RED ROCK LAKES
NATIONAL WILDLIFE REFUGE
Lima, Montana

ANNUAL NARRATIVE REPORT

Calendar Year 1984

NATIONAL WILDLIFE REFUGE SYSTEM

U.S. Department of the Interior

FISH AND WILDLIFE SERVICE

RED ROCK LAKES NATIONAL WILDLIFE REFUGE

Lakeview, Montana

ANNUAL NARRATIVE REPORT

Calendar Year 1984

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Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

1. Barry Reiswig, Refuge Manager

PERMANENT

1. Barry Reiswig, GS-11 . . . . . Refuge Manager
2. Bill Kurtenbach, GS-9 . . . . . Asst. Manager
   (EOD 6/17/84 from Waubay NWR, South Dakota)
3. Terry McEneaney, GS-7 . . . . . Asst. Manager
4. Charles Young, WG-10 . . . . . Heavy Equip. Mechanic
5. Donna Rush GS-4 (Intermittent) . . . . . Clerk - Typist

TEMPORARY

6. Ed Morton, WG-3 . . . . . Laborer
   (EOD 5/13/84 Term 9/10/84)
7. David Brown, WG-2 . . . . . Laborer
   (EOD 5/29/84 Term 10/26/84)

VOLUNTEERS

8. Barb Bell
9. Jeff Snyder, SCA
10. Monica Reiswig
11. Harry Young

REVIEWS AND APPROVALS

Barry Reiswig 4-8-85

Submitted By Date

Red Rock Lakes NWR

William J Allen 4/16/85

Regional Office Review Date

Bill Kurtenbach, Assistant Manager

Terry McEneaney, Assistant Manager

Charles Young,
Heavy Equipment Mechanic

David Brown, Laborer

INTRODUCTION

Red Rock Lakes National Wildlife Refuge is located at 6600 feet above sea level in the Centennial Valley of southwestern Montana. This 40,300 acre refuge which lies adjacent to the Continental Divide, is composed of sub-irrigated meadows, sagebrush grasslands, coniferous forests, and two large shallow lake/marsh complexes.

View of Lower Red Rock Lake from near Baldy Mountain. TM

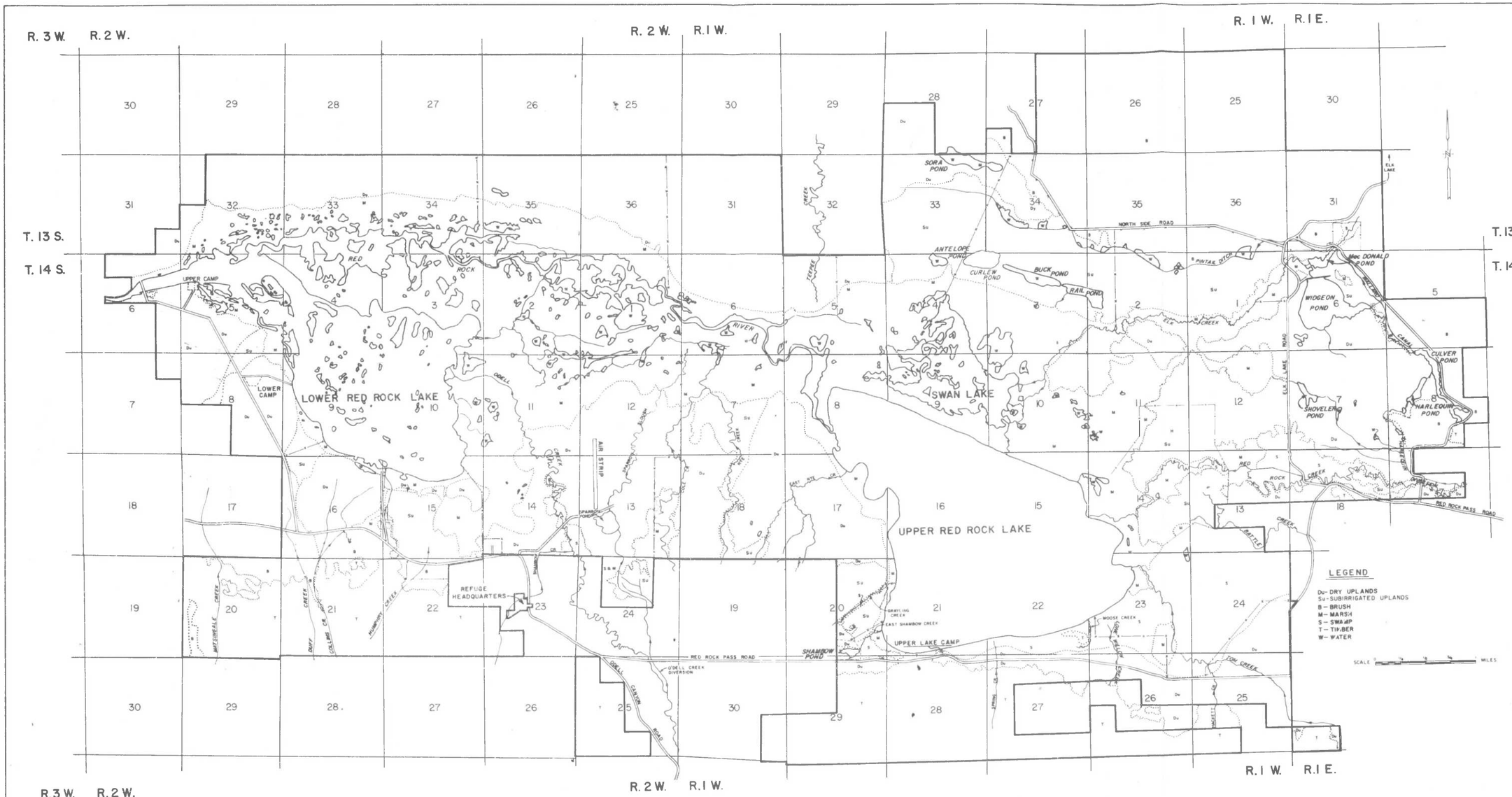
Although the Centennial Valley was known to the Bannock Indians as a favored route between the headwaters of the Bighole River and the Yellowstone area, white man did not settle the area until 1876. Settlement brought homesteads and herds of cattle, as well as some lumbering and market hunting. The long winters and great distances to market made subsistence difficult at best, with few surviving the "Great Depression".

