



Pratt, Heflebower, Hutcheson, Klett and Zerby

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Review and Approvals

Submitted by _____ Date 2/23/59 Area Office _____ Date _____

Washita NWR _____ Regional Office _____ Date _____
 Refuge _____

WASHITA NATIONAL WILDLIFE REFUGE

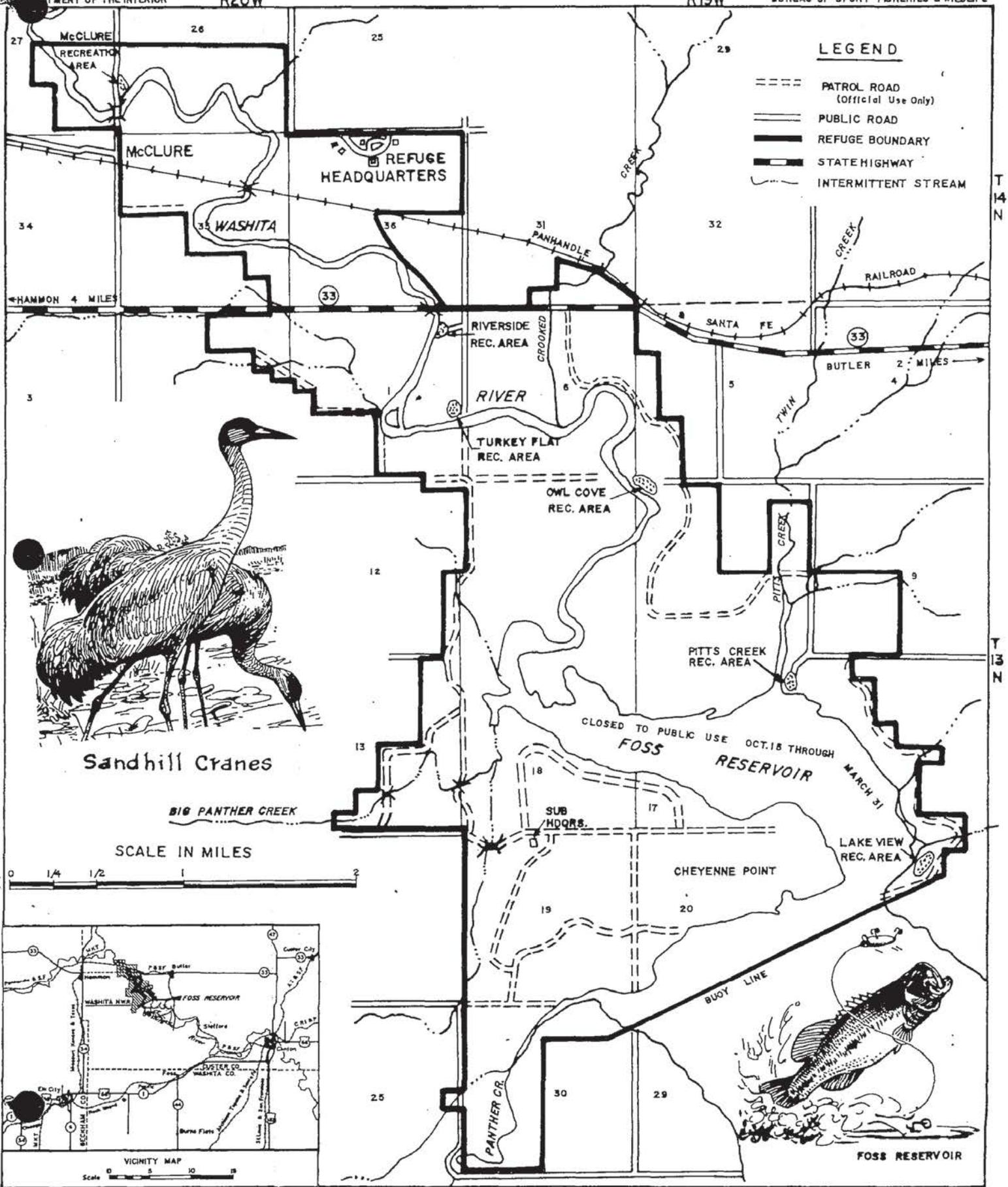
CUSTER COUNTY, OKLAHOMA

UNITED STATES
DEPARTMENT OF THE INTERIOR

R20W

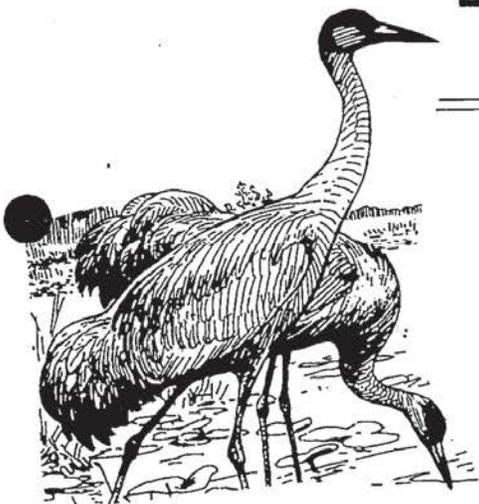
R19W

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES & WILDLIFE



LEGEND

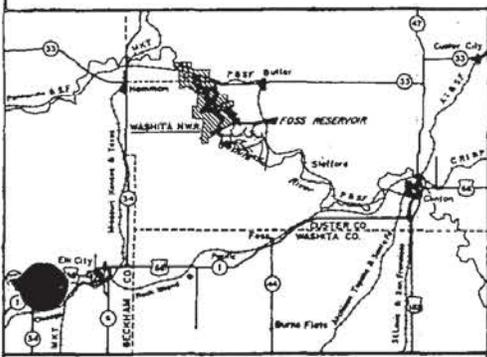
- PATROL ROAD (Official Use Only)
- PUBLIC ROAD
- REFUGE BOUNDARY
- STATE HIGHWAY
- INTERMITTENT STREAM



Sandhill Cranes

BIG PANTHER CREEK

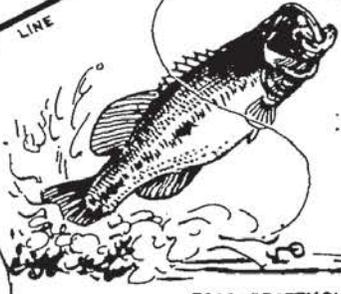
SCALE IN MILES



VICINITY MAP

Scale 0 5 10 15

CLOSED TO PUBLIC USE OCT. 18 THROUGH MARCH 31



FOSS RESERVOIR

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I. GENERAL

A. Introduction

The Washita Refuge, established in 1961, is located in the rolling short-grass plains in western Oklahoma. The refuge is superimposed on the north one-third of the Bureau of Reclamation's Foss Reservoir.

Foss Reservoir covers approximately 2,700 acres of the 8,084 acre refuge. The remainder consists of gently rolling bottomlands laced with narrow, winding, intermittent creeks. Wheat, grain sorghum, and corn are the main crops grown on approximately 2,200 acres of cropland for our wintering waterfowl and sandhill cranes.

Being an overlay on a Reclamation reservoir, the refuge has no control over water levels and is restricted in any type of marsh development or management.

B. Climatic and Habitat Conditions

The refuge headquarters rain gauge caught 27.09 inches of rain, approximately 2.20 inches above long term average. Precipitation has a great deal to do with climatic and especially habitat conditions on the Washita NWR. Both, 1977 and 1978 received above average rainfall, but the propitious timing of showers in '78 was more beneficial to our fall and winter habitat conditions. Overall conditions this year were much better than last year.

Entering 1978, the refuge wheat crop was in a serious depleted condition. Dry conditions in late '77, along with heavy goose use had our fields bare. This condition caused anxiety as to soil erosion during our coming March winds. The month of February was a life saver. Eleven inches of the fluffy white stuff fell during the period. The snow cover was prolonged, melting during the day and re-freezing at night then melting again the next day. The moisture soaked into the soil slowly, with no runoff occurring. Under the snow cover the wheat stools regenerated new shoots, which protected the soil from the wind and helped our wheat harvest to an average yield of 21 bushels per acre.

