

Alamosa-Monte Vista National Wildlife Refuge

Alamosa, Colorado

ANNUAL NARRATIVE REPORT

Calendar Year 1985

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

ALAMOSA-MONTE VISTA NATIONAL WILDLIFE REFUGE

Alamosa, Colorado

ANNUAL NARRATIVE REPORT

Calendar Year 1985

Merlin J. Nail
Refuge Manager

4/11/86
Date

Philip W. Rosta
Refuge Supervisor Review

3/18/86
Date

Mark T. Munk
Regional Office Approval

3/18/86
Date

Rec'd
Wildlife Res. MAR 7 1986

INTRODUCTION

Alamosa National Wildlife Refuge is located approximately three miles southeast of Alamosa, Colorado. The bulk of the refuge is located in Alamosa County. A small portion (141 acres) is located in Costilla County. The 10,351.8 acre refuge was established in 1963. The refuge consists primarily of Rio Grande River bottomland. Elevations range from 7,505 feet near the river to 7,576 feet on Hansen Bluff along the eastern border of the refuge.

Monte Vista National Wildlife Refuge is located six miles south of Monte Vista, Colorado. The bulk of the refuge is located in Rio Grande County. A portion (1,280 acres) is located in Alamosa County. The 14,189 acre refuge was established in 1953, and it was the first national wildlife refuge in Colorado. The refuge is located on the floor of the San Luis Valley, and is composed primarily of flat terrain with a gentle slope towards the ~~south~~ northeast. Elevations range from a high of 7,685 feet on the west end to 7,585 on the east end.

Monte Vista Refuge was first conceived as a winter crop depredation control refuge. It has since developed into one of high duck and goose production during years with good water conditions. Alamosa Refuge was purchased as a waterfowl production and migratory bird maintenance refuge. The addition of whooping cranes in 1975 added another important objective for the refuges, providing migration habitat and protection for these endangered birds. Wildlife oriented recreation is provided on the refuges in the form of wildlife observation, photography, and hunting.

The refuges are located in the San Luis Valley, a high mountain valley located in south-central Colorado. The valley consists of a broad depression between mountain ranges converging to the north and is the first of a series of basins along the Rio Grande River. The mountain ranges to the east reach altitudes over 14,000 feet and those to the west between 13,000 and 14,000 feet. The length of the valley from north to south is over 80 miles, and its greatest width is about 50 miles. Due to the high elevation, the San Luis Valley is an important waterfowl production area in spite of its southern location.

The climate of the San Luis Valley is marked by cold winters and moderate summers, light precipitation, and much sunshine. The growing season in the vicinity of Alamosa Refuge averages about 90 days. July and August are usually the only frost free months. The highest temperature so far recorded was 93 degrees, and the coldest ever recorded was 50 degrees below zero. Winds are light during the coldest weather, but are strong with occasional blowing dust during the spring and early summer months.

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A. HIGHLIGHTS

Tom Wartman, formerly a temporary employee on our staff, was welcomed into our permanent staff as Tractor Operator on May 1, 1985. (Section E. 1)

On March 17 Ed Merritt joined the Alamosa-Monte Vista crew to fill the Assistant Refuge Manager's position vacated by Jon Kauffeld. (Section E. 1)

Maintenance Foreman John Cossick's skills as a pilot will provide a benefit for future refuge operations. Cossick was certified as a Fish and Wildlife Service pilot in March of 1985. (Section E. 1)

John Cossick also ran away with four awards and one honorable mention in the Service's Regional photo contest and two honorable mentions in the National photo contest. (Section E. 1)

Refuge Manager Mel Nail's leadership on the refuge was praised with a Level I performance rating, a special achievement and bonus. (Section E. 1)

Our refuge complex was also fortunate to receive the enthusiastic help of four hardworking volunteers this year. Beulah Messick, Matt Erickson, Kristine Crandall, and Susan MacVean contributed a total of 468 volunteer hours. (Section E. 4)

Due to river flooding of 2,500 acres of nesting habitat, duck production on Alamosa Refuge declined. 6,041 ducks were produced. (Section G. 3)

Monte Vista Refuge, on the other hand, experienced a record busting year for waterfowl production. 25,600 ducks were produced. This year also marked one of the highest nest success rates (65%) ever recorded on the refuge. (Section G. 3)

The visitor center at Alamosa Refuge was renovated with five interpretive displays acquired from Bear River MBR. (Section H. 6)

Alamosa NWR will soon gain 816 acres of prime wildlife habitat and will become the sole owner of the Chicago Ditch Company, a high priority water right. (Section C. 1)

B. CLIMATIC CONDITIONS

Warmer temperatures and wetter than normal conditions characterized 1985. January through March weather was mild with near average precipitation. On March 29 a six inch snow fall leading into a wetter than normal April. April received .97 inches precipitation, .62 inches is normal. May and June returned to dryer than normal conditions accompanied by high winds gusting to 50 miles per hour. July began very warm with temperatures reaching 90 degrees on the 5th, 6th and 7th. Temperatures cooled later in the month and precipitation totalled 1.68 inches, .45 inches above normal, by month's end. The cool wet trend carried into August with .91 inches of precipitation falling in the first eight days. September through December was wetter than normal with near normal temperatures.

The lowest temperature was 25 degrees below zero on December 13, and the warmest was the 90 degree July temperatures. Total precipitation for the year was 9.81 inches, 2.87 inches above normal.

The dry and warm conditions in May and June gave spring crops a favorable start, however a 32 degree temperature on June 30 slowed growth in parts of the valley. The first killing frost in the fall was delayed into September so a near average growing season was realized.

TEMPERATURE AND PRECIPITATION TABLE FOR 1985

<u>MONTH</u>	<u>MAXIMUM TEMPERATURE (Fahrenheit)</u>	<u>MINIMUM TEMPERATURE (Fahrenheit)</u>	<u>PRECIPITATION</u>	<u>NORMAL PRECIPITATION</u>	<u>SNOWFALL</u>
January	47	-13	.28	.25	2.8
February	54	-18	.28	.26	2.8
March	61	3	.44	.35	6.1
April	71	13	.97	.63	.8
May	78	22	.37	.62	1.2
June	88	32	.47	.52	0.0
July	90	39	1.68	1.17	0.0
August	88	37	.91	1.15	0.0
September	84	15	1.33	.71	0.0
October	74	18	2.02	.69	6.0
November	62	-13	.68	.24	9.7
December	49	-25	.37	.35	6.7
TOTALS			9.80	6.94	36.1

C. LAND ACQUISITIONS

1. Fee Title

Alamosa National Wildlife Refuge will soon welcome a new addition. As a result of the Closed Basin Project, U.S.F.W.S. will receive 816 acres of the Lillpop Ranch along with 538 shares in the Chicago Ditch Company.

The Closed Basin was constructed to deliver water from the Closed Basin in the San Luis Valley to the Rio Grande River before that water is lost to evaporation and evapotranspiration. Mitigation plans were developed to compensate for loss of wetland habitat as a result of the project, part of which runs through Alamosa NWR. The Bureau of Reclamation must provide 4,500 acre feet of water from the project and 800 acre feet of water each year to Alamosa NWR. The 800 acre feet obligation will be fulfilled by transfer of the Lillpop Ranch property and water shares which the Bureau purchased this year. Once this property and its 538 shares in the Chicago Ditch Company are transferred to Alamosa NWR, the refuge will be the sole owner of the Chicago Ditch Company, a high priority water right, and the new owner of some prime wildlife habitat.

2. Easements

Nothing to report.

3. Other

Nothing to report.

D. PLANNING

1. Master Plan

Nothing to report.

2. Management Plan

The Annual Water Management plan was prepared by Assistant Refuge Manager Milton B. Suthers on January 17, 1985 and was approved on January 23, 1985.

Assistant Refuge Manager Edward S. Merritt completed the 1986 Annual Prescribed Burning plan on December 10, 1985. Approval for that plan was granted on December 16, 1985.

3. Public Participation

Nothing to report.

4. Compliance with Environmental and Cultural Resource Mandates

On December 5, 1985 an environmental impact assessment and an endangered species review were completed for the construction of an equipment storage building at Alamosa NWR. A Finding of No Significant Impacts statement was signed for the project by the regional office on December 16, 1985.

5. Research and Investigations

In the spring of 1985 Maintenance Foreman John Cossick sampled sediments from ponds at Monte Vista NWR to determine lead concentrations. Cossick is currently in the process of summarizing the results from his independent study.

Jan Schreur, a graduate student from Colorado State University, studied herons and egrets on Monte Vista NWR. Her study focuses on the effects of human disturbance on wildlife. The relatively secluded Monte Vista rookery served as a control unit to compare against her experimental unit (which is subject to greater human impact) at Russell Lakes State Wildlife Area. The goal of Schreur's study is to arrive at a public use management plan for the newly established Russell Lakes State Wildlife Area.

A parasitic research project, conducted by the University of Texas at El Paso, continued with specimens collected from Monte Vista in the fall of the year. Albert Canaris visited the refuge to collect coot specimens. Specimens of hunter harvested redhead ducks were also sent to him for the project. The study's aim is to determine the dynamics of the population of ectoparasites and helminth parasites of selected species of waterfowl.

The refuge staff met with personnel from the Colorado Cooperative Fish and Wildlife Research Unit and the Colorado Division of Wildlife to discuss their plans for a study of winter survival of female mallards.

5. Research and Investigations (continued)

The project, which will involve the work of two PhD students and is expected to last three years, will be based at Monte Vista NWR. The objective is to study winter survival rates of female mallards and the relationship between fat reserves and reproductive performance. If adequate funding is acquired, this work will begin in the fall of 1986.

6. Other

Nothing to report.

E. ADMINISTRATION

1. Personnel

Tractor Operator Tom Wartman entered on duty on December 31, 1984, on a temporary appointment. This temporary appointment expired on April 30, and he was converted to an excepted appointment under a handicapped hiring authority on May 1, 1985.

Assistant Refuge Manager Edward Merritt entered on duty on March 17 to fill the position vacated by Jon Kauffeld. Ed transferred from the National Bison Range in Montana. He was promoted to GS-9 on August 18.

Susan Wilson worked under a Coop. Student Agreement from May 13 through August 16, 1985. Susan is a student at Adams State College in Alamosa. Susan was raised with a farm background and this along with her pleasant personality and desire to work made her an all around good refuge employee. Susan is now scheduled to work her next work period at Waubay Refuge.

Upon completion of his refuge manager (trainee) program Daniel Gomez was promoted to GS-7 on December 9, 1984. He transferred to Charles M. Russell NWR on June 18, 1985. The trainee position was filled by Roberta Salazar on June 23. Roberta transferred in as a GS-5 Refuge Manager (trainee) from the Lander Fishery Assistance Office in Lander, Wyoming. Roberta was promoted to GS-7 on October 13, 1985.

A ½ cubic yard dragline was borrowed during the year from Fish Springs NWR. This dragline will be used to clean some water distribution ditches on Alamosa Refuge that have been needing cleaning for several years. Crane Operator Ernie Vigil was hired on September 9 under a special need appointment to get the project started. Ernie worked under the special need appointment until November 12 when he was converted to a temporary-intermittent appointment.

Maintenance Foreman John Cossick was designated as a Service pilot in March 1985. John met all the qualifications for an incidental Service pilot except for a few hours of low level flight. Actually all that was needed was to fill out the forms and take an OAS check flight. John will primarily fly on the spring sandhill crane survey, but he will assist Flyway Biologist Doug Benning in some waterfowl survey work.

Maintenance Foreman Cossick made a good showing during the year in the Fish and Wildlife Service photo contests. John won the following categories in the Regional and National contests.

1. Personnel (continued)

<u>Place</u>	<u>Category</u>	<u>Photo</u>
<u>Region 6</u>		
1st (color)	Threatened and Endangered Species	Humpback Whale
3rd (color)	Threatened and Endangered Species	Whooper and Sandhills Monte Vista NWR
3rd (color)	Fish and Wildlife	Great Blue Heron
3rd (color)	General	Every Picture Tells a Story
Honorable Mention (color)	General	Moonrise Over the Sangre de Christo Range
<u>National</u>		
Honorable Mention (color)	Fish and Wildlife	Great Blue Heron
Honorable Mention (color)	General	Every Picture Tells a Story



Maintenance Foreman John Cossick with awards and prints
 he received from winning in the National Photo Contest.
 11/26/85 Salazar

1. Personnel (continued)

Refuge Manager Melvin Nail was awarded a Level I performance rating at the end of the fiscal year. On October 29, 1985 he received a Special Achievement Award and a check for \$1,000.00, before taxes of course.



Assistant Refuge Manager Suthers presenting Special Achievement Award to Refuge Manager Nail.

11/26/85

Salazar

All summer temporary employees are listed in the personnel table on page 11 by name, position, and date of employment.

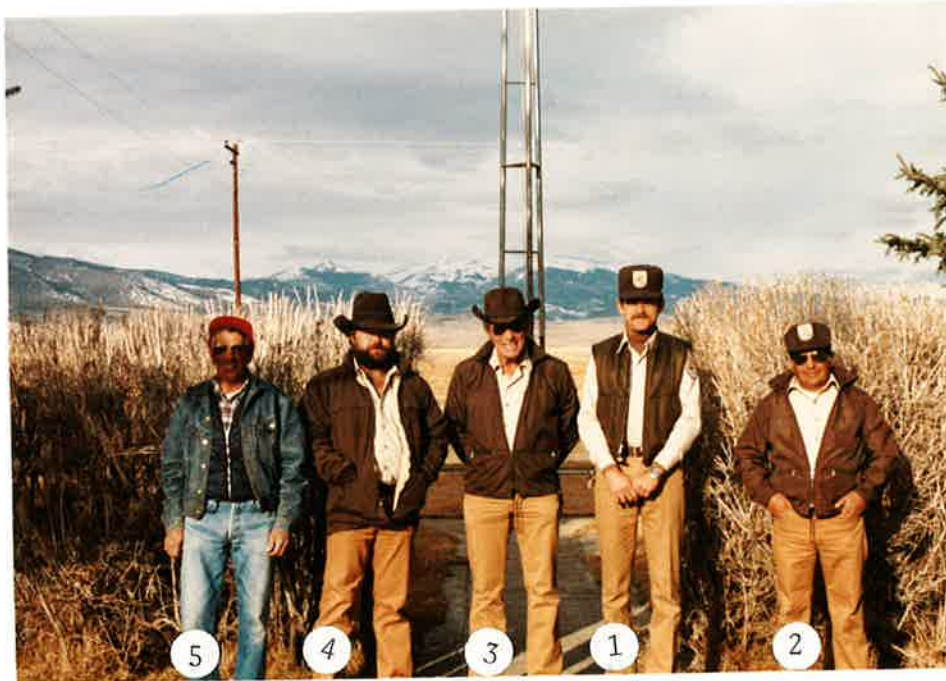
The following table shows the number of personnel employed at the refuge during FY-85. For comparison purposes, fiscal year 1980 through 1984 are also shown.

