

BUFFALO LAKE NATIONAL WILDLIFE
REFUGE

Umbarger, Texas

ANNUAL NARRATIVE REPORT

Calendar Year 1987

U.S. Department of the Interior

Fish and Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

BUFFALO LAKE NATIONAL WILDLIFE REFUGE
Umbarger, Texas

ANNUAL NARRATIVE REPORT
Calendar Year 1987

Johnny N. Beall
Refuge Manager

2-26-88
Date

James J. Hubert
Refuge Supervisor Review

3-1-88
Date

[Signature]
Regional Office Approval

4/20/88
Date

RECEIVED
REFUGES

MAR 1 '88

INTRODUCTION

The refuge is located in Randall County, Texas, ten miles west of Canyon, the county seat, and 32 miles southwest of Amarillo, the major metropolitan center of the region. It is from these population centers that visitors are drawn to the Buffalo Lake Refuge.

The high plains of north Texas are composed of alluvial outwash derived from the erosion of the Rocky Mountains. The plains form a vast flatland lying at an elevation of about 3,600 feet above sea level. The erosional deposits are several hundred feet thick and are mixed in composition, ranging from clays to beds of sedimentary rock. The upper layers contain lenses of white calcareous material called "caliche", which is widely used in the construction of roads.

The original vegetative cover of the area was an almost pure stand of buffalo grass and blue grama, the true shortgrass prairie. This cover developed a thin, fertile soil mantle, that has, during the past half century, been developed into outstanding farm and pasture land. The Panhandle region now supports hundreds of cattle ranches and farms. Deep wells providing supplemental irrigation water enhance the value of many of the farmlands.

The refuge is situated at the head of a canyon cut through the prairie by the action of Tierra Blanca Creek as it pursues its course by way of Palo Duro Creek and its famous canyon, to the Red River. This colorful canyon was once inhabited by Indians and later used as a stronghold by cattle rustlers and other outlaws.

Since the time when the land was ruled by bands of bison and horse-mounted hunting parties of Comanches and Kiowas, a time when the streams flowed uninterrupted and unused, there has been wrought a great change in the land. The rivers have been dammed and diverted, the oxbows and sluggish backwaters eliminated and their waters used and reused. Water pulled from deep wells has transformed much of the grassland into rich farmland, and the buffalo have given way to beef cattle.

Waterfowl still wing their way south along the old routes, but each year find feeding and resting areas more and more restricted.

Not all of man's efforts have been detrimental to waterfowl, however. Many men were conscious of the need to protect the

land, its waters and wildlife, and did something about it.

In 1938, a dam was constructed across Tierra Blanca Creek to impound a 2,300 acre reservoir, providing recreation, wildlife habitat, and water storage.

The 7,664 acre tract of land containing the lake was purchased under the provisions of the Bankhead-Jones Farm Tenant Act of 1937, and the project was first administered as a recreation and conservation unit by the Soil Conservation Service, U.S. Department of Agriculture. Managed as a wildlife sanctuary since its beginning, the value of the project as a migratory waterfowl resting and limited wintering area was made pronounced as concentrations of ducks and geese began to appear on the lake. On November 6, 1958, the Buffalo Lake area was formally recognized as a major wildlife resource, and its administration turned over to the U.S. Fish and Wildlife Service by Executive Order No. 10787.



AN1

Red-tailed Hawk on Headquarters Sign

RF

The area, now known as the Buffalo Lake National Wildlife Refuge, plays an important role as a resting and wintering area in the Central Flyway. When water was available, concentrations of more than 1,000,000 ducks and 40,000 geese have been recorded.

Waterfowl use the refuge primarily as a resting area; most birds fly out into the farmlands of the region to feed.

Historically, Buffalo Lake has had increasing problems of inadequate inflows and water quality. Water quality problems are primarily the result of accumulations of excessive amounts of nutrient materials within the lake and receding water levels due to evaporation and seepage and to inadequate water inflows.

With the exception of major storms of unusual intensity, little or no water flows into the lake. Because of land use patterns and land management techniques, this trend is not expected to change. With this in mind the refuge has developed a General Refuge Management Plan which emphasizes wildlife-oriented recreation as opposed to water-oriented recreation and management objectives directed toward the attainment of two goals: to provide and maintain habitat and protection for migratory birds and resident wildlife species, and to make provisions for public use activities compatible with the Service's primary responsibility to the wildlife resource.

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L. INFORMATION PACKET

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A. HIGHLIGHTS

- Numerous personnel changes are made (section E.1).
- Refuge farming program re-activated (section F.4).
- Waterfowl Management Impoundment fills for fourth consecutive year (section F.2).
- Whooping crane chick #3087 appears near Amarillo on November 10 (section G.2).

B. CLIMATIC CONDITIONS

Precipitation was above normal for the third straight year. A total of 21.54 inches was recorded, with 19.67 inches being normal. Timely rains in May resulted in an exceptionally good growing season. This also led to the worst mosquito conditons in 10 years during June.

Severe winter storms occurred in January, March, and December. The January storm dropped 14 inches of snow in two days. Temperatures dipped to 2^oF., and the waterfowl impoundment froze over for 12 consecutive days. The March cold snap set a record, with a low temperature of 11^oF. recorded late in the month. Blizzard conditions occurred on the 23rd as heavy snowfall and 40 mph winds combined to close down most of the Panhandle.



AN2 - 12/87

GWJ

A "Snowy" Day at the Refuge

Records were broken December 14th and 15th as temperatures plunged to -6°F. respectively. Seventeen inches of snow fell over December 13-14 to set a record for December snowfall.

MONTH	<u>Weather Conditions</u>					WIND SPD
	<u>Snow</u>	<u>Precip.</u>	<u>Norm</u>	<u>Max</u>	<u>Min</u>	
Jan	14	1.30	.65	64	2	9
Feb	3	.75	.62	70	22	12
Mar	9	.70	.82	74	11	11
Apr	.2	.20	1.32	93	22	10
May		4.47	3.37	89	38	10
Jun		2.27	2.89	99	47	8.5
Jul		.87	2.34	96	54	12
Aug		4.72	2.58	94	45	9
Sep		3.14	1.89	86	46	7
Oct		1.54	1.76	91	29	12
Nov	T	.48	.66	76	12	9
Dec	19	1.10	.77	72	-6	9
Totals	45.2	21.54	19.67	83.7	26.8	10

D. PLANNING

2. Management Plan

The Wildlife Inventory Plan was completed this year.

5. Research and Investigations

Buffalo Lake NR 87 -Soil Erosion Rates in the Buffalo Lake National Wildlife Refuge, Texas (21570-01-78)

Drs. T. C. Gustauson, R. J. Finley and C. M. Woodruff, Bureau of Economic Geology, University of Texas, Austin, Texas.