May was our heavy rainfall month, with 10.13 inches being received. One damaging hail storm swept through the area on May 18. Refuge milo was already planted and received varying degrees of damage. Final milo yield ranged from 15 to 50 bushels per acre.



The melting and refreezing of our snow produced some spectacular icicles. The longest was almost five feet long. Roll 1, #3 E.V.K.



Freezing early morning fog produced this rosette of ice crystals. Roll 1, #6 E.V.K.

June and July were dry and hot. The refuge headquarters thermometer recorded twenty-four days of 100° or over, the hottest recording was 108° on July 26th. Soil moisture conditions deteriorated, but in early August we had sufficient showers to sprout volunteer wheat and the planting of our fall wheat began on August 28.



Even though sufficient rain fell during June and July to keep vegetation green, it did nothing for our declining soil moisture; consequently, large dust devils were a common sight during this period. Roll 11, #11 E.V.K.

The rains that fell in late August and early September insured good stands of wheat and an excellent amount of goose food was produced. This, along with our ample milo crop, made for good fall and winter habitat conditions on the Washita NWR.



On September 17, a severe rain storm dumped 4.25 inches of rain during a 30 minute period. The resulting runoff produced several flash floods. This one pictured above poured approximately eight inches of water across the headquarters entrance road and produced a roar that could be heard for 1/2 mile. Roll 11, #15 E.V.K.

The refuge increased its tillable acres, over that farmed in 1977, by 150. After the dropping of the lake level (discussed on page 6) we reclaimed approximately 100 acres (50 acres in field "Q" and 50 acres along the east side of field II-5). Also, 50 acres of former farm field II-1, which had been established to grass in 1973, were put back into wheat production.

The last frost occurred on April 20 and the first killing frost in the fall was October 27, making a growing season of 190 days.

Table 1. 1978 refuge headquarters precipitation and temperatures by month and average precipitation from the Hammon, Oklahoma weather station, located six miles west of refuge headquarters.

Month	Precipitation			Temperatures	
	Snow	Rain	Average	Max.	Min.
January	4.0	0.43	0.76	70	2
February	11.0	1.51	0.86	60	0
March		0.51	1.53	90	10
April		1.22	2.56	88	32
May		10.13	3.80	92	37
June		1.48	3.64	103	58
July		0.12	2.12	108	58
August		2.16	2.34	102	56
September		7.15	2.85	99	51
October		0.80	2.22	90	30
November		1.58	1.31	80	22
December		0.00	0.91	76	13
	<u>15.0</u>	<u>27.09</u>	<u>24.90</u>	<u>108</u>	<u>0</u>

As a review of an existing Foss Reservoir problem, we will quote one paragraph from last year's narrative.

"On October 3, 1977, the Bureau of Reclamation began a scheduled drawdown of Foss Reservoir. Water was released until the lake elevation stood at 1,642.0 feet. This level was maintained for approximately 60 days before incoming water was again allowed to accumulate. Two reasons were given for this drawdown 1) to flush out an accumulation of hard, mineralized water to be replaced with an inflow of fresh, less mineralized water, and 2) to allow pressure gauges to record the amount of reduced pressure along the downstream side of the dam, apparently the water had found an escape route through a portion of the dam that was built over an unsealed sandy pocket of soil".

In July of '78, after the lake level had reached an elevation of 1,644.5 feet, the USBR opened the dam gates again, dropping the elevation to 1,642.0. This lowering was in connection with the objectives stated in the quoted paragraph. At this writing, the Washita NWR has not been advised of any findings, decisions or solutions made by the USBR regarding the leakage. On December 31 the lake elevation stood at 1,640.12.

After the drawdown in '77 only small amounts of acuquatics were established, but '78 was a different story. There were abundant growths of smartweed, sedges, and pondweed. This growth, along with the exposed mudflats, provided excellent conditions for shorebirds and waterfowl.

Area grasslands remained in good condition. Upland game was provided sufficient food from dense stands of sunflowers, ragweed, carelessweed and Johnsongrass.

C. Land Acquisition

Not applicable.

D. System Status

1. Objectives

The majority of the objectives outlined in our Annual Work Plan were met.

Our Group I banding quota for mallards was set at 400 birds. We banded 152. Normally we catch a surplus of mallards in our goose banding operations, but for some unknown reason they were not present this year. Our Group II banding quota was set at 1,000 Canada geese. We had our most successful operation and banded 959 geese. Our banding programs are operated on a fiscal year basis.

Minimum Funding Levels were equaled or exceeded. Most of the discrepancies are in the interpretation-recreational categories where general interest and demand, which can vary from year to year, regulate the final outputs. The same can be said for use by fishermen and hunters.

Goose use exceeded our established objectives by 758,310 use days. This objective was set in 1971 and listed an ultimate capacity and planning period capacity OTU of 25,000 birds. Peaks for the last two years have reached 35,000 geese. Duck use was within the objective limits. As the goose picture shows, several

of our objectives need revising. Revisions will receive a high priority, as soon as the new objective setting guidelines are finalized and received.

We did not program for a YCC camp for '78, one was not expected. However, extra monies were provided in one of President Carter's youth programs and we were awarded a 20 enrollee non-resident camp.

2. Funding

In FY-78, we received \$128,400 in our initial budget: \$99,000 in subactivity 1210 which included \$13,000 BLHP O&M and \$9,000 cyclical maintenance, \$2,000 in 1220 included \$1,000 BLHP O&M, \$400 in 1230 and \$27,000 in 1240 which included \$5,000 BLHP O&M and \$4,000 cyclical maintenance. In July, we received Pay Act Funds which increased our FY-78 monies by \$4,900 in subactivity 1210 and \$1,000 in 1240.

The number of personnel on the refuge staff remained unchanged, but personnel status did not.

Our Maintenance Worker has been on a PFT appointment subject to a two month furlough. We attempted to have him converted to PFT; however, personnel ceilings prevented this, so we took the next best offer. He is now PFT subject to two weeks furlough.

II. CONSTRUCTION AND MAINTENANCE

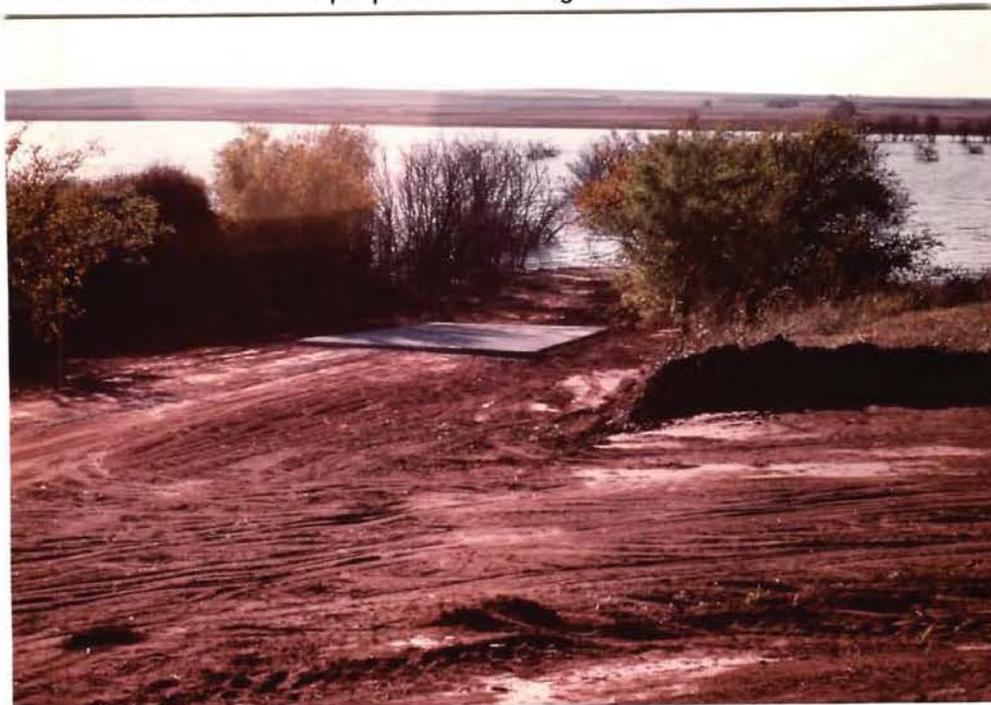
A. Construction

No development monies were earmarked for Washita during 1978 and all improvements were accomplished using O&M funds. Except for a new IHC 1086 farm tractor purchase in 1977, the Washita drew a complete blank from BLHP rehab funds.