	PERMANENT		TEMPORARY	TOTAL FTE
	FULL-TIME	PART-TIME		
1985	10	0	7	12.43
1984	10	0	7	12.03
1983	10	0	10	
1982	10	0	4	
1981	7	4	4	
1980	7	4	4	



PERSONNEL

- | | | |
|----|---------------------|--|
| 1. | Melvin T. Nail | Refuge Manager (GS-12/10), PFT |
| 2. | Milton B. Suthers | Assistant Refuge Manager (GS-11/5), PFT |
| 3. | Edward S. Merritt | Assistant Refuge Manager (GS-9/1), PFT |
| 4. | Roberta A. Salazar | Assistant Refuge Manager (Trainee) (GS-7/1), PFT |
| 5. | Georgena C. Rennick | Refuge Assistant (GS-5/4), PFT |
| 6. | Jose I. Mondragon | Tractor Operator (WG-6/5), PFT |
| 7. | Ernest J. Vigil | Crane Operator (WG-9/1), Temporary-Intermittent |



PERSONNEL

- | | |
|-------------------------|--|
| 1. John P. Cossick | Maintenance Foreman (WG-6/3), PFT |
| 2. Juan B. Espinosa | Maintenance Worker (WG-8/5), PFT |
| 3. William O. McDermith | Engineering Equip. Oper. (WG-8/5), PFT |
| 4. Thomas E. Wartman | Tractor Operator (WG-6/1), PFT |
| 5. Jose E. Archuleta | Laborer, Green Thumb Program |

Not Pictured:

- | | |
|-------------------|--|
| Adolfo Amaya | Laborer, (WG-2/2), Temporary 4/28-8/2/85 |
| Eliseo DeHerrera | Maintenance Worker, (WG-8/1), Temp. 4/15-10/12/85 |
| Gilbert E. Lucero | Laborer, (WG-3/5), Temporary 3/18-10/12/85 |
| Modesto Lucero | Laborer, (WG-2/1), Temporary 5/15-8/2/85 |
| Lucien Martinez | Laborer, (WG-3/5), Temporary 4/29-5/11/85 |
| Jason Parsons | Laborer, (WG-2/2), Temporary 5/12-8/2/85 |
| Susan Wilson | Student Trainee (Bio. Sci.), (GS-4/1), 5/13-8/16/85 |
| Anita C. Arnett | Laborer, YCC Program, 6/10-6/11/85 |
| Erick D. Worker | Laborer, YCC Program, 6/10-8/2/85 |
| Jim D. Phillips | Laborer, YCC Program, 6/10-8/2/85 |
| Daniel Gomez | Refuge Manger (Trainee), (GS-7/1), Transferred 6/18/85 |

2. Youth Program

The refuge had a limited YCC program during the year. Two enrollees were recruited for Monte Vista Refuge and one for Alamosa Refuge. Enrollee recruitment was coordinated with the U.S. Forest Service recruitment. Erick D. Worker worked at Monte Vista Refuge through the eight week program. Anita C. Arnett was recruited for Monte Vista also. She worked one day and resigned. Her reasons for resigning were that she felt she could not do the assigned physical work. She stated her back bothered her after her first day's work and that she had decided she did not want to do the type of work we had for her to do. Anita was not replaced, and Monte Vista had one enrollee for the program. Enrollee Jim D. Phillips worked at Alamosa Refuge during the program. The eight week program ran from June 10 through August 2, 1985.

3. Other Manpower Programs

Joe E. Archuleta worked at Monte Vista throughout the year under the Green Thumb Program. He is paid by the Green Thumb Program, and there is no cost to the refuge. Joe works 20 hours per week, and this limit is dictated by the Green Thumb Program.

4. Volunteers Program

Kristine Crandall and Susan MacVean worked as volunteers from May 16 through July 26. Kristine and Susan are wildlife majors at Colorado State University in Fort Collins, Colorado, and they were working at the refuge under the school's student intern program. They were furnished a trailer house to live in and paid \$10.00/day per diem to help them some with living expenses. Both girls were good help on both biological and maintenance projects.



Kristine Crandall (left) and Susan MacVean (right) at Monte Vista Refuge subheadquarters.

Summer 1985

Merritt

4. Volunteers Program (continued)

Matt C. Erickson volunteered three days a week from June 4 through June 20. Matt had recently received a degree in Biology from Fort Lewis College, and he was looking for some experience to help him break into the wildlife management field. Matt was furnished primitive quarters in the Research building and paid \$10.00/day per diem. Matt proved to be a very knowledgeable and capable hand. Matt left to work as a hack site attendant in Rocky Mountain National Park with the peregrine fund.

Beulah Messick continued her volunteer work throughout the year as her personal schedule allowed. Beulah's most noteworthy project during the year was the mounting and filing of all plants in the refuge herbarium. Thanks to Beulah's efforts, including some excellent carpentry work, we now have a refuge herbarium with 156 species mounted, verified, and filed by Family.



Refuge herbarium cabinet constructed by
volunteer Beulah Messick.

6/7/85

Nail

4. Volunteers Program (continued)

Refuge Manager Nail presenting volunteer Beulah Messick with a framed print of sandhill cranes on Monte Vista Refuge. This award was to express our appreciation for Beulah's volunteer work.

11/29/85

Cossick

Other volunteers were used during the year also. During FY-85 eight volunteers contributed a total of 468 volunteer hours.

5. Funding

The table on this page shows the funding available in FY-85 to operate the refuge program.

FUNDING AVAILABLE IN FY-85 TO OPERATE THE REFUGE PROGRAM

1260 - Refuge Operations and Maintenance	
Base O & M	\$411,000
ARMM's - small.....	\$ 44,000
ARMM's - large.....	\$ 15,000
1520 - Youth Program.....	\$ 3,800
1994 - Quarters Operations.....	\$ 6,333
and Maintenance	\$ 12,000
6860 - Expenses for Sales.....	
TOTAL	<hr/> \$492,133

The following table summarizes the O&M funding for FY-81 through FY-85 for comparison purposes.

1981.....	\$368,500
1982.....	\$368,000
1983.....	\$417,000
1984.....	\$499,100
1985.....	\$492,133

6. Safety

Two reportable accidents occurred during the year. This compares unfavorably with none in 1984.

On February 25, 1985, Engineering Equipment Operator Bill McDermith was walking through a gate when he stepped in a snow-covered hole and sprained his back. On June 10, 1985, Laborer Adolfo Amaya was irrigating a farm field with 6" x 8' siphon tubes. In filling and positioning the siphon tubes, he strained his lower back.

6. Safety (continued)

While not involving the refuge in any way, an accident of some interest did occur at the Alamosa Airport on November 17, 1985. A twin engine jet, Cessna Citation, was taking off from the Alamosa Airport when a raptor was taken into one of the engines. The aircraft was able to come back on one engine and land. There was no damage to the aircraft other than to the engine the bird went into. Parts of a jackrabbit were also found in the engine, and it was very likely the raptor was carrying part of a jackrabbit when it was taken into the engine.

Engineering Equipment Operator Bill McDermith attended an equipment trainers training course at College Station, Texas on September 19-21, 1985. After returning home, he came down with Type A infectious hepatitis. According to the incubation period of the disease, the doctor thought Bill had contracted the disease while in Texas. Bill filed a Federal Employee's Notice of Occupational Disease and Claim for Compensation. The claim has been rejected once, and additional information has been submitted for re-evaluation.

Assistant Refuge Manager Ed Merritt assumed the duties of Station Safety Officer on September 1, 1985. A safety inspection of both refuges was conducted in December. Most of the inspection item problems had been corrected by the end of the year, and those remaining will be corrected as soon as possible.

Assistant Refuge Manager (trainee) Roberta Salazar completed a 110 hour Emergency Medical Technician re-certification during the period September 6 through December 31, 1985. She was also certified as a CPR instructor by the American Red Cross on November 26, 1985.

Tractor Operator Tom Wartman completed the Service Basic Fire Management Course at Jamestown, ND on April 15 through April 19, 1985.

The following refuge employees attended a Pesticide Application Workshop in Monte Vista, Colorado on March 7-8, 1985.

Melvin T. Nail - Refuge Manager
Milton B. Suthers - Assistant Refuge Manager
Daniel Gomez - Assistant Refuge Manager (trainee)
John P. Cossick - Maintenance Foreman
William O. McDermith - Engineering Equipment Operator
Thomas E. Wartman - Tractor Operator
Jose I Mondragon - Tractor Operator
Gilbert E. Lucero - Laborer

6. Safety (continued)

The following refuge employees attended a Defensive Driving Course on March 11, 1985.

Melvin T. Nail - Refuge Manager
Milton B. Suthers - Assistant Refuge Manager
Georgena C. Rennick - Refuge Assistant
Daniel Gomez - Asst. Refuge Manager (trainee)
William O. McDermith - Engineering Equipment Operator
Juan B. Espinosa - Maintenance Worker
Thomas E. Wartman - Tractor Operator
Jose I. Mondragon - Tractor Operator
Gilbert E. Lucero - Laborer
Joe E. Archuleta - Green Thumb Worker

7. Technical Assistance

Maintenance Foreman John Cossick taught a pinch hitter course for the Colorado Division of Wildlife personnel. This course is intended to train non-pilot flight personnel to survive in case the pilot is incapacitated.

Refuge personnel continued working with electric utility companies in the San Luis Valley and with representatives of the Edison Electric Institute on the powerline-bird mortality problem.

8. Other

Nothing to Report.

F. HABITAT MANAGEMENT1. General

Habitat management measures on both Alamosa and Monte Vista refuges consist of a rest-rotation grazing system, prescribed burning, farming, water manipulation, and attempts to control undesirable vegetation through mechanical and chemical means. These ongoing management efforts, in conjunction with another year of abundant water, resulted in excellent nesting and brood rearing conditions on both refuges.



July 1985

The calm after the storm.

Cossick

2. WetlandsAlamosa Refuge

The refuge received a total of 15,190 acre feet of water from eight sources during 1985, which is slightly higher than last year's figure of 15,061. A table which lists quantities of water delivered from each source by month, and compares 1985 with 1984 follows.

ALAMOSA REFUGE
WATER USAGE AND SOURCES

<u>MONTH</u>	<u>NEW DITCH</u>	<u>STEWART LATERAL</u>	<u>MCNM LATERAL</u>	<u>ANDREWS LATERAL</u>	<u>SHEPARD DITCH</u>	<u>COSTILLA DITCH</u>	<u>SAN LUIS DITCH</u>	<u>MCNM WELL</u>	<u>TOTAL</u>
January								210.0	210.0
February								280.0	280.0
March								310.0	310.0
April		418.0	168.0					300.0	886.0
May	60.0	694.4	638.4	304.0		338.0	76.0	310.0	2,420.8
June	1,024.0	1,204.8		280.0	62.0	310.0	109.0	300.0	3,289.8
July	454.0	292.0		254.0		131.0		310.0	1,441.0
August	1,074.0	310.0		140.0	88.0	198.0		310.0	2,120.0
September	1,062.0	300.0				68.0		300.0	1,730.0
October	320.0	310.0						310.0	940.0
November	212.0	560.0				80.0		300.0	1,152.0
December		100.0						310.0	410.0
TOTAL	4,206.0	4,189.2	806.4	978.0	150.0	1,125.0	185.0	3,550.0	15,189.6
1984 TOTAL	645.0	7,838.0	428.0	508.0	794.0	1,042.0	266.0	3,540.0	15,061.0



Discharge end (south) of Conveyance Channel where it discharges into the Rio Grande River. The banks were rip-rapped later and the dirt plug in the foreground was removed.

6/7/85

Nail



Conveyance Channel on Alamosa NWR, View south from 9 mile south crossroad,

6/7/85

Nail



Gravity takeout from Conveyance Channel to Mumm
Lateral to deliver refuge water.
6/7/85

Nail



Gravity takeout from Conveyance channel to Chicago
Ditch to deliver refuge water.
6/7/85

Nail



Brood pond constructed by Closed Basin Project contractor to get fill for canal bank. Pond on east side of channel near New Ditch measuring weir.

6/7/85

Nail



Constructed brood pond on east side of conveyance channel just south of the 9 mile south crossroad.

6/7/85

Nail



Constructed brood pond on east side of Conveyance Channel
north of the 9 mile south crossroad.
6/7/85 Nail



Sowards Meadow brood pond on west side of Conveyance
Channel.
6/7/85 Nail

2. Wetlands (continued)

Alamosa Refuge (continued)

The Mumm Well, which provides the only significant open water on Alamosa during winter, delivered a total of 800 acre feet from January 1, through March 31. The well was turned off for nine days in January to facilitate measuring head pressure, and to freeze down vegetation choking the outlet canal. Water from the well was used to build ice and provide a melt to sustain pools and attract early nesters. Thawing winter ice buildup, along with the delivery of 310 acre feet of well water in March, completely filled the lower end of Alamosa Refuge. A small amount of water was returned to the river to prevent dike damage in this portion of the refuge.

Approximately two-thirds of all water used on the Alamosa Refuge is diverted from the Rio Grande River. Therefore, maintenance of refuge wetlands is highly dependent on spring runoff. The headwaters of the Rio Grande River are in the San Juan Mountains to the west. Snow surveys conducted by the Soil Conservation Service during winter and spring revealed the snowpack to be 130% of the 15 year average and a good water year was predicted. Unfortunately, in an effort to spill Elephant Butte Dam in New Mexico in order to cancel Colorado's water debt, the various ditch companies in the upper Rio Grande refrained from diverting water during high runoff. The result was widespread flooding all along the Rio Grande River and Alamosa Refuge was not spared. By mid April, approximately 100 acres of the refuge were flooded by overflow and passing 50 cfs of water for several days. Several hundred acre feet of flood water was received during May. On June 11, the river was out of its banks and flooding approximately 2,500 acres of the lower portion of the refuge resulting in considerable loss of nesting habitat.

The first irrigation water was diverted via the Chicago Ditch on April 16, which is one week earlier than last year. A total of 586 acre feet along with an additional 300 acre feet from the Mumm Well resulted in all wetlands north of the flooded zone being in excellent condition. These conditions were maintained throughout May with 2,110.8 acre feet from river diversions. With ample water, totalling 4,270 acre feet in June and 1,441 acre feet in July, and warm weather, marsh plant growth and seed production was good and nesting and brood habitat remained in excellent condition through the summer.

Monte Vista Refuge

Abundant water for maintaining wetlands on Monte Vista Refuge was available again this year. A total of 22,030 acre feet was delivered. Since 1980, snowpacks have been above normal and both the artesian and unconfined aquifers continue to improve. Well flows continue to increase in volume resulting in increased wetland habitat and reduced pumping costs. A table which lists quantities of water delivered from each source by month, and compares 1985 with 1984 follows.

MONTE VISTA REFUGE
WATER USAGE AND SOURCES

<u>MONTH</u>	<u>MONTE VISTA CANAL</u>	<u>SPRING CREEK</u>	<u>EMPIRE CANAL</u>	<u>OTHER DECREED DIVERSIONS</u>	<u>PUMP ^{1/}₆ ARTESIAN WELLS</u>	<u>TOTAL</u>
January					669.18	669.18
February					552.84	552.84
March					518.38	518.38
April					325.68	325.68
May	1,868.00	622.00	753.60	357.20	610.14	4,210.94
June	2,741.85	1,338.00	952.00	945.40	793.94	6,771.19
July	1,082.94	744.00	588.00	451.48	803.12	3,669.54
August	536.18	576.20	40.00	161.30	561.08	1,874.76
September					1,252.64	1,252.64
October					1,132.82	1,132.82
November					484.76	484.76
December					567.06	567.06
TOTAL	6,228.97	3,280.20	2,333.60	1,915.38	8,271.64	22,029.79
1984 TOTAL	9,080.13	2,160.80	2,664.20	827.30	6,998.84	21,731.27

1/ 3,590.39 acre feet from artesian wells, 4,681.25 from pump wells.