In 1935 Red Rock Lakes National Wildlife Refuge was established to protect the area because it served as a nesting and wintering area for trumpeter swans. About 400 to 500 trumpeter swans are currently in the Tri-State (Idaho, Montana, Wyoming) population. Over 200 species of birds have been recorded on the refuge with peregrine and prairie falcons, bald and golden eagles, burrowing owls, and sage grouse being the most notable.

Common mammalian species include antelope, mule deer, elk, Shiras moose, badger, and red fox.

The refuge headquarters is located 28 miles from the nearest paved road and 45 miles from Yellowstone National Park. About 6,000 people visit the refuge annually and participate in hunting, fishing, camping, and wildlife observation.

In 1976, 32,350 acres of the refuge were set aside as the Red Rock Lakes Wilderness Area.



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

RED ROCK LAKES
NATIONAL WILDLIFE REFUGE

HABITAT TYPE MAP

BEAVERHEAD COUNTY, MONTANA

RJS791127

6R MONT. 177 450

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This was another high water year which makes three in a row. See Section B.

Interest has been generated to acquire refuge inholdings. See C-3

A peregrine falcon eyrie was discovered this year. See C-2

The trumpeter swan suffered another year of terrible production at Red Rock Lakes. See G-3

The 9th Biennial Conference of the Trumpeter Swan Society was held at West Yellowstone, Montana. See J-3

B. CLIMATIC CONDITIONS

The lowest temperature for 1984 was recorded on the 18th of January when the mercury dropped to -36° F, not bad by Red Rock Lakes standards. Snow depth during the first four months of the year ranged from 12 to 19 inches on the valley floor. Much of the snow was gone from the valley by the middle of May when it started to rain, and rain it did. Rainfall during the months of May, June, and July amounted to nearly half the years total. Total precipitation received in 1984 was 25.16 inches which is about 5 inches above the 20 year average.

Heavy rains caused Odell Creek to remain muddy most of the summer. BR

... But also provided lush growth of this native plant community near Upper Red Rock Lake. TM

Ironically the highest temperature of 84° F. was recorded on July 18, exactly 6 months after the lowest reading for 1984. Snow was recorded during every month of the year except July and August; with September providing the first real snow of the fall season when three inches was dropped on the 24th. Moderate temperatures mixed with snow showers combined to fill the last few months of the year. Approximately one foot of snow blanketed the valley during the last days of 1984.

C. LAND AQUISITION

3. Other

The controversy with Eugene Walsh over the use of three trails which cross the refuge and lead to his property continued throughout the year. Mr. Walsh continued to use the trails during the summer with logging equipment. Refuge Manager Reiswig met with Walsh and his attorney on August 22 at the site. The situation was reviewed but no agreement was reached. Mr. Walsh continued to use the road. The refuge asked the U.S. Attorney in Billings through SRA Scrafford to pursue a permanent injunction in District Court. He refused, stating he had a number of cases like this in the court system at the present time and didn't want any more.

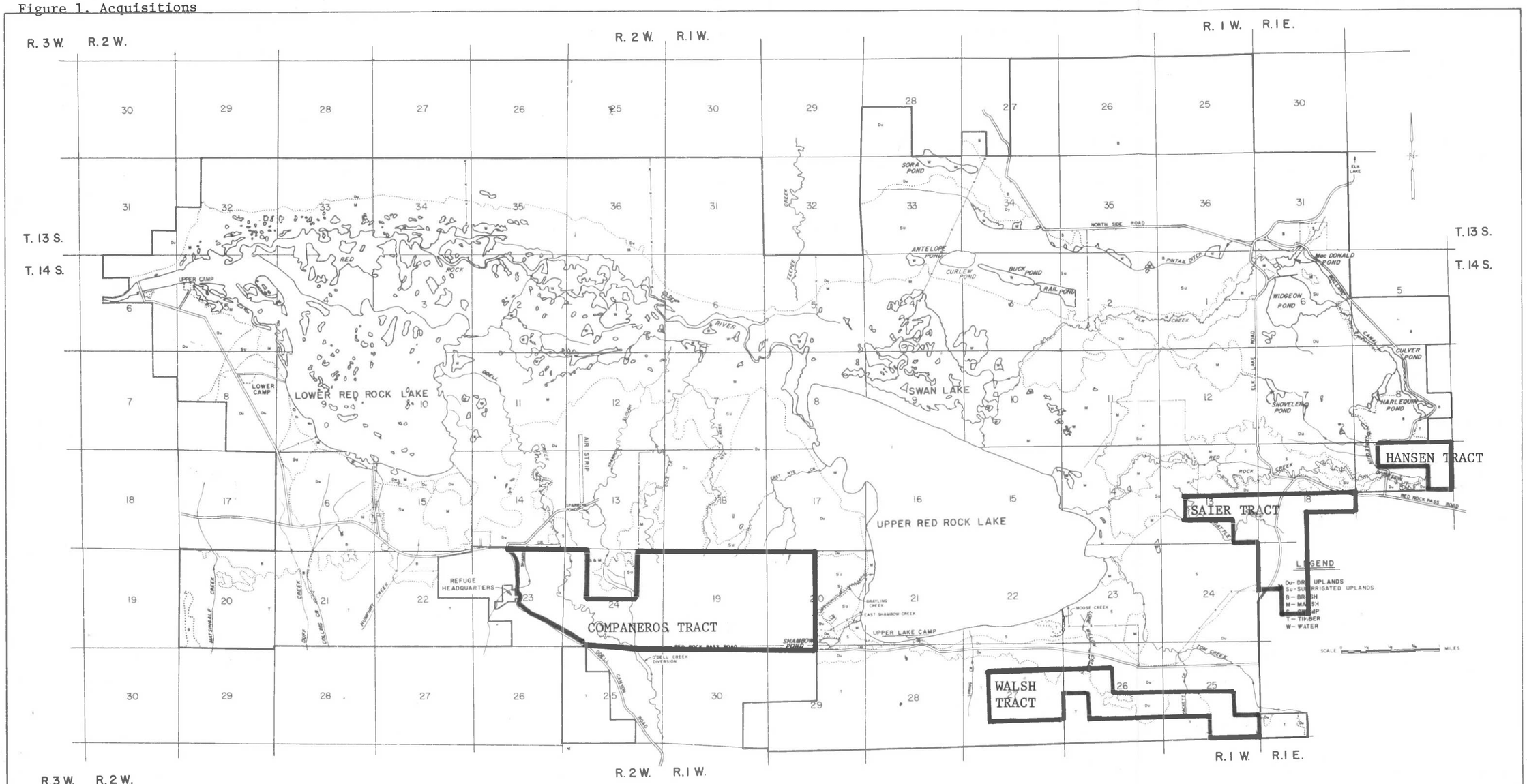
By year's end it was decided to have the Solicitor file a brief with the Justice Department to attempt to get some legal relief through that route.