This study is to determine the local climatic variables, the rates of soil removal from uplands, slope areas and stream bottoms, and the process by which soil is removed, to understand rates of erosion on the High Plains. For the past eight years, climatic data has been collected at the refuge. This data includes rainfall, air and soil temperatures and moisture, rates of soil erosion or accumulation, and joint patterns in the exposed rimrock.

Taxonomic Status and Range of the Tiger Beetles (21570-87-1)

Ed Gage, Research Entomologist, San Antonio, Texas

A study on the taxonomy and range of tiger beetles (Cicindelidae) was undertaken by Ed Gage, a researcher from San Antonio.

Density and Distribution Study of the Least Shrew (Cryptotis parva) in Eastern New Mexico and West Texas (21570-87-4)

Carl Shuster, Department of Biology, University of New Mexico, Albuquerque, New Mexico

Carl Shuster from the University of New Mexico collected least shrew specimens to study the taxonomy and range of this species.

Contaminant Survey of Buffalo Lake National Wildlife Refuge

Fort Worth Ecological Services Field Office and Buffalo Lake NWR Staff, Roy Irwin, Principal Investigator

An environmental contaminant study was begun by the Fort Worth office of Ecological Services. Roy Irwin, contaminant specialist, collected fish, bird, sediment, and water samples in conjunction with Texas Water Commission personnel. The study will determine if contaminants are accumulating in animal tissues or sediments in the Tierra Blanca watershed, which runs through the refuge.

E. ADMINISTRATION

1. Personnel

Buffalo Lake is in a complex with Muleshoe NWR in Bailey county, Texas, and Grulla NWR in Roosevelt county, New Mexico. The Complex Manager position, vacant since September of '86, was filled in March. Johnny Beall, who served as Acting Complex Manager for 6 months, was selected to fill this position.

Biological Technician Mark Vaniman transferred to Imperial NWR, Arizona to become Assistant Manager in May.

Gary Juenger transferred in from Hagerman NWR in April to become Assistant Manager.

Chad Karges served as a temporary Bio-Aid from January until July, when he transferred to Matagorda Island as a Bio-Tech.

Jim Barrows, Office Clerk, resigned in September to take a position with the Corp of Engineers in Galveston.

Kay Scruggs was hired to fill the Clerk position in November.

Alvin Payne, temporary Maintenance Worker, was extended for a second NTE one year appointment.



AN3 - 1/88

GWJ

Left to right: Juenger, Beall, Scruggs, Payne

2. Youth Programs

The 1987 YCC program was supervised by temporary Bio-Aid Karges. Recruitment began in March when local high school counselors were contacted and news releases were issued.

The five-youth camp was reduced to four after one dismissal. Major accomplishments were made in public use facility installation. A series of interpretive signs was installed along the tour route. A prairie dog town trail with interpretive signs was built, and a wooden observation deck at the overlook was constructed.

The camp installed 3350 feet of 1 1/4" PVC waterline between grazing units 9 and 10.

Trail markers and an interpretive sign were installed along the Cottonwood Canyon birding trail.

We are proud to report an accident-free youth camp this year.

4. Volunteers Program

A total of 160 volunteer hours were logged in 1987. Shannon Terrel, a 1986 YCC veteran, volunteered 80 hours. Alice Beall and Susan Vaniman donated 80 hours of much-appreciated time. Activities benefitting from volunteer hours included maintenance, public use, and wildlife surveys.

5. Funding

Refuge Funding FY 84 Thru FY 87

<u>Acct.</u>	<u>1260</u>	<u>1510</u>	<u>1520</u>	<u>2821</u>	<u>8610</u>	<u>6450</u>	<u>Totals</u>
FY 84	117,763	16,113	8,404		2,000	413,000	557,280
FY 85	176,800			333,000	1,500		511,300
FY 86	174,900		14,050		1,400		190,350
FY 87	134,200	200	10,300		2,900		147,600

6. Safety

There were no reportable accidents on station this year. A good safety record is due at least in part to monthly safety meetings conducted by refuge staff members. Topics included defensive driving, equipment safety, use of fire extinguishers, splinting of fractures, electrical safety, and heat related illness.

A new hydraulic vehicle lift was procured for the shop to replace the old, safety-deficient lift.

Assistant Manager Juenger completed 4.9 hours of flight training as part of the Region 2 Pinch Hitter program. This program is intended to train frequent flyers in landing procedures in emergency situations.

A paint storage locker was procured for safe storage of flammables.

Plans were made for a dam failure early warning system for Umbarger Dam.

F. HABITAT MANAGEMENT

1. General

Buffalo Lake National Wildlife Refuge contains 7,663.93 acres and consists of:

3,106 acres of wetlands (when lake is filled to spillway level) comprised of:

- 2,818 acres of open fresh water.
- 278 acres of marshes.
- 10 acres of stream open water/marsh associated with Tierra Blanca Creek, and,

4,558 acres of uplands comprised of:

- 4,373 acres of grasslands.
- 60 acres of woodlands.
- 40 acres of brushlands.
- 85 acres of administrative lands.

The dry lake bottom has not been classified as yet, but consists mostly of kochia and other invading weed species.

2. Wetlands

Stewart Marsh, the waterfowl management area, began the year with 300 surface acres of water. This amount is considered excellent as our water inflow is very limited. By May, 150 surface acres remained. Substantial rains again filled the impoundment by June 1. This was the fourth straight year of relatively good water levels. Good use was made of the marsh by fall migratory waterfowl and shorebirds.

Texas Dike, a planned impoundment structure between Umbarger Dam and Stewart Dike, was surveyed by R.O. personnel Laddie Mills, Chuck Downing, Pam Moehn, and Steve Kelly on July 15th.

4. Croplands

The on and off farming program was "on" again in 1987. Plans for a milo crop fizzled as one co-operative farmer was unable to fulfill his commitment. A second agreement was made with another farmer. We agreed to mow and disk six 40 acre fields. The farmer seeded the fields to winter wheat and will harvest the grain in the summer of 1988. A total of 203 acres was seeded.

An unharvested wildlife share will be included in future agreements, but was not included in the current agreement in order to entice the farmer into planting winter wheat. Deer and geese did graze on the wheat through the fall and early winter.

The checkerboard pattern of farming increases the "edge" effect and is also helpful in our burning program.

The main objective of the farming program is to reduce excess nutrient levels found in the lake bottom soils due to historic inflow of feedlot waste water. A secondary objective is to provide a wildlife food source. Fire hazard reduction is a third objective.