2. Wetlands (continued)

Monte Vista Refuge (continued)

Approximately 550 acre feet of water was dispersed across refuge wetlands in February to attract early nesters and to distribute birds to prevent cholera outbreaks. Another 518 acre feet from pumped and artesian wells was delivered during March. A high ground water table along with 4,210 acre feet from canal deliveries and wells resulted in the refuge having water everywhere needed by mid April. Ample water, a mild spring and warm summer resulted in good marsh plant growth and seed production, and excellent nesting and brood habitat.

Dike construction to increase wetland habitat in Management Unit 16 was completed by the contractor except for "dress up" work. A reduction in the bid was negotiated and all remaining work will be finished force account. Completion of this project will result in additional nesting habitat, brood water, and open water in the public hunting area.

Refuge ponds are scheduled to be drawn down, dried up, and chiselled or renovated to aerate the soil every three years. This practice results in an abundance of those marsh plants species which provide good invertebrate habitat. This year, the ground water table remained high and soil conditions were such that equipment operation was impossible on those few ponds we were able to draw down.

3. Forests

No forests exist on either refuge, nothing to report.

4. Croplands

Alamosa Refuge

Forty-two acres of barley planted in the northwest corner of the refuge in 1984 provided feed for wintering waterfowl, and for approximately 350 sandhill cranes during the 1985 spring migration. This was the first time cranes used the area. The field produced 70 bushels per acre and was essentially 100 percent consumed. The crop was heavily used by wintering mallards, Canada geese, and a small herd of mule deer. The field was planted again during spring and the resulting crop was depleted by year's end. As many as 1,000 Canada geese and 6,000 mallards, and 28 mule deer were observed feeding on the area in December. Pheasant use has also increased as a result of barley plantings.

Monte Vista Refuge

The farming operation on Monte Vista Refuge is conducted with a view towards providing grain on an as needed basis throughout winter, and during spring migration. Fields are generally not mowed until spring.



Gypsum is applied at the rate of 1 Ton/Acre to
increase production on alkaline soils.

May 1985

Cossick

4. Croplands (continued)Monte Vista Refuge (continued)

In this way grain is reserved for periods when availability is low on private land. Spring mowing provides a food source for migrating cranes and waterfowl, and helps ensure that birds reach the breeding grounds in good condition. If snow conditions warrant, fields can be bladed to make grain available.

Blading was not required during the winter of 1984-1985, and nearly all of the crop of 640,000 lbs. of feed was available to 1985 spring migrants. Crop utilization surveys conducted in late April revealed that consumption ranged from 97% to 99% on 304 acres of barley in 9 fields. The summer crop of 1985 yielded a total of approximately 679,000 lbs. of barley. The following table outlines production by field.

CROP PRODUCTION
MONTE VISTA NWR - 1985

<u>Field Number</u>	<u>Acreage</u>	<u>Barley Yield (pounds & bu./acre)</u>	<u>Species</u>
13F3 & 4	47	3,650 (76)	Barley
14F1	41	4,519 (94)	Barley
20F1	48	2,754 (57)	Barley
22F2	43	5,026 (105)	Barley/Peas
23F1	31	1,350 (28)	Barley/Peas
24 WEST	20	3,072 (64)	Barley

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5. Grasslands

Grassland management on both refuges consists of livestock grazing and prescribed burning to rejuvenate dense, decadent stands of baltic rush in order to provide quality nesting habitat. For more information see F.7 Grazing, and F.9 Fire Management.

6. Other Habitats

Cottonwood-willow riparian habitat along the Rio Grande River on Alamosa Refuge is the other major habitat type actively managed. Currently, management is limited to minimizing the spread of scrub willows which impede water flow in ditches and canals, and controlling beaver populations in order to reduce the loss of cottonwood trees.

7. Grazing

Alamosa Refuge

Three grazing permittees were offered 3,150 AUMs of pasture on the Alamosa Refuge. This was the first year for grazing re-aligned units in the middle of the refuge where the Closed Basin channel necessitated re-alignment of fences and grazing units. The Bagwell-Sowards permit was written for 1,000 AUMs in the unit lying to the southeast of the channel. They used 923 AUMs. Ample forage was available for the 1,000 AUM permit but they moved home early because cows were close to calving. Grazing in this unit might be increased if better utilization of baltic rush can be obtained. During the next grazing period, swathing of dense stands in early August (forage remains palatable in the swath) may be tried to increase utilization. Also invasion of white top must be controlled.

Frank Mestas Jr. stocked the southern most unit of the refuge at a heavier stocking rate earlier in the season in an attempt to get better utilization by grazing unpalatable forage before it dried up in the fall. He experienced poor gains on yearlings and satisfactory gain and use by mature animals. This unit also needs a concerted effort to rehabilitate forage production by controlling white top, Canada thistle, and phragmites.

The following is a picture of a grazed and ungrazed unit on the Alamosa Refuge.



Fenceline grazing comparison. The left side is the Northwest Mestas unit which has not been grazed for two years. The right side is the South Mestas unit which was grazed this year.

10/16/85

NAIL

7. Grazing (continued)Alamosa Refuge (continued)ALAMOSA REFUGE GRAZING

<u>Permittee</u>	<u>AUMs</u>	<u>Time Period</u>	<u>Fee Collected</u>
Sowards	923.9	Nov.2-Jan. 13	\$4,937.51
Lillpop	538.4	Nov.29-Jan. 15	\$2,880.44
Mestas	1,419.4	July 15 - Oct. 31	\$9,270.76
	<u>2,881.7</u>		<u>\$17,088.71</u>

Monte Vista Refuge

Total AUMs offered on the Monte Vista Refuge was 3,200. Again use of the total number offered was not met. A 200 AUM permit to Bill Gibson was negotiated for 5 years in a land exchange during 1982. He has never exercised the privilege of use and it will expire next year. Two other permittees used below their allotted AUMs because of a family reorganization after a death of a family member and poor current economics allowing herd expansion.

Grazing use by the six Monte Vista permittees is shown below.

MONTE VISTA REFUGE GRAZING

<u>Permittee</u>	<u>AUMs</u>	<u>Time Period</u>	<u>Fee Collected</u>
Ziegler	769.5	Aug. 2 - Feb. 2	\$3,932.68
Brown	689.1	July 17 - Dec. 9	\$4,054.42
Cooley	600	July 15 - Feb. 28	\$3,210.00
Fuchs	291.8	Nov. 11 - Jan. 7	\$1,561.13
Getz	453.3	Dec. 12 - Jan 13	\$2,425.15
	<u>2,803.7</u>	TOTAL	<u>\$15,183.38</u>

7. Grazing (continued)

Monte Vista Refuge

The 1985-86 grazing season was the first year the Alamosa-Monte Vista Complex set grazing fees based on and adjusted by fall beef price. Permittees indicated a strong preference to this method because they felt it was more equitable. The \$5.35 AUM charged for a mature animal was also a good price reduction this first year.

8. Haying

No haying was conducted on either refuge, nothing to report.

9. Fire Management

Eleven prescribed burns totalling approximately 3,890 acres were planned for 1985. Objectives were to rejuvenate dense, rank growth of baltic rush in which waterfowl use has declined, and to control cattail and phragmites. All burns were scheduled to be completed between January 1, and March 31. Unfortunately, weather conditions were such that no burning was conducted on Monte Vista and only two burns were completed on the Alamosa Refuge.

The first prescribed burn was conducted on February 14. Approximately 35 acres of dense phragmites were ignited with mixed results. In some areas of the burn, fire was sufficient to provide a measure of control, however, much of the burn area lacked sufficient ground fuel continuity to carry a fire and ice was also a problem. The second burn was conducted on February 28. Approximately 300 acres comprised of both baltic rush and cattails were ignited. Results were less than desirable for cattail control, however, fuel removal on baltic rush stands was satisfactory.

10. Pest Control

Annual pest control activities consist primarily of spraying herbicides to control noxious weeds. Although some mechanical control (mowing, etc.) has been attempted, it is not considered to be practical or cost effective on most infested areas. The following tables outline chemical treatments for both refuges in 1985.

Alamosa NWR

<u>Pesticide</u>	<u>Acres Treated/Type</u>	<u>Target Species</u>
Dicamba/2,4-D (aerial)	600 acres/Grasslands Dikes, Ditch Banks, Roads	Giant Whitetop Canada Thistle
Dicamba/2,4-D (ground)	150 acres/Grasslands Dikes, Ditch Banks, Roads	Giant Whitetop Canada Thistle
2,4-D	60 acres/Willow Stands	Willow
Glyphosate	5 acres/Ditches and Canals	Cattail
Teknar	400 acres/ Open Water	Mosquitoes

10. Pest Control (continued)

Alamosa NWR



Whitetop Infestations on Alamosa NWR

June 1985

Merritt



Seed Dispersal Via Water in Ditches and Channels is Evident
July 1985

Merritt

10. Pest Control (continued)Monte Vista NWR

<u>Pesticide</u>	<u>Acres Treated/Type</u>	<u>Target Species</u>
Dicamba 2,4-D (aerial)	600 acres/Grasslands, Dikes, Ditch Banks, Roads	Giant Whitetop Canada Thistle
Dicamba 2,4-D (ground)	600 acres/Grasslands, Dikes, Ditch Banks, Roads	Giant Whitetop Canada Thistle
Dicamba 2,4-D (ground)	300 acres/Farm Fields	Knapweed Canada Thistle
Triallate (soil incorp.)	300 acres/ Farm Fields	Wild Oats

11. Water Rights

The filing by the United States of America for 5.34 cubic feet per second tail water on the Mate Seepage Ditch was decreed September 27, 1985. This filing was made to protect a tail water source contributing to water management on the Monte Vista Refuge. The past couple of years, after adjoining land to the refuge had exchanged hands, the new owners diverted water that had traditionally flowed to the Monte Vista Refuge. The water right was never adjudicated but delivered in good faith in years past. When the current adjudication proceedings were started the new owners of the Charlie Wartman Property now Ortiz, thought the government was going to force delivery of water they might not have. They objected to the wording "absolute!" After an informal meeting with Mr. Ortiz and family to explain the legal language, they agreed to drop their objection if everything was spelled out explicitly.

No further action occurred during 1985 pertaining to underground water adjudications for the Monte Vista and Alamosa Refuges. A pre-trial meeting concerning the Alamosa Refuge underground water filing has been scheduled for February 21, 1986.

The U.S. Fish and Wildlife Service owns 87% of the Chicago Ditch Company. This is the main direct river source for the Alamosa Refuge. The Bureau of Reclamation purchased 816.4 acres of land and the additional 13% of the Chicago Ditch Company from the Lillpop Ranch during 1985. This land and water right will be transferred to the U.S. Fish and Wildlife Service in early 1986. This was purchased by the Bureau of Reclamation and is being transferred to the Fish and Wildlife Service to satisfy 800 acre feet of water that the Alamosa Refuge was to receive from a deep well, part of the mitigation of the Closed Basin Project which could not be fulfilled. A ten year average delivery of the 13% amounted to 810 acre feet of water.

12. Wilderness and Special Areas

Nothing to report.

13. WPA Easement Monitoring

Nothing to report.

G. WILDLIFE

1. Wildlife Diversity

Due to its varied habitat types which include woodland riparian, marsh, wet meadow, grassland, farmland, and desert shrub communities, the two refuge complex supports a wide array of wildlife. At least 189 bird, and 55 mammal species are known to occur on the refuges at times throughout the year. Although no specific projects were planned or initiated during the year to increase wildlife diversity, maintenance of existing habitats and projects done to increase waterfowl habitat also benefit other species.

2. Endangered and/or Threatened Species

Bald eagles, peregrine falcons, and whooping cranes use both refuges at times during the year. The greater sandhill crane, which is abundant in the valley during its spring and fall migration, is listed as an endangered species by the state. Management actions are directed toward meeting habitat needs and monitoring for possible threats or conflicts.

On November 1 - 3, Refuge Supervisor Phil Norton and Endangered Species Staff Biologist Wayne Wathen visited the refuges to review the refuge hunting program as it relates to endangered species on the refuge. Visiting the refuges at this time provided an opportunity to observe opening of the goose season on November 2, and opening of the second duck season on November 3. The refuge farming program, water distribution, and other factors influencing frequency and movement of endangered species during hunting season were evaluated. No significant changes in operations were recommended.

Alamosa Refuge

Alamosa Refuge began the year with six bald eagles being counted on January 11, during the National Wildlife Federation mid-winter eagle survey. The population peaked in mid-March when approximately 50 eagles congregated to feed on winter killed carp after spring breakup. Numbers then declined rapidly and by mid-April none were present. The eagles returned in early November, and five resided on the refuge through the remainder of the year.

A peregrine falcon was observed by Refuge Manager Nail, and Assistant Refuge Manager Suthers on Alamosa Refuge the last week in August.

Whooping crane use on Alamosa has not occurred since 1981. Sandhill crane use doubled from last year with approximately 400 using the refuge during spring and fall migrations. Declines in crane use are the result of private farm fields southeast of the refuge being planted in potatoes and alfalfa rather than grain as in earlier years.

2. Endangered and/or Threatened Species (continued)

Alamosa Refuge (continued)

Additional water from the recently completed Closed Basin conveyance channel will result in our being able to farm an additional 160 acres in the north portion of the refuge. This should result in increased sandhill crane use and eventually, a return of the whooping cranes. For historical purposes, whooping crane use on Alamosa Refuge is presented below.

<u>Year</u>	<u>Spring Use Days</u>	<u>Fall Use Days</u>
1979	1	65
1980	86	35
1981	53	1
1982	0	0
1983	0	0
1984	0	0
1985	0	0

Monte Vista Refuge

Bald eagle use on the Monte Vista Refuge was similar to that recorded in 1984. The population during January and February was 20 to 25 birds. The last spring observation recorded was a sighting on April 16. The first fall sighting was on November 6, and approximately eight eagles were using Monte Vista in December.

A pair of peregrine falcons were observed regularly throughout summer and early fall on the Monte Vista Refuge. Use in 1984 was limited to a two week period in October, so peregrine use appears to be increasing.

The first whooping crane sighting occurred on February 18, which is 3 weeks later than last year. By month's end, 90% of the Rocky Mountain flock of sandhills were in the valley accompanied by 28 whooping cranes. Eight "whoopers" were observed using the Monte Vista refuge on a regular basis throughout March. Approximately 100 sandhill and seven whooping cranes remained in the valley at mid-April and used Monte Vista Refuge regularly. Three "whoopers", two adults and one immature, were observed by refuge personnel through the third week of April. One immature whooping crane and five sandhills were observed feeding on Monte Vista on April 30.

Sandhill cranes began arriving in the valley during late August, and one unconfirmed sighting of a whooping crane on August 24 was reported. The sandhill population continued building throughout September, and one whooping crane was observed feeding off the north boundary of Monte Vista Refuge on September 23. Approximately 4,000 sandhills and six whooping cranes were present in the valley by October 1. At the end

2. Endangered and/or Threatened Species (continued)

Monte Vista Refuge (continued)

of October, 14,000 sandhill and 24 whooping cranes were present. On November 30, 200 sandhills and one whooping crane remained in the valley. The following tables list arrival and departure dates and use during the migration periods.