Increasing interest developed during the year in acquiring refuge inholdings. Refuge neighbor John Taft invited a number of individuals from conservation organizations around the nation to review the inholding situation on Red Rock Lakes. Four principal tracts were identified (See Figure 1). The refuge developed a Land Protection Plan and submitted it to the Regional Office highlighting these tracts totalling in the neighborhood of 3000 acres.

Aerial view of Odell Creek, part of a 1600 acre inholding near Lakeview. Efforts are underway to acquire the tract either through the Service or private conservation efforts. WJK

Efforts by Taft are continuing through the Nature Conservancy and other private foundations, to acquire several of the tracts. Taft and his group, the Conservation Endowment Fund, also expressed interest in protecting other wetlands in the Centennial Valley which are of high quality. Nothing was acquired by the group at year's end although they are still pressing onward.

Figure 1. Acquisitions



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

RED ROCK LAKES
NATIONAL WILDLIFE REFUGE

HABITAT TYPE MAP

BEAVERHEAD COUNTY, MONTANA

RJS791127

6R MONT. 177 450

Swans feeding on Red Rock Creek west of refuge. This riparian habitat is extremely valuable for swans and other waterfowl. TM

D. PLANNING

2. Management Plan

Interpretive Specialist Lively visited the refuge for a week in August to initiate the development of minimum standards for public use on the refuge. The entire public use program was reviewed. A draft public use and interpretive prospectus was developed in December to outline needed changes in the program and was forwarded to the Regional Office.

A draft Pest Control Proposal was developed in December. The primary target of the plan is the striped skunk of which there is currently an abundance on and around the refuge. The plan calls for the spring trapping of skunk with boxes housing connibear traps.

3. Public Participation

The refuge continued its participation in the Southwest Montana Travel Plan with the Forest Service, BLM and the Montana Department of Fish, Wildlife & Parks. A revised map of the Federal lands in southest Montana was developed by the Forest Service which included lands and roads on the refuge. The plan is considered a model in Federal land-use planning in the United

States and has gone a long way in reducing wildlife disturbance and erosion on Federal lands in the area.

5. Research and Investigations

(Analysis of Trumpeter Swan Banding Data)

All trumpeter swan banding data in the refuge files from 1949-1982 was analyzed by Dr. David Anderson and Rex Herron of the Utah Cooperative Wildlife Research Unit (Utah State University). The object of the analysis was to determine survival rates and other population-oriented parameters from the years of banding and observations.

The researchers concluded however that because of the variable nature of the banding operations over the years and the haphazard efforts put forth in collecting individuals of different sex and age groups, little useful information could be gained from the banding effort from the standpoint of population dymanics information. The reseachers published a report Estimates of Survival Rates of Trumpeter Swans Banded 1949-82 Near Red Rock Lakes National Wildlife Refuge, Montana.

Dr. Anderson and Herron did develop some guidelines for banding in the future so that maximum population dymanics data can be gathered and useful inferences generated about the population as a result of the banding effort. The document containing this report is A Field Program to Allow Estimates of Survival and Population Size of Trumpeter Swans in the Centennial Valley, Montana.

Radio-Telemetry - Trumpeter Swans

This study started in 1983 when three radio-collars were attached to trumpeters. All of the collars radios failed. In 1984, seven trumpeters from pairs were fitted with radios. At year's end one collared bird had died, the collar had been removed from another, one collared bird with its mate were observed in the vicinity of Grand Junction, Co. One bird has been wintering on the refuge, and the other three collared birds cannot be accounted for, despite aerial searches of the known trumpeter haunts in the Tri-state area. It is known some radio failure has occured again this year although the extent of the failures cannot be determined because some of the birds cannot be located visually.

Lead Shot Ingestion - Lower Red Rock Lake - NFWHL

Refuge personnel collected gizzards and livers from 100 diving ducks during

the first two weeks of the waterfowl season. The samples were sent to the NFWHL in Madison, Wisconsin as part of a national effort to monitor lead levels in waterfowl. The samples had not been analyzed by the end of the year.

Sediment and Nutrient Investigation - Lower Red Rock Lake

Dr. J. Moore and C. Johns (U. of Montana, Geology Department) visited the refuge in August and collected sediment samples from the lower lake. Their primary objective was to determine the extent of lead pellets in bottom sediments. A number of samples were taken but none were found to contain any lead. Based on the lack of lead in the initial samples, the study was dropped.

Trumpeter Swan Disease Investigation

The trumpeter swan disease investigation is a cooperative venture by Red Rock Lakes NWR and the Wyoming Game and Fish Department. The study went through its third year.

Dr. Tom Thorne, Veterinarian with the Wyoming Game and Fish Department, collects blood sample as part of his disease study during July banding operations. TM

Dr. Tom Thorne with the aid of the RRLNWR staff collected blood samples from more than 30 trumpeters during banding operations on Lima Reservior. Data from the analysis have not been received. Unless significant disease pathogens are isolated in this analysis, the study will likely be discontinued.