AN4 - 11/87

GWJ

Aerial photo shows checkerboard pattern of lake bottom farming to increase "edge".

5. Grasslands

The Grassland Management Plan completed in 1986 withstood its second year of implementation.

Photos were taken in June at all 12 photo points as described in the Grassland Management Plan.

A representative of the National Park Service inspected the 175 acre High Plains Natural Area, which is recognized as an Historic Landmark.

7. Grazing

The deferred rotation/rest grazing system was followed for the second year. A base herd of 210 animal units grazed, in

rotation, five pastures which were rested in 1986.

Only one bid for \$12.65 per AUM was received. This is, to our knowledge, the highest amount bid for grazing on federal lands in the entire United States.

In support of the grazing plan, 3350 feet of 1 1/4" PVC pipeline and a watering tank were installed in June by YCC.



AN5 -

RF

Permittee moves cattle to follow rotation schedule

9. Fire Management

There were no wildfires on the refuge this year.

A small prescribed burn of 5000 square feet was conducted in March as part of a roadside interpretive exhibit depicting the effects of burning on grassland.

Fire lanes graded to bare soil are a continuing part of refuge pre-suppression activities.

Prescription burning of fallow lake bottom farm fields will be part of the Cropland Management Plan to be written in 1988.

11. Water Rights

This was the second year of a five year temporary permit allowing us to impound water behind Stewart Dike without conforming to Texas Water Commission specifications. The need for an "extra" permit to impound water within the original lake basin was conjured up due to the efforts of the Buffalo Lake Water District and their application of pressure on the Texas Water Commission in 1985. Progress was made as Gil Montoya (RO-Engineering) surveyed and staked the spillway necessary to comply with state requirements. Construction will take place in 1988. The spillway will bring the impoundment up to state standards which are designed to protect the dike from a precipitation event which might cause more runoff than the overflow tubes could handle.

12. Wilderness and Special Areas

The 175 acre High Plains Natural Area was inspected by the National Park Service. It is a secure, undisturbed area of climax shortgrass prairie on the east side of the refuge.

G. WILDLIFE

2. Endangered and/or Threatened Species

Bald eagles are the most common endangered species occurring here. A peak of 3 birds was seen in January, down from a peak of 12 in 1986.

A single peregrine was noted by Ken Seyffert in September.

On November 10, a whooping crane chick was found using two playas in east Randall county about 35 miles from the refuge. Close tabs were kept on "Joey" (#3087) by refuge staff, state personnel, and volunteers. It was determined that the chick was part of the main wild flock, had hatched the previous June, and was separated from its parents during migration. He was unaccounted for, for a 10 day period in December, returning on the 21st. He was last seen on Christmas Day. As of year's end his fate was unknown.



AN6 - 11/88

"JOEY #3087"

GWJ

3. Waterfowl

Waterfowl numbers were comparable to those of 1986. Peak numbers included 4600 mallards in November, 2400 green winged teal in November and 6000 pintails in December. Other species observed were gadwall, blue-winged and cinnamon teal, American wigeon, northern shoveler, redheads, canvasbacks, lesser scaup, buffleheads, and ruddies. At least one brood of four mallards and 19 blue winged teal were produced at Stewart Marsh this summer.

Wood ducks, an rarity for this area, were present in November.



AN7 - 11/87

GWJ

A mallard hen caught in mid-stretch

Peak Waterfowl Populations by Month CY 87

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AM COOT	0	10	150	100	75	15	20	250	300	550	30	50
Snow Goose	0	0	0	0	0	0	0	0	0	0	0	0
Can Goose	25	25	0	0	0	0	0	0	0	0	250	300
Mallard	250	800	350	180	30	2	6	150	112	100	4600	4000
Gadwall	25	12	45	35	20	2	0	0	115	275	300	350
Pintail	275	600	450	50	2	2	0	12	300	300	4000	6000
GW teal	75	275	400	310	6	0	0	0	20	700	2400	1200
BW/Cin teal	0	10	80	1360	90	13	12	500	680	125	50	0
Wigeon	150	100	350	60	20	0	0	200	105	320	400	1800
Shoveler	35	50	450	800	75	4	4	0	40	250	250	300
Redhead	0	450	375	30	30	4	6	0	30	190	100	0
Ring-necked	0	50	35	30	0	0	0	0	10	30	20	0
Canvasback	1	12	8	6	2	0	0	0	0	13	30	30
L Scaup	10	25	40	60	10	0	0	0	0	0	0	50
Bufflehead	0	2	15	80	0	0	0	0	0	0	30	10
Ruddy	0	10	215	170	65	2	0	10	9	23	20	20
Goldeneye	0	0	0	0	0	0	0	0	0	0	0	0
C Merganser	0	0	0	0	0	0	0	0	0	0	0	0
H Merganser	0	0	0	0	0	0	0	0	0	0	0	0
Wood duck	0	0	0	0	0	0	0	0	0	0	2	0
TOTALS	846	2431	2963	3271	425	44	48	1122	1721	2876	12482	14110

4. Marsh and Water Birds

Species observed this year included great blue herons, up to 80 black crowned night herons, doubled-crested cormorants, eared and pied-billed grebes, up to 50 white-faced ibis, and cattle egrets.

5. Shorebirds, Gulls, Terns and Allied Species

A black tern was seen in August.

A single black-necked stilt appeared in July.

Other species seen included ring billed gulls, killdeer, American avocets, Wilson's phalaropes, long billed dowitchers, and greater yellowlegs.

6. Raptors

As usual, the Swainson's hawk was the most numerous raptor on the refuge. Two young were produced near the windmill on the tour road in June.

Two prairie falcons were seen in January.

A peak of 3 golden eagles occurred in February.

Two Mississippi kites were seen in May.

Up to 32 turkey vultures passed through in September.

Four or five burrowing owls were seen routinely in the prairie dog town from May through November.



AN8

RF

Burrowing Owl on fence post

7. Other Migratory Birds

Mourning doves were numerous this year, with an estimate of 1200 birds occurring in September. Salt cedar was used heavily for nesting in June and July.

8. Game Mammals

Our small herd of deer consists of about 30 mule deer. Three whitetails also inhabit the refuge. All appear to be in good health, with several trophy bucks in the bunch.



AN9 - 12-87

GWJ

A Nice 6x7 muley buck roams the refuge

10. Other Resident Wildlife

Other wildlife seen included coyote, bobcat, porcupine, black-tailed jackrabbit, and black-tailed prairie dogs.

Both bobwhite and scaled quail are found on the refuge. Good conditions led to an above average production year, and coveys numbering up to 20 birds were present well into November. Estimates were 250 bobwhite and 200 scaled quail in May.

