to locate exchangeable BLM property the Wilsons will accept. I can promise immediate attention if the Wilsons are willing. If they are not, it is time to end the uncertainty and make a decision on Departmental policy regarding development of the property."



As previously reported (1980-NR) the Jackson Hole Alliance for Responsible Planning on May 20, 1980, sued the Teton County Commissioners for approving Wilson's 11 acre "commercial area" in violation of the County's Comprehensive Plan. On May 23, 1981, District Judge Nicholas gave a preliminary ruling in favor of the Alliance's position and that if Wilson decides to pursue the "commercial area" the County would have to hold another public hearing. The County would then be required to submit adequate hearing records and documentation from which the Judge would then make a final decision. Wilson requested a rehearing on December 22, but this was later cancelled.

4. Other

Nothing to report.

## D. PLANNING

### 1. Master Plan

Nothing to report.

### 2. Management Plan

The Refuge Management Plan is guided by the general planning contained in the Master Plan. This plan will be written in conjunction with the Master Plan, work on which is scheduled for FY 1982. Some preliminary work on an update of the Refuge Hunt Plan occurred in 1981.

### 3. Public Participation

Nothing to report.

### 4. Compliance with Environmental Mandates

Nothing to report.

### 5. Research and Investigation

National Elk Refuge NR 81 - "The Chemistry of Weathering of a Pliocene Volcanic Ash: Field and Laboratory Studies." (WMS 78-1).

The field work for this study was completed in late 1980 by the principle investigator Ronald C. Antweiler of the University of Wyoming. The final report was received in 1981. "The weathering of a volcanic ash was studied in the field and in the laboratory to determine the major constraints on the chemistry of the system. The field study demonstrates that weathering is controlled by soluble organic compounds derived from the vegetation. The organic compounds lower the pH, increase the rate of dissolution, and complex and mobilize normally immobile elements such as aluminum and iron. The major cations ( $\text{Ca}^{++}$ ,  $\text{Mg}^{++}$ ,  $\text{Na}^{+}$ , and  $\text{K}^{+}$ ) duplicate the trends of the dissolved organic carbon with increasing time from the spring season. The majority of the organic material is humic acid, a general term for long chain, complex organic acids occurring in the soil as products of vegetation. Various simple organic acids such as oxalic were also present.

In the laboratory study, where organic species were absent, the chemistry of the water appeared to be controlled by the precipitation of secondary products and not by diffusion of species through a weathering rind or by the rate of release of species into the water. Dissolution of the ash occurs mainly at sites of weakness; these areas become cracks or pits filled with secondary particles."

National Elk Refuge NR 81 - "Population Study of Canada Geese of Jackson Hole." (WMS 78-2).

This study, which began in 1978, has suffered from lack of continuity. Two or three different researchers have participated in the study which was scheduled for completion in 1981. No known work occurred on this study in 1981, however, and the present status is questionable.

National Elk Refuge NR 81 - "An Ecological Inventory of Vertebrates of the National Elk Refuge." (WMS 79-2).

Field work on this project was completed in late 1979. The final report was to be available in September 1980, but to date has not been received. Principle investigator is Tim Clark of Idaho State University, Pocatello.

National Elk Refuge NR 81 - "Biostratigraphic and Biogeographic Implications of Miocene Mammals from Jackson Hole, Wyoming." (WMS 79-4)

Principle investigators are Anthony and Cathy Barmosky of the University of Washington. Field work during 1981 dealt with geology and mammalian paleontology of Neogene strata in Jackson Hole. This year's work suggests that "The Colter Formation is in part fault repeated, with a true stratigraphic thickness of about 1,500 meters. The formation is partially duplicated by two faults, which cut it along east Pilgrim Creek and Two Ocean Lake. In both cases the eastern block is downthrown. This knowledge will allow fossils from the the Colter Formation to be placed in the proper stratigraphic sequence."

National Elk Refuge NR 80 - "Quality and Quantity of Elk Winter Range and the Minimal Wintering Requirements of Elk on the National Elk Refuge."

This continuing research was conducted by Denver Wildlife Research Center Biologist Robbins until he transferred. Biological Technician Heisler continued with the field data collection through years end. As a result of an open winter, no elk were trapped in 1981 and subsequently no feeding trials conducted. Eighteen mature bull elk and four cows were anesthetized and fitted with transmitter collars in spring. These animals and 24 cows that had been collared in previous years were radio "tracked" to calving and summering areas in Grand Teton National Park, Yellowstone National Park, Teton Wilderness and Bridger-Teton National Forest. Locations of these elk were monitored throughout the summer and fall and during their return to the Refuge in November and December. These telemetry data are used to: (1) identify any overlap of summer ranges of elk, bison and domestic livestock (the brucellosis problem); (2) help evaluate our ration levels of supplemental feed (when fed) by monitoring adult cow/calf survival; (3) identify for management purposes major elk calving areas; and (4) identify migration routes and patterns to aid in elk season design to accomplish herd reduction.

## E. ADMINISTRATION

### 1. Personnel

Betty Parrish filled an Administrative Officer slot that was created with the complexing of the National Elk Refuge and Jackson National Fish Hatchery. Betty transferred from the U.S. Postal Service in Sheridan, Wyoming and her EOD date was January 10, 1981.

Biological Technician David Trudeau transferred to NER from Brown's Park NWR on February 22, 1981. Dave's bio-tech position replaced Jim Flowers' wage supervisor position. Jim retired from the Fish and Wildlife Service after 23 years at the National Elk Refuge.

Marjean Heisler was hired as a Biological Technician to continue with ongoing studies that were left vacant when Denver Wildlife Research Center Biologist Buzz Robbins transferred to the Arctic NWR. Buzz had spent thirteen years at NER, first as a Refuge Management Biologist then as Project Leader with the DWRC. Buzz's transfer date was October 18, 1981. Marjean's EOD was October 13, 1981.

We lost one more in 1981. Karla Engwicht, Clerk-typist, transferred to the Northwest Montana Fishery Center December 12, 1981.

The following table shows a six year comparison of Refuge work force strength.

Calender Year	Permanent		
	Full-time	Part-time	Temporary
CY 81	6	3 <sup>(1)</sup>	10 <sup>(2)</sup>
CY 80	7	1 <sup>(1)</sup>	8 <sup>(3)</sup>
CY 79	8	0	15
CY 78	7	0	10
CY 77	7	0	7
CY 76	7	0	5

(1) Career-Seasonal

(2) 2-Student volunteers; 3-YACC enrollees; 3-Bio-aids (irrigators);  
2-Bio-tech (1 interpretive & 1 elk studies)

(3) 1-Coop education student; 1-Student volunteer; 3-YACC  
enrollees; 3-Bio-aid (irrigators)

### 2. Youth Programs

The Refuge did not sponsor a resident or a non-resident YCC camp in 1980. Grand Teton National Park YCC enrollees assisted with an ongoing stream bank rehabilitation project.

Three YACC enrollees were employed during part of 1981. Lora Gregory started as an employee in 1980 and terminated on February 27, 1981. During 1981, her primary duties involved interpretation and visitor services. Ron Jacobson was employed from May 14, 1981 until July 17, 1981 and performed maintenance and irrigation duties. Maria Offer EOD on September 18, 1981. She has been involved in a multiplicity of jobs from maintenance to interpretation.



### 3. Other Manpower Programs

Nothing to report.

### 4. Volunteer Programs

The Refuge employed two student volunteers from Colorado State University between June 4, 1981 and July 18, 1981, at which time they were converted to 30 day special need appointments. Holly Gill terminated on August 5, 1981 and Correy Stapleton terminated on August 18, 1981. These students were pursuing degrees in wildlife and were exposed to a wide variety of Refuge operations, from biological to maintenance. They were advised prior to employment that the bulk of their time would be spent doing maintenance and irrigation type duties. In their end of employment critique, they indicated that they thought they had spent too much time on irrigation and not enough on biological duties. It seems that regardless of what you say, wildlife students expect Refuge work to be mostly biological in nature and are disappointed when they come face to face with the real work. Not too much different from what we as professionals feel.

### 5. Funding

No supplemental feed purchases were required in 1981 (FY '81 funding) due to no feeding in the winter 1980-1981. Boy Scout feed fund dollars of \$2,620.41 will be held by them until the next feed order.

The Area Office submitted a request in the FY 82 budget for \$63,000 to be added to the Refuge O&M base for supplemental elk feed purchases. The request was successful and the amount was added to our base FY 82. See Table 2 for last 8-year funding status.

### 6. Safety

There was only one reportable accident in 1981. On July 10, 1981, student volunteer Correy Stapleton drove a Dodge D300 crew cab S/L pickup into a wooden fence at the entrance to the Refuge while cutting a corner to short. Damage was to a rear fiberglass fender.

A close call occurred when Vernon Burnside, our 73 year "young" irrigator, stepped into a badger hole. Vernon ended up on the ground but there were no broken bones or sprained ankles.

Rollover protective structures were installed on both TD-20 crawler tractors and headache racks installed on pickup trucks needing them. At year's end, there had been 400 consecutive days since the last lost time accident.

### 7. Technical Assistance

In February 1981, local Explorer Scout leaders and Refuge personnel met to discuss the sponsorship of a "Natural Resources" post. A joint resource agency sponsorship was recommended whereby the explorers would

TABLE 2

## NATIONAL ELK REFUGE FUNDING

1 2 1 0		1 2 2 0							1 2 4 0				6/	OVERALL
FY	O&M	O&M	Cycl Maint	Renov Rehab	Elk Feed		Boy 1/ Scouts	Total 2/					BLHP	TOTAL
1975	0	138.8	0	0	32.2	(32.2	0 )	= 171.0	2.5	0	=	2.5	0	173.5
1976	1.0	136.7	0	0	85.0	(85.0	0 )	= 221.7	2.0	0	=	2.0	0	224.7
1977	1.0	198.0	0	0	10.0	(10.0	0 )	= 208.0	22.0	0	=	22.0	73.5	304.5
1978	1.0	164.5	6.0	0	79.2	(79.2	0 )	= 249.7	25.0	8.0	=	33.0	0	283.7
1979	0	186.1	9.0	0	55.9	(55.9	31.4 )	= 251.0	23.0	10.0	=	33.0	62.4	346.4
1980	4.7 <sup>3/</sup>	194.7	18.0	0	41.3	(41.3	34.5 )	= 254.0	26.0	12.0	=	38.0	45.6	342.3
1981	0	236.8	10.0	10.0	17.2	(17.2	2.6 <sup>4/</sup> )	= 274.0	23.0	12.0	=	35.0	0	309.0
1982 (Target)	5.0	211.0	25.0	0	100.0	( 0	? )	= 336.0 <sup>5/</sup>	39.0	15.0	=	54.0	0	395.0

1/ Wy G&F Dept share of elk feed money (50 %) plus value of donation of elk feed from Boy Scouts antler sales.

2/ Total does not include money for elk feed rec'd from WG&F and the Boy Scouts donation.

3/ 1210 (FY 80) Rec'd for Hdqtrs roof replacement from RO/AO end-of-year funds.

4/ Receipts from May '81 antler auction. Is being held in Boy Scouts "feed fund." (\$2,620.41)

5/ Includes \$63,000 Congressional "add-on" into O&M base for elk feed.

6/ BLHP funds spent as follows:

FY 77: Cache Creek pipeline contract . . . . . \$73,500

FY 78: Cache Creek pipeline contract-overrun . . 20,650  
I&R Prospectus for Visitor Center plans . 28,750  
Rollover protective structure (hvy equip) 5,674  
Fuel tank, gasoline (shop). . . . . 1,687  
Main shop rehab (septic system-partial) . 1,465  
Miscellaneous force account work. . . . . 115  
Forage study (Biol tech salary) . . . . . 4,046

FY 80: Forage study (Biol tech salary) . . . . . 8,687  
Range renovation. . . . . 4,687  
Water cont structure replacemt (Longfellow) 802  
Equipment (disc, harrow, weights, etc.) . 4,034  
Maint shop rehab (elect, doors, etc.) . . 27,376

be involved with a variety of activities/projects on the Refuge and other agencies including the Forest Service, Park Service and Wyoming Game and Fish Department. Three of the agencies agreed to sponsor a joint "Natural Resources" post and drafted lists of suggested involvement type activities for the explorers. Scout leaders were not able to interest enough youths in the program at that time and the post did not become a reality in 1981.

#### 8. Other Items

##### Revenue Sharing

On January 29, 1981, the Refuge presented the County Commissioners with a revenue sharing check of \$277,022. This represented the FY 80 revenue sharing payment. It was a 100% payment in that Congress made up the shortfall of revenue sharing funds with an appropriation. This contrasts with the FY 79 payment which was \$64,846 below the County's entitlement.

##### K.S.G.T. Radio Site

On February 7, 1972, the FWS purchased an 80 acres tract along the west boundary of the Refuge, just off Highway 187. With the acquisition, we acquired a 200 foot diameter lease-hold containing the transmitting facilities for the local AM broadcast station KSGT. The facilities to date have included little more than a small cement block building housing a transmitter and a 125 foot radio antenna mounted on a concrete pedestal, with attendant guy wires.

The easement was originally taken out on July 5, 1961 from the original owner of the tract (Dopyera). On May 1, 1970 an agreement was entered to extend the terms and conditions of the lease to JGJ Corporation, the successor to Alfred Shumite, the original lessee, for a term of 10 years ending May 1, 1982 and, in addition, granted the lessee the option to renew for an additional 10 years or until 1992.

Sometime in 1975, Mr. Robert Campbell acquired the station and the Refuge problems began. In October 1976, Mr. Campbell indicated he wished to upgrade the present facilities to include construction of a commercial broadcasting studio with attendant parking lot, lights and an all weather road from the main highway (about 200<sup>+</sup> yards). The present KSGT studio is located in Jackson, several miles south and is remotd to the transmitting site.

Throughout 1977, an exchange of correspondence indicated that both parties interpreted the lease language, that the lease of the premises was "for the purpose of constructing and maintaining transmitting facilities for a standard broadcast station...", very differently. Essentially the owners claimed it permitted them to construct and operate a "commercial broadcast studio" at the site and the FWS claimed the language permitted only the "present transmitting facilities - not a studio."



In order to solidify his position, Mr. Campbell had the station declared an Emergency Broadcast Station on May 17, 1978 with a "Radio Facilities Emergency Power Agreement" with the Civil Defense Federal Emergency Management Agency. In October 1978, KSGT constructed a "lean-to" structure on their building to house a diesel emergency generator. Through late 1978 and 1979 disagreement continued with threats of construction and discussions regarding the need for an interpretation of the lease language through a "Declaratory Judgement."