We kept pace with our farming program by purchasing a 18 foot chisel plow, and by placing dual rear tires and an enclosed, air conditioned cab on our John Deere 4230 tractor (check group photo on title page).

After the order was rejected by GSA, bid invitations were extended and refrigerator/freezers were purchased for the two refuge residences. The only other new equipment purchase was a new adding machine for the assistant refuge manager's office.

Major construction included a 40' concrete slab boat ramp at Owl Cove. This boat ramp is not usable at the present lake level, but it was decided that construction at this time would be much easier than after anticipated rises. A new 1,000 gallon under ground diesel fuel tank and pump along with a mercury vapor security light were installed in our equipment storage area.



A concrete slab was poured at our Owl Cove Recreation Area. Rip-rap will be added in the summer of '79. We now have the of a permanent boat launching facility, we just have to wait until the lake level reaches it. (a two feet rise will make it operational). Bell 12 #3 E V K



A 1,000 gallon under ground diesel storage tank, pump and security light were added to our equipment storage area. Now we can fuel our heavy diesel equipment there and not have to bring them up into the shop/office area.
Roll 13, #5 E.V.K.

An excess surplus property acquired winch and refuge constructed "A" frame were mounted on our 2 1/2 ton IHC B-180 truck tractor. This winch and "A" frame are used quite often and facilitate many refuge jobs.

New lockable wall cabinets were built and installed in the oil house for storage of cannon net charges and bird depredation rockets and shell crackers.

As of this date, the Custer County Rural Water District #2 has not started construction of the new water system. They are presently

obtaining the necessary waterline easements. Hopefully, by this time next year, the Washita NWR can report that it has finally obtained a potable water source.

B. Maintenance

Routine cyclic maintenance of vehicles and farm/heavy equipment was accomplished during the year. The clutch assembly for our D-6 crawler dozer was completely rebuilt, and one link was removed from each side to shorten and tighten the tracks. All vehicles were inspected and received their annual safety stickers. Continuing maintenance was performed on farm equipment (plows, drills, etc.). Our new IHC 1086 farm tractor received a yellow paint job, which makes it consistent in color with our other farm tractors.



Our new International 1086 tractor prior to receiving it's official paint job. The wheels had to be removed before we could drive it into the shop. Roll 26, #7 E.V.K.



And later. All of our farm equipment is painted yellow. No hodge-podge of colors for us. Roll 1, #20 E.V.K.

Each year, huge chunks of floating ice catch and move the buoys that delineate the refuge boundary from the state park. Generally in March, these buoys have to be repaired and realigned, as was the case in '78. The majority of our interpretive and informational signs were brought into the refuge shop and were painted and relettered.

After 11 years of service, our headquarters irrigation well received an acid treatment. The lower casing had become partially plugged with mineral deposits and rust. Mineral and other deposits were cleaned from the refuge office and Quarters #20 sewer lines.

C. Wildfire

No wildfires occurred on the refuge in 1978.

A fire control plan was completed and submitted for approval this year. The main thrust of the plan is to maintain equipment in good, operable condition, maintain crew-readiness, and maintain alertness during times of fire hazard. All aspects of existing fire hazards will be taken into account before initiating any planned burning. Under this plan, controlled burns will be used to manage habitat

for the benefit of wildlife populations. This management program would include three types of refuge habitat: marsh areas, which would include previous farming areas exposed by receding lake levels; grasslands; and mixed timbered grasslands. No grassland or timbered area burns are contemplated at this time, but the plan covers the contingency.

III. HABITAT MANAGEMENT

A. Cropland

Soil and moisture conservation practices are vital in this wind-swept part of Oklahoma's western plains. A major portion of our fields are planted in alternate strips of milo and winter wheat. This striping serves to prevent wind erosion and distributes goose browsing by breaking up large concentrations of these birds, thus reducing the likelihood of overgrazing.

Maintenance of terraces, dikes, and waterways in our cropland areas is a continuing practice.

Some additional conservation measures were taken in the 77-78 season. Dry conditions plus heavy goose use reduced some of the fields to a state where wind erosion was almost a certainty. Feeling that protecting the soil is one of our most important responsibilities, we placed scare devices (barrels, flashers) in the bare and sandy areas. This was done after the wheat had been grazed into the bare earth. The theory behind this is that the geese would move into other areas of the refuge that still had some green browse left and give the depleted areas a chance to regenerate new growth. This practice has been used quite extensively in former years and worked very well.

To assist in reducing wind erosion on two of our sandier fields, we attempted to establish tree rows to act as wind breaks. Seedlings were purchased from the State Nursery. One hundred fifty lace bark elm and 300 arborvitae were planted in two rows along the west and south sides of farm unit II-2. Two hundred mulberry were planted along the north and west sides of unit II-5. Survival rate was almost nil. Spring rains provided sufficient moisture, but also prevented us from cultivating around the seedlings. Johnsongrass then took over. The hot, dry months that followed provided the finishing touches.

Approximately 180 red cedars were acquired from private range land north of the refuge and were planted along the west side of farm unit III-11 and the north end of unit III-10. Survival rate here was about 90%. These trees were larger (14-20 inches in height compared to the 6-10 inch size of those obtained from the State Nursery) and were close to the refuge headquarter's water supply. These trees could be taken care of with very little effort.



Jack Warner and Joe Hutcheson learned it was much easier to plant elm seedlings with a tractor drawn tree planter than planting them with a shovel. Roll 2, #1 E.V.K.

Austrian winter peas were incorporated into 200 acres of the 77-78 wheat planting and were plowed under, along with all the refuge farmed wheat, as a soil conditioner. Peas are planted at the rate of 20 pounds per acre. They not only provide a means of nitrogen fixation, but also provide cover to prevent wind erosion.

Peas were again mixed in our September '78 wheat plantings on refuge farmed fields.

In test efforts to produce more tonnage of green browse, liquid ammonia was applied to approximately 50 acres of sandy loam soil in fields 4B and II-5; granular nitrogen fertilizer was applied to field "Q" (47 acres); two varieties of wheat/wheatgrass hybrids were planted in strips adjacent to our regular varieties of winter wheat to judge production and grazing preferability; and on all remaining refuge farmed wheat, seed was applied at the rate of two bushels per acre. This is an increase of 30 pounds per acre over our old seeding rate. At this writing, our only sure judgement is, that the fall of '79 wheat planting will be applied at the rate of two bushels per acre.



Liquid ammonia was applied to two farm units that have experienced past wind/soil erosion problems. Fertilizing, along with a higher seeding rate, was tried to prevent geese from eating out of the wheat in these two units. Roll 11, #7 E.V.K.



Hay field "Q" was put into wheat production this year. to offset the loss of nitrogen caused by decaying vegetation, granular fertilizer was applied. Roll 11, #4 E.V.K.

Winter wheat was the only green browse crop planted in the fall of 1978 - refuge farmed 396 acres, cooperators farmed 952 acres, making a total of 1,348 acres.



A higher seeding rate, good soil moisture, warm weather, and a two weeks late arrival of our Canada geese, assisted us in producing a good stand of winter wheat. Roll 11, #17 E.V.K.

Milo was planted on 616 acres of refuge land - 148 refuge farmed and 468 by cooperators. Dry weather and hail storms caused light to heavy damage, with final yields ranging anywhere from 15 to 50 bushels per acre. Co-op farmers, abiding by stipulation in their farming agreement, and refuge personnel planted blackbird resistant varieties.



The refuge milo crop on Cheyenne Point produced sufficient grain for our wintering sandhills and ducks. We plant anywhere from 3-5 varieties of blackbird resistant milo each year. Roll 11, #12 E.V.K.

Twenty acres of corn were planted to provide bait for our fall-winter banding program. Hot, dry weather during the growing season stunted the growth and prevented a good yield. Approximately 10 acres were harvested with our old cornpicker, yield was about 50 bushels.