Ring-necked pheasants also had a good year, with populations of up to 350 in May.

Prairie rattlers, gopher snakes, and Texas horned lizards were common reptiles seen.

Tiger salamanders materialized after heavy June rains for a brief mating period.

Wild turkeys stocked on the neighboring ranch to the north continued to use the refuge during the warmer months. They favored the mowed portions of the camping and picnic areas.



AN10

RF

A day in the life of a porcupine on the refuge

14. Scientific Collections

Specimens of pintail, wigeon, and mallard drakes were taken for mounting and display at Muleshoe NWR.

Least shrew specimens were taken by a researcher. (see section D. 5.)

Bird and fish samples were taken for an environmental contaminants study. (see section D. 5.)

15. Animal Control

Major efforts in black-tailed prairie dog population management were undertaken this year. In January, 250 acres of refuge land and 640 acres of private land were pre-baited with cleaned oats. Zinc phosphide treated oats were applied two days later. A week later, spot treatment with phos-toxin tablets was performed. Additional treatment is planned for 1988.

16. Marking and Banding

Post season waterfowl banding was done in February. Two traps were set in Stewart Marsh, and three at Caprock Feedyards in Parmer county. A total of 449 birds was banded, including 308 mallards, 76 wigeon, 51 pintails, 8 redheads, 3 green winged teal, 2 gadwall, and 1 canvasback. Combined North Texas refuge goals were 2,000 mallards of each sex. Inconsistent trapping success and a lack of birds using the area contributed to the limited success of the effort.

17. Disease Prevention and Control

As in 1986, no avian cholera cases were reported. Two botulism events were investigated in October. One occurred near Hart, Texas in Castro county and another near Brownfield, Texas in Terry county. An estimated total of 1,069 birds died from these two outbreaks. Some 95 carcasses were picked up by complex staff.

The Texas Panhandle Playa Lakes Aerial Census, in its fourth year, was flown by Pilot/Biologist John Winship on January 30th and March 14th with Vaniman as observer, and on October 14, November 11th, and November 30 with Juenger as observer. This survey gives an index of waterfowl populations in the Panhandle and also functions as a disease patrol.

Manager Beall and Assistant Manager Juenger attended Inter-Agency Playa Lakes Disease Council Meetings in May and November. Complex Manager Beall continued as chairman of the disease management committee. The council promotes research to manage waterfowl habitat to reduce disease problems. It also co-ordinates study efforts and publicizes the disease problems in the Panhandle area. The May meeting, on the refuge, was held in conjunction with a waterfowl disease workshop given by Milt Friend and Ron Windingstad of the National Wildlife Health Center in Madison, Wisconsin. Some 27 refuge, state of Texas, and University people participated.

A new portable waterfowl disease display was unveiled at the November meeting by Tom Smylie, Region 2 Public Affairs Officer.



AN11 - 2/88

JHB

New portable waterfowl disease display

H. PUBLIC USE

1. General

Progress was made in implementation of most of the Interpretive Management Plan as interpretive signs and trails were installed.

4. Interpretive Foot Trails

The Cottonwood Canyon Birding Trail was upgraded, marked, and its restroom repaired.

A prairie dog town trail with interpretive signs was constructed. It also interprets the High Plains Natural Area.

5. Interpretive Tour Routes

The five mile auto tour route was completed with the installation of six interpretive wayside exhibit signs.

7. Other Interpretive Programs

Four off-refuge programs were presented to school groups at

Morton, Farwell, Umbarger, and Muleshoe. These dealt with endangered species, general refuge system, and "Take Pride in America".

8. Hunting

The third annual pheasant hunt was held December 12, 16, 18 and 20. Six hundred and thirty one people applied for the 100 permits. Two hunters were allowed per permit. 66 hunters harvested 27 birds for a 20 percent success rate. There were .40 birds taken per hunter with 10 hunter hours per bird harvested.

1987 PHEASANT HUNT

<u>DATE</u>	<u>#HUNTERS</u>	<u>BIRDS KILLED</u>	<u>BIRDS LOST</u>	<u>% SUCCESS</u>
12-12	33	16	1	24
12-14		CANCELLED DUE TO 16" SNOW		
12-16	6	2	1	16
12-18	15	7	0	23
12-20	<u>12</u>	<u>2</u>	<u>0</u>	<u>8</u>
TOTALS	66	27	2	20

The harvest of 27 birds was down from 30 in 1986 and 47 in 1985, but the success rate was higher due to the poor hunter turnout. 270 activity hours resulted. No violation notices were issued.

Age structure of the birds taken was 48% juvenile (13) and 52% adult (14).



AN12 - 12/87

GWJ

"Lucky One"

11. Wildlife Observation

Of 12,208 refuge visits, 10,535 were attributed to wildlands/wildlife observation. This compares with 13,279 total visits, in 1986, of which 9,223 were for this purpose. In 1985, 12,171 visits were logged, of which 8,400 were for wildlife observation.

12. Other Wildlife-Oriented Recreation

Photography has increased in popularity, from 106 visits in 1985 to 145 in 1986, and 151 visits this year.

13. Camping

Camping use was up this year with 770 visits. In 1986, 714 camping visits took place, and 160 were logged in 1985.

A second group campsite consisting of a covered area with 8 tables was installed in 1987. These sites, available by reservation only, have become popular for scout groups, reunions and club outings.

14. Picnicking

Picnicking visits were down this year at 2650. In 1986, 3085 visits occurred, way up from 1985's 613.

A second group picnic site was added this year, consisting of 8 covered tables and a cooking area.

16. Other Non-Wildlife Oriented Recreation

Horseback riding on roads and fire lanes accounted for about 20 visits.

17. Law Enforcement

Two violation notices were issued in 1987. One was for general trespass. The defendant entered the refuge after hours. This case went to Magistrate Court, where the judge found the defendant not guilty due to a lack of intent to violate the regulation.

The other violation notice was for careless driving. It was issued in connection with a one vehicle accident with no injuries which occurred on the refuge. Collateral of \$50.00 was forfeited.

A complaint was filed with the FAA on a low flying aircraft whose "N" number was obtained.

Officers Beall, Juenger and Vaniman completed the annual 40 hour law enforcement refresher held at Marana, Arizona in April.

Beall and Juenger qualified with service revolvers in Elk City, Oklahoma on October 21.

Several minor vandalism and theft incidents occurred in 1987. Restroom and traffic signs were stolen. The electronic gate was damaged three times by persons forcing entry after 10pm. This problem has been alleviated by installing an electronic deadbolt.