In July 1980, KSGT moved a house trailer onto the site for a workshop and Campbell indicated he planned to begin construction before fall (1980). On October 17, 1980, the U.S. Attorney filed a "Petition for Declaratory Judgement and Application for a Preliminary and Permanent Injunction" in District Court of Wyoming. On November 12, 1980, KSGT filed an "Answer and Counterclaim." Within it the Refuge staff was accused of harrassing and interfering with KSGT employees and denying through access. In January 1981, the U.S. Attorney filed a Motion to Dismiss.

During early 1981, the Refuge attempted to work with KSGT to solve access problems caused by high water, a deteriorating cement block building and their suggestion to put up a 450 foot tower. It was also during these contacts that frequent requests and suggestions were made of us from the owner to "buy out his lease" or "relocate him to another spot on Refuge" or "buy him some property south of town where he could relocate."

On July 28, 1981, Project Leader Wilbrecht and Assistant Attorney Lee Pico appeared in Cheyenne District Court with KSGT owner Bob Campbell and his attorney Tim Bommer of Jackson. In court, KSGT changed its tack and indicated they no longer sought a commercial studio, only an Emergency Broadcast Studio under the FEMA plans. Plus the all weather road and trailers to house their transmitting equipment and a workshop.

The Assistant U.S. Attorney did a poor job of presenting our case and neglected to insure that the FWS concerns about the real issue of the case be kept before the judge. In any event, the issue was changed by KSGT when they concentrated on the importance of the Emergency Broadcasting designation as a result of their Agreement with FEMA.

In early August 1981, before the District Court judgement was issued, KSGT filed a "Stipulation" indicating they wished to settle out of court. Before the U.S. Attorney was able to get our reaction to the stipulation back to KSGT, District Judge Ewing T. Kerr issued his judgement, September 8, 1981.

Essentially, Judge Kerr agreed with KSGT that they needed the improvements they requested because they "were required as a result of the contract (KSGT) entered into with FEMA." We had no real problem with it in that at least it did not permit KSGT the commercial studio and under stipulations of the original lease language we, in reality, could not control the number or type of buildup KSGT could put on their lease hold. The essence of our request was to clarify what "use" the site was for.



On November 3, 1981, KSGT filed a Notice of Renewal (to May 1, 1992). After the judgement, we continued to work with KSGT on trying to mitigate the impact of their contemplated "improvements." Campbell still wanted us to trade land or buy him out. On November 18, 1981, a meeting was held at Refuge Headquarters with Mr. Campbell, his engineer, Mr. Bill McManus, Lloyd Watts of FEMA (Civil Defense-Federal), Rich Johnson, AO Realtor, Rich Aldridge, Billings Solicitor's office, Jim Griffin and John Wilbrecht-NER. An interesting problem had surfaced for Mr. Campbell. It seems that with only 10 years remaining on the lease, with extension, the FEMA would not invest federal dollars for an Emergency Station - they wanted at least 20 years! Again land exchange, purchase, moving the site on the Refuge and lease extension were discussed. Mr. Campbell indicated that if the FWS didn't extend his lease, he "would pull out all the plugs..." and take his case to "Jim" (Secretary Watt) in Washington. On November 25, 1981, Area Manager Steucke told the Regional Director that we intended to honor the 10 year lease extension "and at the end of 10 years, to turn Mr. Campbell out. If Mr. Campbell chooses to use whatever associations he has to try and overturn this decision - so be it. If he succeeds - so be it!"

#### Jackson FWS Project - Status Report

On October 4, 1980, the Jackson FWS Project, consisting of the National Elk Refuge/Jackson National Fish Hatchery, became operational. The objectives were to accomplish:

- a) sharing administrative and clerical duties (the hatchery did not have a clerk)
- b) sharing of personnel for operations and maintenance
- c) sharing of equipment
- d) energy and space economies by being under one roof (if the combined Visitor Center/Administrative building ever gets constructed).
- e) single Fish and Wildlife Service presence in Jackson Hole.
- f) modest salary savings

A comprehensive review of the Project operation occurred December 16-17, 1981. Participants were Area Manager Wally Steucke; Jack Larmoyeux, AO-Fisheries; Bob Ballou, AO-RW; Marv Plenert, RO-RW; Danny Regan, RO-HFR; Bernie Shrable, Jackson Hatchery and John Wilbrecht, Project Leader.

In general, it was recognized that there were benefits occurring through sharing of some manpower (Administrative Officer and Mechanic, for example) and some equipment. There needed to be a "more positive outlook" regarding the acceptance of this type of operation ("complexing") on the part of some employees as there seemed a reluctance to "let go" of certain, former responsibilities. In regard to manpower efficiencies, the review revealed that it was difficult to effect greater efficiencies



A.M. radio transmitting site for local station KSGT. Their transmitter building is collapsing, the tower base is tipping and they moved a house trailer onto their 200 foot diameter lease site as a repair shop. (Roll 192-13, 4-28-81, JEW).



Early winter elk use near and on the KSGT lease site. (35 mm slide file, 12-24-80, JMG).

when the Hatchery staff was already operating one person short. Exchanges of manpower between the Hatchery/Refuge just to accommodate extensive cross-program training exposures was a luxury the Project could not afford at a time when the entire manpower situation was limited. The Area Office staff concluded that the Project had not been operating a sufficient length of time to evaluate fairly and completely and recommended some actions be taken to speed-up the integration of the two stations.

These actions to be taken included directions that the Hatchery Manager would move his administrative office to the Headquarters while maintaining only an operational office at the Hatchery. The Hatchery files would also be moved to the Administrative Officer's office at Headquarters and the Administrative Officer was to now begin to handle all the administrative matters for the Project. The Project Leader was directed to exert a more aggressive supervisory interest in combining the Stations into the Project and to become more involved in the fishery operation. The Area Manager indicated he would visit the Project again in June 1982 "to determine the effectiveness of these measures.... in aiding the complex to function as a single unit."

The County assumed a R-O-W easement and maintenance of the main Refuge Road (22-40) in April 1980. Under that agreement the County was allowed to extract and use pit run gravel from the Refuge to upgrade this road. During the last two weeks in June, the County hauled 2,724 cubic yards of pit run material from the Nowlin Creek Pit (located approximately 200 yards northwest of shed #2). After this material was worked onto the road, crushed gravel (5,750 cubic yards) was hauled in from elsewhere for the road surface. The project was completed during the last week of September 1981.

Project Leader Wilbrecht is serving on a variety of boards and committees. John is on the Board of Directors at the Teton Science School and is a member of the Wildlife Committee of the Jackson Hole Alliance for Responsible Planning. John is also a member of the local Rotary Club.

Outdoor Recreation Planner Jim Griffin is a member of the Teton County Peace Officers Association. This organization promotes interagency cooperation and understanding with city, county, state and other federal law enforcement agencies.

Engineering equipment mechanic Pape is a member of the Teton County Volunteer Fire Department.

## Training

The various training courses attended by Refuge personnel are listed below:

<u>Employee</u>	<u>Class Hours</u>	<u>Date</u>	<u>Training</u>
Engwicht Gregory Griffin Jones Pape Parrish Robbins Rowley Russell Ryan Wilbrecht	8	02/09/81	Defensive Driving (Wyoming Highway Patrol, Jackson, WY)
Griffin Pape Russell Ryan	40	06/09-13/81	Law Enforcement Refresher Training (Grand Teton National Park, Moose, WY)
Pape Russell Ryan	4	06/12/81	CPR Training (Grand Teton National Park, Moose, WY)
Griffin Pape Russell Ryan Wilbrecht	2	07/29/81	Firearms Qualification (Grand Teton National Park, Moose, WY)
Trudeau	40	08/24-28/81	FWS In-service Law Enforcement (USFWS, Glynco, GA)





We gave the County a R-O-W Agreement which included maintenance of the Refuge road. Formerly we handled all maintenance including snow removal at an annual cost approaching \$8,000. The County widened the road to standard. (35 mm slide file, 6-9-81, JEW).



As part of the agreement with the County, we provided pit run gravel for their use on the Refuge road improvement project. The contractor removed 2,724 cu. yards for base preparation. In addition, the County spread 5,750 cu. yards of crushed gravel for a finish coat on about 4.25 miles of road. (Roll 193-246, 6-19-81, JMG).

## F. HABITAT MANAGEMENT\*

### 1. General

Major habitat types are shown on Table 3 and discussed individually under following sub-sections. The Refuge is divided into ten management areas (Figure a), seven of which are further divided into management units based upon established fields or share site characteristics.

Table 3. Major Habitat Types, National Elk Refuge, 1981.

Habitat	No. Acres
Wetlands	777
Marsh	(410)
Open Water	(40)
Rivers and Streams	(327)
Grasslands (includes browse species associations)	22,459
Forest	350

### 2. Wetlands

Water diversion or take-out structures are present on Flat Creek and the Gros Ventre River for irrigation purposes. Also, minimal manipulation of several impoundments occurs for the same purpose. Refuge marshes are in a natural state with no water control structures present. Mid to late summer stream flows in Flat Creek and the Gros Ventre River were well below normal due to the 1980-1981 winter drought which resulted in a record low snowpack in surrounding watersheds. Water levels in Refuge marshes and spring fed impoundments appeared to be only slightly below average throughout the year.

Peak runoff occurred on 9 June and came with a vengeance, destroying our Flat Creek crossing on the east.

### 3. Forests

Nothing to report.

### 4. Croplands

No croplands.

### 5. Grasslands

Grasslands comprise 22,459 acres (92.6 percent of the Refuge) and support the major Refuge objective - providing winter range for up to 7,500 elk for four to six months each year. Elk numbers and duration of use vary, depending on winter severity.

\* Everett Russell

Management of grasslands consists of (1) flood irrigation; (2) rangeland renovation; and (3) prescribed burning. Forage surveys are conducted during the spring and fall periods to determine amount of utilization and production, respectively.

Flood Irrigation - Four individuals were hired on a temporary basis for the 1981 irrigation season, which for the most part, ran from mid May through most of August. See Table 4 for a summation of irrigation data. A total of 2,029 acres were irrigated and produced an average 3,670 lbs of forage per acre (Table 5). Other units which were previously irrigated but were not in 1981 because of water rights problems and manpower shortages, produced an average 2,300 lbs per acre. Irrigation activities thus produced an additional 1,390 tons of forage at a cost approximating \$15,000. Simple arithmetic shows that this land management practice produces forage at an average cost of \$10.79 per ton, clearly a very worthwhile investment.

Forage Production - Forage samples were collected the last week of September. Transect numbers were reduced from 86 to 46 because of other demands. This may have affected overall accuracy somewhat; however, we still feel our estimates are reliable for our needs.

Results from the surveys show an increase of 36 percent in forage production from the previous year (Table 5a). A combination of prescribed burning (1,249 acres) in April and heavy spring rains in May and June produced a bumper crop of grasses and forbs. Even though recorded moisture levels were down for July and August, a pattern of frequent thunderstorm activity developed over the northern half of the Refuge during the mid to late summer period, further enhancing production there.

Forage Utilization - Estimates of forage utilization on each of the ten management areas (Figure a) is shown in Table 6.

By far, most use occurs on the south half of the Refuge. Throughout the winter the northern half is usually buried under snow and not utilized to any extent until the springtime when elk begin moving north again. The late fall - early winter arrival of elk onto the Refuge coincides with the hunting season. Since the north half of the Refuge is where the hunting occurs, elk move through this area quite rapidly, taking little time to forage.

Fertilization Experiments - Six ( $\frac{1}{4}$  acre) plots were treated with chemical fertilizer in late April - early May 1980 (covered in detail in the 1980 Narrative Report). Forage production increased 19 percent that year. No fertilization was done during 1981; however, forage production was again measured in September to see if the benefits of fertilization would exceed one year. The results are shown on Table 7. There was little difference between fertilized and control areas. Apparently, forage response is limited to the following growing season only.

## 6. Other Habitats

Nothing to report.



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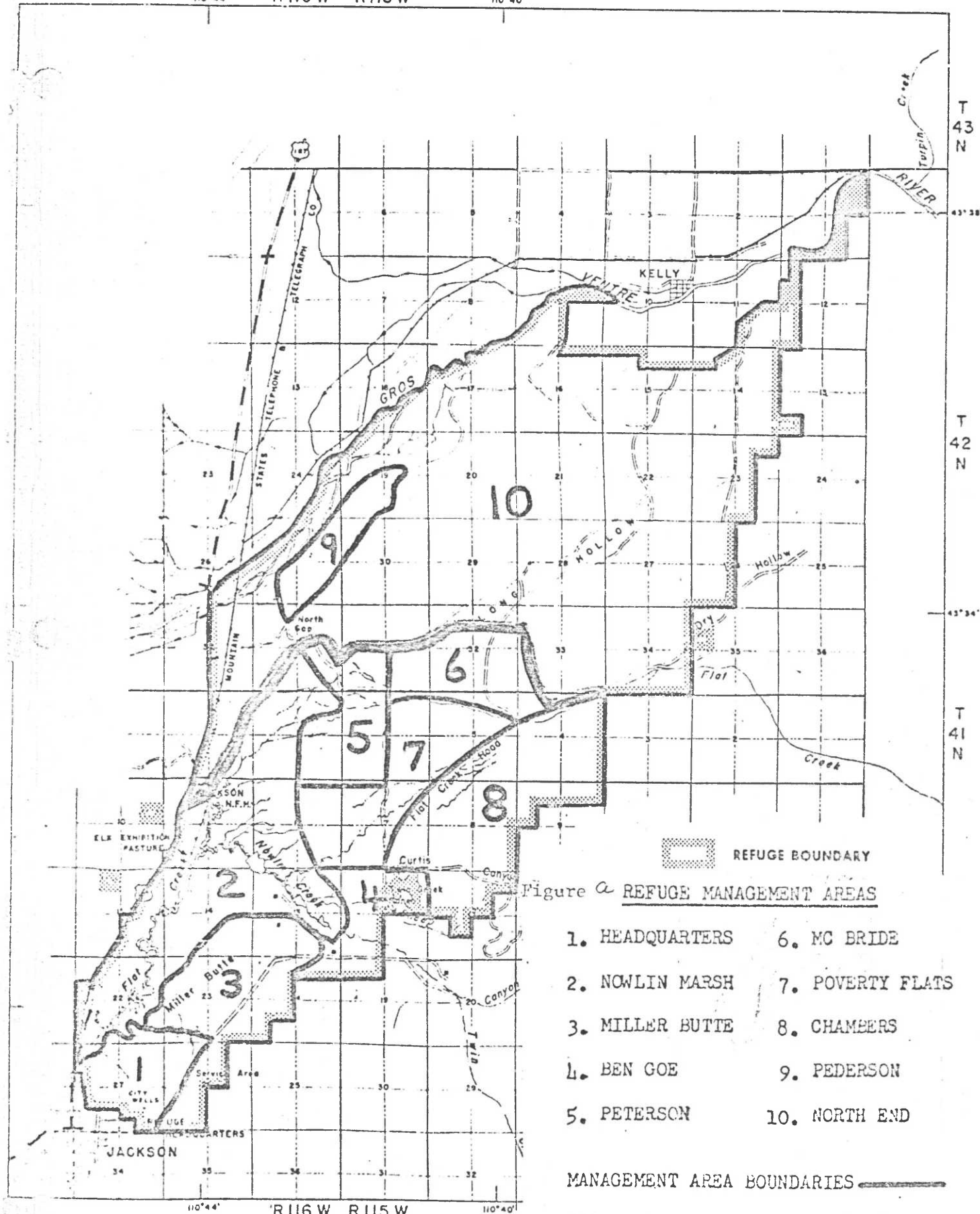
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Table 4 . Flood Irrigation Data , National Elk Refuge, 1981.