Two special use permits were issued in 1978: 1) one for the baling of standing Johnsongrass on approximately 47 acres in farm field "Q". When this permit expired in June, field "Q" was incorporated into our winter wheat planting. 2) the other for the production of 20 acres of alfalfa. This field happens to be located and proportioned such that it does not attract waterfowl; however, it does benefit deer, turkey, quail and cottontail rabbit.

B. Grassland

The refuge contains 3,750 acres of grassland. Much of this has been reestablished since the refuge was established. Predominant species include: Little Bluestem, Big Bluestem, Sideoats Grama, Blue Grama,

Buffalograss, and Indiangrass.

Periodic inspections are made for water eroded gullies. Gully-plugs are made and installed when and where needed.

One grazing permit for 138 AUMs per year was in effect in 1978 on grazing unit #1, a 140 acre tract in the upriver area of the refuge. This SUP has been in effect since 1962. Grazing will be permanently eliminated in the summer of '79, as YCC enrollees will be constructing a nature trail in this unit.

C. Wetlands

Not applicable at this station.

D. Forestlands

Not applicable.

E. Other Habitat

Not applicable.

F. Wilderness and Special Areas

Not applicable.

G. Easements for Waterfowl Management

Not applicable.

IV. WILDLIFE

A. Endangered and/or Threatened Species

The following species are found either seasonally or permanently on the Washita NWR: bald eagle, osprey, ferruginous hawk, prairie falcon, prairie Merlin (F.c. richardsonii), western burrowing owl, lesser prairie chicken, white-faced ibis, and western snowy plover (C.a. nivosus). Sightings during CY-78 for endangered species were limited to the bald eagle. Sightings of threatened species include: osprey, prairie falcon, prairie Merlin, lesser prairie chicken, and western snowy plover. No burrowing owls were seen at the refuge's small prairie dog town, however, three were observed at a "dogtown" four miles north of the refuge.

Several species listed in Rare and Endangered Vertebrates and Plants of Oklahoma (1975), have at one time been sighted or could possibly occur on the refuge. These are listed below and are followed by their designations by the Rare and Endangered Species of Oklahoma Committee: least shrew (desert shrew) - R-1, golden eagle - R-1, long-billed curlew - R-2, sandhill crane - R-2, black-tailed prairie dog - R-2, golden-fronted woodpecker - R-2, least tern - undetermined.

R-1 -- Although not presently threatened with extinction, is in such small numbers that it may be endangered if its environment should worsen.

R-2 -- Abundant where it does occur but is known in only a few locations or is in a restricted habitat within Oklahoma.

Status - undetermined -- suggested as possible rare or endangered but about which there is not enough information to determine its status.

B. Migratory Birds

1. Waterfowl

In the past, the peak winter goose population has usually occurred during January; however, in 1978, as was the case in 1977, poor browse conditions and unusually cold weather prevented this buildup. January's peak population was 20,414 birds. Lesser numbers continued to use the refuge during February with the population plummeting as warm March winds encouraged the geese northward. The last substantial count of the spring was made on March 17 with 1,200 lazy Canadas being tabulated.

The anticipated increase in white-front numbers during the spring migration did not materialize. The peak of 350 occurred on February 17.

Only two Canada geese stayed through the hot summer months. Though sightings were infrequent, no nesting efforts were believed to have been attempted.

The first Canada geese of the fall were sighted on October 13 and the population peaked at 35,000 on December 24. Peak numbers of geese, other than Canadas, occurred on the following days: 75 white-fronts on December 21; 42 snows and 5 blues on November 30; 16 Ross's on December 21.



If you look close, you will find a partial albino Canada goose in the middle foreground. The goose has a much lighter body and legs than it's cousins. Roll 15, #18 E.V.K.



After the hunting season was over, we knocked down all standing milo. White-fronts and mallards fed heavily in these fields. Roll 26, #15 E.V.K.

Ross's geese have begun to make up a large part of our "white goose flock". Either we have had a recent population shift westward or they have been here all along and were not correctly identified. On December 12, a hunter shot a Ross's with a black neck collar. This is undoubtedly one of the Ross's banded and color marked by Robert McLandress, University of California Davis near Superb, Sask. A similar sighting was made in 1977 of a Ross's wearing a blue collar feeding on the refuge.



One Ross's, four snows, one white-front, and many Canadas take a little rest after filling up on winter wheat. Roll 15, #20 E.V.K.

No sightings of neck-collared Canada geese were made during 1978.

Total goose use days for CY-78 were 1,760,310. Our refuge objective was set in 1971 at 1,002,000 use days.

Spring duck populations remained at unseasonably low numbers for the second year in a row. January's peak population was only 21,400, near the 1977 January peak count of 24,200. The average January duck population for the period of 1970-76 is considerably higher at 113,480 individuals. This unusual trend of the past two years has been a puzzling management problem that we have not yet solved. Calendar year 1978's low spring populations were probably caused by the combination of large numbers of sandhill cranes consuming most of the refuge's 1977 milo crop early in the year, followed by very adverse weather conditions. Once the sandhills had eaten the duck's groceries, most of the mallards and wigeons moved to Clinton City Lake, about 11 miles south of the refuge, to be nearer the harvested milo fields common to that area.

Only a few mallards and blue-winged teal stayed through the summer. No nesting efforts were observed.

This fall the cranes left plenty of milo, but the duck population still fell short of our expectations.

The fall migration was first apparent on October 16, when 2,500 ducks of nine species were counted. Their numbers continued to increase to a high of 75,700 on November 17. This flock was made up principally of mallards and American wigeon. Populations then began a slow decline to the end of the year with 2,862 birds present on December 29. Although plenty of milo was present and no unseasonable weather had occurred, refuge duck populations were considerably under the expected norms.

Total use days for ducks were 3,027,900. The refuge objective was established at 4,000,000 use days.

American coot numbers continue to decline from the FY-73 peak of 10,000. In 1978, the peak of 1,250 birds was reached on October 5. The low numbers can be attributed to the lack of submergent vegetation caused by fluctuating water levels. Total use days were 30,295.

Two methods are used to census refuge wildlife populations; weekly vehicle or boat counts and sight record listings. Once a week one or more observers station themselves on high ground at the north and south portions of the refuge. Birds are then counted as they leave their roosting areas at dawn. Late in the winter most of the mallards and wigeon will feed in one particular milo field. At that time, evening flight counts are most accurate. During the summer months mid-day boat counts have been found most effective. Sight record listings are maintained as employees go about their daily duties. Each day's sightings are compiled and recorded in a loose leaf binder.

2. Marsh and Water Birds

Washita's sandhill crane population continues to increase. From peaks of 4,360 in '75, to 21,200 in '78. This is the highest number of cranes that have been recorded in the 17 year history of the refuge.

Calendar year 1978 began with 4,000 cranes calling the Washita home. This was the largest population ever to spend the entire winter. This large number also played havoc with the ducks by eating most of the refuge's milo crop before the cold weather had forced the ducks in from the neighboring farm ponds.

The first northward migration was observed on February 24 when 35 sandhills spiraled high and just vanished. Twenty seven cranes were seen on April 9, the last sighting of the spring.

The first sighting of fall occurred on October 4, when 55 sandhills were seen feeding in the "crane heaven" in the force account farming area on Cheyenne Point. The population then continued to build with each succeeding cold front. The fall's peak population occurred on November 17, with 21,200 noisy, hungry cranes living the good life on the refuge's ideal crane habitat. Large mudflats, excellent growths of smartweed and sedge, winter wheat and milo, and shallow water roost areas seemed to hold every crane that flew by. The population declined to 1,000 birds by November 28, where it remained at year's end.

As populations increased, so did the problem of depredation on newly planted wheat. Fortunately many fields bordering the refuge were planted to cotton and the majority of the wheat fields were planted early enough so that a root system and some stooling occurred before a large number of cranes got into the habit of feeding in them. Eventually, wheat farmers bordering the refuge may learn to plant early in September to avoid the sometimes considerable damage cranes cause to sprouting wheat.

For many years, Washita's crane population was thought to be made up largely of lesser sandhill cranes (G.c. canadensis). However, after examining several hundred harvested birds, many hours of observation by members of the Oklahoma Cooperative Wildlife Research Unit, the comparison of measurements taken from eight rocket-netted birds and the sighting of a marked crane from Manitoba, the opinion of refuge staff and OSU researchers is that the greater sandhill cranes (G.c. tabida) is presently the main subspecies making up the Washita's sandhill crane population.