Whooping Cranes feeding on refuge barley in Unit
14 on Monte Vista National Wildlife Refuge.
March, 1985 Cossick

2. Endangered and/or Threatened Species (continued)

Monte Vista Refuge (continued)



Whooping Cranes feeding on refuge barley in Unit
14 on Monte Vista National Wildlife Refuge.
March, 1985 Cossick

2. Endangered and/or Threatened Species (continued)WHOOPIING CRANE USE IN THE SAN LUIS VALLEY

<u>YEAR</u>	<u>DATE ARRIVED</u>	<u>DATE DEPARTED</u>
1975	October 9	November 20
1976	February 17	May 12
	October 5	November 17
1977	February 21	April 8
	October 4	November 19
1978	February 27	May 11
	October 1	November 28
1979	February 20	April 13
	September 29	November 16
1980	February 8	May 10
	September 19	November 17
1981	February 15	April 26
	September 17	December 18
1982	February 22	April 17
	October 3	November 26
1983	February 24	May 26
	October 5	November 20
1984	February 8	Summered in Valley
	Summered in Valley	November 26
1985	February 18	April 30
	September 23	December 1

WHOOPIING CRANE USE ON MONTE VISTA REFUGE

<u>YEAR</u>	<u>PEAK NUMBER</u>	<u>SPRING USE DAYS</u>	<u>PEAK NUMBER</u>	<u>FALL USE DAYS</u>	<u>SUMMER USE DAYS</u>
1975	35	
1976 2 98	1	7	
1977 4 133	2	14	
1978 2 80	4	130	
1979 5 147	3	70	
1980 8 349	3	101	
1981 7 354	3	141	
1982 6 183	4	116	
1983 4 99	10	266	
1984 9 359	12	254	120
1985 11 457	14	417	

3. Waterfowl

Alamosa Refuge

The year began with approximately 500 Canada geese and 600 mallards residing on the refuge. Small numbers of pintail, gadwall, and green-winged teal were also present. Waterfowl populations began increasing about mid-February as spring migrants returned to the valley. The duck population peaked at 8,300 in March then gradually declined to a breeding population level of approximately 5,000 birds.

Due to the loss of approximately 2,500 acres of nesting habitat (Section F.2.), overall duck production declined by 25% with 6,041 birds produced. Mallard production dropped 23% while gadwall production declined by 18%. Redhead production was down by 11%, however, ruddy duck production actually increased by nearly 60%. Production by species is listed below.

WATERFOWL PRODUCTION ON ALAMOSA REFUGE - 1985

<u>Species</u>	<u>Number Produced</u>
Mallard	1,212
Gadwall	1,632
Pintail	360
Green-winged Teal	172
Blue-winged Teal	1,697
Northern Shoveler	225
Redhead	617
Ruddy	126
Canada Geese	225
Common Merganser	36
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TOTAL	6,302

Alamosa refuge has experienced good consecutive water years since 1981, and production has increased accordingly. Had it not been for the flooding which occurred this year, 1985 might have been a record production year. The following table lists water delivered and production for 1980 through 1985.

3. Waterfowl (continued)Alamosa Refuge (continued)DUCK PRODUCTION AND WATER AVAILABILITY
ALAMOSA NWR

<u>YEAR</u>	<u>ACRE/FT. WATER DELIVERED</u>	<u>NO. DUCKS PRODUCED</u>
1980	12,842	2,349
1981	14,182	3,718
1982	14,263	4,819
1983	13,236	4,669
1984	15,061	8,101
1985	15,190	6,041

Water remained abundant throughout summer and well into the hunting season. Approximately 6,000 mallards remained from September through early December. Numbers then declined as refuge barley was depleted. Approximately 500 ducks were present at year's end.

Canada goose production increased from 154 in 1984 to 225 this year. Goose production was low in 1984 due to several cold periods during nesting. Production is up by 20% relative to 1983 which was a more typical production year. The first goose brood observed was on the Monte Vista Refuge on April 25th. A structure survey revealed an average of 5.1 eggs per nest.

Monte Vista Refuge

The Monte Vista Refuge supported approximately 16,000 mallards and 1,500 Canada geese during January and early February. Waterfowl populations began to increase beginning in mid-February as spring migrants returned. The peak of migration occurred in late March and early April with 30,000 birds tallied, an increase of 7% from 1984. Numbers then declined as migrants departed and resident birds dispersed. By late May a breeding population of approximately 10,000 birds resided on the refuge.

Four consecutive good water years in conjunction with continued predator management resulted in one of the highest duck production figures on record for Monte Vista. 25,600 ducks were produced and nesting success was an impressive 65%. The highest nest success ever recorded was 77%, which occurred in 1966, the last year strychnine was used on the refuge.

3. Waterfowl (continued)Monte Vista Refuge

The following tables show production by species for 1985, overall production and water availability from 1980 through 1985, and nest success from 1964 through 1985.

WATERFOWL PRODUCTION ON MONTE VISTA NWR - 1985

<u>SPECIES</u>	<u>NUMBER PRODUCED</u>
Mallard	10,686
Gadwall	4,504
Pintail	1,505
Green-winged Teal	1,377
Blue-winged/Cinnamon Teal	4,063
Northern Shover	2,597
Redhead	450
Ruddy	418
Canada Geese	225
<hr/>	
TOTAL	25,825

DUCK PRODUCTION AND WATER AVAILABILITYMONTE VISTA NWR

<u>YEAR</u>	<u>ACRE/FT. WATER DELIVERED</u>	<u>NUMBER DUCKS PRODUCED</u>
*1980	18,044	8,500
1981	13,486	12,600
1982	14,731	13,500
1983	17,885	13,500
1984	21,731	20,600
1985	22,029	25,600

*1980 followed a relatively dry period. Delivery in 1979 was only 14,464 and 1977 was one of the lowest years on record with 5,348.

3. Waterfowl (continued)Monte Vista Refuge (continued)PERCENT NEST SUCCESS FROM 1964 - 1985MONTE VISTA NWR

<u>YEAR</u>	<u>PERCENT SUCCESS</u>
1964	54.8
1965	55.7
1966	77.0
1967	61.9
1968	54.0
1969	62.4
1970	48.4
1971	38.5
1972	47.9
1973	49.0
1974	32.0
1975	43.0
1976	39.0
1977	12.0
1978	28.0
1979	42.0
1980	37.0
1981	42.0
1982	49.0
1983	48.0
1984	52.0
1985	65.0

Canada goose production was roughly equivalent to 1984 with 270 birds produced. This figure exceeds the current objective level of 250.

4. Marsh and Water Birds

Cranes are the major species in terms of use and are discussed in detail under Section G.2., Endangered and/or Threatened Species. Other notable species in this category during 1984 include eared grebes, herons, egrets, and white-faced ibis.

4. Marsh and Water Birds (continued)

The Monte Vista Refuge continues to provide the only significant colonial nesting on the complex. The Parker Pond rookery increased in total nests again this year. A nest survey of the rookery was conducted in July by Janet Schreur (CSU Graduate Student) and the results were submitted to the Colonial Bird Register. Census results for 1985 and 1984 follow.

PARKER POND ROOKERY

Active Nests

<u>Species</u>	<u>1984</u>	<u>1985</u>
Black-crowned Night Heron	72	126
Snowy Egret	75	70
Cattle Egret	1	3
White-faced Ibis	8	13
TOTAL	156	212

Janet's work involves determining the effects of human disturbance associated with tour routes and foot trails on nesting waterfowl, marsh and shorebirds. Refuge personnel provided assistance in banding 28 young herons, keeping track of tour route traffic, and minimizing disturbance in the control area. The purpose of her work on Monte Vista was to gather baseline information to assist in planning and developing the Russell Lakes State Wildlife Area.

4. Marsh and Water Birds (continued)



Heron Banding in Parker Pond Rookery
June, 1985 Schreur

4. Marsh and Water Birds (continued)



Young Herons awaiting their turn.
June, 1985 Merritt

4. Marsh and Water Birds (continued)

Management Unit 18 also supports colonial nesting and the colony appears to be expanding. White-faced ibis nesting increased significantly from a few nests in 1984, to over 61 in 1985. Survey results follow:

MANAGEMENT UNIT 18

Active Nests

<u>Species</u>	<u>1985</u>
Black-crowned Night Heron	24
Snowy Egret	8
White-faced Ibis	61

A small colony of eared grebes nest adjacent to the auto tour route on Monte Vista Refuge. Nesting was down by 20% from last year with 16 nests located.

Although no significant colonial nesting is known to occur on the Alamosa Refuge, use by white-faced ibis during late summer and early fall was noteworthy. Approximately 300 ibis were counted in the south portion of the refuge on August 12. The population was estimated at nearly 600 in September as birds fed along receding shorelines.

5. Shorebirds, Gulls, Terns, and Allied Species

It appears that 1985 was another good year for shorebird production on both refuges. Young avocets, killdeer, and phalaropes were abundant and overall shorebird population levels are estimated to be up approximately 10% from last year.

6. Raptors

Raptor use on both refuges appeared normal throughout 1985. Bald eagle and peregrine falcon use is discussed in Section G.2., Endangered and/or threatened Species. Golden eagles were observed regularly throughout the year on Monte Vista and intermittently on Alamosa. A goshawk was sighted by Suthers and Merritt in August on Alamosa Refuge. Raptors present on Monte Vista Refuge at year's end, as reported in the Audubon Christmas Bird Count are as follows.

Red-tailed Hawk	8
Ferruginous Hawk	1
Rough-legged Hawk	...	25
American Kestrel	4
Prairie Falcon	1
Golden Eagle	6

6. Raptors (continued)



Artificial raptor nesting sites were installed on Alamosa Refuge by Ecological Services personnel as part of the Closed Basin Project mitigation. None of the sites were used during the year.

4/5/85

Nail



Powerlines continue to exact a toll on raptor populations. These Great Horned Owls were killed on a powerline along State Highway 15 on the Monte Vista Refuge.

February, 1985

Cossick

6. Raptors (continued)

The Raptor Center of Pueblo treated 103 injured raptors during 1985. Of that total, 26 were transported to the center by refuge personnel. The following table lists the San Luis Valley birds by species and their fate.

<u>SPECIES</u>	<u>NUMBER TREATED</u>	<u>FATE</u>
Golden Eagle	8	3 - released 2 - euthanized 2 - died 1 - temporary resident
Great Horned Owl	8	4 - euthanized 3 - died 1 - escaped
Rough-legged Hawk.....	4	2 - released 1 - died 1 - permanent resident
Red-tailed Hawk.....	2	1 - released 1 - euthanized
Swainson's Hawk.....	2	1 - escaped 1 - died
Ferruginous Hawk.....	1	1 - euthanized
Long-eared Owl.....	1	1 - died
	<hr/>	
TOTAL	26	

Considerable work was done with the San Luis Valley Rural Electric Cooperative during the year to correct eagle electrocution problems on their lines. On January 21, Refuge Manager Nail investigated an eagle electrocution in the La Garita area. Two golden eagles and numerous other carcasses in various stages of decomposition were found beneath a pole. A letter was sent to the San Luis Valley Rural Electric Cooperative on January 22, and on January 23 a line crew was on the site to modify the wiring installation. Loop wires were insulated, and a high perch site was installed on the pole.

On March 27 while investigating another eagle kill in the La Garita area, Refuge Manager Nail found three recent golden eagle carcasses and two eagle skeletons under three different poles. The site was inspected with the San Luis Valley Rural Electric Cooperative line foreman on March 28. The power company modified the three poles to solve the problem. The power company is very cooperative in correcting problems once they are identified.

6. Raptors (continued)



Modified power pole loop wires were insulated with plastic sleeves and a high perch was installed to provide eagles with a safer perch than the crossarms.

1/23/85

Nail

6. Raptors (continued)



Ron Garcher, Manager of San Luis Valley Rural Electric Cooperative, photographing modified power pole. Six miles northeast of La Garita, Colorado.

1/23/85

Nail

7. Other Migratory Birds

The annual mourning dove coo count survey revealed a third consecutive low year. Dove nesting was also low again, and hunting season was poor. As was the case last year, most doves had departed the valley before the season opened.

Unusual sightings recorded during the year included sage sparrows, northern phalaropes, tundra swans, black-headed grosbeaks, western wood pewees, and two sightings of a green heron.

8. Game Mammals

The mule deer herd on Alamosa Refuge continues to increase and is now estimated to be approximately 60 head. As many as 28 deer, including 8 bucks, were observed feeding on refuge barley during fall and early winter. No significant deer or elk use occurred on Monte Vista during the year.

9. Marine Mammals

Nothing to report.

10. Other Resident Wildlife

Pheasant populations were up slightly on Monte Vista and remained the same for Alamosa this year. Barley plantings on the north portion of the Alamosa Refuge have increased pheasant use in that area. Cooperation with the Colorado Division of Wildlife to increase pheasant habitat continues. Under this program, the Division provides water on lands planted to pheasant habitat. A total of 124 acres of pheasant habitat was maintained on Monte Vista Refuge with 483 acre/feet of water from the state.

11. Fisheries Resources

Nothing to report.

12. Wildlife Propagation and Stocking

Nothing to report.

13. Surplus Animal Disposal

Nothing to report.

14. Scientific Collections

Refuge personnel responded to a request from Cornell University to capture and ship red-winged blackbird nestlings for a genetic study. Approximately one hundred nests were marked during laying and incubation and 46 nestlings were shipped in June. This turned out to be a rather time consuming project and our CSU interns and Coop student provided some much needed help.

Two Texas tortoises were shipped to Santa Ana NWR on August 5 for release back into the wild. The two tortoises, 34 and 7 years old, had been transported to the San Luis Valley illegally and had ended up in the care of the Science Department at Adams State College.



Texas tortoises back home again after their release along the Jaguarundi Trail on Rio Grande Valley NWR at Alamo, Texas.

8/5/85

N.M. Gilbertson

In cooperation with the Colorado Division of Wildlife, waterfowl gizzards and livers were collected during the hunting season for lead analysis. Results were unavailable at year's end but will be reported in the 1986 narrative. In addition three golden eagles, one bald eagle, and one American bittern were sent to the National Wildlife Laboratory in Madison, Wisconsin for diagnostic services. The toxicology of liver lead diagnoses was at normal background levels.

15. Animal Control

Predator management activities prior to the nesting season included aerial gunning of coyotes on both refuges by ADC, and a ground search for dens. In addition, trappers were busy on both areas. The results of pre-nesting season control measures are as follows:

ALAMOSA NWR

<u>Species</u>	<u>Number Taken</u>
Coyote	23
Skunk	47
Raccoon	27

* * * * *

MONTE VISTA NWR

<u>Species</u>	<u>Number Taken</u>
Coyote	19
Skunk	33
Raccoon	9

Raven and magpie populations increased in 1985 and it became evident from transect data that avian predation increased significantly. Traps were constructed at year's end and will be used in 1986 in an effort to control avian predation populations just prior to nesting.

Coyote scent station lines were established on both refuges to provide a relative index of coyote abundance in an effort to gauge the success of control efforts. The survey is conducted twice annually, once during nesting and again each fall. This year's surveys revealed no large increase in coyotes from May through early September. However, coyote numbers increased steadily through fall and early winter.

15. Animal Control (continued)

The following table lists results of scent station surveys for both refuges in 1985.

ALAMOSA NWR

	<u>June</u>	<u>Sept.</u>
Number of Operating Station Nights * *	140	108
Number of Coyote Visits * * * * *	13	7

MONTE VISTA NWR

	<u>June</u>	<u>Sept.</u>
Number of Operating Station Nights * *	46	51
Number of Coyote Visits * * * * *	4	1

Waterfowl dispersed throughout the San Luis Valley in response to the availability of grain as harvesting progressed. Intermittent rainfall resulted in an increase in the number of crop depredation complaints as farmers were unable to combine swathed grain. Refuge personnel were kept busy during October setting up propane guns and distributing hazing materials to refuge neighbors. In one case, refuge grain in Management Unit 24 was mowed early to assist an adjacent farmer.