MANAGEMENT UNIT	IRRIGATION SEASON		NO. DAYS	NO. ACRES	CFS (a)	SOURCE
	BEGIN	END				
Headquarters						
1-1	04-27-81	06-15-81	49	122	1.74	Cache Creek
	06-16-81	08-07-81	52			
1-2	05-29-81	07-07-81	39	119	1.70	Cache Creek
	07-07-81	09-09-81	64			
Nowlin						
2-1	06-30-81	08-28-81	59	226	3.23	Nowlin Creek
2-2	07-08-81	08-28-81	51	222	3.17	Nowlin Creek
2-3	07-08-81	09-09-81	63	222	3.17	Nowlin Creek
Peterson						
5-1	06-09-81	07-10-81	31	69	.99	Flat Creek
5-2	06-01-81	07-08-81	38	38	.54	Flat Creek
5-3	06-02-81	07-08-81	36	90	1.29	Flat Creek
McBride						
6-1	05-29-81	07-07-81	38	120	1.71	Flat Creek
	07-07-81	07-25-81(b)	18			
6-2	06-01-81	07-07-81	37	30	.43	Flat Creek
	07-07-81	07-25-81(b)	18			
6-3	07-10-81	07-24-81	14	39	.56	Flat Creek
6-4	06-03-81	07-07-81	34	62	.89	Flat Creek
	07-07-81	07-17-81(b)	10			
Chambers						
8-2	07-13-81	08-28-81	46	193	2.76	Flat Creek
8-4	06-05-81	08-05-81	61	82	1.17	Flat Creek
8-5	06-05-81	08-05-81	61	145	2.07	Flat Creek
Pederson						
9-1	05-26-81	08-14-81	79	250	3.57	Gros Ventre River
		TOTALS	898	2029	28.99	

(a) Based on 1 cfs per 70 acres - legal appropriation.

(b) Water flows subsided before the field could be completely irrigated for the second time.

Table 5. Summary of Forage Production on Irrigated, Sub-irrigated and Dry Land Sites, 1981.

Land Type	No. Acres	No. Tons	Average Production (lbs/acre)
Irrigated	2,029	3,723	3,670
Sub-irrigated	2,519	6,826	5,420
Dry Land	<u>19,709</u>	<u>7,199</u>	730
TOTALS	24,257	17,748	

Table 5a. Forage Production, National Elk Refuge, 1981.

Management Area	(No. Acres)	T O N S O F F O R A G E P R O D U C E D							Percent of Average
		1976	1977	1978	1979	1980	Average	1981	
Headquarters	(707)	1,012.4	977.2	985.3	733.2	1,237.3	989.1	1,910.9	193 (a)
Nowlin Marsh	(2,617)	6,478.2	6,253.5	8,848.9	2,536.0	4,237.8	5,670.9	7,243.1	128 (b)
Miller Butte	(1,885)	209.7	202.4	186.9	167.8	297.8	212.9	235.6	110
Ben Goe	(587)	346.9	334.9	567.3	322.5	533.5	421.0	510.0	121
Peterson	(852)	253.7	244.9	329.2	261.0	460.1	309.8	320.6	103
McBride	(531)	279.6	269.9	471.0	187.0	432.9	327.7	254.0	78 (c)
Poverty Flats	(1,190)	168.3	162.4	397.8	90.0	274.3	218.6	343.0	157
22. Chambers	(1,836)	564.4	544.9	1,243.0	519.0	354.4	645.1	675.9	105 (d)
Pederson	(651)	647.3	624.8	548.4	493.0	589.5	580.6	760.6	131 (e)
North End	(13,401)	2,964.6	2,861.8	2,928.5	2,970.0	4,648.0	3,274.6	5,494.4	168 (f)
TOTAL	(24,257)	12,925.1	12,476.7	16,506.3	8,279.5	13,065.6	12,650.6	17,748.1	140

(a) Fifty-four percent (385 acres) of the unit was prescribed burned in April and resulted in a large increase in production.

(b) Twenty-one percent of this area was prescribed burned in April (550 acres).

(c) Sub unit 6-3 was renovated the previous year and will not reach production potential for several years.

(d) Part of this unit was renovated in 1980.

(e) Forty-five percent (290 acres) of this unit was prescribed burned in April.

(f) Above average moisture, particularly on the north end, appears responsible for this large increase.

Table 6. Forage Utilization for each Management Area, National Elk Refuge, 1981.

Management Area	Range of Utilization (%)	Average Utilization (%) <sup>*</sup>
Headquarters	0-40	25
Nowlin	0-75	50
Miller Butte	26-42	30
Ben Goe	0-93 <sup>**</sup>	45 <sup>**</sup>
Peterson	35-80	60
McBride	40-75	55
Poverty Flats	66-75	70
Chambers	15-65	45
Pederson	0-30	25
North End	0-60	20

\* A weighted mean.

\*\* Horse use accounted for about half of this use.





Vegetative growth on north end of Refuge in mid July. The result of heavy, early summer rains and occasional heavy summer thunderstorms (Gros. Ventre River bottom and Blacktail Butte in background). (35 mm slide file, 7-10-81, JEW).



Blue grass and native grass on winter range (north end Poverty Flat, south of Flat Creek near west road crossing), a result of excellent early summer (May) precipitation. (35 mm slide file, 6-10-81, JEW).

Table 7. Effects of Fertilization<sup>(a)</sup> on Six Experimental ( $\frac{1}{4}$  acre)  
Rangeland Plots, National Elk Refuge, 1981.

Plot No.	Production (lbs/acre-dry wt)	Percent Difference
1 Fertilized	2330	+4
1 Control	2250	
2 Fertilized	2100	+3
2 Control	2030	
3 Fertilized	3100	+2
3 Control	3030	
4 Fertilized	3450	-2
4 Control	3530	
5 Fertilized	1480	+2
5 Control	1510	
6 Fertilized	1820	+8
6 Control	1690	
$\bar{X} =$		+3%

(a) All six fertilized plots were treated (in 1980) with nitrogen (160 lbs/acre). In addition, Plots No. 3, No. 5 and No. 6 were treated with phosphate (120 lbs/acre).

## 7. Grazing

In addition to wildlife use, 20 horses were turned out to free-range during the winter. Seven are Refuge horses, four belong to the Yellowstone Fishery Assistance Project and the remainder belong to Grand Teton National Park. The Park compensates the Refuge by purchasing 10 tons of alfalfa pellets.

The Grand Teton National Park bison herd again wintered on the Refuge. The herd is continually expanding: 35 in 1979, 42 in 1980 and 54 in 1981. Somewhere down the line steps will have to be taken to curtail expanding bison numbers. Elk and bison do not compete well for winter feed as the latter are clearly superior. Bison readily run elk off of the feed lines during supplementary feeding.

## 8. Haying

The Refuge is managed as elk winter range; all forage is left standing.

## 9. Fire Management

No wildfires occurred during 1981. Five prescribed burns were conducted during April (Table 3). An estimated 1,249 acres were burned. Normally, we do not have much of an opportunity to spring burn because of melting snow and frequent rain showers during this period. However, because of the 1980-1981 winter drought, conditions were just about right. Two additional planned burns were cancelled because of an early spring greenup.

All five burns were in sub-irrigated areas where there was a moderate to heavy buildup of lodged-over and matted vegetation. Forage growth in these meadow areas was being stifled. Burning these areas did two important things: (1) nutrients which were locked up in the dead vegetation were released and (2) the stifling, overhead canopy was eliminated, thus providing more space and sunlight for new growth.

Profit returns for our efforts were very high. Overall, forage production was increased 45 percent. Cost of the new forage ranged from \$1.27 per ton to \$3.19 per ton (Table 9).

Data was also collected on a sagebrush-grassland area which was prescribe burned in April 1977. Forage production (grass and forbs) is still higher on the burn area (Table 10), indicating that the benefits of fire can be relatively long-lived.

Three Rangers from Grand Teton National Park assisted us at different times with the prescribed burning. The Rangers had a lot of fire experience and were certified to conduct burning operations.

Smoke management was one of our major concerns with our close proximity to Jackson and a major highway bordering the west boundary. No control problems developed; however burning was discontinued on two occasions due to shifting winds and fire jumped our breaks several times on burn



Table 8 . Prescribed Burns, National Elk Refuge, 1981.

Burn No.	Date	Name	ACRES		Total Cost (\$)	Cost/Acre
			Unit Size	Total Burned		
1-1981	04/09-13/81	Headquarters Marsh and Meadow	400	385	864.09	2.24
2-1981	04/07/81	SW Miller Butte	44	24	185.09	7.73
3-1981	04/15/81	East Flat Creek Marsh	430	360	586.68	1.63
6-1981	04/14/81	Nowlin Dike Marsh	200	190	566.46	2.98
7-1981	04/17/81	Pederson Meadow	320	290	755.96	2.61
				1249	2958.68	$\bar{x} = 2.37$

Total Acres Burned = 1249

Total Cost = \$2,958.68

Average cost/acre = \$2.37



Table 9. Forage Production Increases and Costs Associated with Prescribed Burning,  
National Elk Refuge, 1981.

Burn No.	Forage Production (lbs/acre)		Forage Production Increase		Cost/Ton of Increased Forage
	Control	Burn Area	(lbs/acre)	(%)	
1-1981	5275	6750	1475	(28)	\$3.04
2-1981	N/A	N/A	N/A		N/A
3-1981	5160	7730	2570	(50)	\$1.27
6-1981	5250	8045	2795	(53)	\$2.13
7-1981	2850	4485	1635	(57)	\$3.19

N/A Not Available

Table 10. Forage Production Responses on a prescribed burn area (225 acres) of sagebrush and grass on the North End of the Refuge.

Year	Non-burn Area (lbs/acre)	Burn Area (lbs/acre)	Percent Increase
1977	435	1,184	172
1978	839	1,200	43
1979	470	940	100
1980	n/a	n/a	n/a
1981	860	1,215	41

The area was burned in April 1977.

n/a = not available

No. 6. Community response to our burning was very positive, primarily because of the large public relations effort put forth beforehand and the successful and professional manner in which the burns were conducted.

#### 10. Pest Control

Two student volunteers spent several mornings cutting Musk thistle before the seeds matured. This biennial, identified by the Wyoming Weed and Pest Council as a noxious weed, has made a limited appearance along the County Road and the Nowlin Creek Road.

About 120 acres of Chambers field 8-2 and 35 acres of McBride 6-3 were mowed in June. Both fields were renovated in the fall of 1980 and, as expected, a large crop of annual weeds came in with the grass during the following spring. A large share of the weeds were fan weed and purple mustard.

We purchased 40 gallons of 2,4-D and had intended to spray both areas; however, the pesticide label recommended not spraying until the grass was at the 3 to 4 leaf stage. The Weed Extension Specialist at the University in Laramie suggested that we use mechanical treatment because he felt the larger weeds would be too far along by then to kill and most would develop seed anyway. So we mowed.

We did, however, spray a one acre test plot just to see what would happen. Even though the new seedlings were only at the one and two leaf stage, the results were remarkable. Throughout the summer, the sprayed area was almost void of weeds and the grass more vigorous. We should have sprayed.

Observations indicate that the mowing was not nearly as effective as the chemical treatment, partly because our mowing equipment was too small for the job. We just couldn't keep pace with the fast growing weeds.

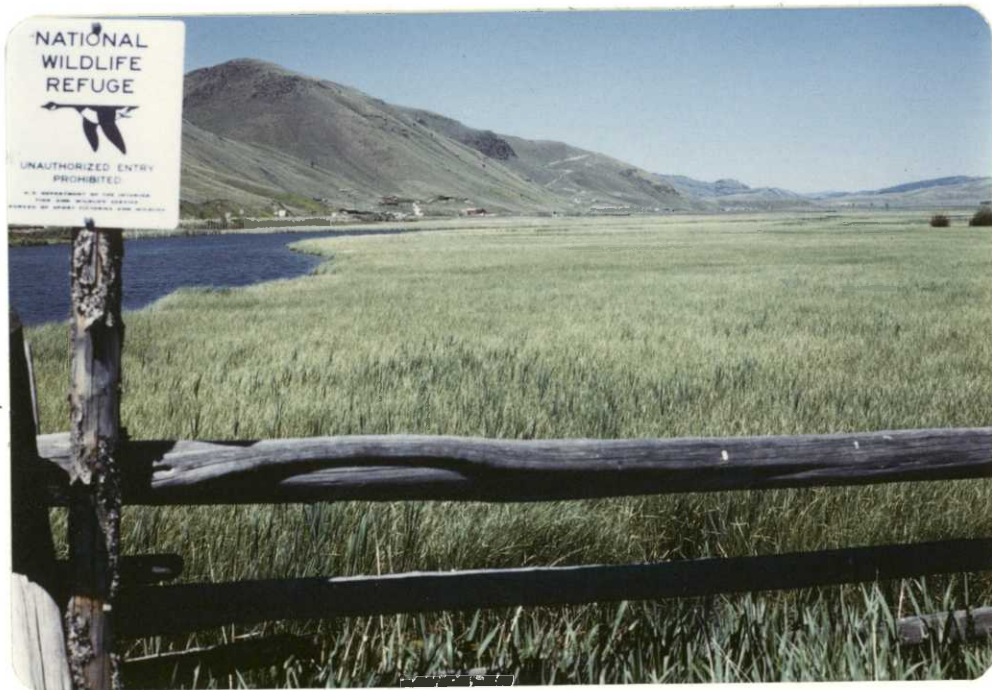
Kevin Ryan and Everett Russell attended the newly organized Teton County Weed and Pest Control District meeting on 24 March. The meeting was relatively informal with personnel from each of the federal agencies (FWS, BLM, NPS and NFS) briefly explaining their plans, policies and activities on pest control. The Board's major concern with the Refuge was the quality of our alfalfa pellets which are acquired outside the county. Kevin explained that should problems occur (with noxious weeds) then this could be handled through specifications on bid contracts.