On October 21, a sandhill crane banded and wing-marked by the Canadian Wildlife Service in Manitoba and another color-marked by Oklahoma State University near Brownfield, Texas were observed among several thousand sandhills feeding in a refuge wheat field.

Total use days by sandhill cranes totaled 417,980.

For the last several years, Washita has hosted only minor concentrations of wading and fish eating birds. Fluctuating water levels always seem to present the worst conditions at the most important migrational times. Notable sightings for CY-78 were: 1,150 white pelicans on April 26; one common loon on May 20; two eared grebes on June 8; 36 great blue herons on September 3; and 200 double-crested cormorants on November 9.



White pelicans once again found the shallow water areas to their liking. Roll 5, #16 C.C.H.



Eared grebes are one of the four species of grebes that visit the refuge. Roll 6, #14 E.V.K.

3. Shorebirds, Gulls, Terns and Allied Species

Shorebird observations remained at the high trend observed during CY-77. Although high water provided little shoreline habitat during the spring migration the birds moved into the sheet water areas present in our farm fields after heavy spring rains. The long hot summer plus the leaking reservoir dam, dropped water levels, thereby exposing large mudflats in time for the late summer movement of shorebirds. Sightings for CY-78 included: five long-billed curlews on April; 22 American avocets on April 22; 200 Wilson's phalaropes; 30 long-billed dowitchers; 15 Hudsonian godwits on March 7 and two solitary sandpipers on August 31. On November 26, while checking crane hunters, the assistant refuge manager observed a single cattle egret flying north through the dense fog. It is suprising that he was flying at all, since this was the second day of the sandhill crane hunting season and the extremely heavy fog was causing difficulty in hunters identifying cranes as well as cranes identifying hunters.



Even the black and least terns could find a log to loaf on after a hard morning of feeding. Roll 6, #21 E.V.K.

4. Raptors

Species observed on the refuge during 1978 were: turkey vulture, Mississippi kite, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, Harlan's hawk, Swainson's hawk, rough-legged hawk, golden eagle, bald eagle, osprey, prairie falcon, Merlin, American kestrel, great-horned owl, screech owl, short-eared owl and barn owl.

Sightings of golden and bald eagles were common during the first months of the year. This also remained true during the close of the year; however, more immature bald eagles apparently seem to be present or either the new refuge spotting scope allowed better identification. Prairie falcon sightings remained high with seven observations made from October through December. A prairie Merlin was observed on November 24, the first sighting of this rare visitor in a number of years. Cooper's and sharp-shinned hawks remained a common attraction around the refuge headquarters. Our large "house" flocks of Harris sparrows and white-crowned sparrows more than once avoided becoming a meal by taking refuge in the large crepe-myrtle bushes growing near the residences.

Noticeably low in number were rough-legged hawks and short-eared owls. No burrowing owls were observed on the refuge.

After discovering that the local screech owls enjoyed using our old wood duck boxes to roost in, plans have been made to have this year's YCC'ers erect "owl boxes".

5. Other Migratory Birds

No formal mourning dove counts are conducted on the refuge, although notes are made of unusual concentrations. Usually, two periods of the year can be counted on to produce large mourning dove counts - two weeks before the hunting season opens and late winter when natural foods become low. Nesting success appeared to be below normal due to a hail storm in May and very dry and hot conditions in June and July.



A full house! five barn swallows in one nest! Roll 14, #4
E.V.K.

6. Banding

Our group one banding quota was set at 200 mallards of each sex. Group two was set at 1,000 Canada geese. Low duck populations and a heavier emphasis on attaining our goose quota left us with only 152 mallards banded. This was the first time in several years that the Washita has not met it's duck banding quota.

Calendar year 1978 Canada goose banding met with the greatest success ever experienced in refuge history. Banding during January, February and December accounted for 850 Canada geese and one white-front goose.

A total of 1,541 geese have been banded at the Washita NWR. Present returns are nearly equal with 41 recovered in Tallgrass (TGPCG) and 40 in Shortgrass (SGPCG) flock areas. For current flyway planning, the Washita's wintering goose flock is considered to be made up entirely of Tallgrass birds.

The banding crisis experienced by many refuges when rocket charges were discovered to be unstable had no effect on Washita's banding program. We still use the "out moded" Miller style cannons with cardboard pill box charges we make ourselves. Thanks to some far sighted purchasing by previous refuge managers, we have managed to beat inflation, as each shot per cannon costs

C. Mammals and Non-migratory Birds and Others

1. Game Mammals

This past year has been a "boom and bust" period for the refuge beaver and muskrat population. High spring lake levels flooded large areas of new beaver habitat and many large cottonwoods became casualties of beaver technology. However, evaporation during the dry summer months and U.S. Bureau of Reclamation's lake drawdown left many of the beaver food sources high and dry. At the close of the year, the hard pressed individuals were traveling long distances up some of the lake's feeder creeks, subsisting on western hackberry.

Fluctuating water levels and almost no cattail growth has left few muskrats inhabiting the refuge.

Coyote populations continue to be high. Increased hunting pressure, due to high fur prices, and easy meals provided by crippled waterfowl, continue to draw coyotes into the refuge during the winter months.

Diggings and tracks indicate that populations of badger and raccoon continue at the low levels experienced during the last few years. Heavy tick infestations and distemper outbreaks plague our raccoons.

The refuge white-tailed deer herd continues to thrive. The population is estimated at 40+ individuals. Sights and tracks have been found in all portions of the refuge. Some sightings and several sets of tracks have been found on private land several miles from the refuge boundary. Surrounding landowners may cuss our geese but they are extremely enthusiastic when it comes to the possibility that our deer may become their deer.



If only cottontails were as easy to find in the hunting area! The refuge supports a very good population of rabbits as well as other mammals. Roll 5, #21 C.C.H.

2. Other Mammals

The black-tailed prairie dog town on Cheyenne Point continues in a dormant state. No production has been noted in five years. Two females were trapped elsewhere and released in the refuge "town" this past summer. At least one stayed. Now only time will tell.

3. Resident Birds

Two observations of Rio Grande turkey were made during April. No other sightings were made during the remainder of the year. Apparently, we provide excellent nesting habitat but have very little to offer for winter roost sites.

Perfectly timed rainfall and high grasshopper populations assisted in producing one of the best bobwhite quail hatches in several years. Numerous large coveys and, on several instances, double and triple clutches were observed.

No lesser prairie chickens were sighted during 1978.

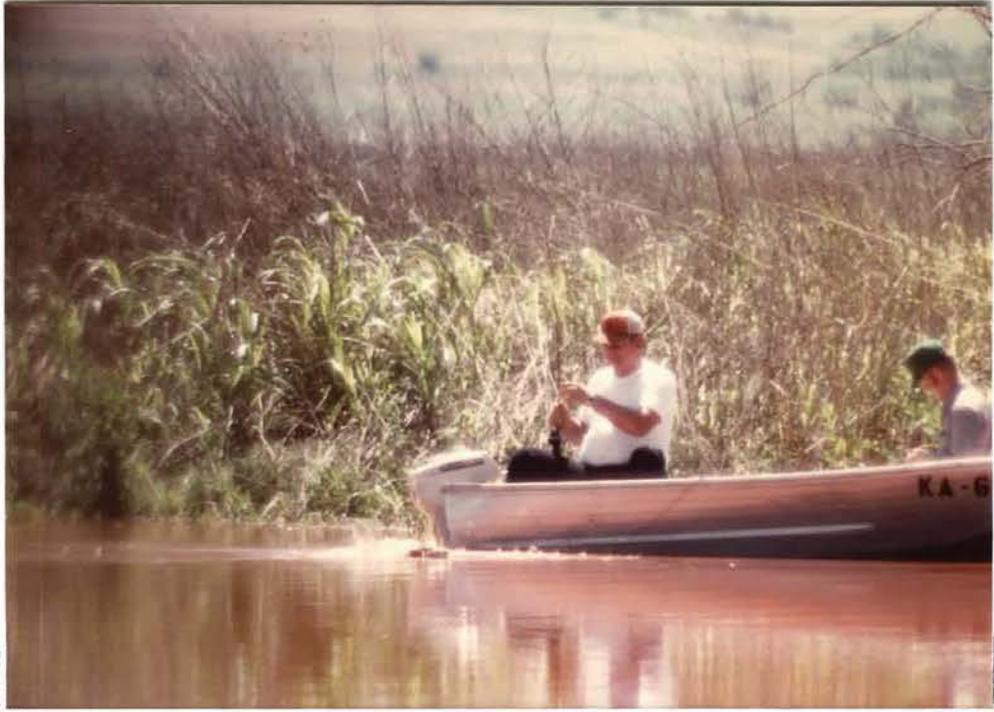
No sightings of ring-necked pheasants occurred during 1978. Marginal habitat and illegal taking during the refuge quail must be blamed. We believe our last pheasant was observed last year.