Heavy Metal Analysis - Trumpeter Swans

Larry Blaus of the Patuxent WRC collected blood samples from 38 trumpeter swans during July banding operations on Lima reservoir. He will be testing the samples to determine blood lead levels in the birds. This is an excellent way to determine if significant lead levels are being carried by trumpeter swans. The data analysis was not complete at years end.

E. ADMINISTRATION

1. Personnel

Assistant Manager William Kurtenbach and family arrived at Red Rock Lakes in mid-June from Waubay NWR in South Dakota. Bill replaced Rees Madsen as the primary assistant. Rees transferred to the National Elk Refuge in the fall of 1983.

Staff patterns for Red Rock Lakes were roughly similar to FY 83 as evidenced by Figure 2.

Figure 2. Staffing Pattern for Last Five Years

STAFFING PATTERN

(FTE Equiv.)

Year	FULL TIME	TEMPORARY	VOLUNTEER	SCA
1984	4 (4)	2 (.67)	3	1 (12 week)
1983	4 (4)	2 (.85)	2	-
1982	4	1	-	-
1981	4	2	-	-
1980	4	2	-	-

3. Other Manpower Programs

The refuge hired its first Student Conservation Association volunteer during the summer for a period of 12 weeks. Jeff Synder of Idaho Falls, Idaho was

selected for the position and did an excellent job at a wide variety of resource management and maintenance duties.

SCA volunteer Jeff Snyder provided valuable assistance during his stay at Red Rock Lakes. TM

4. Volunteer Program

Three volunteers served the refuge during the year. Harry Young, assisted in station maintenance through lawn-mowing and yard care throughout the summer and early fall, and did an excellent job.

Mr. Young received a letter and a "Friend of the NWR" Statue from the Regional Director thanking him for his efforts during the year, and in years past.

Monica Reiswig assisted in the office during the winter months by paying bills, typing and answering the phone.

Barbara Bell initiated planning work on the public use program for a period of six weeks in the fall. Barb reviewed the current program and drafted a plan to develop minimum use standards for all public use activities at the refuge.

The value of Harry's efforts were totalled at $1,960.00, Monica's at $1,318.00 and Barbara's at $2,057.00 for a total volunteer contribution of $5,335.00 for the year.

5. Funding

The table below shows Red Rock Lakes funding (in thousands) by subactivity.

Figure 3. Funding During Last Five Years

	SUBACTIVITY							
Year	1260	1210	1220	1240	6810-6860	1994	1480	TOTAL
1984	212		-	-	7	4.2	4	227.2
1983		160	8	8	10	3.5	-	189
1982		130	28	9	10	-	-	177
1981		130	-	10	10	-	-	150
1980		116	-	11	10	-	-	137

6. Safety

Red Rock Lakes has a safetly record of 4,344 work days without a lost-time accident. Monthly safety meetings help us maintain this record.

ROPS was installed on the Cat grader during the year bringing this unit into compliance with Service safety standards.

Several other units still do not have this safety feature, and were grounded for the year or excessed.

Contractor lowering grader ROPS into place. BR

7. Technical Assistance

The refuge continued to provide technical assistance to other Federal and state agencies concerning the management of trumpeter swans. Assistance and expertise was provided on trumpeter swans to Harriman State Park in Idaho, Yellowstone National Park, and Beaverhead National Forest during the year.

Bob Twist continued to provide top-quality air service to the refuge for surveys (every flight you walk away from is a good one). His many years experience over the refuge and the surrounding area are invaluable in gathering important resource information.

Cessna 185 piloted by Bob Twist (Lee Metcalf NWR) Completing a pass during a pronghorn survey. BR

8. Other Items

Beaverhead County received $22,664.00 this year for in-lieu of payments. This was again well short of the actual amount that the county should have received.

Refuge personnel attended the following meetings during the year:

Reiswig: February 16-18 Wildlife Society meeting, Butte.

McEneaney: February 22, Pintlar Audubon Society meeting, Dillon

McEneaney: February 24-25, Trumpeter Swan subcommittee meeting Jackson, WY.

Reiswig: February 28-3, Regional Conference, Denver, Co.

Reiswig: April, Beaverhead Chamber of Commerce meeting, Dillon

Reiswig: April 9-13, OPM Training course, Missoula

McEneaney: April 16-20, PAY/PERS training, Denver, Co.

McEneaney: April 2-6, LE training, Bismarck, ND

Reiswig: May 10-12, trumpeter meeting in Denver, CO.

Kurtenbach, McEneaney; July 11-13, Trumpeter swan subcommittee meeting, Jackson, WY.

Reiswig, Kurtenbach: August 27-31, Project Leaders meeting, Lewistown

Reiswig, Kurtenbach, McEneaney: Sep. 5-9, Trumpeter Swan Society Meeting, West Yellowstone.

Reiswig: Montana Wilderness Association, December 1, Butte.

Reiswig: Dec. 5, Southwest Montana Fire Council, Twin Bridges.

F. HABITAT MANAGEMENT

2. Wetlands

Approximately 13,000 acres of quality wetland habitat is present on the refuge. This includes two large shallow lake-marsh complexes, many smaller ponds and streams, and a river marsh.

Wetland habitat on Swan Lake. WJK

Each year one-half of the refuge lakes and ponds included in the sampling scheme are surveyed to monitor changes in the submergent vegetation. Submerged vegetation is quantified through a modified Clark Webster technique.

Aquatic vegetation sample taken on Culver Pond. TM

The number of square foot samples taken is determined by the acreage of the pond. These samples are separated by species and weighed. Total tonnage can then be projected for the entire unit. This year Upper Red Rock Lakes, Culver Pond, Widgeon Pond, and MacDonald Pond were surveyed in August.

No water was diverted into the Harlequin Diversion system this year so repairs to several small ponds could be completed. One riser with wingwalls was installed on Teal Pond where there was formerly a slidegate. A riser with wingwalls was also installed on Harlequin Pond to help prevent leakage along the tube. A tube with a slidegate was installed in an area of the dike to allow some water into a boggy area to help stimulate willow growth. In addition, two tubes were added to existing risers or slidegates to help reduce the chance of washing out.