#### 11. Water Rights

Refuge water rights were acquired through the purchase or exchange of private property in accordance with Wyoming State laws. Wyoming law attaches water to specific lands and has a statutory limit of one cubic-foot-second (cfs) per 70 acres.



Prescribed burn 1-1981. Torching off the west flank just north of town, main highway to Grand Teton and Yellowstone NP's along the creek to left. (35 mm slide file, 4-13-81, Ballou).



Vegetative response to burn, same area, about 10 weeks after burn. Some local folks were concerned about how long it would take "to grow back." (35 mm slide file, 6-25-81, JEW)





Burn area 1-1981 prior to burning 400 acres. Along SW corner of Refuge just north of town and North Park - heavy accumulation of litter. Miller Butte background. (Roll 190, 3-14-81, JEW).



Vegetative response in same area. Early winter elk use was heavy in these subirrigated portions (Refuge shop, upper right). (35 mm slide file, 6-25-81, JEW).



Burn 3-1981. Starting at Nowlin meadows west of shed 6. This was a 430 acre unit which included irrigated, subirrigated, riparian and marsh habitat. (Jackson National Fish Hatchery upper, left center). (35 mm slide file, 4-15-81, Ballou).



Burn 3-1981 along Flat Creek. Joining the headfires in marsh-subirrigated area. Taken from Miller Butte, view to west and main highway along west boundary. (35 mm slide file, 4-15-81, JEW).





Burn 1-1981. Smoke management was a major consideration in all burns as this 400 acre unit lay immediately adjacent the town of Jackson. Note dense vegetative accumulation. Forage production increased 28% over non-burned control area. (35 mm slide file, 4-13-81, Ballou).



Aerial of three burn units (or portions). Left: 1-81 400 acres, 4-13-81; Top center: 3-81, 430 acres, 4-15-81; and Right center: 2-81, 44 acres, 4-7-81. Refuge maintenance (shop) area lower center. Main highway and west boundary, top center. (35 mm slide file, 4-30-81, Robbins).



Burn 7-1981, a 320 acre irrigated, sub-irrigated and riparian unit in the Gros Ventre River bottom. Heavy accumulations of dead vegetation. (35 mm slide file, 4-17-81, JEW).



Same area. Pederson meadow foreground and Gros Ventre River in trees. Three days after burn (Roll 192-36, 4-20-81, JEW).





Burn 7-1981. West edge of unit (Pederson's) north of Pierre's Pond. Riparian, willow habitat with heavy accumulation dead vegetation burned intensely. (Roll 192-6, 4-20-82, JEW).



Same area - Pederson's (north of Pierre's Pond) illustrating rapid willow, grass and sedge recovery about 5 months after burn (35 mm slide file, 9-10-81, JEW).

The Refuge has water rights in the amount of 107.04 c.f.s. for the irrigation of 7,500.85 acres (Table 11). In 1981, an estimated 2,029 acres were irrigated. In essence, we are only realizing about 27 percent of our lawful water use potential. The two primary reasons are: (1) one of our water sources is being diverted before it reaches the Refuge by Twin Creek Ranch. In most years little or no water reaches the Refuge. Refuge files indicate this conflict over water use has been ongoing for over 25 years; (2) many areas on the Refuge with attached water rights are no longer irrigatable because diversion structures, ditches and headgates no longer exist or are beyond repair. Funds and manpower needed for improvement do not exist.

In September 1980, Don Stewart from the Regional Office (Engineering) visited the Refuge for several days and conducted an on-site investigation of our water rights problems (described in detail in the 1980 Narrative Report). Through his visit and because of his deep concern for water rights issues, Don developed a good grasp of our problems. Unfortunately (for us), Don transferred from the Regional Office to Denver Engineering Center last year. As a result, progress on our water rights problems has been delayed. It is not realistic to expect others to simply pick up where others leave off, especially with complex issues such as this. However, we do feel that time is working against us. The longer we go without solutions, the less likely we are to come out ahead.

12. Wilderness and Special Areas

Nothing to report.

13. WPA Easement Monitoring

Nothing to report.

Table 11. Water Rights on the National Elk Refuge, 1981.

SOURCE	QUANTITY (C.F.S.)	IRRIGATION AREA (acres)
Gros Ventre River	6.69	469
Romney & Pederson Springs	3.47	243
Flat Creek	70.67	4953.85
Twin Creek & Holland Spring	6.68	470
Cache Creek	7.38	518
Swamp Creek (Nowlin Creek)	4.07	285
Misc. Springs	2.84	195
<u>SUBTOTAL BASIC RIGHTS</u>	101.80 C.F.S.	7133.85 acres
Supplemental Supply		
(Sheep Creek & North Twin Creek)	5.24	367
TOTAL WATER RIGHTS IRRIGATION	107.04 C.F.S.	7500.85 acres



1. Wildlife Diversity

Approximately 1,250 acres of wet meadow type habitat was prescribed burned in April 1981. The objective of the burn was to clear out heavy accumulations of duff and stimulate new growth, primarily for elk use (see Section F-9). Waterfowl, Greater Sandhill cranes and shorebirds also found the areas attractive for feeding and loafing.

2. Endangered and/or Threatened Species

Eight young Peregrine falcons were introduced into the Teton Range at hack sites in Grand Teton National Park and on the Bridger-Teton National Forest. This is the second year of joint efforts by the Peregrine Fund, U.S. Forest Service, National Park Service and the Wyoming Game and Fish Department to establish this species in the area. Five male birds were placed on the Forest and two males and one female on the Park. One male was removed from the Forest site by hack site attendants because of slow development and a male disappeared on July 31, a week after fledging, from the Park site. The remaining six birds survived to the fall migration. While there were no recorded observations of Peregrines on the Refuge in 1981, we are sure that the Refuge is used by this species and should become an important hunting area if the hacking program is successful.

Whooping cranes were sighted again this spring in Teton and Sublette Counties south of the Refuge. One bird, not in the company of Greater Sandhill cranes, was observed in South Park April 20 through April 22. Two whoopers were observed by the North Fork of Fisherman Creek on May 5 and three near Del Creek on May 12. Both of these areas are near Bondurant, Wyoming.

The National Elk Refuge is an important wintering area for Bald eagles. Seventeen adults and two immatures were censused during the Christmas Bird Count on December 19, 1981.

3. Waterfowl

Swans

The 1981 midwinter Trumpeter swan survey for the Refuge portion of the tri-state region was conducted on February 11, 1981. Twenty-one total swans were censused, five of which were cygnets.

Two pair of Trumpeters again nested on the Refuge in 1981: one pair at Pierre's Pond and the other in the main marsh about 500 yards off Highway 26/187 and south of the KSGT radio tower. The pair at Pierre's Pond was unsuccessful. A nest check on July 2 showed three eggs; one egg was addled and the other two contained fully developed embryos. Heavy rains and runoff in May and June, coupled with beaver blocking the outlet, raised the water level and flooded the nest. At least three eggs were laid at the marsh nest site and all hatched successfully. The three cygnets survived until fledged and the family group was routinely observed through the first of November.

\* Kevin Ryan



## Ducks

An estimated 498 ducks were produced to flight in 1981. Mallard production was significantly higher this year than in 1980. This increased production may be a result more of increased effort on brood counts than on any habitat consideration.

Breeding pair counts were conducted on May 12, 1981. Refuge personnel and members of the Jackson Hole Bird Club participated. Mallards, Gadwalls, Green-winged Teal and Cinnamon Teal pairs were the most numerous (see Table).

## Geese

Canada goose production remained stable with an estimated 28 goslings fledged. Nests were found at the shop pond (1); Winegar Springs nesting structure (1); Pierre's Pond (1); on an island in Flat Creek south of Miller Spring (1); and in the main marsh south of Miller Spring. These are by no means all the nests on the Refuge, just those found and observed.

## 4. Marsh and Water Birds

At least three pair of Greater Sandhill Cranes nested on the Refuge in 1981. Known nest sites were at Nowlin Creek Pond #1, Pierre's Pond, and the island in the north shop pond. There was also a strong indication that a nest site occurred in the vicinity of the KSGT tower, although none was found. The birds at Pierre's Pond and the shop both hatched successfully but the Nowlin Creek Pond did not. We speculate that the eggs were chilled as water levels in the pond rose. A pair with two colts was observed using the area in the vicinity of the KSGT tower in June and July. Populations peaked at 155 on October 14, 1981 in the vicinity of Twin Creek Ranch.

Thirty White Pelicans dropped into Winegar Spring on the evening of April 26, 1981 and left the next morning. These unusual visitors were last reported on the Refuge in 1955.

Great Blue Heron were numerous on the Refuge in 1981. Their main attraction is the Jackson National Fish Hatchery where as many as 18 have been counted "feeding". The hatchery estimated their losses to be 20,000 six to ten inch fish in 1981.

A Pied-billed Grebe was observed on Winegar Spring on July 23, 1981 and an American Bittern was seen at Nowlin Creek Pond #1 on August 13, 1981. Both these species are infrequent visitors to the Refuge.

## 5. Shorebirds, Gulls, Terns, and Allied Species

Willetts, Common Snipe, Solitary Sandpipers and Spotted Sandpipers are common summer residents on the Refuge. Long-billed Curlews continue to be observed in the Poverty Flats area, the high ground east of

TABLE 12

## BREEDING PAIR AND BROOD OBSERVATION DATA, 1981

SPECIES	EST. NO. BREED PAIRS	NO. BROODS OBSERVED	NO. DUCKLINGS OBSERVED	AVERAGE BROOD SIZE	ESTIMATED PRODUCTION
Mallard*	26	13	75	5.8	150
Gadwall*	46	26	102	3.9	210
Pintail	5	0	0		10
G.W. Teal	51	2	13	6.5	30
B.W. Teal	11	2	13	6.5	12
Cinnamon Teal	44	2			28
Widgeon	3	1	3	3.0	6
Shoveler	9	0	0		6
Redhead	2	0	0		6
Ring-necked	7	3	9	6.0	18
B/C Goldeneye	2	1	1	1.0	15
C. Mesganser	<u>1</u>	<u>0</u>	<u>0</u>		<u>7</u>
TOTALS	207	48	216		498

\* Some of the 1981 waterfowl censusing data was taken by inexperienced observers. It is quite likely that some Gadwall and Mallard broods were misidentified. Mallard production from 26 pairs would traditionally not exceed 100 young and Gadwall production would be expected to be near 250 from 46 pairs.

Flat Creek near the confluence of Nowlin Creek, and the area west and south of the shop. One pair nested east of city well house #3 but no young were ever observed.

An American Avocet was observed on Nowlin Creek Pond #2 on July 23, 1981. This species was last seen on the Refuge in August 1979. Approximately 30 Franklin's Gulls spent the second week in July on the Refuge.

#### 6. Raptors

Rough-legged hawks, Marsh Hawks, Red-tailed hawks and American Kestrels are species common to the Refuge. A Golden eagle was observed in the vicinity of Miller Butte in March and a Prairie Falcon was seen intermittently during July and August.

Three Great Horned Owls were observed on July 17, 1981 in the Cottonwood trees along Flat Creek in the vicinity of the McInelly Ditch. We have thought for the last few years that Great Horned Owls nested along Flat Creek but have been unable to locate an active nest.

A rare sighting of a Merlin took place on October 1, 1981 near Curtis Canyon and on October 3, 1981 at Pierre's Pond. This species was last seen in 1979 when it was recorded on the Refuge for the first time.

#### 7. Other Migratory Birds

Nothing to report.

#### 8. Game Mammals

The first significant movement of elk onto the Refuge was on November 22, 1980 when 16 bulls and 20 cows and calves came across the Gros Ventre River. On December 1, 1980, between 50 and 75 entered the Refuge from Grand Teton National Park. December 2, 1980 marked the beginning of the major migration of Grand Teton National Park elk onto the Refuge when 1,200 elk were counted in the vicinity of the study pens south to the shop. Approximately 2,250 elk were on the Refuge on December 4, 1980. December 6, 1980 saw the first movement of Yellowstone National Park and Teton Wilderness elk onto the Refuge and by December 10, 1980 there were about 4,500 elk on the Refuge. At year end there were an estimated 5,000 elk on the Refuge.

There was no supplemental feeding program during the winter of 1980-1981 because of mild weather conditions, and subsequently, reduced numbers of elk. Elk free-ranged on the Refuge and off on adjacent areas.

There was no official classification count in 1981 as a result of not feeding. The "official" number of elk wintering on the Refuge was put at 6,300 based on estimates from ground counts in late December and early January.

The first major movement of elk off the Refuge in spring took place on March 19, 1981 when 200 plus elk were observed across the Gros Ventre River on Mormon Row on Grand Teton National Park. There were 2,800 elk on the Refuge at the end of March and most of the elk were gone by April 15, 1981.

Very few elk (15-20) summered on the Refuge in 1981. We speculate that this was a result of the early spring.

Only four moose were censused in the Gros Ventre River bottoms on January 9, 1981. A cow moose with twin calves was observed in Flat Creek east of the McBride shed about half way up the forest boundary on June 20, 1981.

There were reduced numbers of mule deer wintering on the Refuge in 1981. Twelve were seen adjacent to the forest boundary about one-half mile north of the shop complex on March 2, 1981. An extremely rare sighting of a White-tailed deer took place on March 8, 1981 when one was seen in the Gros Ventre River bottoms by Pierre's Pond by Assistant Refuge Manager Ryan.

Only two ewe and two lamb Rocky Mountain Bighorn Sheep were seen on the Refuge in 1981. They were observed on October 7 at the salt lick area east of Chambers shed. Approximately 30 Bighorn sheep were seen in late December 1981 immediately adjacent to the Refuge above Curtis Canyon.

Again because of the very mild winter only 43 Bison wintered on the Refuge. These animals from GTNP continue to be a concern as there are no management guidelines for population sizes or management.

#### 9. Marine Mammals

Nothing to report.