A varied tour of duty was used to provide weekend coverage during the summer months. Duty rotated among all staff members, and the higher profile on weekends seemed to be beneficial.

I. EQUIPMENT AND FACILITIES

1. New Construction

Our major construction project this year was a 54' x 96' storage building built by Morton Buildings, Inc. Half of the floor was poured in concrete in December, and a small office will be built in one corner of "the barn". Now all our vehicles and equipment can be kept inside, secure and out of the weather.



AN13 - 2/88

JHB

"New Barn"

Other new construction included slabs for group picnic and camping areas, installation of 3350' of water line for the grazing program and a small observation deck at the overlook.



AN14 - 11/87

GWJ

Visitors making use of the new observation deck

An audio-visual display cabinet was constructed in the visitor contact area which houses a VCR and television monitor.

A heavy duty steel gate was constructed and placed at the intersection of the Headquarters road and the entrance road. It was placed to alleviate turning problems which large trucks had with the old gate.

A new electric traffic control gate was installed. The gate opens automatically at 8:00 am and closes at 10:00 pm. A directional tire ripper allows people to exit any time. A 3 digit code system allows authorized personnel to open the gate at any time.

2. Rehabilitation

Clean-up and organization of the boneyard, which began in 1986, continued this year.

3. Major Maintenance

The grain bins were painted this year, as was the inside of the shop.

4. Equipment Utilization and Replacement

A new hydraulic vehicle lift was procured for the shop to replace the old, safety-deficient lift. This GSA contract item is highly recommended.

A paint locker for safe storage of flammables was procured.

A used 14' Schafer offset disk was purchased for use in the farming program.

A new shop furnace was obtained to replace the old one.

The office thermostat was replaced with a new programmable unit to reduce energy consumption by automatically lowering the temperature after hours.

5. Communications Systems

Repairs were necessary on the Plymouth Reliant and Dodge Ramcharger mobile radios.

6. Computer Systems

A hard disk drive for the Rainbow computer was obtained, which increases the computer's memory to the equivalent of 6,000 typewritten pages.

J. OTHER ITEMS

1. Cooperative Programs

The Mid-winter Bald Eagle survey, a co-operative effort with the National Wildlife Federation and Texas Parks and Wildlife Department, was conducted in January. Four bald eagles were seen.

Five mourning dove coo-call routes were run in May, representing a co-operative effort with the Texas Parks and Wildlife Department.

3. Items of Interest

Maintenance Worker Alvin Payne completed Heavy Equipment Operator Training at Wichita Mountains NWR in July.

Complex Manager Beall attended a week long OPM course "Introduction to Supervision" in July.

Complex Manager Beall attended the annual Programmatic Meeting in Albuquerque, NM in August.

Ty Arikan (R.O. Engineering) and Pat Langley (Deputy ARD, Budget and Administration) met with city of Canyon and Randall County officials in May to discuss a planned emergency flood warning system for Umbarger Dam.

Assistant Manager Juenger was detailed on a summer banding assignment for six weeks in the Northwest Territories, Canada.

4. Credits

The Introduction, Section F.1, and Section K were written by Complex Manager Beall.

The remainder of the report was written by Assistant Manager Juenger.

The report was edited by Complex Mgr. Beall and typed by Office Clerk Scruggs.

Photo Credits:

JHB - Johnny Beall
GWJ - Gary Juenger
RF - Refuge files

K. FEEDBACK

I would like to see refuge clerks upgraded and paid commensurate with those of the private sector. They are the heart of refuge operations and keep the administrative life's blood flowing properly and smoothly. Too often a refuge manager trains a clerk and the clerk leaves for a higher paying job. You can't blame them, but as managers you know what a traumatic experience this is especially when refuges are usually below operational staff levels anyway.

I say let's keep these good people. Let's pay them what they are worth.

Regulations and Information

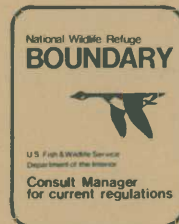
Buffalo Lake
National
Wildlife Refuge

Texas



Signs Protect Visitors and Resources

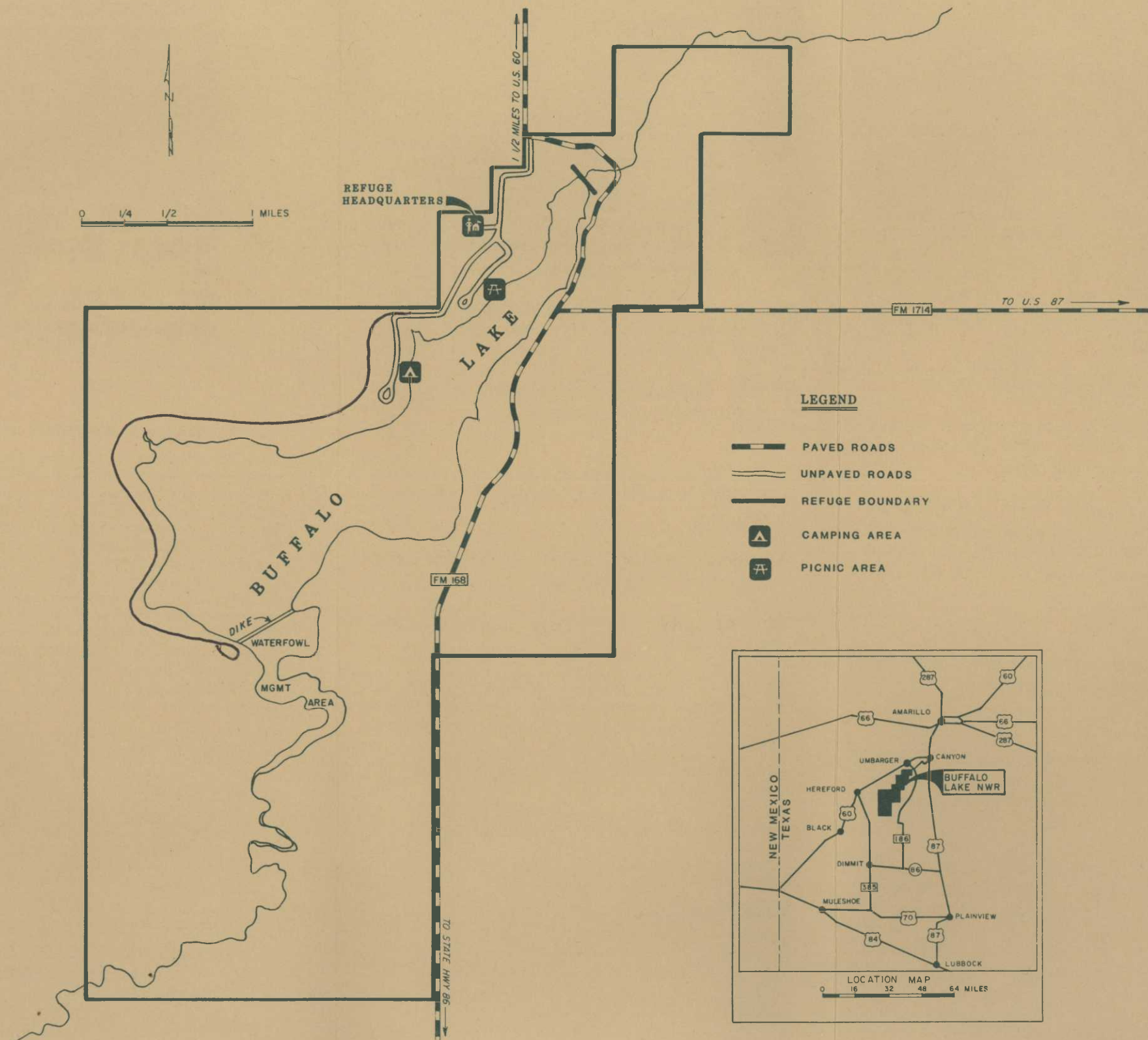
Millions of people visit National Wildlife Refuges every year. Millions! The impact of humanity descending upon refuges, if not regulated in part, can degrade these wildlands. Signs grant or restrict certain activities to provide optimum freedom for visitors while also protecting refuge elements from undue human abuse. Please respect the following signs.