16. Marking and Banding

No waterfowl banding was requested by the Colorado Division of Wildlife in 1985. The only banding conducted is discussed in Section G. 4., Marsh and Water Birds.

17. Disease Prevention

A short lived outbreak of fowl cholera killed approximately 130 ducks and 35 geese in mid-February on Monte Vista Refuge. Manipulation of water to disperse and move birds proved successful throughout the remainder of winter. Monitoring for cholera resumed in early December and no outbreaks occurred through the remainder of the year.

H. PUBLIC USE

1. General

There is no evidence that total visitation increased significantly during 1985. However, two factors resulted in a shift in patterns and peaks of public use. The second annual Whooping Crane Festival was held in Monte Vista in March. This event continues to result in publicity and increased public awareness of the refuges and the opportunities they provide. The result has been a significant increase in demand for tours and environmental education activities during spring and fall. Secondly, more restrictive hunting regulations resulted in a decline in consumptive recreational pursuit.



Whooping Cranes posing for the public on
Monte Vista Tour Route

May 1985

Merritt

2. Outdoor Classrooms - Students

A total of approximately 75 students visited Alamosa Refuge and participated in 315 hours of environmental education activities during 1985. The figures were higher for Monte Vista Refuge with 160 students totalling 500 hours. The big event of the year continues to be the Beaver Creek Youth Conservation Camp, which is sponsored by the Colorado State University Extension Office. During the camp, Assistant Manager Merritt and Coop. Student Wilson conducted two all-day classes for 25 students at Monte Vista Refuge. Planned "hands on" activities included an orientation to wetlands, simulation of management on micro-computers, and exploring the wetland environment through sensory awareness activities. Evaluations by students, parents and other camp instructors were most complimentary.



Milt Suthers conducting bus tour during
2nd Annual Whooping Crane Festival
March 1985 Nail



2nd Annual Whooping Crane Festival bus tour
viewing cranes during a stop on the Monte Vista NWR.
March 1985 Nail

2. Outdoor Classrooms - Students (continued)



Beaver Creek Conservation Camp Enrollees
take a hike through the marsh blind folded.

June 1985

Merritt

3. Outdoor Classrooms - Teachers

Assistant Manager Merritt met with Dr. Don Eden, Adams State College, Office of Extension Education, in November to discuss the possibility of cooperating with the college in offering a Teacher Workshop for college credit. The response was positive and planning for the workshop began at year's end. We will offer a 2-day workshop for either graduate or undergraduate credit through the college in September of 1986. The workshop will be open to both teachers and education students. We hope to train between 75 and 100 people. The objectives of the workshop will be as follows:

1. To introduce teachers of all subjects and from any grade level to ideas using the outdoor classroom in their teaching programs.
2. To introduce teachers to persons currently involved in outdoor education programs in our area, and to share skills and materials that have been successful with their students.
3. To expose teachers to Alamosa and Monte Vista refuges as sites for outdoor classroom activities, and to familiarize teachers with the sources of materials that are available in this area.

4. Interpretive Foot Trails

Two foot trails provide wildlife viewing opportunities along the Rio Grande River on the Alamosa Refuge. Use continues to be heaviest during spring and fall migration. Lack of birds in winter, and no lack of mosquitoes or horseflies in summer, result in little use during those seasons. Foot trails are not provided on Monte Vista Refuge where access for wildlife observation is excellent via county and refuge roads.

5. Interpretive Tour Routes

A six mile auto tour route, interpreted through signs and a leaflet, is available to visitors on Monte Vista Refuge. During 1985, approximately 2,000 visitors drove the self-guided route. Most visits were during spring and fall when waterfowl populations peak and sandhill and whooping cranes are present. The tour route is an all weather road and is open year around except during waterfowl hunting season. No interpretive auto tour routes have been developed on the Alamosa Refuge.

6. Interpretive Exhibits/Demonstrations

On July 8-10, Assistant Managers Suthers and Merritt travelled to Bear River MBR to pick up interpretive displays for use in the refuge office/visitor contact area at the Alamosa Refuge. The display package consists of wall panels which interpret bird behavior, flight, and adaptations for living with water. The exhibits feature a bird sound booth, several wood carvings, and original art work. Two new walls were constructed in the exhibit area to accommodate three of the new wall panels and installation was complete except for baseboards at year's end.

7. Other Interpretive Programs

Refuge personnel continue to provide talks and tours on a request basis. Tours were provided for approximately 1,200 visitors during the year. Most activity occurred during spring and fall and was the result of school field trips. Tours or programs were also provided for the following:

- Salida Audubon Society
- Durango Audubon Society
- Monte Vista Rotary Club
- Alamosa Schools Career Day
- Alamosa Schools Accelerated Student Program
- Colorado State University Spring Wildlife Field Trip
- Upward Bound
- Valley Industries Program for the Handicapped
- Regional Office YCC Enrollees
- Boy Scouts

In addition to the above, Monte Vista Refuge hosted a refuge tour and retriever demonstration for 35 children enrolled as Ducks Unlimited Greenwings. The Greenwing Event took place in May and both Suthers and

7. Other Interpretive Programs (continued)

Merritt were active on the planning committee. Activities off refuge included a trap shoot, burger fry, and movie about wetlands. Greenwing Day is expected to become an annual event in the valley.



May 1985 Retriever Demonstration on Greenwing Day Merritt



May 1985 Retriever Demonstration on Greenwing Day Merritt

8. Hunting

The stated objectives of this year's more restrictive hunting regulations was to reduce the harvest of migrating waterfowl by 25%. Fewer hunting days were available during this year's three duck seasons, and some point values were increased. All of this resulted in an overall decrease in hunter use days by 12% on Alamosa, and 23% on Monte Vista. Furthermore, 1985 harvest figures reflect a decline in the kill of 30% on Alamosa and 24% on Monte Vista. A summary of the 1985 duck harvest follows.

ANNUAL HARVEST SUMMARY

<u>Species</u>	<u>Alamosa Refuge</u>	<u>Monte Vista Refuge</u>
Mallard	375	750
Pintail	80	95
Gadwall	350	450
Shoveler	105	85
Blue-winged Teal	115	105
Green-winged Teal	90	80
Redhead	55	90
Bufflehead	5	5
Ringneck	5	5
Wigeon	5	5
Ruddy	5	5
Canvasback	1	0
Scaup	0	1
Coot	15	5
C. Merganser	1	1
Canada Goose	10	15
Snow Goose	0	1
	<hr/> 1,217	<hr/> 1,698

October 5, 1985 through October 19, 1985, November 3, 1985 through November 29, 1985, and December 14, 1985 through January 5, 1986 were the hunting season dates for duck. Goose season was from November 2, 1985 through December 31, 1985. The season for pheasant hunting was November 16, 1985 through January 5, 1986.

The following chart shows the point value that was assigned to each species of duck:

<u>100 Points</u>	<u>70 Points</u>	<u>35 Points</u>	<u>20 Points</u>
Mallard Hen	Redhead	Mallard Drake	Blue-winged Teal
Canvasback	Wood Duck	Pintail Drake & Hen	Green-winged Teal
	Hooded Merganser	Ringneck	Cinnamon Teal
		Bufflehead	Scaup
		Goldeneye	Gadwall
		Ruddy	Northern Shoveler
			Common Merganser
			Red-breasted Merganser
			Widgeon

8. Hunting (continued)

Goose hunting in the San Luis Valley is by permit only. A coordinating meeting consisting of personnel from the Colorado Division of Wildlife, BLM, and Alamosa-Monte Vista National Wildlife Refuge was held at the Alamosa Refuge June 6 to assess goose management in the San Luis Valley. At the meeting it was mutually agreed to increase the number of permits from 800 to 1,200 for the 1985 season. A total of 10 geese were harvested on Alamosa Refuge, and 15, including one snow goose, on the Monte Vista Refuge.

Hunting snipe, mourning dove, cottontail, and jackrabbits is permitted on both refuges during the open waterfowl seasons. No accurate data exists with regard to the number of hunters or hours expended pursuing these species. The pheasant harvest increased approximately 50% from last year with the total kill estimated at 160 birds.

9. Fishing

↑
All assumed to be
on Monte Vista

Nothing to report.

10. Trapping

Trapping by permit only is allowed on both refuges. One permit is issued for each refuge and is awarded to the highest bidder. A rebate schedule is in effect on both refuges to encourage trappers to remove waterfowl predators and beaver which cause problems in ditches and canals. The current rebate schedule is as follows:

\$25.00/coyote - maximum of 10 apply to the rebate

\$10.00/raccoon - maximum of 40 apply to the rebate

\$10.00/skunk - maximum of 100 apply to the rebate

\$10.00/beaver - maximum of 20 apply to the rebate

By awarding trapping rights on the bid system, amateur trappers are eliminated. Trapping is viewed as a means to help control predator populations in accordance with major refuge objectives, not to provide recreation. Trapping season on both refuges is from October 1, through March 15.

11. Wildlife Observation

Wildlife observation continues to increase in popularity on both refuges. The whooping cranes and their sandhill crane cousins remain the star attraction each spring and fall. Waterfowl and raptor migrations attract visitors and a few intrepid individuals brave the insects to observe brood activity in mid summer. This year approximately 1,500 hours of wildlife observation were recorded for Alamosa Refuge, and nearly 3,500 hours for Monte Vista Refuge. The refuge bird list was revised in September with approximately 50 changes made.

12. Other Wildlife Oriented Recreation

Although no quantitative data exists with regard to wildlife photographer use on the refuges, this activity appears to be on the increase. Efforts will be made in 1986 to determine use levels by photographers. Wildlife photography is encouraged and no problems resulting from this recreational pursuit are anticipated.

13. Camping

Camping is not permitted on either refuge except in designated hunter parking areas during hunting season. These areas are used by hunters from outside the San Luis Valley, especially during the first season when the weather is usually cooperative. Essentially all camping is in conjunction with hunting activity. No problems associated with hunters camping in these areas were noted during the year.

14. Picnicing

Nothing to report.

15. Off Road Vehicling

Nothing to report.

16. Other Non-Wildlife Oriented Recreation

Nothing to report.

17. Law Enforcement

Currently, there are five staff members on the two refuge complex with enforcement authority. Maintenance Foreman John Cossick completed the nine week basic course at FLETC in November. Assistant Manager Suthers attended the one-week refresher course in Denver in February.

Law enforcement efforts on both refuges are concentrated during the waterfowl hunting season. Occasionally, minor vandalism or trespass occurs, but problems are not severe. The following table lists violations which resulted in a citation during the year.

17. Law Enforcement (continued)Citations Issued in 1985

<u>Date</u>	<u>Violation</u>	<u>Officer</u>	<u>Disposition</u>
10/5/85	No Duck Stamp	Merritt	\$50.00 Fine
10/5/85	Exceeding Daily Bag Limit	Nail	\$150.00 Fine
10/5/85	Exceeding Daily Bag Limit	McDermith	\$100.00 Fine
10/6/85	Exceeding Daily Bag Limit	Nail	\$100.00 Fine
10/19/85	Exceeding Possession Limit	Suthers	\$100.00 Fine
11/2/85	Taking Migratory Birds During Closed Season	Nail	\$200.00 Fine
11/2/85	Taking Migratory Birds During Closed Season	Nail	\$200.00 Fine
11/2/85	Taking Migratory Birds During Closed Season	Nail	\$125.00 Fine
11/2/85	Taking Migratory Birds During Closed Season	Nail	\$150.00 Fine
11/17/85	Unplugged Shotgun	Suthers	\$50.00 Fine
11/17/85	Unplugged Shotgun	Suthers	\$50.00 Fine
11/17/85	Trespass	Suthers	\$50.00 Fine
11/17/85	Hunting in Closed Area	Nail	\$50.00 Fine

In addition to the above, 7 written warnings were issued to individuals for parking in other than designated hunter parking areas as required.

On June 28, and October 21, Special Agent John Griest served as Range Supervisor at the Monte Vista Pistol Range. Nail, Suthers, Merritt, and McDermith qualified at those times. In addition, Griest met with the refuge law enforcement contingency on October 22 to discuss changes in regulations and procedures prior to the up and coming waterfowl season.

18. Cooperative Associations

Nothing to report.

19. Concessions

Nothing to report.

I. EQUIPMENT AND FACILITIES

1. New Construction

New construction on the Monte Vista Refuge included installing three stock tanks measuring two feet deep and six feet in diameter. They were added to units nine, 17 and 22 where small flows and ice are a problem.

The refuge crew fabricated and installed two metal gates on the roadway where the Monte Vista Canal enters and leaves the refuge. This will hopefully alleviate a winter hunting problem along the canal within the refuge.

Four corrugated metal pipes (cmps) with risers were installed in the unit seven crossroad dike.

A 24"x16' cmp with headwalls was installed in the east end of unit 23 to irrigate a pheasant habitat planting.

A 15"x20' cmp with headwalls was installed in the dike between units nine and 18 to give needed water level regulation.

A 12"x20' cmp was placed under the roadway south of the Olson reservoir to allow additional irrigation to the pheasant habitat next to the Monte Vista Canal. Canal water is sometimes unavailable when needed.

Melvin Getz, a neighbor to the Monte Vista Refuge, developed a sprinkler quarter north of unit three. He had to dig a drain around the perimeter. The refuge paid for continuing the drain approximately 600 feet into the refuge so we could utilize the water. The drain dumps back into the Getz drain near the Getz number four lift pump. The refuge will be the sole beneficiary of the drain water. Construction of a railroad iron supported flume across the drain was necessary to deliver water from the northeast corner of unit three into unit four. The flume was a 15½" x 21½" squash pipe 30' in length.

Two 15" x 20' cmps with headwalls were installed in the new Getz drain to provide refuge access into the north side of unit three.

Pipe flow restrictors were fabricated and installed on large artesian wells so an accurate measurement of flow could be obtained.

New construction on the Alamosa Refuge included purchase of 40 feet of seven foot diameter cmp, contract fabrication of a nine foot drop log head structure and refuge fabrication of a 12' x 12' downstream headwall for installation in the New Ditch Diversion Dam in the Rio Grande River. This addition was added to pass more water during flood stage. The action will hopefully appease the water lawyers and water division people who feel the New Ditch river diversion impedes delivery to New Mexico.

1. New Construction (continued)



Upstream side of New Ditch Diversion Dam during high water. Risers and pipes are under swirls.

5/7/85

NAIL



New Ditch Diversion Dam on the Rio Grande River showing 7 foot water control structure installed to help carry high river flows.

10/16/85

NAIL

1. New Construction (continued)

Four 10' x 10' cmps with slide gates were installed in two water distribution ditches below the Closed Basin Channel.

One 15' x 10' cmp with stop log structure was placed in the dike east of the Mumm Well for water level control.

One 15' x 10' cmp with slide gate was placed in an old oxbow dike in tract 10.

One 12' x 10' cmp was placed in the Becker Dike for water level control.

One 15' x 10' cmp was placed in the Taylor Barn roadway for water level control.

One cattle guard with cement base was installed in the river road as it enters the northwest corner of the hunting area. The cattle guard and base were purchased with ARMM monies.

Two refuge fabricated water checks were placed in ditches for water distribution in tracts 15 and 20.

2. Rehabilitation

Rehabilitation projects completed on the Monte Vista Refuge during 1985 are as follows.