#### 10. Other Resident Wildlife

Sixty-three Sage Grouse, 39 cocks and 24 hens, were observed on the North Gap lek on April 8, 1981. A Blue Grouse was at Refuge Headquarters on July 21, 1981. The most unusual report of "resident" wildlife came on November 5, 1981 when two hunters reported seeing a Turkey just off the Refuge above the hunter access trail opposite Miller Butte. The hunters swear it was a turkey and claimed to know what they were talking about as they were "old turkey hunters". We question the validity of this report but nonetheless record it here-just in case.

#### 11. Fishery Resources

The annual Co-op meeting between the FWS-NER and Wyoming Game and Fish Department regarding the fisheries program on the Refuge took place on February 19, 1981. The Flat Creek fishery (Lower Flat Creek in particular) and the history of how and why special regulations were introduced on Lower Flat Creek was discussed. Ralph Hudelson (WGF) gave a summary of the 1980 field work, noting that the strength of Age Class III fish in the fall sample should provide a good spawning population in 1981. Ralph noted that 1975 was the last time that



hatchery fish had been introduced into the system and he felt that they had adversely influenced the wild trout population through 1977. Preliminary data evaluation shows that approximately 50 percent of each year class is lost to natural mortality and that there appears to be a gradual increase in the breeding population. Wyoming Game and Fish personnel noted that the restrictive regulations on Lower Flat Creek had neither a beneficial nor detrimental effect on the population. All concurred that habitat improvement was a key concern.

Philosophies and objectives of NER and the National Wildlife Refuge System were presented by Project Leader Wilbrecht. FWS policy on National Wildlife Refuges requires us to encourage a diversity of wildlife and a diversity of public use programs consistent with primary wildlife objectives. The public use programs should be of high quality and offer an environmental learning opportunity to the participant. With this in mind and the fact that restrictive regulations on Lower Flat Creek appear to have a neutral effect on fish populations and that flyfishing-only has generated no adverse public reaction - the contrary being true (opportunity to fish a spring stream), Project Leader Wilbrecht decided to continue with the current regulations in 1981 and 1982. This will be coupled with a habitat improvement program guided by a management plan.

Tree revetments were again placed in Flat Creek in areas where banks were sloughing. YCC enrollees from Grand Teton National Park worked with Bio Tech Trudeau on this project.

12. Wildlife Propagation and Stocking

Nothing to report.

13. Surplus Animal Disposal

Nothing to report.

14. Scientific Collections

Nothing to report.

15. Animal Control

Nothing to report.

16. Marking and Banding

Twenty-two elk (18 bulls and 4 cows) were fitted with new radio collars in conjunction with a study conducted by DWRC Biologist Robbins. These 22 plus 24 cows that were collared in previous years were radio tracked to spring and summer ranges (see Section D-5, Research and Investigations).

17. Disease Prevention and Control

A small percentage of the wintering population is infected with an external parasitic mite that causes scabies. Most of those infected are mature bulls. Severely infected animals are removed from the wintering population by DWRC and WGF biologists.



The transient Grand Teton NP bison herd continues to grow and to spend more time on the Refuge. They hit the Refuge November 28 and 53 began preparations for spending the winter on the Refuge. (35 mm slide file, 2-5-82, JEW).



A late bison calve in mid-winter proving they breed over a long period. This one was still sucking in January 1981. Herd composition this fall was 4 bulls, 41 cows, 4 calves and 4 yearlings. (35 mm slide file, 2-5-82, JEW).

## H. PUBLIC USE \*

### 1. General

The National Elk Refuge/Jackson National Fish Hatchery I&R and Visitor Center planning effort was again thwarted in 1981. The plan calls for a new Visitor Center and Headquarters office building for the Refuge and Hatchery to be located near the present Hatchery, accessible from the main highway. Funds for the project were to be available to begin construction in FY 1981. However, the 1981 funds were deleted during Government budget cutting efforts. The Service included the proposal in its regular budget request for FY 1982. Over \$800,000 was earmarked for the project in FY 1982.

The Project received word from the Regional Office on June 18, 1981 that the House Interior Appropriations Subcommittee had deleted the Jackson Visitor Center from the FWS budget for FY 1982. A summary fact sheet concerning the past and current planning and status of the Visitor Center was drafted on June 22, 1981 and sent to a variety of informational sources including news media, other Federal agencies, State, County and local government agencies as well as local conservation and private groups. This was a "last chance" effort to gain needed support for the project in FY 1982. There was good coverage about the project by local radio and newspapers. Nonetheless, the plan was again scrapped for FY 1982.

On September 9, 1981 a revised Project Description Worksheet (PDW) for the project for FY 1983 was submitted to the Central Office. The revised PDW recommended the design and construction of an "administrative complex center for the management of the National Elk Refuge, Jackson National Fish Hatchery and associated Visitor accommodation." Thus, the justification for the project has changed from a Visitor Center to an administrative center with hopes that this idea will be approved for FY 1983.

The contract for interpretive and exhibit design which was awarded to Felix Gula Associates continued into 1981, and was delayed further by the contractor. A preliminary design phase document was submitted in April 1981 and a meeting was held on April 13, 1981 at Refuge Headquarters to discuss this phase. John Wilbrecht, Jim Griffin, Bernard Shrable, Bob Ballou, Terry Cacek and Felix Gula attended the meeting. A draft final copy was submitted by Gula in August 1981. The Project submitted written comments to the Regional Office and they will follow up with the contractor. Basically, we have been disappointed with the quality of the information and designs presented to date. No further developments occurred in 1981 regarding this contract.

Total annual visitation to the National Elk Refuge was 536,956 in 1981. This represents an increase of over 100,000 visitors from 1980. Visitation to the Jackson Hole area was up in 1981 and represented an increase over both 1980 and 1979, when visitation slumped. Visitation to nearby Grand Teton and Yellowstone National Parks also increased in 1981. Much of this visitor traffic passes by the National Elk Refuge on the main highway between Jackson and Grand Teton National Park. Viewing the Refuge and wildlife from highway pullouts along this main travel corridor accounts for half of the Refuge visitation.

\* Jim Griffin



Table No. 13 shows yearly and monthly visitation comparisons on the National Elk Refuge for a nine year period. Table No. 14 summarizes public use activities on the Refuge for the calendar year 1981, listing total visits and activity hours for each activity.

The Wyoming Highway Information Center received a total visitation of 203,694 during 1981 compared to 137,405 in 1980. The building is on Refuge lands and is located adjacent to the main highway north of Jackson. The building is owned by the State of Wyoming and is operated by the Jackson Chamber of Commerce which has made the Center its base of operations since 1976.

An advisory committee to the Information Center (with Refuge employee as member) made its annual walk-through inspection on June 4, 1981. This committee advises the Highway Commission on matters pertaining to exhibits and other visitor informational matters to insure a coordinated, high quality visitor experience at the Center. This year the Committee approved the installation of a temporary "Plains Indians" exhibit from the Buffalo Bill Historical Museum in Cody. The exhibit was installed in the Center in August 1981.

No work was done in 1981 on the Miller Cabin - National Elk Refuge Historic Site. In 1980, the Teton County Historical Society expressed an interest in maintaining and cleaning the building and in possibly renewing its Special Use Permit (SUP) to do so. The Society did not renew a SUP and performed no work at the site in 1981. A meeting was held with the Historical Society in the fall regarding a suggestion for a Miller House interpretive sign and road side pullout along the Refuge road. No definite plans for a sign and pullout were devised.

Public information activities were numerous in 1981 and the Refuge participated in a variety of news, radio and TV interviews. Refer to Table No. 15 where these activities are included.

The Refuge staff responded to 1,683 public inquiries in 1981.

Eleven news releases were issued by the Refuge and 71 releases were generated indirectly on local, regional, national and international levels. Refuge news headlines included the following:

"Secretary Watt Views Yellowstone, Grand Teton and National Elk Refuge Winter Activities"

"National Elk Refuge Sleigh Rides Start Early"

"The National Elk Refuge"

"Refuge Switches to Antlerless Season"

"Local Man Sentenced in Fish Overlimit"

"Two Found Guilty of Elk Antler Theft"

"National Wildlife Week - We Care About Oceans"



TABLE 13

NATIONAL ELK REFUGE  
TOTAL VISITATION - YEARLY/MONTHLY COMPARISONS

MONTH	1973	1974	1975	1976	1977	1978	1979	1980	1981
JANUARY	3,849	3,944	4,581	7,935	5,538	8,689	22,203	20,599	24,159
FEBRUARY	8,681	7,337	7,175	7,919	6,400	10,568	23,115	22,680	27,120
MARCH	9,353	7,258	8,377	9,073	6,650	14,897	25,627	25,331	31,206
APRIL	5,617	5,895	3,209	7,885	6,600	5,902	20,891	26,524	29,274
MAY	9,840	10,141	12,861	15,009	16,400	18,022	29,352	35,990	36,479
JUNE	32,540	22,536	37,529	45,330	214,000	42,704	47,317	53,891	79,731
JULY	71,730	17,245	111,835	53,099	46,000	70,952	69,029	71,748	97,021
AUGUST	138,063	26,335	150,888	60,121	59,000	74,276	72,231	75,957	91,605
SEPTEMBER	37,022	16,480	28,422	20,811	24,200	35,892	49,824	44,691	44,423
OCTOBER	16,861	14,338	20,641	8,100	7,000	16,541	25,301	23,876	27,258
NOVEMBER	11,836	14,470	16,004	7,600	6,000	29,101	13,484	15,834	24,644
DECEMBER	4,743	4,229	8,343	4,000	3,200	20,637	11,967	14,376	24,036
YEARLY TOTALS (ADJUSTED)	350,135	150,208	409,865	246,882	400,988	348,181	410,341	431,497	536,956

TABLE 14

NATIONAL ELK REFUGE  
SUMMARY OF PUBLIC USE ACTIVITIES - 1981

<u>Activity and Description</u>	<u>Number of Visits</u>	<u>Activity Hours</u>
A. <u>Interpretation</u>		
1. Wildlife Tour Routes - Conducted: Sleigh Rides and Sleigh Ride Visitor Center	14,623	14,623
2. Visitor Contact Stations: Wyoming Highway Information Center and Refuge Headquarters	207,055	51,328
3. Interpretive Exhibits - Self Guided: Bulletin Board Exhibits at Refuge Entrance and Headquarters	5,095	223
4. Other On/Off Refuge Programs: Talks/Tours to School and Other Groups	2,805	3,031
B. <u>Environmental Education</u>		
1. Students and Teachers: Use of Environmental Study Area	1,152	2,227
C. <u>Recreation - Wildlife Consumptive</u>		
1. Hunting Resident Game - Elk - Gun	1,020	5,817
2. Fishing - Coldwater	1,849	4,913
D. <u>Recreation - Wildlife Non-Consumptive</u>		
1. Wildlife/Wildlands Observation - Vehicle: Vehicles on Refuge Road and Highway Pullouts	258,415	28,729
2. Photography: Bird Blind Use	8	40
E. <u>Recreation - Non-Wildlife</u>		
1. Picnicking: Wyoming Highway Information Center - North Park Picnic Area	28,665	14,244
2. Other: Joggers on Refuge Road	<u>19,095</u>	<u>9,548</u>
TOTALS	539,782	134,723

TABLE 15

NATIONAL ELK REFUGE  
TALKS, TOURS, PROGRAMS, PERSONAL APPEARANCES  
AND MEDIA EVENTS, 1981

<u>DATE</u>	<u>ACTIVITY</u>	<u>PARTICIPANTS</u>	<u>BY</u>
01-26-81	Talk/Slide Program at SRVC	Jackson Girl Scout Troop 199	Gregory
01-27-81	Talk/Slide Program at SRVC	High School Class Thru Teton Science School	Gregory
02-10-81	Talk/Slide Program at SRVC	High School Class	Gregory
03-05-81	Talk/Slide Program at SRVC	Jackson Cub Scouts	Griffin
03-20-81	News Interview on Fisheries	Jackson Hole News Paul Bruun	Wilbrecht
03-27-81	News Interview on Local "Land Grab"	Jackson Hole News	Wilbrecht
04-08-81	Talk/Slide Program at SRVC	Jackson 6th Graders	Griffin
04-10-81	Talk/Slide Program at SRVC	Smithsonian Through Teton Science School	Griffin
04-20-81	Talk on Refuge	Jackson Girl Scouts	Ryan
05-05-81	Talk/Slide Program at SRVC	Wyoming 4-H	Griffin
05-07-81	News Interview	Wall Street Journal	Wilbrecht
05-09-81	TV Video Spot for School Class	KIFI-TV-8, Idaho Falls	Robbins
05-22-81	Talk/Slide Program at SRVC	Colo. State University Wildlife Students	Ryan/Robbins
06-03-81	Talk at WHIC	Nat. Park & Forest New Employees	Griffin
06-05-81	Talk/Slide Program At SRVC	Jackson Cub Scouts Webelos	Griffin
06-11-81	2 Talk/Slide Programs in Town	Jackson Chamber Commerce Business Orientation	Griffin/Jones

## CON'T.

<u>DATE</u>	<u>ACTIVITY</u>	<u>PARTICIPANTS</u>	<u>BY</u>
06-15-81	Talk/Slide Program at SRVC	Indiana Univer. of PA biology class	Griffin
06-19-81	News Interview-General	Outdoor Magazine Tokyo, Japan	Griffin
07-06-81	Talk/Slide Program At Lost Ck. Ranch	Ranch Guests	Griffin
07-14-81	News Interview on Visitor Center Plan	Jackson Hole Guide Editor	Wilbrecht
07-28-81	News Interview on Status of Visitor Center	KMTN-FM Radio Jackson, WY	Griffin
07-30-81	Talk/Bus Tour	Nebraska Farmers thru Teton Co. Agri. Ext. Service	Griffin
08-07-81	Talk/Slide Program at ISU, Idaho	Idaho Wildl. Fed.	Wilbrecht Robbins
09-08-81	Talk/Slide Program at Lost Ck. Ranch	Ranch Guests	Griffin
09-29-81	Talk at Crescent H Ranch	Ranch Guests	Griffin
10-02-81	News Interview-Antlers	Wall Street Journal	Wilbrecht/ Griffin
10-06-81	Show Movies at Park	Grand Teton NP Employees	Griffin
11-17-81	Talk/Slide Program at High School	Teton Co. Adult Ed Class in History	Griffin
12-08-81	Talk/Slide Program at Wort Hotel	Jackson Rotary Club	Wilbrecht/ Griffin
12-17-81	2 Talks/Slide Programs in Town	Jackson Chamber Commerce Business Orientation	Griffin
12-21-81	Talk/Sleigh Ride Tour/ Slide Program	Secretary of Interior and Dignitaries	Griffin
12-22-81	Radio Interview-General	KSGT-Jackson Hole	Griffin
12-23-81	TV Interview on Sleigh Rides	KIFI TV-8, Idaho Falls, Idaho	Griffin



"Elk Refuge Wagon Rides End for Season"

"National Elk Refuge Plans Spring Burns"

"Draft Refuge Manual Released"

"County Receives \$277,022 from National Elk Refuge"

"Boy Scouts Purchase \$34,539 of Elk Winter Feed"

Press releases were most commonly issued to the Jackson Hole News, Jackson; Jackson Hole Guide, Jackson; Jackson Hole Daily, Jackson; KMTN FM radio, Jackson; KSGT AM radio, Jackson; The Post-Register, Idaho Falls, ID; KID-TV, Idaho Falls, ID; KIFI-TV, Idaho Falls, ID; Casper Star Tribune, Casper, WY; High Country News, Lander, WY; and the Wyoming Outdoor Reporter, Buffalo, WY.