Cole Creek Slough was completely revamped this year. This pond consists of a small dike across a drainage that creates a wetland of about 20 acres. Fill was added to the dike to repair a hole, and also make the dike longer, wider, and higher. An old leaky wooden structure was replaced with a corregated metal pipe and half circle riser. The emergency spillway around the end of the dike was rip-rapped. This should provide excellent waterfowl habitat for some years to come.

Young rebuilding dike on Cole Creek Slough. WJK

The half circle riser and tube were removed from Sparrow Pond and the tube was replaced in the deepest part of the drainage. This will allow for a complete drawdown of this pond where before three feet of water remained in the deepest part of the basin even with all boards removed from the riser.

5. Grasslands

A total of 15, 786 acres of native grasslands occur on the refuge. Of this acreage, 10,245 acres are either highly productive, sub-irrigated grasslands or saline sub-irrigated grasslands which have varying degrees of productivity depending on specific soil chemistry.

Under the current grassland management plan the native grasslands combined with substantial areas of marsh, timber and willow habitat are managed in 22 grassland units. Grazing is the primary manipulative tool although prescribed burning will be used in certain areas. A total of 25,136 acres are managed under the grassland plan, 53% (13,515 acres) are grazed one year in three, 18% (4594 acres) are grazed one year in two, 8% (1980 acres) are grazed two years in three, and 20% (5047 acres) are indefinitely deferred.

Plans have been developed to change lands in the "one-year-in-two" system to a "one-year-in-three" system, but due to a contract default by a fence contractor this conversion will be delayed until the summer on 1986.

Robel and Daubenmire transects are read each year on one-third of the units to monitor the response to treatment. Photo-points have been established in most of the units and are photographed annually to develop a visual record of grassland changes. Each of the units is ridden at least once annually to give the staff a better understanding of grazing patterns and vegetative changes. Reports of the reviews are developed and filed with other grassland data. These monitoring techniques, combined with fairly extensive wildlife surveys give us a good ongoing record of grassland changes, and values of the current management program.

In 1984, Robel and Daubenmire transects were read in units G-1N, G-1S, G-3/4, G-5W and G-5E. The height-density readings increased in all units by an average of 0.5 decimeter from the 1980 readings. The increase is not dramatic except that most 1980 readings ranged from 0.0 - 0.1 decimeter. Progress is being made in increasing the height-density readings of residual vegetation although changes are slow. The heavy winter snowpack tends to further slow the process by the flattening of the residual somewhat each year.

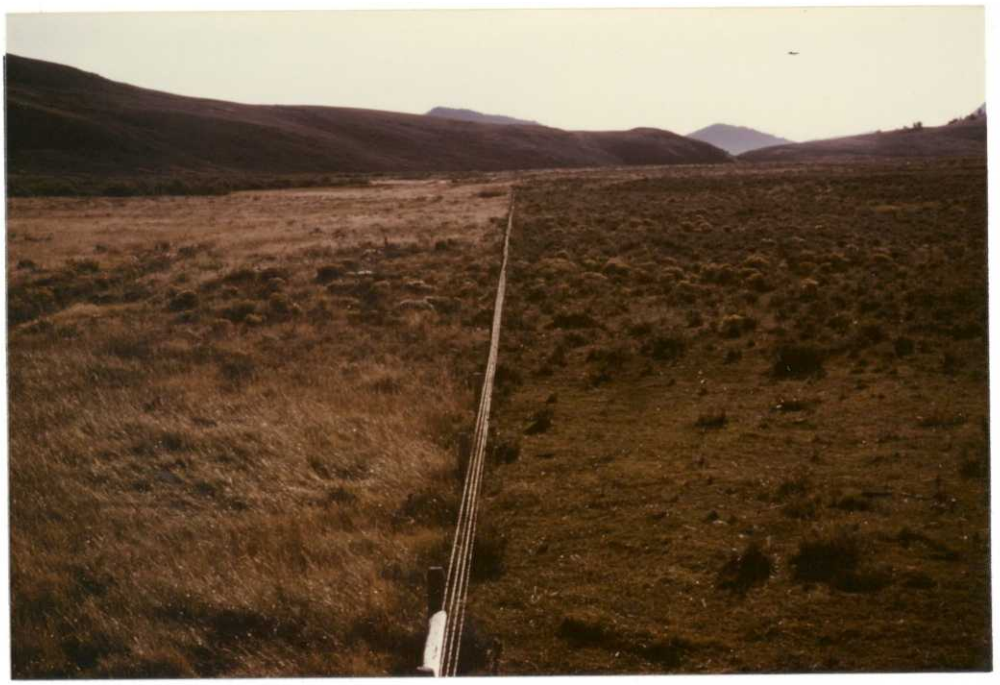
Former SCS Range Conservationist, Brian Hockett, assisted refuge personnel in completing the Daubenmire transects in July. Hockett determined that all units reviewed were continuing an upward trend in range condition. Very little bare ground was encountered on any of the transects and no drastic changes were noted in plant communities since the 1981 review.

Canopy coverage of Basin wildrye in G-1N increased somewhat although the frequency remained about the same suggesting the continuing establishment of new seedlings is stagnating. The frequency of bluebunch wheatgrass, the climax species in much of G-3/4, increased from 15% to 75% which appears to indicate this unit is making good progress toward climax vegetation. This unit is currently grazed two out of three years.

A significant buildup of litter is occurring on some units and is apparently starting to stifle production. Because of the low mean Centennial temperatures, and duff and litter tends to keep soil temperatures down this retards production. Several units were reviewed for the use of fire and plans call for prescribed burns in several units during the 1985 season if conditions permit. The primary goal of the burns will be litter reduction.

Looking west along southeast corner of refuge, private land on left, refuge on right. Old Bossy . . . the best friend sage and rabbit brush ever had. BR

The change in grassland management initiated in 1975 which eliminated season-long grazing in every unit and cut total use by more than half has greatly improved the general conditions of grasslands of the refuge. Erosion has been stopped, areas of bare ground have revegetated themselves, and height-density readings and range condition are improving.