This sign delineates the refuge boundary. The refuge is behind this sign. You may enter the refuge only on designated access routes.



This area is closed to ALL entry. No hunting or sightseeing is permitted. No roads or trails are open to the public.



Welcome to Buffalo Lake

PUBLIC ACCESS, USE OR RECREATIONAL ACTIVITIES NOT SPECIFICALLY PERMITTED ARE PROHIBITED. COMPLIANCE WITH ALL APPLICABLE FEDERAL AND STATE LAWS AND REGULATIONS INCLUDING ALL OFFICIAL SIGNS IS REQUIRED.

For a complete copy of Wildlife Refuge Regulations, see the Code of Federal Regulations Title 50 at the Refuge Headquarters.

Refuge hours are 8:00 a.m. to ^{10:00}~~8:00~~ p.m.

Permitted recreational activities, points of interest, and facilities are marked by symbols along roadsides or in recreation areas of the refuge.

Those portions of the refuge closed to the public are restricted by sign. The following regulations will help to protect you, the visitor, and the natural resource, wildlife and wildlands, from injury or abuse.



Picnicking is permitted only in the designated picnic area during posted hours.



Camping is permitted only in the designated camping area. Camping stays shall be limited to no more than 7 continuous days.



Fires are permitted only in those areas where camping and picnicking is permitted. The use of campstoves and charcoal in grates and grills is permitted. Dead fallen timber may be used. Fires must not be left unattended and must be completely extinguished before leaving the area. **During periods of very high fire danger, open fires are prohibited.**



Drinking water may be obtained at refuge headquarters.



Motorized vehicles are permitted only on designated roads and parking areas. Driving off roads or on roads closed by sign or barrier is prohibited.



Pets are permitted if confined or kept on a leash, not to exceed 10' in length, one end of which must be secured to restrict the movement of the pet.



Hunting and weapons are prohibited, except by official permit under special regulations.



Sightseeing, nature observation, and photography are permitted.

Audio devices operated or used so as to cause unreasonable disturbance to others in the vicinity is prohibited.

Littering or disposing of materials, except in receptacles provided, is prohibited.

Molesting, injuring, or damaging plant or animal life is prohibited.

Destruction, defacement, disturbance, or removal of any public property (including natural features, such as rocks) or any private property is prohibited.

Searching for valued objects or objects of antiquity is prohibited.

Fireworks of any type are prohibited.



Water-related recreational activities may be permitted subject to availability of quantity and quality of water in the lake.



UNITED STATES DEPARTMENT OF THE INTERIOR

As the Nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



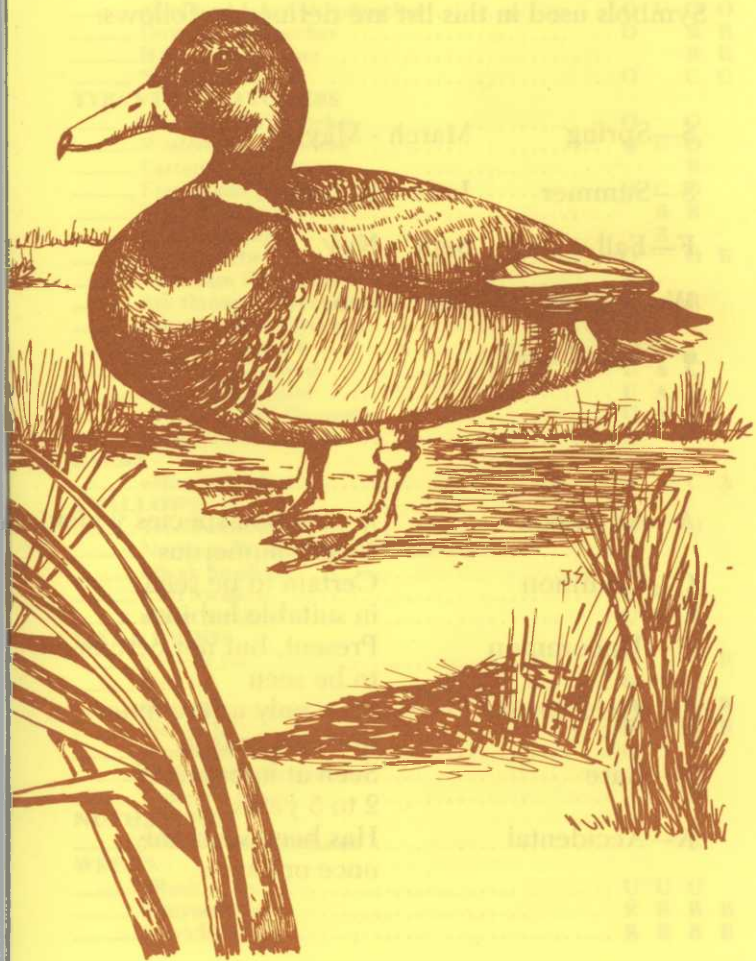
U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Buffalo Lake National Wildlife Refuge
P.O. Box 228, Umbarger, Texas 79091

RF21570-3

May 1984

Birds of Buffalo Lake National Wildlife Refuge

TEXAS



BIRDS of Buffalo Lake National Wildlife Refuge

This leaflet lists 274 species of birds that have been seen on the refuge, and is in accordance with the sixth A.O.U. Checklist. Accepted new names are used. Symbols used in this list are defined as follows:

S—Spring March - May

S—Summer June - August

F—Fall Sept. - Nov.