News releases, articles and coverage of the National Elk Refuge in 1981 also appeared in Science Magazine; the Wall Street Journal; the New York Times; Outdoor Magazine, Tokyo, Japan; Women's World Magazine; the Teewinot; Ranger Rick Magazine; KU-TV, Salt Lake City, Utah; Jackson Hole Winter Visitor's Guide; Wyoming Horizons Magazine; and Wyoming Wildlife Magazine.

The Refuge received many written and phone requests regarding the antler pick-up and auction and the acquisition of elk antlers. These requests come from all over the country and around the world. The Scouts drafted a form letter in 1981 which answers most questions about the annual antler sale. In 1981, antlers were donated for educational purposes to the Jackson Hole Jr. High School for making crafts; Ninigret NWR for an interpretive display; Orange County, CA, Department of Education for an educational display and Reginald Labin of Jackson, Wyoming for an Indian Culture presentation.

Informational programs such as National Wildlife Week and National Hunting and Fish Day were promoted by visits to schools and local media and by distributing information releases, kits and posters. Migratory Bird Hunting and Conservation Stamps were sold at the Refuge in 1981 and 12 were sold at the Sleigh Ride Visitor Center for collecting and conservation purposes. .

New publications and printing in 1981 included a revised "public activities and regulation" leaflet; a revised "mammals list"; and a new leaflet called "History of the Refuge". These three leaflets were developed at the Refuge and printed by the GSA printing office through the Area Office. The "Birds of Jackson Hole" pamphlet was also revised and reprinted in 1981. A supply of hunt brochures, fishing leaflets, hunt permits and 1981 hunt information sheets were also printed in 1981. Refuge brochures are generally dispensed at leaflet holders at Refuge Headquarters, at the Sleigh Ride Visitor Center, at the Wyoming Highway Information Center and at Grand Teton National Park at the Moose Visitor Center.

The Refuge received several requests for professional/commercial filming in 1981 and issued two permits.

Some of the professional/commercial photographers using and requesting use of the Refuge in 1981 were:

Wolfgang Bayer Productions, Inc., Jackson, Wyoming  
Jeff Foott, Jackson, Wyoming  
Ed Dutch, Edinburg, Texas  
Pete Czura, Nebraska  
Allaux Films, France  
Allan King, Berlet Films, Jackson, Michigan  
Roger Slocum, Los Osos, California  
David Langford, Sendero Photography, Texas  
Taurus Productions, Ltd., Colorado Springs, Colorado  
Bacher & Spielvogel, Inc. for Miller Brewing Company

## 2. Outdoor Classrooms - Students

The National Elk Refuge coordinates with the Bridger-Teton National Forest in the operation of a jointly sponsored Environmental Study Area (ESA) along the south boundary of the Refuge. The area is popular with Jackson schools and is particularly popular with the Elementary and Junior High Schools as an outdoor classroom. During 1981, approximately 1,150 students and teachers utilized the ESA for a total of 2,225 activity hours.

## 3. Outdoor Classrooms - Teachers

The Refuge makes an attempt to involve local teachers in many aspects of the Refuge. Several teachers were informed of the spring prescribed burns and information was coordinated so that classes could study the burned areas. A geology professor coordinated with the Refuge and brought his classes to study portions of the Refuge not usually accessible to the public. Offers are made to local teachers to utilize areas of the Refuge not open to the public as special study areas. The Refuge and sleigh ride concessionaire developed a written policy in 1981 whereby Jackson first graders and outlying schools can take the sleigh ride free of charge. Other school groups studying the elk and Refuge receive a \$.50 discount per ticket.

Many local environmental education programs and activities are conducted through the Teton Science School within Grand Teton National Park, north of the Refuge. This school operates an annual schedule of programs for all levels of education, local and non-local. Refuge personnel are actively involved with the Teton Science School and their instructors. Most classes at the Science School tour the Refuge and visit the Sleigh Ride Visitor Center. The Project Leader is on the Board of Directors of the Science School, thus keeping in touch with on-going educational programs and opportunities.

The Outdoor Recreation Planner and seasonal employees reviewed many of the new FWS draft environmental education materials (Habitat PACS) in 1981, and forwarded written comments and evaluations to the office of E&I at the Central Office.

#### 4. Interpretive Foot Trails

There are no interpretive foot trails on the Refuge.

#### 5. Interpretive Tour Routes

The sleigh/wagon rides into the elk herd are a unique visitor experience. The rides are a concession operation (see Section 19). Due to the mild, open winter during the 1980-1981 season, wagons were used instead of sleighs. The rides operated between December 26, 1980 and April 1, 1981. During the 1980-1981 season, 14,619 people took this tour. Visitation was down from past seasons due to the lack of snow. Table No.16 gives a summary of sleigh ride visitation.

#### 6. Interpretive Exhibits/Demonstrations

The Sleigh Ride Visitor Center (contact station) had its first season of operation in 1981 (December 28, 1980 through April 1, 1981). Nearly 15,000 visitors entered the building during the three month 1981 season. This was the first winter that visitors to the sleigh rides were able to wait in a warm building, outside of their cars, and receive additional information from a FWS employee. The log building was heated by a wood burning stove and offered visitors a manned information desk, interpretive book sales outlet (through Grand Teton Natural History Association - see #18); panels with wildlife poster displays; and a 12 minute automatic slide/tape program about the elk and Refuge management. The public response was extremely positive to the addition of our contact station and the concessioners indicated that visitors on the rides were better informed.

The contact station was open to the public from 10a.m. - 4p.m. daily, the same hours as the rides. The addition of the contact station offered visitors an interpretive "package". Visitors would typically buy their tickets for the ride, come into the contact station, see the orientation slide show, ask questions and then go on the sleigh ride.

YACC employees, Lora Gregory and Allie Jones, operated the facility and manned the information desk during weekdays and a seasonal Bio-Aid, Marilyn McElheney, worked weekends.

The slide show was produced by the Refuge and tapes were made through volunteer help from a local radio station news broadcaster. The script was written and slides selected by the Outdoor Recreation Planner and narration was done by YACC employee Lora Gregory.

The slide show was housed in a rear screen projection "Theaterama" unit and put into operation on February 19, 1981. A total of 315 slide programs were shown to the public between then and April 1, 1981. The contact station and slide show benefitted the operations greatly by answering the large volume of questions the concessioners received about the Refuge.



Every state was represented in visitation through the contact station guest register except Hawaii and New Hampshire. Twenty foreign countries were also represented (see Table 17). The states which had the greatest visitation were in order: Wyoming, Idaho, California, Utah and Texas.

Besides the visitation to the Sleigh Ride Visitor Center and Wyoming Information Center, nearly 3,500 visitors to the Refuge stopped by Refuge Headquarters in 1981 to receive orientation information and ask specific questions. The Headquarters office is the busiest during the hunting season.

Each year the bulletin board exhibits at Refuge Headquarters and at the entrance to the Refuge road are reworked to replace old and weathered exhibit materials and photos.

The exhibits are changed seasonally to include information on hunting, fishing, sleigh rides, antler dropping, etc.

In September 1981, four exhibits were completed for inclusion at the Sleigh Ride Visitor Center for the 1981-1982 sleigh ride season. The exhibits were titled Seasons of the Elk, Spring, Summer; Seasons of the Elk, Fall, Winter; The Diversity of the Refuge; and the National Wildlife Refuge System. Thirty color transparencies of elk and other wildlife were donated to the Refuge by local photographers for printing and use in the exhibits. The photographers who donated their works were Franz Camenzind, Jackie Gilmore, Wolfgang Bayer, Jeff Foott and Erwin and Peggy Bauer. The transparencies were printed and mounted on masonite by Meisel Corporation and the Refuge constructed the exhibits by using plywood blocks for relief and by using velcro strips to mount photos and text material. In this way, the exhibits are rotational and can be removed for storage at the end of the season.



New photo exhibits for the Sleigh Ride Visitor Center were constructed in the summer of 1981 and will be used as public displays during future seasons. (35 mm slide file, 11-25-81, JMG).



TABLE 16

NATIONAL ELK REFUGE  
SLEIGH RIDE CONCESSION  
SEASONAL SUMMARY

47.

SEASON	ADULTS	CHILDREN (6-12)	CHILDREN (0-6) free	SCHOOLS/GROUPS FREE OR DISCOUNT	VISITOR TOTAL	EXPENSES	INCOME
1965-1966	1,895	558	est. 500		2,593	\$ 5,159	\$ 2,921
1966-1967	3,125	734	1,607		5,466	4,729	4,638
1967-1968	2,618	665	821		4,104	5,437	4,426
1968-1969	3,905	807	1,111		5,823	3,816	6,510
1969-1970	3,670	712	1,110		5,492	5,586	6,039
1970-1971	3,285	602	748	193	4,828	2,272	5,572
1971-1972	3,190	536	616	261	4,603	2,915	5,449
1972-1973	6,277	1,248	1,585	164	9,274	5,125	10,515
1973-1974	4,554	701	887	88	6,230	5,355	7,444
1974-1975	5,794	813	726	34	7,367	6,518	9,326
1975-1976	6,934	833	206	530	8,553	9,418	15,616
1976-1977	4,130	488	488	150	5,256	7,198	8,921
1977-1978	15,790	2,323	2,330	275	20,718	17,020	34,111
1978-1979	14,324	1,855	1,855	322	18,356	16,204	30,931
1979-1980	12,104	1,368	1,368	429	15,269	14,081	25,688
1980-1981	11,520	1,483	1,483	133	14,619	23,389	31,325

TABLE 17

SLEIGH RIDE VISITOR CENTER GUEST REGISTER SUMMARY  
1981 VISITATION

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Alabama:	8	Montana:	111
Alaska:	26	Nebraska:	49
Arizona:	28	New Hampshire:	0
Arkansas:	39	New Jersey:	25
California:	256	New Mexico:	17
Colorado:	83	New York:	81
Connecticut:	27	Nevada:	39
District of Columbia:	1	North Carolina:	15
Delaware:	3	North Dakota:	31
Florida:	24	Ohio:	86
Georgia:	12	Oklahoma:	28
Hawaii:	0	Oregon:	69
Idaho:	708	Pennsylvania:	62
Illinois:	75	South Carolina:	12
Indiana:	31	Rhode Island:	9
Iowa:	19	South Dakota:	7
Kansas:	19	Tennessee:	7
Kentucky:	10	Texas:	161
Louisiana:	22	Utah:	224
Maine:	8	Virginia:	17
Maryland:	13	Vermont:	1
Massachusetts:	26	Washington:	87
Michigan:	42	West Virginia:	6
Minnesota:	76	Wisconsin:	62
Mississippi:	11	Wyoming:	1,736
Missouri:	40		

## FOREIGN COUNTRIES:

Argentina:	2	Italy:	2
Australia:	26	Japan:	1
Brazil:	5	Mexico:	4
British Columbia:	16	Netherlands:	4
Canada (all other):	36	New Zealand:	7
Denmark:	2	Norway:	1
England:	6	Phillipines:	1
France:	2	South Africa:	2
Greece:	6	Switzerland:	4
Indonesia:	1		

Approximately half of the Project sign plan was completed in 1981. Nearly half of the old Refuge and Hatchery signs were replaced by new or reworked routed wood signs and some additional new signs were made. These were constructed by the Grand Teton National Park sign shop per our agreement of 1980 to supply lumber and materials. In addition to the new signs, many new sign posts were installed and all posts were stained the redwood sign color. In the past no sign posts had been painted.

#### 7. Other Interpretive Programs

The Refuge staff gave talks, tours and programs to various groups on and off the Refuge and gave radio, TV and news interviews about the Refuge. A summary of these activities for 1981 is listed in Table No. Nearly 3,000 people participated for approximately 3,000 activity hours.



Many students from local schools visit the Refuge each year. Here Jim talks to a class of second graders from the Wilson School at the Sleigh Ride Visitor Center (J.H. News photo, 12-81, A. Thurmer).

In October 1981, a 16 mm film entitled "Seasons of the Elk" was a major I&R purchase. This film was produced by Walter and Myrna Berlet in cooperation with a filming permit and film segments from the National Elk Refuge. The film, through some excellent photography, depicts the life history of the Yellowstone/Jackson Hole elk during the seasons of the year. Two copies were purchased at a half price discount from the Berlets by the Grand Teton Natural History Association and donated to the Refuge. The films will be shown to schools and visiting groups and used as a public presentation at the Sleigh Ride Visitor Center in conjunction with the slide show.

The Refuge assisted the Berlets by allowing them to review Refuge 16 mm film segments during the winter and summer of 1981. In the spring of 1981 all the original 16 mm film footage stored at the Refuge (including footage taken by Buzz Robbins) was shipped to Steve Hillebrand, Chief of FWS Audio Visuals in Washington, D.C.. The Elk Refuge film is now stored in special film vaults at the National Archives Stock Film Library in Washington, D.C.. Much of this original footage is of poor quality and scratched. Prints of this footage are stored at the Refuge for review.

A "back-up" cassette tape recorder with slide/synch was purchased in 1981 for use in the automatic slide show at the Sleigh Ride Visitor Center.

The Refuge slide collection was organized, categorized and filed in a new multiplex slide storage/viewing cabinet. This will make the viewing, filing and retrieval of slides much easier.