Looking east at southeast corner of refuge, refuge on left, private land on right. Grazing pressure around the refuge is intensive. BR

Several additional conditions need to be addressed in the continuing grassland management program.

1. A technique to reduce litter in the sub-irrigated grasslands needs to be incorporated into the management plan. Fire may address this need.

2. The continued increase in frequency of Basin wildrye in some of the units must be monitored closely. This species is an outstanding cover species and withstands snowpack pressure very well. Some further adjustments in manipulation may be necessary for the continued increase in this species.

3. Further protection for riparian habitats is needed during grazing periods. Experiments with electric fences to eliminate cattle from riparian habitat will be initiated in 1985. These fences will be portable and would be moved as necessary as different units are grazed.

View of overgrazed riparian habitat on Red Rock Creek, G-11. Even though the majority of the unit is in good-excellent range condition, the riparian areas suffer. Experiments will be started to fence riparian zones out with portable electric fences. BR

Additional steel posts were set at all transect sites to allow for more accurate replication of Daubenmire transects. These posts were pounded in until only about a foot remained above ground. Several additional Robel-Daubenmire transects were installed in several of the units to give more complete coverage of the grasslands.

6. Other Habitats

A willow browse survey was initiated in 1982 in an effort to gauge the use of willow by wintering moose. This transect is located in Tom Creek which is an extensive willow bog flat near the southeast corner of the refuge. The 1984 survey revealed 55% of the willow leaders utilized compared to 36% in 1983, and 64% in 1982.

Other willow habitats on the refuge were not formally surveyed but were inspected in the spring. Overall utilization of willow on or near the refuge was very high except for Odell Creek above the airport bridge which showed little use.

The willow along Elk Springs Creek and Red Rock Creek are very important wintering areas for Shiras moose.

The willow along lower Elk Springs Creek received heavy use early in the winter. This carrys much less snow and moose apparently find it an easy area to work while other willow areas are deep in powder snow. BR

Example of the heavy utilization of willow along lower Elk Springs Creek Flat. BR

These willow along Red Rock Creek near the Elk Lake Road are generally unavailable to moose until mid to late winter because of the deep powder snows which settle in the bottoms. BR

Mechanic Young and heavily utilized willow along Lower Red Rock Creek imediately above the Upper Lake. BR

7. Grazing

Domestic livestock grazing is used to manipulate refuge grasslands for maintenance of vigor, species composition and to reduce litter. In 1984, a total of six permittees used 5004 AUM's (See Figure 4) on 7,107 acres (.70 AUM/acre). The use generated $37,275.79 at the AUM rate of $7.45.

The season's heavy precipitation brought an excellent growth to the grasslands and in most units, grazing use was judged to be very light. Use on the grazed units was approaching adequate intensity only in the portion of G-11 north of Red Rock Creek which had an intensity of .95 AUM/acre. In the remaining units use was felt to be too light for good treatment.

Good stands of Basin wildrye are developing in G-6, as noted here by passing mountain man Kurtenbach. This unit was grazed at a rate of .82 AUM/acre but Old Bossy couldn't even begin to keep up with the growth. BR

Because of the heavy growth, permittees were allowed to stay in their units longer into the fall in hopes livestock would utilize the subirrigated grassland sites more intensively. Only permittees Huntsman and Holton took advantage of the added grazing.

Grazing intensity was increased in G-5E from 1550 to 1964 AUM's to put more pressure on the unit. One of the three grazers in this unit dropped out over a dispute with the refuge a few years back leaving nearly 1000 AUM's on the table. A portion of that drop made up the increase.

UNIT	ACRES	PERMITTEE	AUM FWS BASE AS OF 1982	SCS RATING AUM	1982 DATES	1982 AUM	1982 AUM/ACRE	1983 DATES	1983 AUM	1983 AUM/ACRE	1984 DATES	1984 AUM	1984 AUM/ACRE
1N	1077	Wolfe	472	439	-	R	-	-	R	-	7/10 10/10	489	.45
2	494	Wolfe	572	511	-	R	-	7/10 10/10	224	.45	-	R	-
16A	1065	Wolfe	972	915	8-11 11-12	816	.77	-	R	-	-	R	-
16B	1001	Wolfe	400	381	8-11 11-12	82	.33	7-10 10-10	332	.33	-	R	-
17	1408	Wolfe	500	525	-	R	-	-	R	-	7-10 10-10	487	.35
3/4	1980	Matador	250	288	7-24 10-9	329	.17	8-15 9-30	245	.12	-	R	-
1S	484	Matador	296	253	7-24 10-7	233	.48	-	R	-	-	R	-
5E	2301	Saier Jones	800 750	2242	7-10 10-10	1286	.56	-	R	-	7-10 10-10	963 1001	.85
5W	2293	Saier Jones	800 750	1972	-	R	-	7-12 10-10	1542	.67	-	R	-
11	940	Raffety Huntsman	620 176	724	-	R	-	-	R	-	7-28 11-7	649 244	.95
12	1687	Raffety Huntsman	620 176	729	7-10 10-25	872	.52	11-4 12-11	108 Morton	.07	-	R	-
13	1985	Raffety Huntsman	620 176	735	-	R	-	7-10 10-20	763	.38	-	R	-

Figure 4. Grazing Program Statistics 1982 - 1984.