A 16' x 10' cmp was replaced just west of well number 51.

A deteriorated 12" flume was replaced with a 16" flume over the resettlement ditch in the west side of unit 22.

A 16' x 20' cmp with headwalls was replaced in the Getz road on the north side of unit one.

A large metal 3-way structure was fabricated and installed at well 63 to handle artesian and pumped water. The structure replaced a deteriorated structure that gave management problems.

Five stop log headwalls were added to replacement cmps that the county placed under the Switch Road. Rio Grande County Commissioners had agreed to replace these deteriorated cmps for a portion of the exchange for gravel from the refuge pit to gravel the Switch Road. This gravel project was started in 1976 and is not yet completed. With the culvert replacements refuge irrigation can get back to normal.

Two 21' x 20' cmps with risers were placed in the north-south dike on the east side of unit one where the dike was widened.

2. Rehabilitation (continued)

Three 14' cattle guards were replaced in units six, 14 and 16. The cattle guards were purchased from Goshute Enterprises, Salt Lake City. The concrete bases were prefabricated by Alcon Construction in Alamosa. The refuge crew did the installation.

A pipe gate was fabricated and hung on the cattle guard providing hunter access into unit one. The 14' cattle guard and gate replaced a deteriorated 16' cattle guard that had collapsed.

Two large steel tubing framed fiber glass doors were fabricated and installed on the YACC storage building. The double doors 8' x 11' allow for storage of refuge equipment without hauling it in lengthwise.

Two major rehabilitation projects were completed on the Alamosa Refuge. One mile of cross road in the lower end of the refuge was rehabilitated. The project consisted of removing willow from both banks of the roadway, and hauling a base and surface of gravel. Rat holes were filled and narrow spots were widened also. This was a large ARMM's money project. The project was completed for \$15,000.



Crossroad after rehabilitation project was completed. Rehab.
on this S curve eliminated a hunter traffic safety problem.
10/16/85 NAIL

2. Rehabilitation (continued)



Crossroad after rehabilitation. The road was widened and graveled. View looking northeast,

10/16/85

NAIL

2. Rehabilitation (continued)

The overflow spillway berm at the New Ditch takeout had to be completely rebuilt after high water in the spring.



View west across the New Ditch Diversion Dam Spillway during high water. The low dike on the west side washes out allowing the Rio Grande River to flood lands to the west.
5/7/85 NAIL



New Ditch Diversion Dam Spillway at low water showing the dike which was raised and widened in an attempt to confine high river flows to the river channel. The face of the dike will be rip-rapped in early 1986.
10/16/85 NAIL

2. Rehabilitation (continued)

An ongoing rehabilitation project started in 1985 consists of rehabilitation of several major water conveyance channels. A dragline operator, Ernest Vigil, was hired September 9, 1985 to operate a dragline that is graciously on loan from the Fish Springs NWR. By year's end he had cleaned about three miles of channel that had silted in and in some places choked with cattail.

A 14' cattle guard was replaced near parking area three. The cattle guard and cement bases were acquired with ARMM's funds.

3. Major Maintenance

The Monte Vista Refuge crew hauled 1,392 yards of gravel patching holes in dikes, setting water control structures, and rip-rapping wind eroded stretches along dikes.

Headwalls were extended on the Spring Creek outlet structure in unit 14. Muskrat holes caused a break in the dike where the headwalls were too narrow.



Engineering Equipment Operator Bill McDermith extending sheet piling wing walls on Spring Creek diversion structure in Unit 14.

June, 1985

Cossick

3. Major Maintenance (continued)

A ditcher was used to clean approximately six miles on the Monte Vista Refuge and two miles on the Alamosa Refuge.

Approximately 100 yards of gravel and 240 man hours of dozer and maintainer work was required to repair breeched dikes in the lower end of the Alamosa Refuge after spring flooding.

Approximately 240 man hours of dozer work was required to move a sand island back across the river where a major dike was threatened to breach and drain into the river.

4. Equipment Utilization and Maintenance

A concerted effort in preventative maintenance over the past couple of years is beginning to pay dividends. Very little if any down time occurred during 1985 due to equipment failure.

The radiator on the Case 450 B Crawler had to be rodded and thoroughly cleaned.

A winter preventative maintenance service on the Alamosa Refuge's John Deere 410 Backhoe revealed two bad injectors. The backhoe had become increasingly hard to start, hopefully the problem is solved.

The Monte Vista soil renovator was completely equiped with a 300 gallon tank, hoses, and nozzles for applying Fargo for wild oat control in croplands.

Three saddle tanks were acquired from the Bear River Refuge. Two were mounted on the Ford Cabover, and the third will be mounted on the GMC Dump Truck.

5. Communications Systems

Nothing to report.

6. Computer Systems

Nothing to report.

7. Energy Conservation

The primary energy conservation project conducted during 1985 was the conservation tillage of approximately one-half of the 1985 farm ground. Barnyard manure was applied at the rate of 10 tons per acre on 66 acres.

8. Other

The Closed Basin Channel through the refuge was completed during 1985. Irrigation next to the channel was conducted as in a normal operating year. Although water distribution takes more attention than pre channel operation, coverage was good.

J. OTHER ITEMS1. Cooperative Programs

Monte Vista National Wildlife Refuge continued into the second year of a cooperative pheasant habitat improvement program with the Colorado Division of Wildlife. The Division of Wildlife will provide the refuge with 600 acre feet of water each year to establish and maintain pheasant habitat on 200 acres of land (to be accomplished over a three year period). Thus far, the refuge has 124 acres planted to an alfalfa-sweet clover-wheatgrass mixture.

2. Items of Interest

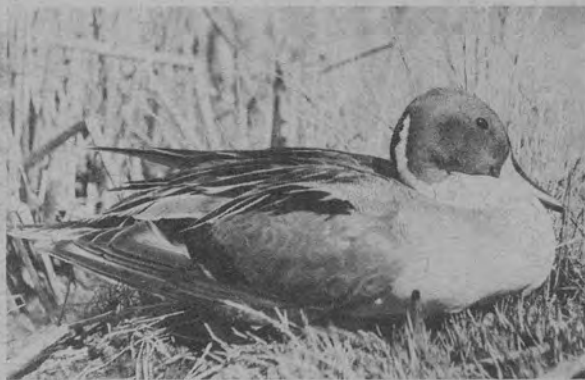
Nothing to report.

3. Credits

Refuge Manager Melvin Nail wrote the introduction, part of Section G. 6., and Section E. Assistant Refuge Manager Milton Suthers wrote sections B., F.11., F.7., and I. Assistant Refuge Manager Edward Merritt wrote Sections G., F.1.-6., F.8.-10., F.12.-13., and Section H. Refuge Manager Trainee Roberta Salazar wrote sections A., C, D, J, and K. Refuge Assistant Georgena Rennick edited, typed and assembled the entire report.

K. FEEDBACK

Nothing to report.



As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.

- ☐ When in doubt as to any refuge regulation, contact a refuge officer.
- ☐ Where to write for current regulations and information:

Refuge Manager
Alamosa-Monte Vista National Wildlife
Refuge
 P.O. Box 1148
 Alamosa, Colo. 81101
 or call (303) 589-4021

U.S. FISH AND WILDLIFE SERVICE
 Department of the Interior



RF6-65510-2



GPO 833-687

January, 1982

Birds of the Alamosa- Monte Vista

NATIONAL
WILDLIFE
REFUGE
COMPLEX



	S	S	F	W
DOVES				
— Band-tailed Pigeon	u	u	u	
— Rock Dove	o	o	o	o
— • Mourning Dove	c	c	a	r
OWLS				
— Barn Owl		r		
— Flammulated Owl		accidental		
— • Great Horned Owl	c	c	c	c
— Burrowing Owl	r	r	o	
— Long-eared Owl			r	r
— • Short-eared Owl	c	c	c	c
NIGHTJARS				
— Poor-will			r	
— • Common Nighthawk		c	c	
SWIFTS				
— White-throated Swift	r			
HUMMINGBIRDS				
— Black-chinned Hummingbird	u	u	u	
— Broad-tailed Hummingbird		r	r	
— Rufous Hummingbird		u	u	
KINGFISHERS				
— Belted Kingfisher	r		r	
WOODPECKERS				
— • Red-shafted Flicker	c	c	c	
— Red-headed Woodpecker		o	r	
— Lewis' Woodpecker	r			
— Hairy Woodpecker	u		u	
— Downy Woodpecker	u	u	u	
FLYCATCHERS				
— Eastern Kingbird		o	r	
— Western Kingbird	o	o	o	
— Say's Phoebe	o			
— Willow Flycatcher	o	o	r	
— Western Wood Pewee	r			
— Olive-sided Flycatcher			r	
— Vermilion Flycatcher	r			
LARKS				
— • Horned Lark	c	c	c	c
SWALLOWS				
— Violet-green Swallow	o	c	u	
— Tree Swallow	c	c	u	
— Bank Swallow	o	u	u	
— Rough-winged Swallow	o	o	o	
— • Barn Swallow	c	a	o	
— Cliff Swallow	c	c	o	
— Purple Martin		o		
MAGPIES, CROWS				
— • Black-billed Magpie	c	a	a	c
— Common Raven	o	o	o	o
— Common Crow	o	o	c	u
CHICKADEES				
— Black-capped Chickadee			c	c
— Mountain Chickadee	o	r	o	o
NUTHATCHES				
— White-breasted Nuthatch	o	r	o	
WRENS				
— House Wren	u	u	u	
— • Long-billed Marsh Wren		c	c	r
— Short-billed Marsh Wren		accidental		
— Rock Wren	r			

	S	S	F	W
THRASHERS				
— Mockingbird	o	o		
— • Sage Thrasher	c	c	u	
THRUSHES				
— • American Robin	o	c	r	
— Swainson's Thrush	r			
— Western Bluebird	r			
— Mountain Bluebird	c	r	o	
KINGLETS				
— Ruby-crowned Kinglet	r	r	r	
PIPITS				
— Water Pipit	r			
SHRIKES				
— Loggerhead Shrike	o	o	o	r
STARLINGS				
— Starling	c	u	o	c
VIREOS				
— Warbling Vireo	r			
WARBLERS				
— Yellow Warbler	u	u	o	
— Myrtle Warbler	o			
— Audubon's Warbler	c	c	o	
— Townsend's Warbler			r	
— Northern Waterthrush	o			
— MacGillivray's Warbler	r			
— • Common Yellowthroat	c	c	u	
— Wilson's Warbler	o		o	
WEAVER FINCHES				
— • House Sparrow	c	c	c	c
BLACKBIRDS, ORIOLES				
— Bobolink	o		r	
— • Western Meadowlark	c	c	c	r
— • Yellow-headed Blackbird	c	a	c	r
— • Red-winged Blackbird	c	a	c	r
— • Bullock's Oriole	o	o	o	
— • Brewer's Blackbird	c	c	c	
— Great-tailed Grackle	o	o		
— • Brown-headed Cowbird	c	c	c	
TANAGERS				
— Western Tanager		o	o	
FINCHES				
— Blue Grosbeak	o	o		
— • House Finch	c	c	c	o
— Pine Siskin	o	c	c	
— • American Goldfinch	a	a	c	
— Green-tailed Towhee	o		o	
— Rufous-sided Towhee		r		
— Lark Bunting	o	o	o	
— • Savannah Sparrow	c	c	c	
— • Vesper Sparrow	c	c	u	r
— Lark Sparrow	o	o	o	
— Cassin's Sparrow		r		
— Oregon Junco	o			
— Gray-headed Junco	o		o	o
— Tree Sparrow	r		c	c
— Brewer's Sparrow	o	u	o	
— • White-crowned Sparrow	c	c	c	o
— Swamp Sparrow	r			
— • Song Sparrow	c	c	c	c
— Lapland Longspur	r			



Alamosa and Monte Vista National Wildlife Refuges are located in the San Luis Valley of south-central Colorado. The San Luis Valley is 50 miles wide and 100 miles long and varies in elevation from 7,500' to 7,800'. The high mountain valley is bordered on the west by the San Juan Mountains and on the east by the Sangre de Cristo Mountains, which have several peaks exceeding 14,000 feet. The high elevation and the fact that the valley is in the rain shadow of the San Juan Mountains produces a climate that is dry and cold. Annual precipitation on the valley floor averages 7 inches per year and temperatures range from -50°F in winter to 90°F in summer. Despite the arid climate, the valley receives abundant streamflow from surrounding mountains and has ample groundwater. Water from these sources is used to grow vast acreages of barley, wheat, potatoes, alfalfa, and to irrigate natural meadows for hay and pasture for large numbers of cattle, horses, and sheep. The refuges use this same water to provide excellent wetland habitat for waterfowl, shorebirds, cranes, and numerous other species. The combination of wetland habitat and grain availability make the San Luis Valley Colorado's best waterfowl producing area and the traditional stopover for the Rocky Mountain greater sandhill crane flock. Since 1975 the endangered whooping cranes have accompanied this flock.

The Alamosa National Wildlife Refuge is located 3 miles southeast of Alamosa, Colorado. The 10,357 acre refuge is composed of natural riverbottom wetland and is bordered on the west by the Rio Grande River. The refuge is dissected by numerous sloughs and oxbows of the river. The refuge provides habitat for numerous waterfowl species, primarily mallards, blue-winged and cinnamon teal and other dabbling duck

species, as well as Canada geese. Numerous shorebird and wading bird species breed here such as American avocets, killdeer, common snipe, phalaropes, black-crowned night herons and snowy egrets. Raptors such as marsh hawk and Swainson's hawk breed here; and rough-legged hawks, golden and bald eagles winter here. Cottonwood and willow riparian habitat along the river provide one of the best songbird habitats in the valley.

Monte Vista National Wildlife Refuge is located 6 miles south of Monte Vista, Colorado. The 14,188 acre refuge consists of numerous dikes and ponds which provide excellent waterfowl habitat. The refuge provides the valley's best waterfowl habitat and winters 10,000 ducks. Populations peak during March and April when more than 20,000 ducks are present. The refuge is also a major crane resting and feeding area during fall and spring migrations. Bald and golden eagles are common during winter months and are usually found near concentrations of waterfowl which they feed on.

Both refuges provide numerous opportunities for viewing birdlife. The Monte Vista Refuge offers a 6-mile auto tour route. Several county roads cross through the refuge which can also be driven. The Alamosa Refuge provides two trails along the river for birders interested in walking and a bluff overlook which provides a spectacular view of the refuge and an excellent spot for viewing waterfowl.

During summer months a light jacket is often necessary during mornings and evenings. Mosquito repellent is useful. Best birding opportunities are during March-May in spring and during September-November in the fall. Numerous opportunities exist for the patient photographer and a telephoto lens is recommended.

EXPLANATION OF SYMBOLS:

Seasons:

- S — March-May
- S — June-August
- F — September-November
- W — December-February

Birds nesting on the refuge are preceded by a •.

Symbols indicating seasonal abundance of each species are as follows:

a—abundant certain to be seen, very numerous
c—common should see in suitable habitat
u—uncommon might see in suitable habitat
o—occasional seen only a few times during a season
r—rare seen at intervals of 2 to 5 years

The following bird list is in accordance with the 5th A.O.U. Check-List as amended.