#### 8. Hunting

The 1981 Refuge elk hunting season lasted 37 days from October 31 through December 6, 1981. Any elk were legal until the major migration hit the Refuge, at which time antlerless elk only were harvested. The major migration was defined as those segments of the wintering Refuge population from Yellowstone National Park and the Teton Wilderness of the Bridger-Teton National Forest. The first 25 days of the season any elk were legal and the last 12 days, antlerless elk only were legal.

One-hundred twenty permits per week (40 permits valid Saturday and Sunday; 40 permits valid Monday and Tuesday; and 40 permits valid Wednesday, Thursday and Friday) were issued at public drawings at Refuge headquarters. Drawings were held at 3:00 p.m. on Fridays, October 30, November 6, 13, 20, 27 and December 5. The number of participants in the drawings varied from a low 92 on November 6 to a high of 707 on November 27. Additional (alternates) permits were again issued this year in an attempt to keep 40 hunters in the field. These permits were reissued when Refuge personnel confirmed kills in the field or when it was determined that there were less than 40 hunters in the field. A "mini-drawing" was held daily at 8:30 a.m. which put people on a list for possible reissues. Prior to Thanksgiving all numbers were drawn but because we never reissued more than 50 permits on any one day after Thanksgiving, only the first 50 people drawn were put on the list. Problems arose as a result of the number of people participating in these "mini-drawings" (up to 200 folks). People had a tendency to sit around the "Ike" sign all day or run up the road to unit 80 when, in fact, they should have been in elk units north of the Refuge hunting.



As in years past, the early portion of the season was slow with ten elk harvested the first weekend and only 64 elk killed at the end of the first three weeks. Elk numbers on the Refuge increased substantially after November 21 with 410 legal elk harvested from November 21 through December 6.

The total kill for the Refuge 1981 season was 481 elk. Seven of these were crippled animals and six were illegal. Nine of these cripples and/or illegals were salvaged; four were not.



Many horse back hunters prefer to drag their elk in throughout the day, whereas most foot hunters wait until after 4:00 pm when designated vehicle trails are open for retrieval. (35 mm slide file, 11-28-81, JEW).

TABLE 18

NATIONAL ELK REFUGE  
1977-1981 HUNT SUMMARY

	1977	1978	1979	1980	1981
Hunt Period	10/29-12/6	10/28-12/8	10/20-12/9	10/25-12/21	10/30-12/6
No. Days in Season	32	42	51	52	37
Any Elk-Days	0	0	14	43	25
Antlerless Elk-Days	32	42	37	9	12
No. Permits Issued	481	639	1024	1549	1126
No. Permits Used	314	466	777	1152	883
No. Permits Not Used	41	70	145	138	83
No. Permits Not Returned	126	103	78	259	160
Activity Hours	3678	3909	6013	8460	5809
No. Hunters	* 255	* 379	* 632	* 937	718
Resident					639
Non-Resident					79
Hunter Days	614	679	1053	1485	1150
Kill:					
Bulls	-	-	7	235	132
Spikes	-	-	23	54	19
Cows	146	146	175	140	258
Calves (M)	15	17	15	16	37
Calves (F)	27	21	22	27	27
Calves (Unkwn)	2	1			
Hunter Take	190	185	242	492	473
Hunter Success (%)	* 75%	* 49%	* 38%	* 53%	* 66%
Total Kill**	220	227	280	513	481

\* No exact head count of hunters until 1981. Estimate based on 1981 ratio hunters/permits used.

\*\* Total kill includes hunter take and other hunt related mortality.



An all-time record crowd was recorded on this Friday afternoon hunt permit drawing at Refuge Headquarters. Here, Refuge employees check licenses and hunter safety cards of 740 participants. (35 mm slide file, 11-27-81, JEW).



Hunt "mini-drawings" were conducted each morning at a sheep herders hut located at the south parking lot. Many hunters gathered on to chance getting their names on a daily waiting list for "reissued" permits. (35 mm slide file, 11-26-81, JEW).



## 9. Fishing

Fishing for Snake River Cutthroat and Brook Trout is a popular summer and fall activity on the Refuge. Public fishing occurs on the Gros Ventre River along the north boundary of the Refuge and on Flat Creek through the Refuge. In 1981, fishing was permitted May 23 through October 31 on the upper portion of Flat Creek, and August 1 through October 31 on lower Flat Creek. Fly fishing only was permitted along the 3-mile portion of lower Flat Creek. An estimated 1,849 fishermen spent 4,913 activity hours using Refuge waters this year.

Student volunteers Holly Gill and Correy Stapelton conducted creel census surveys on lower Flat Creek in early August.



Correy Stapelton, a student volunteer from Colorado State University surveys a fly-fisherman along Flat Creek during a creel census. (photo file, 196-3, 08-03-81, JMG).

## 10. Trapping

There is no trapping.

## 11. Wildlife Observation

Wildlife observation accounted for approximately 258,415 visits to the Refuge in 1981. This is nearly half of the total visitation. Most of this visitation occurred by vehicles stopping at turn-outs along U.S. Highway 187/26 on the west portion of the Refuge and vehicles on the interior Refuge Road. Several paved pullouts along the highway aid vehicle travelers who wish to stop, observe and photograph the Refuge and its wildlife.

## 12. Other Wildlife Oriented Recreation

In 1981, eight different parties used the Refuge photography bird blind for a total of 40 activity hours.



TABLE 19

NATIONAL ELK REFUGE  
SUMMARY OF VIOLATIONS

TYPE OF VIOLATION	DISPOSITION OF VIOLATIONS-1981					
	TOTALS			WARNINGS	VIOLATION NOTICES (PAID AMTS)	COURT (PAID AMTS)
	1979	1980	1981			
						Court Dismissed OR SUSPENDED (AMOUNTS)
						PENDING VN's (AMOUNTS)
Trespass (Animal)	27	40	15	7	8 (200)	
Trespass (People)	64	101	62	53	8 (200)	1 (25)
Trespass (Vehicle)	15	20	10	5	4 (100)	1 (25)
Trespass (Vehicle- Hill Climbing)	4		4			4 (100)
Trespass (Camping)	22	17	24	22	2 (50)	
Unauthorized Landing-Aircraft			1		1 (50)	
Disturb. WL (Animal)		3	4	2	1 (50)	1 (50)
Disturb. WL (People)	7	8	2	2		
Disturb. WL (Vehicle)		1				
Disturb. WL (Aircraft)		2				
Taking Plants/Animals		3	2			2 (500)
Hunting-Illegal Kill (Bull)	4		3		3 (615)	
Enter Hunt Area W/O Permit	2	1				
Hunt in Wrong Area		2	1		1 (105)	
Hunt in Closed Area	1	2				
Hunt-Special Regs	2	2	2		2 (30)	
Improper Tagging	1	2	1	1		
Hunt-Overlimit	2	5	2		2 (410)	
Hunt-Orange Clothing		1	1	1		
Hunt W/O License	1					
Hunt-Retain Evidence/Sex			4	2	1 (55)	1 (55)
Fire Upon/Across Road		1				
Firearm in Closed Area	3	1	2	2		
Other Weapons		1				
Fireworks/Explosives	3	1	2		1 (10)	1 (10)
Spot Lighting	3		1	1		
Fishing-Overlimit			1			1 (200)

CONT'D

TYPE OF VIOLATION	DISPOSITION OF VIOLATIONS - 1981							
	1979	1980	1981	WARNINGS	VIOLATION NOTICES (PAID AMTS)	COURT (PAID AMTS)	COURT DISMISSED OR SUSPENDED (AMOUNTS)	PENDING VN's (AMOUNTS)
Fishing-Closed Area	1	1	2		1 (55)			1 (55)
Fishing-Improper Gear	2	1	1			1 (400)		
Fishing W/O License		1						
Speeding	1	11	3	3				
Careless Driving		4						
Improper Licensed Vehicle		3						
Opr. MV W/O License	5	11	1	1				
Opr. MV-Vision Obstruction		2						
Opr. Mv-W/O Lights		1						
Opr. Motorcycle W/O Light		6						
Opr. Motorcycle W/O Helmet		2						
Unlawful Parking	4	7	6	6				
Littering	2	6						
Boats-Unauthorized			1					
Alcohol-Underage	1	8						
Interfere w/Officer								
Disorderly Conduct								
Destruction/Removal of Property	1	2						
Fires-Unauthorized	1	2						
TOTALS	180	283	157	108	35 (1930)	5 (1125)	1 (50)	8 (245)

A legal intern, Mr. Ken Roland, worked with the Project staff and other local Federal agencies during the summer. He was assigned to the area through the U.S. Attorney's office in Cheyenne, and assisted the Refuge in various legal matters including preparation of cases, paperwork, court representation, and reworking the collateral fine list. A revision of the Refuge 1978 fine list and of the entire collateral fine schedule for Wyoming was prepared by the intern working with the Refuge staff and the draft was submitted to the U.S. Attorney and District Court in late summer. We have had no further word on these changes, and this has been the second year these changes have been proposed and the second intern who has worked on the same project.

A regional law enforcement meeting was held in Grand Teton National Park in June. Attending were the U.S. District Court Judge, U.S. Attorney, U.S. Magistrates for Wyoming and Federal law enforcement agencies. The purpose of the meeting was to discuss problems of mutual concern, specific agency problems, bail schedule, violation notice format changes, and problems in dealing with the U.S. Magistrate and U.S. Attorney.

Law enforcement efforts on the Refuge road were continued to be handled in a "low key" manner. In the summer of 1981, the County upgraded the road and set the speed limit at 30 m.p.h.. Speed increased as the road surface improved but the Teton County Sheriff's Department stepped up patrols and radar usage. The Refuge has maintained an excellent rapport with the local Sheriff's Department as well as law enforcement personnel of other Federal, State and town agencies. There has also been greater cooperation and better involvement with the U.S. Magistrate over the last year.

Several cases are of particular interest in 1981. In March, two individuals from Bedford, Wyoming were charged with removal and transportation of elk antlers from the Refuge, a violation of the Lacey Act. The violation involved complaints through the U.S. Attorney's office and the court case was held in July before U.S. Magistrate Timothy Bommer. The individuals were each fined \$250 and sentenced to six months in jail, suspended on one years probation. They were in possession of 120 pounds of antlers valued at approximately \$700 which they had carried across the Gros Ventre River from the Refuge on backpack frames. The case involved cooperation between the Sheriff's office, Wyoming Game and Fish Department, Park Service and the Refuge.

In July 1981, a Blackfoot, Idaho pilot was charged with intoxicated flying (FWI) by the state and with unauthorized landing by the Refuge after he made an unscheduled landing on the Refuge. Another case in August involved a Jackson man who was fined \$600, placed on probation for two years and had fishing privileges suspended for two years in State Court for taking lake trout with a net at the Jackson National Fish Hatchery.



A "FWI" case in which a crop duster pilot landed on the Refuge to urinate but found an irrigation ditch instead. The pilot could hardly standup - let alone fly (35 mm slide file, 7-11-81, KR).

The Refuge had its share of DWI auto accidents either along the Refuge Road or at the fence along Broadway St. and at the entrance. In February, two vehicles ran into the game fence between Headquarters and the Refuge Road entrance. In April, a woman crashed into the log fence at the entrance to the Refuge Road. Her insurance paid for damages to Refuge property. On July 6, an auto roll-over accident occurred on the Refuge Road at the curve before the shop. In each of these accidents, the individuals were not seriously injured and all accidents were handled by the Teton County Sheriff's Department or Town Police.

Another incident involving antler theft occurred in July. The remaining portion of the old bleached antler arch in front of the Miller House was stolen, apparently removed at night.

Four Refuge LE personnel attended the 40 hour refresher law enforcement training through Grand Teton National Park (June 9-13, 1981) and firearms qualifications on the park range (July 29, 1981) with range instructor John Daily of the Sheriff's Department.



## 18. Cooperating Associations

An agreement between the Project and Grand Teton Natural History Association (GTNHA) was officially signed on November 28, 1980. This association serves Grand Teton National Park with large interpretive book sales outlets in the two park visitor centers. The Project affiliated with the GTNHA to operate an interpretive sales outlet at the Refuge Sleigh Ride Visitor Center. The outlet had its first full season of operation in 1981, and it greatly enhanced visitor information and interpretive efforts on the Refuge.

The Association is operated by a business manager and coordinator at the Park and by its own Board of Directors. The Refuge Outdoor Recreation Planner serves as the coordinator for the Project affiliation. In 1981, the Refuge sales outlet offered 23 book titles, six different postcard selections and two colors of National Elk Refuge T-shirts. Gross sales for 1981 were \$2,087.78.



Seasonal Bio-Aid, Marilyn McElheney stocks books for sale at the Sleigh Ride Visitor Center. The sales outlet is in cooperation with the Grand Teton Natural History Association. (35 mm slide file, 12-81, JMG).

An agreement between the Project and GTNHA was negotiated in 1981 whereby the Association retains 10 percent of gross sales as an administrative fee. The Association then donates the balance of the profit to the Project for the enhancement of interpretive, educational and informational programs. The Project received \$513.60 as a donation fund in 1981, and with this, the Association donated two 16 mm "Seasons of the Elk" films and a da-lite movie screen for use at the Visitor Center.

In addition to the sales outlet, the FWS and GTNHA signed a supplemental agreement, effective June 26, 1981 whereby the Association will contract for the operation of the horse-drawn sleighs (or wagons) for the transportation of visitors onto the Refuge to view the elk. The Association hires a subcontractor to perform the rides and retains a seven percent franchise fee from the yearly gross income from ticket sales. From the proceeds of this fee, the Association will retain funds in an amount



Refuge law enforcement officers practicing and qualifying with their service revolvers on the Grand Teton National Park firing range. (photo file, 196-2, 07-29-81, JMG).

equal to its actual recorded management expenses. The balance will be donated to the interpretive program of the Project. This supplemental agreement takes effect starting the 1981-1982 sleigh ride season.

Establishment of our own Project association in the future is a possibility if a major visitor center is constructed and our total interpretive program grows. The current agreement with the GTNHA expires on November 28, 1983.

#### 19. Concessions

Brad and Joanne Luton continued to operate the sleigh/wagon ride concession during the winter months on the Refuge. See Section 5, Interpretive Tour Routes, for statistical information on this season's rides. The 1980-1981 season was the Luton's fifth season as concessionaires on the Refuge. The concession serves a valuable role on the Refuge and it performs visitor services and interpretive duties that the Refuge used to perform and no longer does due to financial constraints. The Lutons have operated a dependable, safe, informative and enjoyable visitor service and have met the objectives and performance the Refuge has set in the "contract for visitor sleigh rides".