W—Winter Dec. - Feb.

● - Nests Locally

A—Abundant A common species which is very numerous
C—Common Certain to be seen in suitable habitat
U—Uncommon Present, but not certain to be seen
O—Occasional Seen only a few times during a season
R—Rare Seen at intervals of 2 to 5 years
X—Accidental Has been seen only once or twice

		S	S	F	W
LOONS					
Common Loon	.....	R		U	R
GREBES					
Pied-billed Grebe	.....	O	O	U	O
Horned Grebe	.....				X
●Eared Grebe	.....	C	R	O	
Western Grebe	.....	R			R
PELICANS					
American White Pelican	.....	R			R
CORMORANTS					
Double-crested Cormorant	.....	U		O	R
BITTERNS & HERONS					
American Bittern	.....				O
●Great Blue Heron	.....	C	C	C	C
Great Egret	.....				O
Snowy Egret	.....	O	C	O	
Little Blue Heron	.....				X
Cattle Egret	.....	R	R	R	
Green-backed Heron	.....	C			
●Black-crowned Night-Heron	.....	C	C	O	
Yellow-crowned Night-Heron	.....	R			R
IBISES					
White-faced Ibis	.....	R			R
SWANS, GEESE & DUCKS					
Tundra Swan	.....				R
Greater White-fronted Goose	.....				R
Snow Goose	.....	O			O
Ross' Goose	.....				C
Canada Goose	.....	U	R	C	A
Wood Duck	.....				R
Green-winged Teal	.....	A	O	A	A
●Mallard	.....	C	U	A	A
●Northern Pintail	.....	C	O	A	A
●Blue-winged Teal	.....	C	U	C	
Cinnamon Teal	.....	U			O
Northern Shoveler	.....	A	U	C	C
Gadwall	.....	C	O	O	U
American Wigeon	.....	C	O	A	A
Canvasback	.....	O			O
Redhead	.....	U	O	U	U
Ring-necked Duck	.....	U			R
Lesser Scaup	.....	C			O
Oldsquaw	.....				X
Black Scoter	.....				X
Surf Scoter	.....				X
White-winged Scoter	.....				X
Common Goldeneye	.....	O			O
Barrow's Goldeneye	.....				X
Bufflehead	.....	U			O
Hooded Merganser	.....				R
Common Merganser	.....	U			O
Red-breasted Merganser	.....				R
Ruddy Duck	.....	C	O	U	O
AMERICAN VULTURES					
●Turkey Vulture	.....	U	U		O
KITES, HAWKS & EAGLES					
Osprey	.....	O			O
Mississippi Kite	.....				O
Bald Eagle	.....	O			O
Northern Harrier	.....	U	O		C
Sharp-shinned Hawk	.....				O
Cooper's Hawk	.....	R			O
Northern Goshawk	.....				X
Harris' Hawk	.....				X
Broad-winged Hawk	.....				R
●Swainson's Hawk	.....	U	C		U
Red-tailed Hawk	.....	U	R		U
Ferruginous Hawk	.....	O			O

	S	S	F	W
— Rough-legged Hawk	O	O	U	
— Golden Eagle	O	R	O	U
FALCONS				
— ●American Kestrel	U	O	U	U
— Merlin	R	R	R	
— Peregrine Falcon	O	O	R	
— Prairie Falcon	O	R	R	O
PHEASANTS & QUAIL				
— Chukar	X		X	
— ●Ring-necked Pheasant	O	O	O	O
— ●Northern Bobwhite	C	C	C	C
— ●Scaled Quail	O	O	O	O
RAILS, GAILINULES & COOTS				
— Virginia Rail	R			
— Sora	R		R	
— Common Moorhen	R	R	X	
— American Coot	U	O	O	R
CRANES				
— Sandhill Crane	O	O	O	
PLOVERS				
— Black-bellied Plover	R	R		
— ●Snowy Plover	U	C	O	
— Semipalmated Plover	C	C	R	
— ●Killdeer	C	C	U	O
STILTS & AVOCETS				
— Black-necked Stilt	R	R		
— ●American Avocet	U	C	U	
SANDPIPERS & PHALAROPES				
— Greater Yellowlegs	O	C	U	
— Lesser Yellowlegs	O	U	U	
— Solitary Sandpiper	O	O	O	
— Willet	O	O		
— Spotted Sandpiper	U	U	O	
— Upland Sandpiper	O	O	O	
— Whimbrel	R			
— Long-billed Curlew	O	O	O	
— Marbled Godwit	R			
— Red Knot	R	X		
— Sanderling	R			
— Semipalmated Sandpiper		O		
— Western Sandpiper	U	U		
— Least Sandpiper	U	U	U	
— White-rumped Sandpiper		X		
— Baird's Sandpiper	C	C	U	
— Pectoral Sandpiper	R	R		
— Dunlin		X		
— Stilt Sandpiper	U	O	U	
— Long-billed Dowitcher	O	O	U	
— Common Snipe	O	R		
— Wilson's Phalarope	O	C	O	
GULLS & TERNS				
— Franklin's Gull	O	R	O	
— Bonaparte's Gull	R			
— Ring-billed Gull	C	O	U	O
— Herring Gull	O	O	U	
— Great Black-backed Gull		X		
— Black-legged Kittiwake		X		
— Sabine's Gull		X		
— Caspian Tern		R		
— Roseate Tern	R			
— Common Tern	R	R	R	
— Forster's Tern	O	R		
— Least Tern		R		
— Black Tern	U	U	O	
PIGEONS & DOVES				
— Rock Dove	U	U	U	U
— Band-tailed Pigeon		X		
— White-winged Dove		X		