	S	S	F	W
LOONS				
— Common Loon	o		o	
— Arctic Loon	accidental			
GREBES				
— • Eared Grebe	o	o	o	
— • Western Grebe	o	o		
— • Pied-billed Grebe	u	u	u	
PELICANS				
— White Pelican	r			
CORMORANTS				
— Double-crested Cormorant	r			
HERONS				
— Great Blue Heron	u	u	u	u
— Green Heron	u		u	
— Cattle Egret		r		
— Great Egret		r		
— • Snowy Egret	c	a	a	
— • Black-crowned Night Heron	c	a	c	r
— • American Bittern	u	u	u	o
IBISES				
— • White-faced Ibis	u	u	u	
SWANS, GEESE, DUCKS				
— Whistling Swan	r		r	
— • Canada Goose	c	c	c	c
— White-fronted Goose	r		r	r
— Snow Goose	u	o	u	u
— Blue Goose	r		r	r
— Ross' Goose	r		r	r
— • Mallard	a	a	a	a
— • Gadwall	c	c	c	
— • Pintail	a	c	c	c
— • Green-winged Teal	a	a	c	u
— • Blue-winged Teal	c	c	c	
— • Cinnamon Teal	a	a	a	
— • American Wigeon	c	u	u	
— • Northern Shoveler	c	c	u	o
— Wood Duck	r	r	r	r
— • Redhead	c	c	c	
— Ring-necked Duck	u	r	r	
— Canvasback	u	r	r	
— Greater Scaup	r		r	
— Lesser Scaup	c	r	r	
— Common Goldeneye	o		o	r
— Bufflehead	u		o	r
— White-winged Scoter	accidental			
— Ruddy Duck	u	u	c	r
— Hooded Merganser		r		
— Common Merganser	c		c	
— Red-breasted Merganser	r			
VULTURES				
— Turkey Vulture	r	r	r	
HAWKS, EAGLES				
— Goshawk	r			

	S	S	F	W
— Sharp-shinned Hawk	u			
— Red-tailed Hawk		o	o	u
— Harlan's Hawk			o	o
— • Swainson's Hawk	u	u	c	
— Rough-legged Hawk	o		c	c
— Ferruginous Hawk	r		r	r
— Golden Eagle	u	u	u	u
— Bald Eagle	o	r	u	c
— • Marsh Hawk	c	u	c	a
OSPREY				
— Osprey		r		
FALCONS				
— Prairie Falcon	o	o	o	o
— Peregrine Falcon	r	r	r	r
— Merlin	r			r
— • American Kestrel	c	c	c	r
PHEASANTS				
— • Ring-necked Pheasant	a	a	a	a
CRANES				
— Whooping Crane	r		r	
— Sandhill Crane	a	u	a	r
RAILS				
— Virginia Rail	o	u	o	r
— Sora			c	c
— Purple Gallinule	accidental			
— Common Gallinule	accidental			
— • American Coot	c	c	a	
PLOVERS				
— • Killdeer	a	a	u	o
— Black-bellied Plover	r		r	
SANDPIPERS				
— • Common Snipe	c	c	c	c
— Long-billed Curlew	o	o	o	
— Whimbrel		r		
— • Spotted Sandpiper	c	c	u	
— Solitary Sandpiper	o	o	o	
— Willet	o		o	
— Greater Yellowlegs	u	u	u	
— Lesser Yellowlegs	u	u	u	
— Pectoral Sandpiper	o	o	o	
— Baird's Sandpiper	o	o	o	
— Least Sandpiper	o	o	o	
— Western Sandpiper	u	u	u	
— Sanderling	o	o	o	
— Long-billed Dowitcher	o	u	c	
— Marbled Godwit	o	o	o	
AVOCETS, STILTS				
— • American Avocet	a	a	u	
— • Black-necked Stilt	u	u	o	
PHALAROPES				
— • Wilson's Phalarope	a	c	u	
— Northern Phalarope	r			
GULLS, TERNS				
— Ring-billed Gull	u			
— Franklin's Gull	u	u		
— Bonaparte's Gull	u			
— Forster's Tern	r			
— Common Tern	r			
— Least Tern	r			
— Caspian Tern	r		r	
— • Black Tern	u	u	u	



Mammals
of the
Alamosa —
Monte Vista
National Wildlife
Refuge



Welcome to the Alamosa-Monte Vista National Wildlife Refuge Complex. One of over 420 refuges in the National Wildlife Refuge System, the complex provides habitat for numerous waterfowl species, a wide diversity of shorebirds, and many types of raptors and songbirds.

In addition to providing habitat for birds, the refuge complex is also host to a large diversity of mammal species. Fifty-seven species have been documented as occurring on the refuge complex.

Because many of these mammals are nocturnal, the casual visitor will find it difficult to see a majority of the species contained in this list. Visiting the refuge complex in early morning or in late afternoon will increase your chances of seeing various mammals, however. Be sure to look for animal signs--such as tracks--they will give you a clue as to what species may be in the area.

Larger mammals such as bear and mountain lion may occasionally pass through the refuge complex, but sighting them would be a very lucky circumstance. They are more generally found in the mountains enclosing the San Luis Valley. Elk will occasionally migrate to the refuge complex when deep snows in the higher elevations make feeding and movement difficult.

The following list of mammals was compiled with the aid of the Colorado Mammal Distribution Latilong Study, Steven J. Bissell, editor, and by actual sightings and by trapping. This leaflet was prepared by Beulah Messick, Volunteer.

We hope that this list will stimulate interest in mammals of the local area and in the refuge complex and will add to your pleasure while visiting the Alamosa-Monte Vista National Wildlife Refuge Complex. Please be sure to contact Refuge personnel with any new or unusual sightings!

EXPLANATION OF SYMBOLS:

Symbols indicating the abundance of each species are as follows:

A - abundant - seen daily
C - common - seen frequently
R - rare - animal or sign seen once per year
VR - very rare - animal or sign seen less than once in 5 years

Symbols indicating the status of each species are as follows:

B - animals breed on refuge
W - winter visitor
M - migrant use (bats only)
U - use pattern is undetermined

<u>SPECIES</u>	<u>ABUNDANCE</u>	<u>STATUS</u>
Opossums		
Virginia Opossum	VR	U
Shrews		
Masked Shrew	R	B
Dusky Shrew	R	B
Water Shrew	R	B
Bats		
Little Brown Myotis	R	M
Yuma Myotis	R	M
Long-eared Myotis	R	M
Small-footed Myotis	R	M
Silver-haired Bat	R	M
Big Brown Bat	R	M
Hoary Bat	R	M
Townsend's Big-eared Bat	R	M
Hares, Rabbits, and Pikas		
Desert Cottontail	A	B
Nuttall's Cottontail	R	B
White-tailed Jackrabbit	A	B
Black-tailed Jackrabbit	C	B
Chipmunks		
Least Chipmunk	A	B

Squirrels		
Yellowbelly Marmot	R	U
Thirteen-lined Ground Squirrel	A	B
Prairie Dogs		
Whitetail Prairie Dog	C	B
Pocket Gophers		
Botta's Pocket Gopher	C	B
Northern Pocket Gopher	C	B
Kangaroo Rats		
Ord Kangaroo Rat	A	B
Pocket Mice		
Olive backed Pocket Mouse	C	B
Apache Pocket Mouse	C	B
Silky Pocket Mouse	C	B
Harvest Mice		
Western Harvest Mouse	C	B
White-footed Mouse		
Deer Mouse	A	B
Northern Grasshopper	C	B
House Mouse		
House Mouse	C	B
Jumping Mice		
Western Jumping Mouse	C	B
Voies		
Southern Redbacked Vole	C	B
Heather Vole	C	B
Meadow Vole	A	B
Montane Vole	C	B
Long-tailed Vole	C	B
Beaver		
Beaver	A	B
Porcupine		
Porcupine	C	B
Dogs, Wolves, Foxes		
Coyotes	C	B
Red Fox	R	U
Gray Fox	R	U

Bears		
Black Bears	VR	U
Raccoon		
Raccoon	C	B
Weasels, Skunks and Allies		
Shorttail Weasel	R	U
Longtail Weasel	C	B
Mink	VR	U
Badger	C	B
Spotted Skunk	R	U
Striped Skunk	A	B
Cats		
Mountain Lion	VR	U
Bobcat	VR	U
Even-toed Hoofed Mammals		
Elk	C	W
Mule Deer	A	B
White-tailed Deer	R	U
Pronghorn	C	U



U.S. Fish and Wildlife Service
Department of the Interior



Printed Dec. 1984

HUNTING SEASON DATES
ALAMOSA-MONTE VISTA NATIONAL WILDLIFE REFUGE

DUCK SEASON

OCTOBER 5, 1985 (SAT.) - OCTOBER 19, 1985 (SAT.)
NOVEMBER 3, 1985 (SUN.) - NOVEMBER 29, 1985 (FRI.)
DECEMBER 14, 1985 (SAT.) - JANUARY 5, 1986 (SUN.)

GOOSE SEASON

NOVEMBER 2, 1985 (SAT.) - DECEMBER 31, 1985 (TUES.)

REGARDLESS OF THE HUNTING SEASON DATES SET FOR THE DIFFERENT SPECIES BY THE COLORADO DIVISION OF WILDLIFE, THE REFUGES WILL ONLY BE OPEN TO HUNTING DURING THE WATERFOWL HUNTING SEASON.

SNIPE SEASON

OCTOBER 5, 1985 (SAT.) - OCTOBER 19, 1985 (SAT.)
NOVEMBER 2, 1985 (SAT.) - DECEMBER 1, 1985 (SUN.)

DOVE SEASON

OCTOBER 5, 1985 (SAT.) - OCTOBER 15, 1985 (TUES.)

COTTONTAIL AND WHITE AND BLACK-TAILED JACK RABBITS

OCTOBER 5, 1985 (SAT.) - OCTOBER 19, 1985 (SAT.)
NOVEMBER 2, 1985 (SAT.) - JANUARY 5, 1986 (SUN.)

DUCK BAG AND POSSESSION LIMITS WILL AGAIN BE DETERMINED BY A POINT SYSTEM. THE FOLLOWING POINT VALUES ARE ASSIGNED TO THE DUCKS AND MERGANSERS.

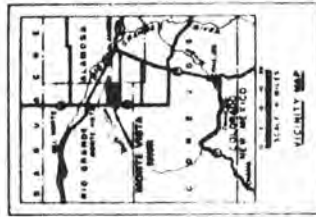
<u>100 POINTS</u>	<u>70 POINTS</u>	<u>35 POINTS</u>	<u>20 POINTS</u>
MALLARD HEN	REDHEAD	MALLARD DRAKE	BLUE-WINGED TEAL
CANVASBACK	WOOD DUCK	PINTAIL DRAKE & HEN	GREEN-WINGED TEAL
	HOODED MERGANSER	RINGNECK	CINNAMON TEAL
		BUFFLEHEAD	SCAUP
		GOLDENEYE	GADWALL
		RUDDY	NORTHERN SHOVELER
			COMMON MERGANSER
			RED-BREADED MERGANSER
			WIDGEON

POSSESSION LIMIT IS TWO LEGAL, DAILY BAG LIMITS OF DUCKS, MERGANSERS, AND COOTS AFTER OPENING DAY.

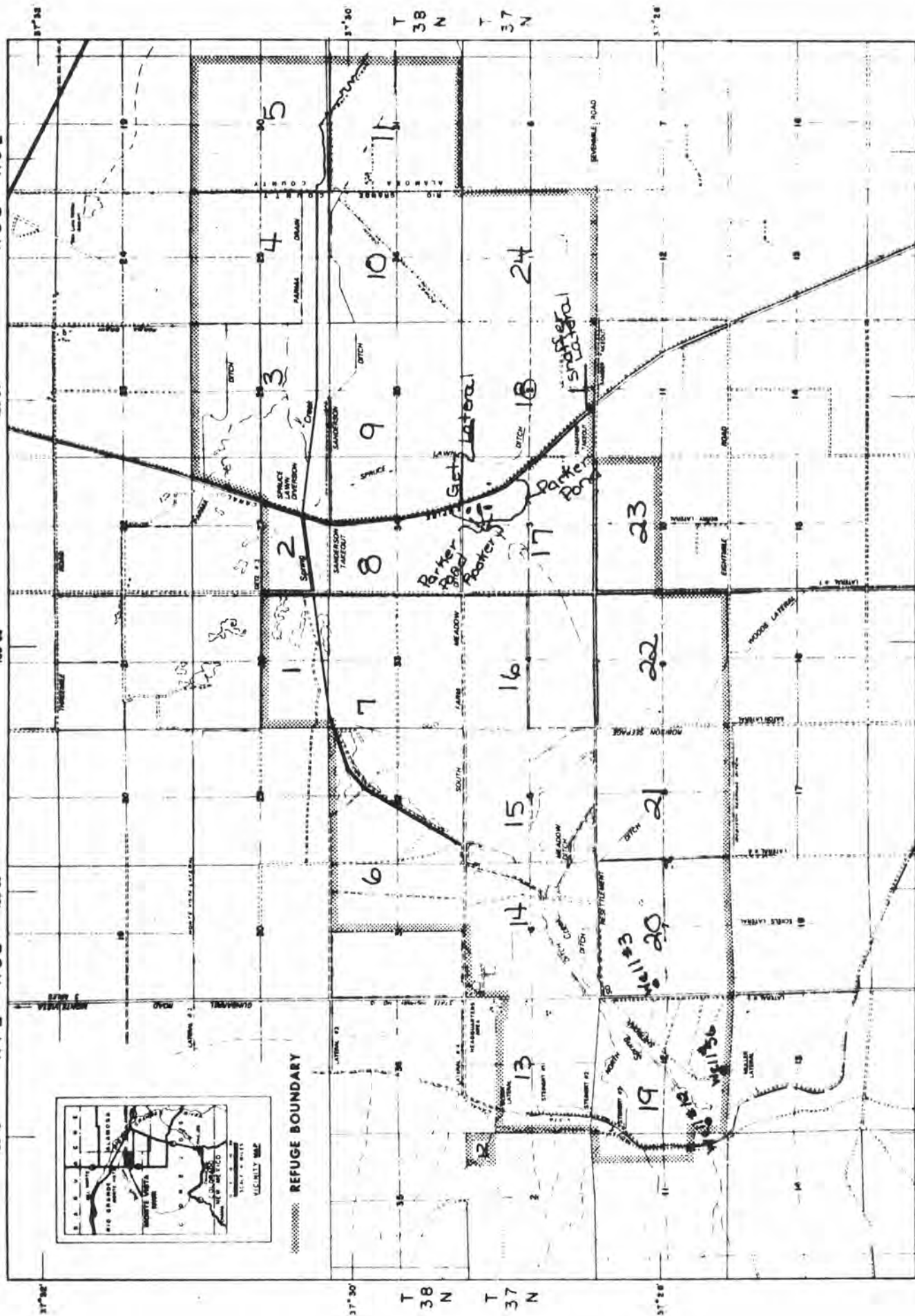
THE DAILY BAG LIMIT WILL BE REACHED WHEN THE POINT VALUE FOR THE DUCK OR MERGANSER LAST TAKEN DURING THE DAY AND THE SUM OF THE POINT VALUES FOR DUCKS AND MERGANSERS ALREADY TAKEN DURING THE DAY EQUALS OR EXCEEDS 100 POINTS. IN ADDITION TO THE DAILY BAG LIMIT OF DUCKS AND MERGANSERS, THIS YEAR'S WATERFOWL HUNTER MAY TAKE 15 COOTS.