In the 1980-1981 season the Lutons operated as a subcontractor to the Jackson Hole Jaycees. The Jaycees contract expired on April 30, 1981 and the contract was not renewed by the Fish & Wildlife Service. The Refuge had a meeting with the Jaycees on November 19, 1979 and April 7, 1981 stating that it did "not deem it desirable to continue this contract with the Jackson Jaycees beyond April 30, 1981". During 1980 the Refuge and GTNHA had discussed the feasibility of contracting for the rides through the Association. In this way franchise fees paid to the Association by the concessionaire can be utilized as donations to aid Project I&R operations. Meetings were held with the GTNHA in April and May 1981 regarding a contract for sleigh rides, liability and insurance.

On June 18, 1981, the Association Board of Directors agreed to and signed a supplemental agreement for the "Operation of National Elk Refuge Sleigh Rides". On August 11, 1981, Brad and Joanne Luton signed a subcontract agreement with the GTNHA for the "Operation of National Elk Refuge Sleigh Rides". This agreement is effective during the same time period as the primary agreement with the GTNHA and expires on November 28, 1983.

Facilities and services offered in 1981 were essentially the same as in 1980. The cost for rides increased to \$2.50 for adults, \$1.50 for children 6-12 years old, and kids under 6 were free. This was a .50¢ per ticket price raise on adult and children's tickets. Some schools and special groups were discounted or free. The rides ran from 10 a.m. to 4 p.m. daily on a continuous basis. The 1980-1981 season was December 26, 1980 to April 1, 1981.



On May 18, 1981, a negligence suit against the concessionaire was heard in State District Court in Jackson before a full jury. The suit had been filed against the sleigh ride operator in 1979 for a broken ankle sustained when a women fell from a sleigh. The court found the concessionaire faultless by a unanimous jury decision. Nonetheless, this case brought a safety factor to the attention of the Refuge and concessionaire. In 1981, the Lutons began constructing and installing protective rear gates on their sleighs and wagons.



Security gates were constructed and installed by the concessionaire on sleighs/wagons as a public safety measure during 1981. (photo file, 198-14, 12-23-81, JMG).



## I. EQUIPMENT AND FACILITIES

1. New Construction - Nothing to report.
2. Rehabilitation

Several major and minor rehabilitation projects were completed in 1981.

### A) Buildings

1. Quarters 12 - The old office (Quarters 12) which has been used as a temporary quarters was remodelled to make it more suitable for permanent housing. The kitchen appliances were moved from the basement to the main floor. A sink was installed in the new kitchen area. Kitchen cabinets were also built and installed. A new light fixture and ceiling fan were put in the bathroom. The fuel oil furnace was moved from the pump house, which is now heated electrically, to replace the old furnace in Quarters 12. A 300 gallon propane tank was moved from Quarters 1 (the new office) to Quarters 12 and service was connected to the gas range.
2. Quarters 3 - A new drain field was put into the septic system.
3. Water heaters went out in Quarters 4 and Quarters 5. The two fairly new water heaters were removed from our YCC barn and used as replacements.

### B) Facilities

The spring runoff caused some problems this year. The culverts washed out on the Flat Creek road at the McBride crossing when the water level became deep enough to flow over the road. The original 24" culvert and two 36" culverts were reset into place. An additional 36" culvert was also added to the crossing. The road level was built up so that high water will now be relieved by an emergency spillway diverting water around the crossing.

A 20 foot section of the Pierre's Pond dike washed out during high water. The dike was rebuilt and a water release structure was put in to better control the height of the water in the pond. This should also prevent any trumpeter swan nests on Pierre's Pond from flooding out as they have occasionally in the past.

We did quite a bit of gravel work this year. Gravel was hauled from the Nowlin gravel pit to resurface the Nowlin dike road. The road along the upper Pederson field was resurfaced and a wooden bridge across South Park diversion ditch that had sunk two feet on one end was releveled.

Thirty-six yards of gravel were purchased. Thirty yards were spread in front of the Refuge shop. The remainder was used to enlarge the amount of parking available at Refuge headquarters.

Range renovation was a major project again this year. We received some "help" from SCS, who surveyed in headgate and ditch locations on our new seedings on McBride and Chambers fields. After the headgates were planted and the ditches were laid out, our irrigators, despite years of experience, found they were unable to successfully spread water uphill. SCS returned in late summer and resurveyed. Subsequently, all the headgate locations were changed on both fields. Hopefully, we'll have better results next season.

The YCC camp from Grand Teton National Park worked with us on a tree revetment project on Flat Creek again this year. Over the past three years, these tree revetments have helped stabilize cut banks and provided cover for both young and adult trout.

Refuge Mechanic Pape manufactured and installed rear window guards on four of our newer pick-up trucks which had not previously been so equipped.

### 3. Major Maintenance

The interior of the shop was repainted with the help of a YACC enrollee.

### 4. Equipment Utilization and Replacement

A 1968 International Travelall, Model 1100 C, 3/4 ton 4WD, S/N 283107H-842524 and license I-54323 was sold in September for \$600.

ROPS were installed on both of our TD-20's in 1981. One of them got a new valve job and will be needing a new engine in the near future.

Refuge Mechanic Pape installed a new pony motor on our D-4 Cat.

### 5. Communication Systems

Nothing to report.

### 6. Energy Conservation

The Refuge was involved in several energy conservation projects this year. The ceiling insulation in most of the Refuge buildings was brought up to an R-30 rating. 3-5/8" of fiberglass insulation were added to Quarters #9 and nine inches were added to Quarters 3, Quarters 12, the office (Quarters 1), the biologist's office (Real Property II) and the Refuge shop. All work was done by Refuge personnel.

Logs were caulked in Quarters 3.

Storm windows were purchased and installed at the Visitor Contact Station and on the basement windows at Quarters 12.

### 7. Other

Nothing to report.



As a result of heavy rains in May and early June, Flat Creek run-off was high creating considerable streamside damage. Bank erosion east of the west crossing. (35 mm slide file, 6-10-81, JEW).



Irrigation structures near Flat Creek clogged with run-off debris (west of McBride shed). (35 mm slide file, 6-10-81, JEW).





The west crossing on Flat Creek. Culverts couldn't handle and creek over-topped roadway. (35 mm slide file, 6-19-81, JEW).



When Flat Creek receded after a week, our west crossing was severely damaged and one culvert washed several hundred yards downstream. (35 mm slide file, 6-16-81, JEW).





This is a Refuge road and crossing which provides access to north end of Refuge and to private and Forest land to the east along Flat Creek. (35 mm slide file, 6-25-81, JEW).



Robbins inspecting repairs. The addition of another culvert, raising the roadbed and providing a deeper emergency spillway to left should save it in the next flood. (35 mm slide file, 7-10-81, JEW).



High run-off, beaver blocking an emergency spillway and possible muskrat burrowing into the dike caused a 20 foot wide, 12 foot deep "blowout" of Pierre's Pond dike in the Gros Ventre River bottom area. This impoundment has provided excellent waterfowl habitat. One pair of trumpeter swans, several pairs of Canada geese and ducks rest on or nearby. Only an emergency spillway controlled water levels. (35 mm slide file, 7-13-81, JMG).





Refuge crew installing 24 inch CMP with anti-seep plate in Pierre's Pond dike washout. (Roll 197-9, 10-16-81, JEW).



Control gate on 24 inch CMP will allow some control over water levels and occasional drawdowns. Borrow for dike plug taken from base of hill in background (left to right: Griffin, Ryan, Pape). Roll 197-11a, 10-16-81, JEW).

TABLE 20

## MAJOR EQUIPMENT ACQUISITION, 1981

Type of Equipment	Cost	Funding
Homelite Water Pump (1), Model XLS 1½-4A 2 cycle gas engine pump	\$359.25	1220
GPI Transfer Pump (1) 12 volt, auto bypass gas pump	\$228.08	1220
Black and Decker Macho III Hammer Drill (1) with drill bits and accessories	\$407.00	1220
Kodak Slide Projector (1) Ektagraphic 100-150 mm Zoom lens, f/3.5	\$235.60	1240
Audiotronics Slide Synchronized Cassette Recorder (1), Model 1625-2	\$319.96	1240
Admiral Refridgerator (1) 14.6 cu. ft.	\$362.00	1220
Motiva Theaterama II Rear Projection Theater (1), Model RPT-0050	\$840.45	1240
1981 Ford Pickup (2), Model F102 ½ ton, 2WD, 4-speed, long bed	\$10,787.40	1220
Homelite Trimmer (1), Model ST-100, 2 cycle 260 cc engine	\$106.16	1220
Smith and Wesson Model 66 Revolver (1), .357 mag., 2½" barrel, stainless steel	\$149.29	1240
Porta-John	\$555.00	1240



TABLE 21

## MAJOR REHABILITATION, 1981

Project	Cost	Funding
Quarters #12	\$3,936.38	1994 and
-remodel kitchen and bath areas and		1220-cycl.
change furnace		maint.
-install propane tank	\$ 306.08	1220 cycl.
		maint.
Quarters #3	\$ 707.42	1220 cycl.
-install new drain field in septic system		maint.
Pierre's Pond	\$3,102.38	1210 cycl.
-repair dike and install water level		maint.
control structure		
New Refuge signs	\$1,724.12	1240 cust.
		maint.
Flat Creek Road	\$2,164.92	1220 cust.
-repair creek crossing		maint.
Pickup rear window guards	\$ 706.60	1220 cycl.
-manufacture and install		maint.
Range renovation	\$10,078.50	1220
-purchase concrete headgates, install		
concrete and wooden headgates, purchase		
pesticide, ditching, mowing		
Gravel Shop and Headquarters Parking area	\$ 526.37	1220 cycl.
		maint.
Fiberglass Insulation Installation	\$3,823.01	1994 and
-Qrtrs 3, 12, Real Property #11,		cyc. maint.
qrtrs 1 (office) and qrtrs 9		
Storm Windows	\$ 934.01	1240 cycl.
-purchased and installed - Qrtrs 1, 12		maint.
Real property #11, Visitor Contact Station		

## J. OTHER ITEMS

### 1. Cooperative Programs

The annual antler pickup by the Jackson District of the Boy Scouts was accomplished on April 18, 1981. On the afternoon of May 1, another smaller pickup was conducted. The pickup was authorized by a Special Use Permit issued to the scouts for the period April 1 through May 16, 1981. Per terms of the Special Use Permit, the scouts also conducted a clean-up campaign on Refuge lands. The total number of antlers picked up on the Refuge was 531 at a total weight of 2,390 pounds. This was the fewest pounds in years due to the early movement of elk off the Refuge in mid March - many with antlers. Most of the 531 were picked up on the pickup day and consisted of mixed white (old) and new antlers. Refuge personnel had picked up some antlers prior to pickup day as a security measure.

The antlers were bundled into 123 bundles for the auction. Eight hundred pounds of old white antlers (most from storage on the Refuge) from which 41 burrs were removed, were donated to the Town of Jackson for antler arch repair. The burrs were set aside for the auction. In addition, 41 matched antlers and skull sets (some picked up and a majority from storage on the Refuge) were set aside for the auction. The total amount was approximately 6,000 pounds less than the total of 8,422 pounds collected in 1980.

During the main pickup, 120 boys and 42 adults participated. A total of 985 person-hours were spent during antler and trash pick-up, bundling and weighing.



Local Boy Scouts combed the Refuge in search of shed antlers. The kids had a sparse year since many elk had left the Refuge before shedding their antlers. (35 mm slide file, 04-81, J. Foott).

The annual antler auction was held on May 16, 1981 at 10:30 a.m. in the Jackson Town Square. All bidders were required to register with the Scouts prior to bidding and were assigned a card with a number to identify the bidder. A total amount of \$10,403.50 was collected.

A check for \$147.17 was paid to the U.S. Fish and Wildlife Service as per terms of the Special Use Permit. Under the Special Use Permit's provisions, the Boy Scouts initially receive \$7,500 and the FWS (General Fund) gets 5 percent of gross receipts in excess of the \$7,500. The Scouts received a net profit of \$10,258.33.

As was done in previous years, the Scouts again donated a portion of the proceeds to the Refuge, and they will purchase \$2,620.41 worth of alfalfa pellets. Besides the \$7,500 to the Scouts, an additional 5 percent (\$137.92) of the net profit went to Scout operations. After the donation for elk feed, the Scouts received a total of \$7,637.92 from the antler sale.

## 2. Items of Interest

Secretary of the Interior James Watt led a party of Federal and State officials December 20-21, 1981 on a tour of Yellowstone and Grand Teton National Parks and the National Elk Refuge. Accompanying Secretary Watt on a sleigh ride tour of the Refuge were Wyoming's Representative Dick Cheney; Idaho's Senator Steve Symms and Representative Larry Craig; Under Secretary of the Interior Don Hodel; Grand Teton National Park Superintendent Jack Stark and Refuge Outdoor Recreation Planner Jim Griffin. Family members, two security men and two local people from the press also accompanied the group on the tour. After the 45 minute tour through the wintering elk herds, the group visited the Sleigh Ride Visitor Center where they viewed exhibits and the 12 minute slide/tape program about the elk and management operations.

On August 25, 1981, Bob Shields, Deputy Regional Director, and Wally Steucke, Area Manager, visited the Refuge for an inspection of Project operations.

## 3. Credits

Project Leader Wilbrecht edited and wrote Sections A, C, E-5 and K. Outdoor Recreation Planner Griffin wrote Sections D-7, all of Section H except H-8, and Section J-1 and J-2. Biological Technician Russell wrote Section B and all of Section F. Biological Technician Trudeau wrote all of Section I. Administrative Officer Parrish compiled the data for personnel at the beginning of the report and for training under Section E-8. Assistant Manager Ryan was responsible for the rest and Project Clerk Hayden typed and assembled.



Secretary Watt and his wife enjoyed a sleigh ride on the Refuge. Here, Secretary Watt reacts to ORP, Jim Griffin's request for \$1,000,000.00 for a new Visitor Center. (J.H. Guide photo, 12-21-81, D. Stump)



ARM Ryan introduces Secretary Watt to the staff during a tour of the Refuge (J.H. Guide photo, 12-21-81, D. Stump)





Even though 1980-81 was an "open" winter on the Refuge with no snow, wagon rides to view the grazing elk were a popular visitor activity. (photo file, 190-18, 03-14-81, JMG).



The Sleight Ride Visitor Center began its first season of operations during the 1980-81 winter. This rustic log building provided warmth, information, education, and entertainment for thousands of Refuge visitors (35 mm slide file, 11-81, JMG).

K. FEEDBACK

The penalty of an ecological education is that  
one lives alone in a world of wounds.

Aldo Leopold  
Sand County Almanac