The annual Washita Audubon Christmas Bird Count was conducted on December 30. Fifty three species and two forms (72,417 individuals) were counted. Again, as last year, bad weather and poor attendance lowered our species score.

4. Other Animal Life

Fishermen had only moderate success while using the Washita River that bisects the refuge. Spring rains muddied the waters and caused reduced fishing pressure for large mouth bass; however, a few "old-timers" succeeded in catching modest numbers of channel cat.

The high light of the year was a white bass "run" that occurred during the last weeks of April and the first week in May. Catches of 20-30 bass were common and some as large as 90 fish were heard of. Good catches of walleye and striped bass were reported from the main body of the lake.



Hang in there! another channel cat goes on the stringer. Fishing is the number one wildlife oriented recreational activity on the refuge. Roll 5, #7 E.V.K.



We never know what amphibians or reptiles are present on the refuge until we find one. This yellow mud turtle has been added to our list. Roll 6, #4 E.V.K.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

During the year, 126 students and their teachers from Custer, Leedey, Butler and Mobeetie, Texas schools visited the refuge. Eleven cub scouts and two leaders also visited the refuge. These young people were shown wildlife conservation films, observed various refuge operations and were provided data on programs and planning.

On October 1, Oklahoma State University Professor John Barclay and 10 students visited the refuge on a Wetlands Ecology field trip. Waterfowl and refuge management policies were discussed. Also, two Southwestern Oklahoma State University students (majoring in Education) were provided information on the Service's and refuge's Environmental Education program.

In June, a graduate student from the University of Wisconsin visited the refuge seeking information on whooping crane sightings.

In April, after prior notification, Mrs William Riley, visited the refuge to obtain data and opinions to be used in a book, Guide to the National Wildlife Refuges, that she and her husband are writing.

In October, five members of the Clinton Garden Club were conducted on a tour of the refuge. Service programs and station objectives were discussed.

Visits to the Washita NWR were made by the Black Kettle National Grasslands and the Wichita Mountains Wildlife Refuge YCC camps. These groups totaled 48 enrollees and seven leaders. Refuge programs were explained and tours were given.

On April 25-26 and again in November, 200 5th and 6th grade students plus seven teachers from the Weatherford, Oklahoma schools used the Washita NWR for an Environmental Education Outdoor classroom. It is believed that most of the students were concerned and the activities were well received.



Students from the Weatherford, Oklahoma fifth and sixth grade science classes visited the refuge during the spring and fall, as part of their environmental education course work. After collecting a net full of vegetation and creepy, crawly things (above) they inspected and identified their catch (below).
Roll 2, #16 and 20 E.V.K.



2. Off-Refuge

Slide talks were presented to the Kiwanis and Lions Clubs of both Clinton and Elk City during the year, also the the Jaycees in Clinton and Canute and two programs to the Clinton Garden Club.

News releases covering refuge fishing and hunting and YCC staff and enrollee recruitment were submitted to local newspapers. The goose depredation problem generated numerous news releases. Reporters from the Clinton Daily News featured the Washita YCC camp with a full page picture story plus an additional 28 inch column giving the full YCC story on the refuge.

National Wildlife Week educational packets were distributed to local area schools.

Refuge Manager Klett was involved in teaching standard first aid, multimedia first aid and cardiopulmonary resuscitation classes in the local area.

Manager Klett and Assistant Manager Heflebower are members of the Wildlife Society and the state section. Assistant Manager Heflebower was nominated for the Secretary-Treasure position in the state organization and came in a close second.

Manager Klett is a member of the Oklahoma Academy of Science and the Oklahoma chapter of the National Wildlife Federation, as well as a life member in the National Wildlife Federation.

Assistant Manager Heflebower is a member of the National and Oklahoma chapters of the Audubon Society. Craig has artistic talent and submitted one of his paintings to the National Duck Stamp contest.

Maintenance Farmer Jack Warner is Treasure of the American Legion and member in the Ex-Prisoner of war, Inc., Veteran of Foreign Wars and Disabled American Veterans. He is also Chief of the Hammon Volunteer Fire Department.

Automotive Mechanic Dan Zerby is a member of the Butler Volunteer Fire Department.

The staff are members of churches of their choice in their respective communities.

B. Recreation

1. Wildlife Oriented

An estimated (we have no recorders or counters in operation), 9,885 visits were made to the refuge by people interested in wildlife oriented activities. Fishermen accounted for 7,970 visits, followed by resident game hunters with 425. The remaining visits were from people observing and photographing wildlife, primarily our large flocks of geese and sandhill cranes.

The sixteen foot observation tower erected at Owl Cove in 1977, remained open all year and was extensively used by observers and photographers of waterfowl.

The refuge public hunting areas opened for bobwhite quail and cottontail rabbit hunting on November 20 and remained open through the end of the year (season lasts until February 1, 1979). Hunting was permitted on Mondays, Tuesdays, Thursdays, Saturdays and legal Federal holidays.

Hunting pressure was constant from opening day until after Christmas when foul weather hit, slowing all activities down. An estimated 810 quails and 30 rabbits were harvested.

The refuge is not open to waterfowl hunting, but we do receive considerable pressure around our perimeter. With all the newspaper and television publicity that the goose populations at the Washita have received, the 78-79 waterfowl hunting season was quite lively. Activity continued at a high level well toward the end of the season. One hunter brought in a color marked Ross's goose that he had bagged. This goose was wearing a black plastic collar.

Our record high sandhill crane population increased the amount of hunting pressure on this species. Along with increased hunter activity came increased harvest rates.

An estimated 600 geese and 100 cranes were taken during their respective seasons.

2. Non-Wildlife Oriented

Boating, by power and sail boats, is the only activity allowed under this category. Approximately 60 activity hours were logged this year.

C. Enforcement

Enforcement patrols by refuge personnel are carried out primarily during the heavy public use period (April through June) and again during the refuge quail hunting season (November through January). Frequent roving patrols were made to discourage trespass attempts, especially during the State waterfowl seasons. Refuge personnel received excellent cooperation from State enforcement personnel in relieving some of the enforcement needs around the refuge.

Three of the Washita staff are scheduled for training, in 1979, at the Federal Law Enforcement Training Center in Glynco, Ga. The other two remaining staff members with law enforcement authority are scheduled for training in 1980. In view of our ever increasing enforcement load, we feel this is greatly needed.

The following cases were filed in U.S. Magistrate's Court in Denver, Colorado:

<u>VIOLATION</u>	<u>NUMBER</u>	<u>COST</u>
Unlawful possession of firearm	1	50.00
Trespass in closed area	2	100.00

On November 19, we received information that three hunters were after geese on Cheyenne Point, a closed area of the refuge. This was also during the closed period between the split goose season. Investigation by refuge personnel and Special Agent Dale Horn showed that all individuals were juveniles, 15-16 years of age. Agent Horn met with the individuals and their parents and, while no case was filed, the parents had the young men's guns locked up and took away their hunting privileges for the year. Because of this incident, we did increase our patrol effort around the Cheyenne Point area.

VI. OTHER ITEMS

A. Field Investigations

Graduate students Jim Ranakha and Tom Tacha of the Oklahoma Cooperative Wildlife Research Unit continued their research on the ecology of the sandhill crane. After visiting the refuge for two years, they finally caught their first sandhills. Eight birds were weighed, measured, collared and banded. One sandhill was observed on the refuge this year that they had banded near Brownfield, Texas a year ago.

The refuge continued it's duck and goose banding program in an effort to obtain additional information that can be used in the management of these flocks on a flyway basis.