UNITED STATES
FISH AND WILDLIFE SERVICE

UNITED STATES
DEPARTMENT OF THE INTERIOR



REFUGE BOUNDARY



COMPILED IN SURVEYS AND MAPS FROM
SURVEYS BY THE B L M U S G S AND F W B

NEW MEXICO PRINCIPAL MERIDIAN

R8E R9E

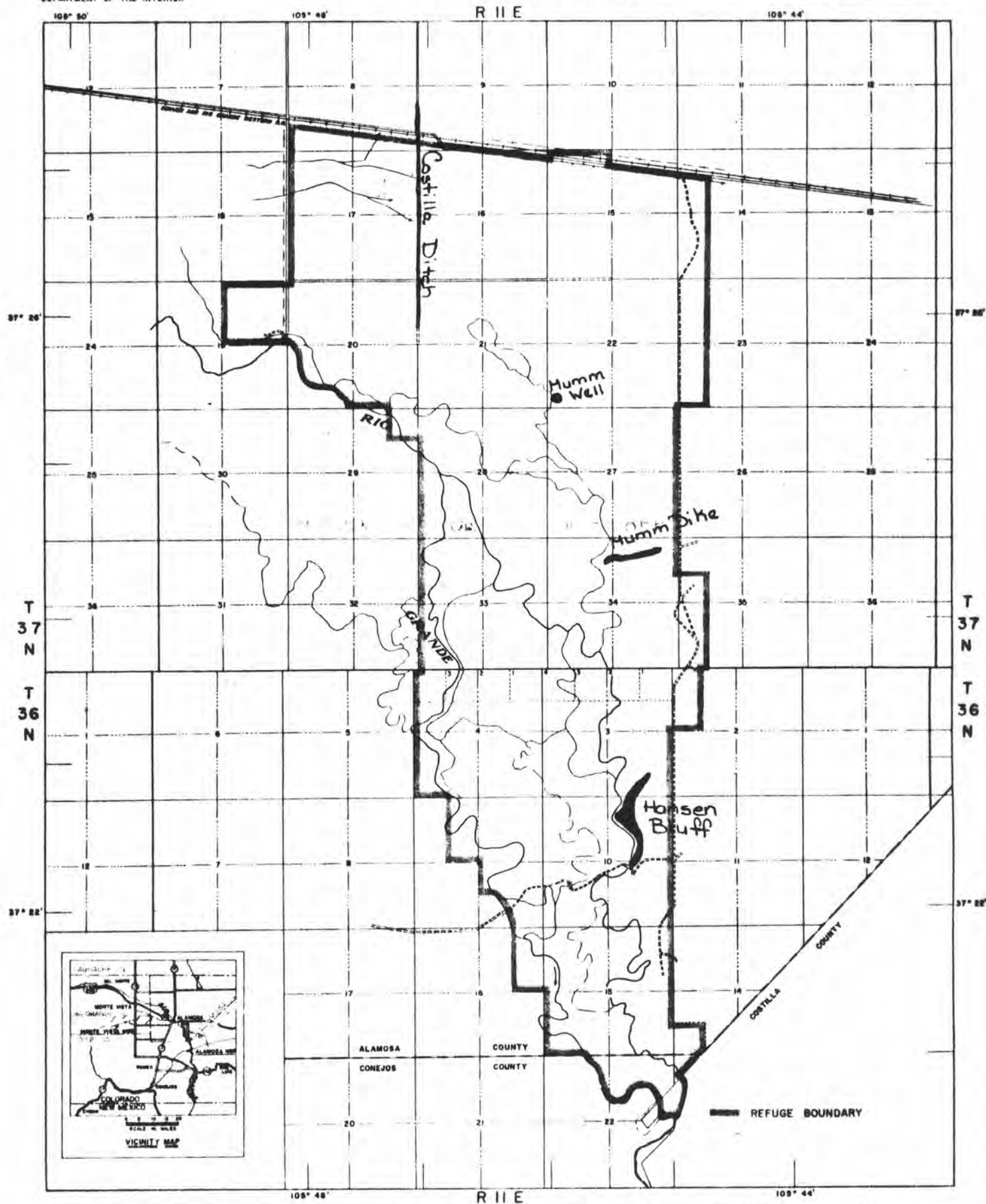
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ALAMOSA NATIONAL WILDLIFE REFUGE

ALAMOSA AND COSTILLA COUNTIES, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE



COMPILED IN SURVEYS AND MAPS
FROM SURVEYS BY BLM AND AERIAL PHOTOGRAPHS

DENVER, COLORADO
REVISED FEB 1976

APRIL 1962

NEW MEXICO PRINCIPAL MERIDIAN

Scale 0 2000 4000 6000 8000 10000 FEET
0 1 2 MILES



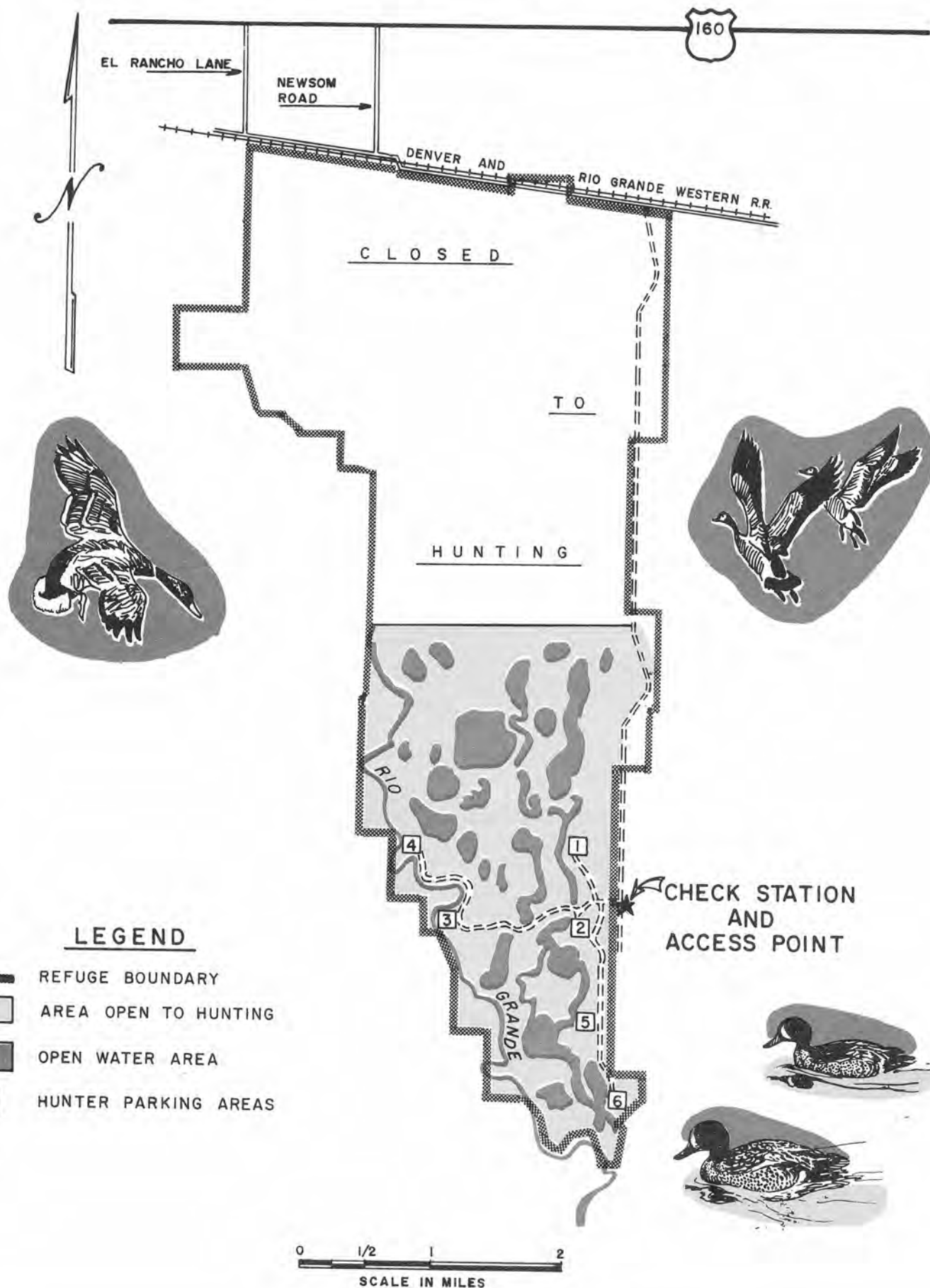
TOWNSHIP
DIAGRAM



MEAN
DECLINATION
1985

6R CO. 626 40

ALAMOSA NATIONAL WILDLIFE REFUGE HUNTING MAP



**REGULATIONS COVERING THE HUNTING OF
DUCK, GOOSE, COOT, MERGANSER, DOVE, SNIPE, RABBIT, and PHEASANT
at the
ALAMOSA NATIONAL WILDLIFE REFUGE
ALAMOSA, COLORADO**

Hunting on the refuge will be permitted only during the waterfowl season as set by State and Federal regulations. During this period the following birds and animals may be hunted on the refuge if the State season for a given bird or animal is open: Duck, goose, coot, merganser, dove, snipe, rabbit and pheasant.

HUNTING AREA: As posted and shown on map on reverse side.

ADMITTANCE: Entrance to the open area and parking of vehicles is restricted to the six designated parking areas as posted and shown on the yellow portion of the map. Do NOT enter at any other point.

WEAPONS: Only legal shotguns and hand held bows meeting state regulations with flu-flu arrows will be permitted (*Rifles and hand guns are strictly prohibited.*)

SHOOTING HOURS: Shall coincide with the hours set by State proclamation for the hunting of migratory waterfowl.

HUNTING DOGS: Hunting dogs, not to exceed two per hunter, may be used for purposes of hunting or retrieving.

CLOSED AREA: Do not enter the closed area of the refuge for any purpose, including the retrieving of wounded waterfowl. Open and closed areas are fully posted. Signs are for your information and guidance. **PLEASE OBSERVE THEM.**

FIRES: No fires of any type, except those in self-contained stoves in campers, trailers, or tents will be permitted within the refuge.

SAFETY WARNING: Hunters are warned to be on the alert for "boggy" areas and deep abrupt channels. Please be **very** careful.

WHEN IN DOUBT AS TO ANY REGULATION, CONTACT A REFUGE OFFICER

It is our desire to prevent violations rather than to prosecute violators. Please respect the privileges of other hunters who may be hunting in close proximity to you. Please handle firearms carefully, for your own protection as well as your fellow hunters. The cooperation of all sportsmen is respectfully requested.



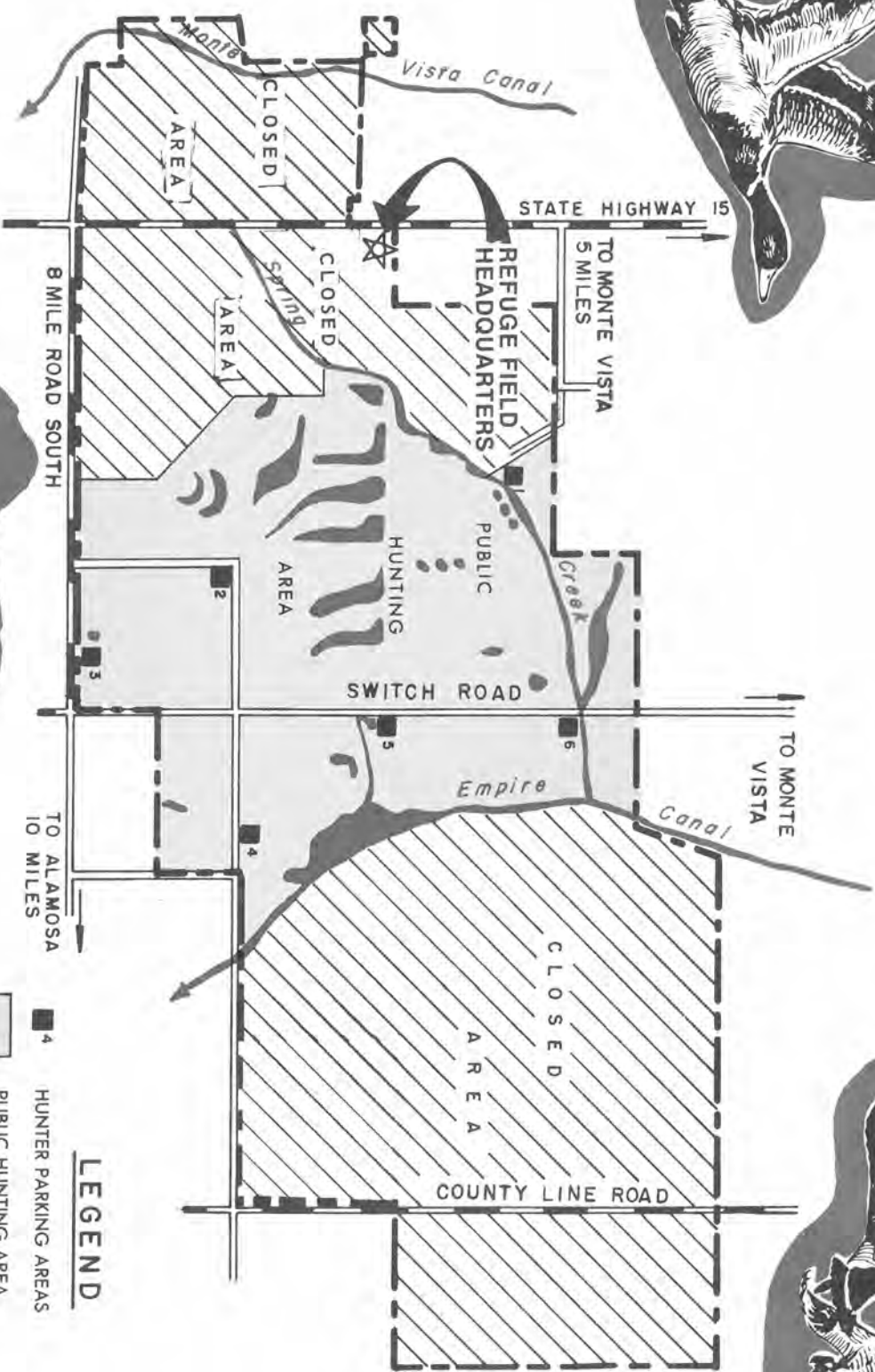
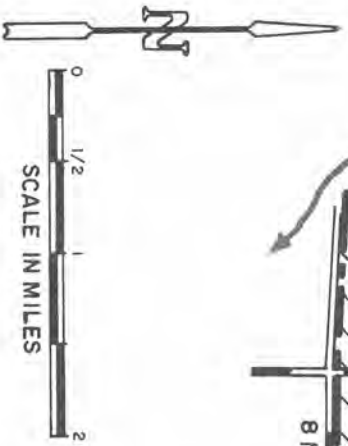
RF6-65510-6

**U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE**



Reprinted July 1979

MONTE VISTA NATIONAL WILDLIFE REFUGE HUNTING MAP



- ## LEGEND
- 4 HUNTER PARKING AREAS
 - PUBLIC HUNTING AREA
 - REFUGE LANDS CLOSED TO ALL HUNTING
 - REFUGE BOUNDARY
 - ROADS (PAVED)
 - ROADS (UNPAVED)

**REGULATIONS COVERING THE HUNTING OF
DUCK, GOOSE, COOT, MERGANSER, DOVE, SNIPE, RABBIT, and PHEASANT
at the
MONTE VISTA NATIONAL WILDLIFE REFUGE
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RF6-65560-6

U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

GPO 856-039



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