	S	S	F	W
— ●Mourning Dove	C	C	U	R
— Common Ground-Dove	R			
CUCKOOS & ROADRUNNERS				
— ●Yellow-billed Cuckoo	O	U		
— ●Greater Roadrunner	U	U	U	U
BARN-OWLS				
— Common Barn-Owl	R	R	R	R
TYPICAL OWLS				
— ●Great Horned Owl	U	O	U	U
— ●Burrowing Owl	C	C	U	O
— Barred Owl	R			
— Long-eared Owl		R		
— Short-eared Owl		R	R	
GOATSUCKERS				
— Common Nighthawk	O	C	O	
— Chuck-will's-widow	R			
SWIFTS				
— Chimney Swift	X			
KINGFISHERS				
— Belted Kingfisher	O	O	U	O
WOODPECKERS				
— Lewis' Woodpecker	X			
— Red-headed Woodpecker	O	O		
— Golden-fronted Woodpecker			R	R
— Red-bellied Woodpecker			R	R
— Yellow-bellied Sapsucker			R	
— ●Ladder-backed Woodpecker	O	U	O	O
— Downy Woodpecker	O		R	R
— Hairy Woodpecker			R	R
— Northern Flicker	O	C	C	
TYRANT FLYCATCHERS				
— Olive-sided Flycatcher	O	O		
— Western Wood-Pewee	O	U	O	
— Eastern Wood-Pewee			R	
— Empidonax (species?)	O	C	O	
— Black Phoebe	R	R		
— Eastern Phoebe	R			
— Say's Phoebe	O	O	R	
— Vermilion Flycatcher	R			
— Ash-throated Flycatcher	R	R		
— Great Crested Flycatcher	R			
— Cassin's Kingbird		R		
— ●Western Kingbird	U	A	C	
— ●Eastern Kingbird	U	A	U	
— ●Scissor-tailed Flycatcher	U	A	C	
— Rose-throated Becard	X			
LARKS				
— ●Horned Lark	A	A	C	A
SWALLOWS				
— Tree Swallow	O	O		
— Northern Rough-winged Swallow	O			
— ●Bank Swallow	O			
— Cliff Swallow	O	O	O	
— ●Barn Swallow	U	U	U	
JAYS & CROWS				
— Steller's Jay				R
— Blue Jay	O	O	O	
— Scrub Jay	O	O	R	
— Pinyon Jay	R	R	R	
— American Crow	O	O	O	
— Chihuahuan Raven			R	
— Common Raven			X	
NUTHATCHES				
— Red-breasted Nuthatch			R	
WRENS				
— ●Rock Wren	U	U	U	
— Canyon Wren	R	R	R	R
— Bewick's Wren	R	R	R	R

	S	S	F	W
●House Wren	O	O	O	
Marsh Wren			R	
KINGLETS & GNATCATCHERS				
Golden-crowned Kinglet			R	
Ruby-crowned Kinglet	R	R	R	
Blue-gray Gnatcatcher	R	R		
THRUSHES				
Eastern Bluebird	R	U		
Western Bluebird			R	R
Mountain Bluebird	O	U	O	O
Townsend's Solitaire			O	R
Veery	R			
Swainson's Thrush	R			
Hermit Thrush	O		O	
Wood Thrush	R			
American Robin	U		U	U
MOCKINGBIRDS & THRASHERS				
Gray Catbird	O	O		
●Northern Mockingbird	C	A	U	R
Sage Thrasher	O	R	O	
Brown Thrasher	R	R	O	
Curve-billed Thrasher	O		O	O
Crissal Thrasher	X			
PIPITS				
Water Pipit	O	R	O	
WAXWINGS				
Cedar Waxwing	R		R	
SHRIKES				
Northern Shrike	R		O	O
●Loggerhead Shrike	U	O	U	C
STARLINGS				
●European Starling	U	O	U	A
VIREOS				
Solitary Vireo	R			
Yellow-throated Vireo			R	
Warbling Vireo	R	R	R	
Red-eyed Vireo	R		R	
WOOD-WARBLERS				
Blue-winged Warbler (Lawrence's)	X			
Orange-crowned Warbler	R		R	
Nashville Warbler	R			
Northern Parula	R		R	
Yellow Warbler	O	O	O	
Black-throated Blue Warbler	R			
Yellow-rumped Warbler	U	O	U	
Black-throated Gray Warbler	O			
Townsend's Warbler	R			
Black-throated Green Warbler	R			
Blackburnian Warbler	O			
Palm Warbler			R	
Cerulean Warbler	R			
Black-and-white Warbler	R			
American Redstart			R	
Connecticut Warbler	R			
MacGillivray's Warbler	O			
Common Yellowthroat	R			
Hooded Warbler	O			
Wilson's Warbler	C	U	R	
TANAGERS				
Scarlet Tanager	R			
Western Tanager	R			
CARDINALS & GROSBEAKS				
Northern Cardinal	O	O	R	
Rose-breasted Grosbeak	O			
Black-headed Grosbeak	R			
Blue Grosbeak	O	U	O	
Lazuli Bunting	R			

	S	S	F	W
Indigo Bunting	R			
Dickcissel	O	U		
SPARROWS				
Green-tailed Towhee	O	R		
Rufous-sided Towhee	O		R	O
Brown Towhee				O
Cassin's Sparrow	O	C	O	
Rufous-crowned Sparrow	R	R		
American Tree Sparrow	O			O
Chipping Sparrow	U	O	R	O
Clay-colored Sparrow		R	R	
Brewer's Sparrow	R			
Field Sparrow	O	U	O	
Vesper Sparrow	U	C	C	
Lark Sparrow	U	C	U	
●Lark Bunting	U	U	U	
●Savannah Sparrow	R			R
Baird's Sparrow				R
Grasshopper Sparrow	O	U	O	
Fox Sparrow				R
Song Sparrow	U	O	O	
Lincoln's Sparrow	R			R
White-throated Sparrow				R
White-crowned Sparrow	C	U	C	A
Dark-eyed Junco				O
Lapland Longspur	R			R
Chestnut-collared Longspur	R			
BLACKBIRDS & ORIOLES				
Bobolink				O
●Red-winged Blackbird	A	A	A	A
●Western Meadowlark	A	A	A	A
Yellow-headed Blackbird	O	O	R	
Rusty Blackbird				R
Brewer's Blackbird	R			R
Common Grackle	O			
●Brown-headed Cowbird	C	U	U	O
●Orchard Oriole	U	C	O	
●Northern Oriole	U	C	O	
FINCHES				
Purple Finch				R
●House Finch	U	O	O	U
Red Crossbill				X
Common Redpoll				X
Pine Siskin	O	R	O	U
Lesser Goldfinch		R		
American Goldfinch	O			O
Evening Grosbeak	X			
OLD WORLD SPARROWS				
●House Sparrow	A	A	A	A

S S F W

FIELD NOTES

Date: _____ Species: _____

Time: _____

Observers: _____

Weather: _____

For additional information, or to report unusual birds, please contact:

Refuge Manager
Buffalo Lake NWR
P.O. Box 228
Umbarger, TX 79091



R.F. 23529-2



November 1985

K. FEEDBACK

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RECEIVED
REFUGES

MAR 1 '88