Graduate students, working through the Oklahoma Cooperative Wildlife Research Unit, utilized the refuge as part of their study area for several projects involving the sandhill crane. During the past two years they have managed to catch eight cranes on the refuge. Roll 13.

B. Cooperative Programs

The Washita Refuge hosted it's first non-resident YCC camp this past summer. It finally became a reality after three false starts. After selecting a staff that was composed of a camp director, environmental awareness instructor and three group leaders; we brought on board 20 enrollees, 11 girls and nine boys.

I believe that we can boast and say, for a first camp, we had a very good one. Every one got along fine, the kids did a grand job, and the refuge received some much needed construction and maintenance.

During the first week of camp, the staff received their defensive driving training and then joined the enrollees in an eight hour multimedia first aid class..

After the eight weeks were over the enrollees had accomplished the following tasks: removed 1 1/4 mile of interior fence and constructed one mile of new fence, built a headquarters information booth and a 1 1/2 mile nature trail with a rock detention dam/crossing.

Maintenance was conducted on recreation area information booths and restrooms, boundary signs, painted woodwork on the observation platform, cleaned up litter and kept the refuge lawn and shrubs neatly trimmed.

Their environmental education/awareness instruction included field trips to the Wichita Mountains Wildlife Refuge, the Black Kettle National Grasslands (administered by the U.S. Forest Service), the water treatment plant at Foss Lake, river walks and trapping and transplanting prairie dogs.

The camp closing/open house was well received. Mr. Chuck Hukill, Regional Office Youth Programs Director, was our guest speaker. He then assisted our camp director in cooking hamburgers for the 80 or so people who attended.

We can only hope that next year's camp turns out as well.



YCC enrollees constructed a nature trail through a river bottom/upland grass complex. They were shown the general area and then did the layout themselves. This stairway, constructed from old railroad ties, leads from a high overlook along the Washita River into a bottomland grass area. Roll 8, #9 E.V.K.



Enrollees also labored on this rock wall, earth filled, detention dam-crossing which was part of the trail. Heavy runoff from the September 17 storm either undermined it or somehow got inside the structure. Anyway, the final results can be seen. Roll 12, #6 E.V.K.



A new addition to the headquarters area was this information booth. Enrollees constructed the booth, erected it and poured a concrete slab underneath and around it. Roll 7, #14 E.V.K.



YCC enrollees completed many refuge maintenance jobs, such as the rehabilitation of our recreation area relief houses. Roll 7, #7 E.V.K.



As part of their environmental awareness experience, enrollees took part in a hike down the Washita River. Signs of beaver activity, tracks of different mammals, fish and plant identification and the discovery of an activity wild bee tree were among the highlights of this trip. Roll 7, #16 C.C.H.

Other cooperative programs included the Tallgrass Prairie Canada goose census, Coordinated Snow-Whitefront Survey, Midwinter Waterfowl and Eagle Survey, and the Audubon Christmas Bird Count.

C. Items of Interest

1. Waterfowl Depredation

As stated in the section on climatic and habitat conditions, growing conditions were far from perfect for winter wheat in the fall of 1977. Consequently, we were forced to place oil drums and aluminum flashers in certain of our sandier fields to prevent the geese from eating out and killing the wheat. This practice has been used on the refuge almost every year since the refuge was established. It is one of the best ways to prevent overgrazing and to prevent wind erosion. The scare devices were not placed in the fields until after the geese had grazed the wheat to the ground. In theory, this would allow regrowth to take place; however, insufficient rain was received and no regrowth occurred.

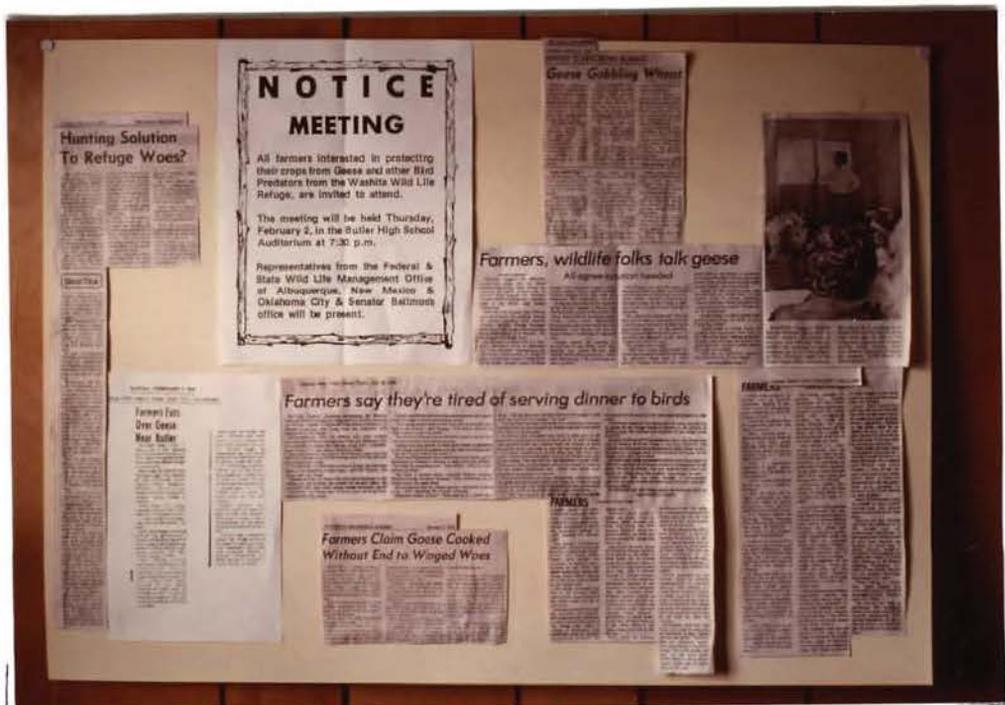


In an effort to reduce wind erosion, such as this, barrels and flashers were placed in already overgrazed wheat fields. This practice been used almost every year at this station with good results. The object is to reduce goose use on that spot, or field, where overgrazing has occurred.
Roll 1, #5 C.C.H.

Local farmers use the same type scare devices to keep geese out of their fields to allow the wheat to establish itself or to save the forage for livestock. This year when the geese started feeding outside the refuge, the farmers first reaction was that the refuge placed the devices to scare the geese out of the refuge and to force the geese to feed on their wheat.

The refuge did not realize that a problem was developing because very few complaints had been received at the refuge office. Only four people had called about goose depredation. Information regarding methods to keep geese out of their wheat fields was given to all and fuse rope and fire crackers were given to two individuals. The number of complaints were no greater than those received in past years.

Most of the farmers were apparently complaining to each other and not to us, for all of a sudden we learn that a public meeting has been set for February 2, at the local school, to air the problem.



' We learned that you have to keep the public informed of refuge programs or they can backfire on you. Misconceptions and misinformation can, and did, create quite a stir. Roll 1, #4 C.C.H.

Prior to this meeting, and afterwards, the refuge was deluged with calls from local newspapers, and a few from the Oklahoma Daily News in Oklahoma City, requesting information on the problem. We also received inquiries from State and Federal Congressional officers.

Approximately, 80 people attended the meeting. Most of them were local farmers. Two newspaper reporters were present. A representative from the office of one of Oklahoma's U.S. Senators attended. The Oklahoma Wildlife Department, the Custer County ASCS office, and the ADC Division of the Fish and Wildlife Service were represented.

The farmers presented the following list of objectives and questions for comment and/or answer:

Objectives: 1) Reduce the bird population to the carrying capacity of the refuge. 2) Increase forage within the refuge. 3) Who's responsibility to feed geese - refuge? farmers?

Questions: 1) Could extra farmland be created within the refuge. 2) What seeding rate and fertilization program is used on the refuge. 3) Could surplus grain be dumped on refuge to keep geese off neighbor's wheat. 4) Why not strip milo and wheat for better dispersement of geese and why not knock down or shred milo on periodic schedule for geese to feed in. 5) Reasons for using scare devices on refuge. 6) Why not furnish aid or devices for complaining farmers and keep them on hand. 7) Lengthen hunting season and increase Canada goose bag limit. 8) What recourse does the land owners have regarding bird damage. 9) Can population control be accomplished. 10) What is the land owner's rights in shooting depredating geese on their property or a neighbor's, with his permission. 11) Why not select an advisory committee of local farmers to monitor problems on refuge on periodic basis.