UNITS	ACRES	PERMITTEE	FWS BASE	SCS RATING AUM	1982 DATES	1982 AUM	1982 AUM/ACRE	1983 DATES	1983 AUM	1983 AUM/ACRE	1984 DATES	1984 AUM	1984 AUM/ACRE
15A	856	Holton	798	793	-	R	-	7-10	798	.93	-	R	-
15B	1132	Holton	798	742	-	R	-	-	R	-	7-17 11-2	968	.86
15C	1137	Holton	798	877	7-13 10-6	790	.69	-	R	-	-	R	-
6	249	Huntsman draw 1984	-	192	-	R	-	-	R	-	7-25 11-7	203	.82
14	2723	Holton	168	838	10-6 10-28	168	.06	10-6 10-25	168	.06	-	R	-
7	361	-	-	264	-	R	-	-	R	-	-	R	-
8	276	-	-	93	-	R	-	-	R	-	-	R	-
9	357	-	-	71	-	R	-	-	R	-	-	R	-
10	1071	-	-	692	-	R	-	-	R	-	-	R	-
10E	259	-	-	126	-	R	-	-	R	-	-	R	-
TOTAL	25,136					4576			4180			5004	

Figure 4. Grazing Program Statistics 1982-1984

9. Fire Management

An experimental willow burn was ignited on June 1, 1984, to test the effect of fire on willow regeneration. Although the weather conditions were marginal for a good hot fire, more than half of the mature willow burned (approximately 7 acres).

The fire crept along the boggy ground until . . . BR

reaching a decadent willow bush which would cause it to crown out. BR

The resultant removal of climax willow clumps was good. BR

A visual inspection of the area in July revealed many willow suckers starting from the old clumps, also Basin wildrye that was burned showed a strong recovery by that date. Another inspection in October indicated heavy use of the willow sucker growth by browsing moose.

10. Pest Control

On several occassions, skunks were observed in the headquarters - housing area and residents pets were sprayed at least four different times. Another time the SCA volunteer had to evacuate his trailer after a skunk had dug under the skirting and sprayed the underside of the trailer evidently to make it more like home. Family groups of 4-8 skunks were observed on the refuge during fall range inspections. It became apparrent that this skunk population must be having a tremendous impact on the nest success of upland nesting birds. A Pest Proposal will be submitted early in 1985 and if approved control techniques will be initiated.

G. WILDLIFE

1. Wildlife Diversity

The refuge contains a great diversity of wildlife including 215 species of birds, 40 species of mammals, some reptile/amphibian species, and several fishes with the Arctic Grayling being most notable. The quality habitat of the refuge and surrounding area, the lack of access thus limiting human disturbance, and the vast size of the area, all contribute to the wildlife diversity associated with Red Rock Lakes NWR.

Rare mammalian species include lynx, cougar, and grizzly bear. More common mammals include black bear, red fox, river otter, beaver, bobcat, elk, moose, antelope, mule deer, and white-tailed deer.

Antelope are commonly sighted throughout refuge grasslands.
K.C. Wildlife Ministry

A myriad of avian life can be found in various habitats depending on where you look. In and around the marshes, waterbirds, wading birds, shorebirds, and 23 different kinds of waterfowl can be found. Brewers sparrows, burrowing owls, and sage grouse can be seen in the rolling grasslands and sagebrush areas of the refuge. The timbered slopes of the Centennials harbor an interesting community of warblers, chickadees, nuthatches, and various other montane species.

2. Endangered and/or Threatened Species

There is an active bald eagle nest immediately adjacent to the refuge located near Culver Pond. This year the pair was successful and hatched two eaglets. This nest site has been successful five of the last six years.

Bald and golden eagles are sighted on the refuge quite frequently especially during spring and fall migration. This year a peak population of about 25 eagles were present on the refuge. The bald eagles feed primarily on waterfowl.

The Peregrine Fund has three hack tower sites in the area, one of which is on the refuge. Even though the refuge hack site was not used this year the other two sites were successful in fledging 8 peregrines. Sightings of peregrine falcons on the refuge are common.

A significant find occurred this year when a natural peregrine falcon eyrie was discovered on the refuge. The eyrie was established by a pair of falcons which were both released from hack tower sites. The pair produced two chicks. This is the only known natural peregrine eyrie in the state of Montana.

3. Waterfowl

A total of 1,460 trumpeter swans were counted during the 1984 Mid-Winter Trumpeter Swan Survey, (Feb. 4-Feb. 9). This represents the highest number of swans counted during a mid-winter survey. Ground truthing revealed less than 1% of the total swans checked from the ground to be tundra swans. All tundra swans counted during the ground truthing were deducted from the total figures. Out of the 1,460 swans surveyed, 332 (32%) were cygnets. This also represents the largest number of cygnets counted during a mid-winter Trumpeter Swan Survey (Figure 5).

Figure 5. Comparison of Mid-Winter Trumpeter Swan Survey Results

Year	Adults	Cygnets	Total
1984	1128	332	1460
1983	1025	207	1232
1982	952	266	1218
1981	1000	247	1247
1980	767	172	939
1979	743	123	866
1978	695	179	874
1977	839	178	1017
1976	623	102	725
1975	595	128	723
Ten Year Mean	837	193	1030

Trumpeter swan pair with cygnets on refuge. Skylar Hansen

Trumpeter Swan Production

A total of 40 pairs of trumpeter swans were found occupying territories in the spring of 1984 on RRLNWR. Of the 40 pairs of trumpeter swans, 31 pairs actually built nests. Flooding was again a serious problem particularly on the lower reaches of the marsh. (Figure 6,6A).

Figure 6.