It was explained to the group that the refuge had expected a depre-dation problem of some unknown degree as far back as five years ago. This prediction was illustrated with two large charts, one showing the increase in our goose flock from 18,000 in 1972 to 34,000 in '77 and the other showing a corresponding decline of 890 acres in refuge farmland. This loss of cropland, coupled with an increasing goose flock was the main reason behind the geese going outside the refuge to feed.

I stated, that we hoped to provide answers to the objectives from information used to answer the questions.

In answer to question number one, creation of new farmland within the refuge, there are approximately 135 acres that could be farmed. Most of this soil is fine sandy loam and could present wind erosion problems. Approximately 50% of this land would be either under water or water logged when the lake reaches conservation pool elevation. The lake is presently 12 feet below this level. Not included in the above figures are an additional 350 acres that we are presently farming that would also be lost.

Present seeding rate follows standard agricultural practice for the area, 1 1/2 bushels per acre. The refuge does, when funds are available, incorporate Austrian winter peas with our wheat to build up nitrogen in the soil. Commercial fertilizers have not been used since our soil and moisture fund was eliminated.

The refuge plans to experiment, on small plots, by planting above average rates of wheat (bushels of seed/acre) and try a few acres of wheat/wheatgrass hybrid. It is possible that one or the other may assist in reducing our wind erosion problem. In addition, we ordered sufficient trees last October to plant 1.5 miles of wind breaks.

If ducks were creating our depredation problem, it could be reduced by some degree by feeding grain along the lake shore. Geese will not readily feed on grain, if green wheat is available; this has been one problem we have had in trying to trap and band geese. If the geese would feed on dumped grain, the cost of acquiring sufficient amounts would be prohibitive. The refuge does not produce enough excess grain to undertake an artificial feeding program. In most cases, Service policy will not allow an artificial feeding program.

Most of the refuge fields are already stripped with alternate plantings of milo and wheat. This practice was started years ago to assist in wind erosion. Standing crops, milo and corn, cannot be knocked down or manipulated during the waterfowl hunting season. The refuge does knock down standing milo when the season ends in January.

It was explained that the refuge has used scare devices of one type or another since 1962. They are placed in certain fields to prevent overgrazing and associated wind erosion. It was further explained that if we lose our top soil by wind erosion, we lose productivity and this would compound the depredation problem. Scare devices are not in all refuge fields.

The refuge does have a small supply of fuse rope, fire crackers, sky-rockets and shell crackers of unknown age. They are on hand for distribution to any farmer who requests them. They are of unknown age because there have been no requests for them. Fuse rope and fire crackers were given to one farmer and he did not use them. Mr. Peterson, State ADC Supervisor, was asked to provide information on the types of scare devices available for the farmers use and how to pro-

Mr. Due, Oklahoma Wildlife Department, was then asked to briefly explain the workings of the Central Flyway Committee and the methods they used in establishing season lengths and bag limits. It would be next to impossible to change either.

Mr. Mardis, ASCS, explained their disaster relief and set-aside programs and how the depredation problem would fit in. I explained that an all risk crop insurance was available through the Federal Crop Insurance Corporation of the U.S. Department of Agriculture office in Cordell, Oklahoma. Bird depredation losses are covered under this program.

Nothing definite could be stated on whether population control could be accomplished. It is too complex and contains too many variables to even guess if goose numbers will stay put, increase or decrease or when.

Mr. Cloyse, Custer County Game Ranger, explained the law regarding depredation permits as it pertained to migratory birds during closed hunting season. He told them that it was illegal to shoot them and they would have to contact the Fish and Wildlife Service's Law Enforcement Division for further information. I stated, I knew of two Federal depredation permits that had been issued in California for coots, not geese.

I did not make any comment, for or against, the advisory committee. I don't think it would be of any benefit. Most of the farmers seem to want the refuge to solve the problem by making changes in the refuge, while they continue farming as they always have. This isn't going to solve the problem. The farmers will have to make a few changes also. Together we will be able to reduce the problem, if the goose flock doesn't get much larger, but I don't think the problem will ever be eliminated.

Mr. Upton Henderson, Oklahoma Wildlife Federation, inquired about the feasibility of establishing a public hunting area on the refuge. I told him, that this was being considered along with several other items. Mr. Byron Moser, Oklahoma Wildlife Department, then furnished additional information on the status of a proposed public hunting area on Foss State Park which takes in the lower portion of the reservoir.

As mentioned in previous sections of this report, we did increase our planting rate, we planted experimental varieties of wheat, we applied fertilizer to our sandier fields, we added extra farmland, we planted the trees for the wind break and we purchased extra scare devices to issue to the farmers to help them in keeping the geese off their wheat.

Some farmers planted their wheat early, most did not. Depredation by sandhill cranes did occur on late planted wheat and we did issue bird bombs, rockets and pistols to launch them with.

Sufficient moisture was received to produce an excellent growth of winter wheat. Only time will tell if the goose depredation problem will repeat itself on such a scale during 1979.

2. Other Items

Manager Klett received his certification to teach the American Red Cross Multimedia First Aid course. He is now certified to teach Standard First Aid, Multimedia First Aid and Cardiopulmonary Resuscitation.

Manager Klett attended the Area I, Project Leaders Conference in Salado, Texas and the YCC Staff Training Program at Brownsville, Texas.

Assistant Manager Heflebower attended the Basic Refuge Managers School in Beckley, West Virginia; an organizational meeting sponsored by the Oklahoma Biological Survey and the Fish and Wildlife Service regarding "Unique and Nationally Significant Wildlife Ecosystems in Oklahoma" and the spring meeting of the Oklahoma Chapter of the Wildlife Society.

Managers Klett and Heflebower also went to the Custer County Soil Conservation District Master Planning meeting in Clinton, Oklahoma concerning the Soil and Water Resource Act of 1977 and the Regional Programmatic Meeting in Albuquerque, New Mexico.

Van Klett, Refuge Clerk Wade Pratt and Maintenance Farmer Jack Warner received Certification as Pesticide Applicators from the Oklahoma State Department of Agriculture.

Craig Heflebower and Wade Pratt attended the Area I, Administrative Workshop in Austin, Texas. Wade Pratt also completed the CSC course on "Stenoscript, Speedwriting".

Visitors of note included: Jim Hubert, Staff Specialist for Refuges and Wildlife, Austin Area Office; Roger Monson and Joe Shepler, Regional Safety Office, Albuquerque; Chuck Hukill, YCC Coordinator, Albuquerque and Ted Wilkerson, Oklahoma Tourism and Parks Department and Mary Lou Flynn, U.S. Bureau of Reclamation, both from Oklahoma City.

D. Safety

The refuge ended CY-77 with 1,957 calendar days without a lost time accident. The previous record was 1,834. Safety meetings are held monthly with all staff members being involved. Current literature is reviewed and any unsafe conditions or habits are discussed. Safety films provided by Association Films, Inc. of Dallas, Texas; the Bureau of Indian Affairs, Anadarko Area Office, Anadarko, Oklahoma and our Safety Office in Albuquerque, were shown at several meetings.

An eight hour Cardiopulmonary Resuscitation (CPR) course was taught by certified instructor, Refuge Manager Klett. All staff members passed the tests and are now certified both in Standard First Aid and CPR.

All YCC staff members and enrollees completed a Multimedia First Aid course taught by the Refuge Manager and his wife, both certified instructors.

Meetings of the Western Oklahoma Federal Safety Council are attended by a representative of the refuge when conditions permit.

On April 12, a YCC pre-camp inspection was made by Joe Shepler, Assistant Safety Officer, from the Regional Office. No serious safety defects were found and Mr. Shepler complimented us on our housekeeping and fire protection throughout the refuge facilities. Roger Monson, Regional Safety Officer, made a visit during the YCC camp. With a few minor exceptions every thing met his satisfaction.

E. Credits

Klett wrote sections I D and VI C and edited entire report; Heflebower wrote sections IV and VI D; Pratt wrote the rest of sections I, II, III, V and VI A, B and typed the entire report.