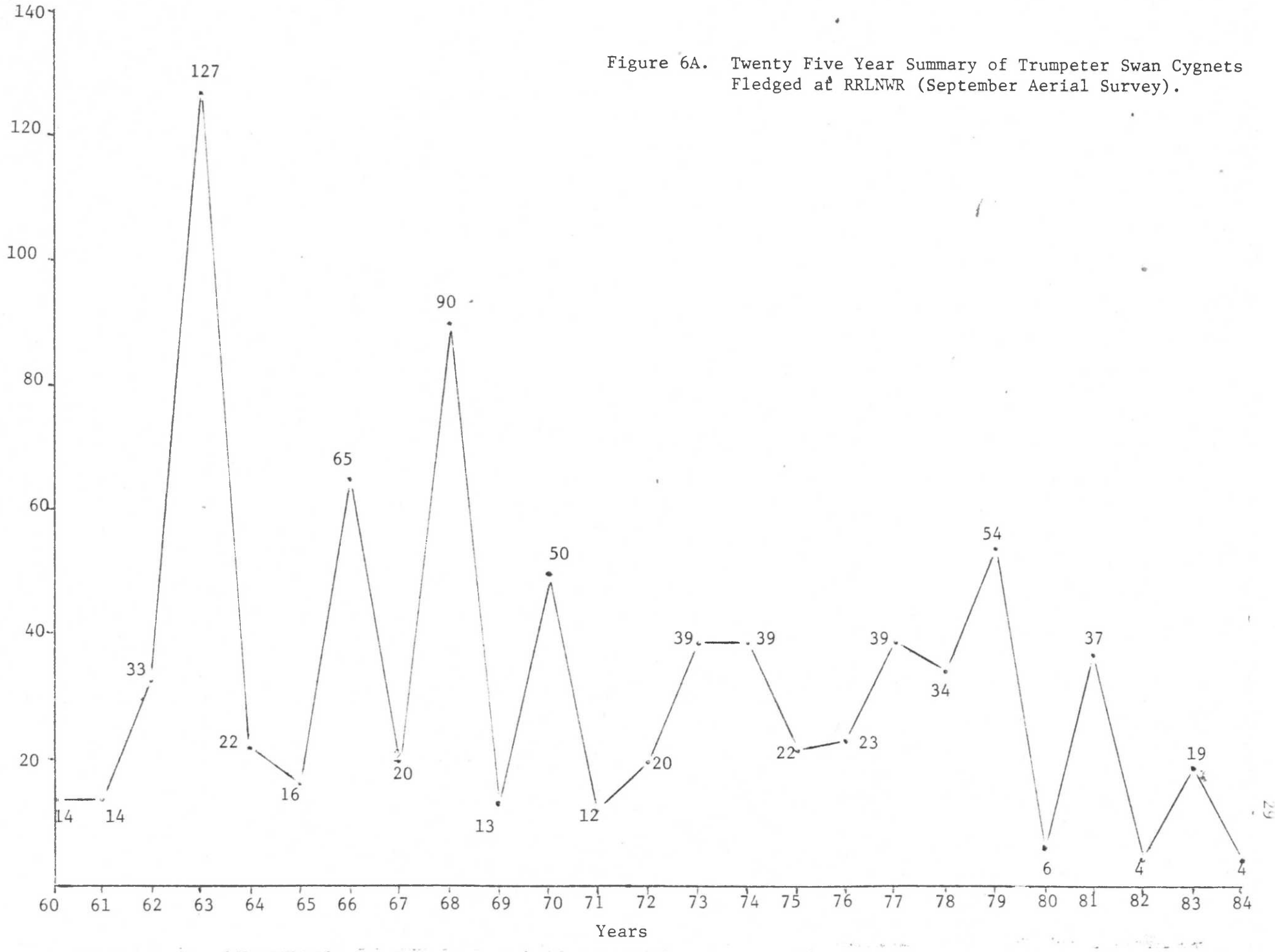
COMPARATIVE TRUMPETER SWAN NESTING DATA
RED ROCK LAKES NWR

Year	Nesting Pairs	Aver.Clutch size	%Eggs Hatched	Hatched Cygnets Observed	Fledged Cygnets Observed	%Mortality (Hatch-Fledge)
1977	34	4.00(n=6)	N.A.	69	39	43
1978	43	4.64(n=25)	61	67	34	49
1979	47	5.00	65	116	54	53
1980	41	4.80(n=32)	21*	18	6	67
1981	44	5.33	58	90	37	59
1982	24	4.07(n=14)	29*	17	4	76
1983	29	4.60(n=23)	50*	46	19	59
1984	31	4.75(n=12)	20*	30	4	87

NA = not available

* high water year (flooding)

Figure 6A. Twenty Five Year Summary of Trumpeter Swan Cygnets Fledged at RRLNWR (September Aerial Survey).



Young constructing a floating nest platform for trumpeters. WJK

A floating nest platform on Lower Red Rock Lake. In 1984, 8 cygnets were hatched on these artificial platforms. TM

Other important production statistics unclude:

May 10, 1984 Lakes free of ice
Oct. 21, 1984 Lakes Freeze
Mean clutch size (RRLNWR + C. V.) 4.75 (n=12)
Egg fertility 81% (n=27)
Earliest hatching date June 19
Latest hatching date July 5
Peak hatching June 27-28

1984 Cygnet Production RRLNWR

	6/28	7/11	8/3	9/12
Upper Lake	4	4	4	3
Lower Lake	8(4,4)	0	0	0
Swan Lake	9(4,5)	7(4,3)	4	0
River Marsh	3	1	0	0
Creeks & Ponds	6(3,3)	4(3,1)	3(2,1)	1
Totals	30	16	11	4

A hailstorm in early July appeared to be a major factor in cygnet mortality.

1984 Cygnet Production
Off-Refuge, Centennial Valley

	6/28/84	7/9/84	8/3/84	9/12/84
*Lakes, Ponds, and potholes	19 (6,6,3,2,2)	14 (6,6,2)	13 (6,6,1)	13 (6,6,1)
Red Rock River	4	1	0	0
Lima Res.	0	0	0	0
Total	23	15	13	13

* includes Elk and Conklin Lakes

Other Off-Refuge Data (Centennial Valley *)

Number of pairs occupying territories = 19

Number of pairs building nests = 17

Cygnets should be more attentive when Ma and Pa are conducting a preening lesson. Skylar Hansen.

The Tri-State Trumpeter Swan Survey was conducted from September 11 through September 15. The purpose of the Tri-State Survey is to determine population levels and production of the Tri-State population before migrating trumpeter swans from the more northerly latitudes arrive for the winter.

A total of 489 trumpeter swans were counted during the September 1984 survey (Figure 7). Out of the total trumpeter swans 431 were classified as adults-subadults while the cygnet production was 58 cygnets. Cygnet production in Idaho and Wyoming was better than expected.

Canada Geese

During a May 21st survey 64 pair of Canada geese were tallied. It is not known how many of these were active breeders. An additional 56 known non-breeders were also recorded during that survey. An estimated 30 goslings were produced.

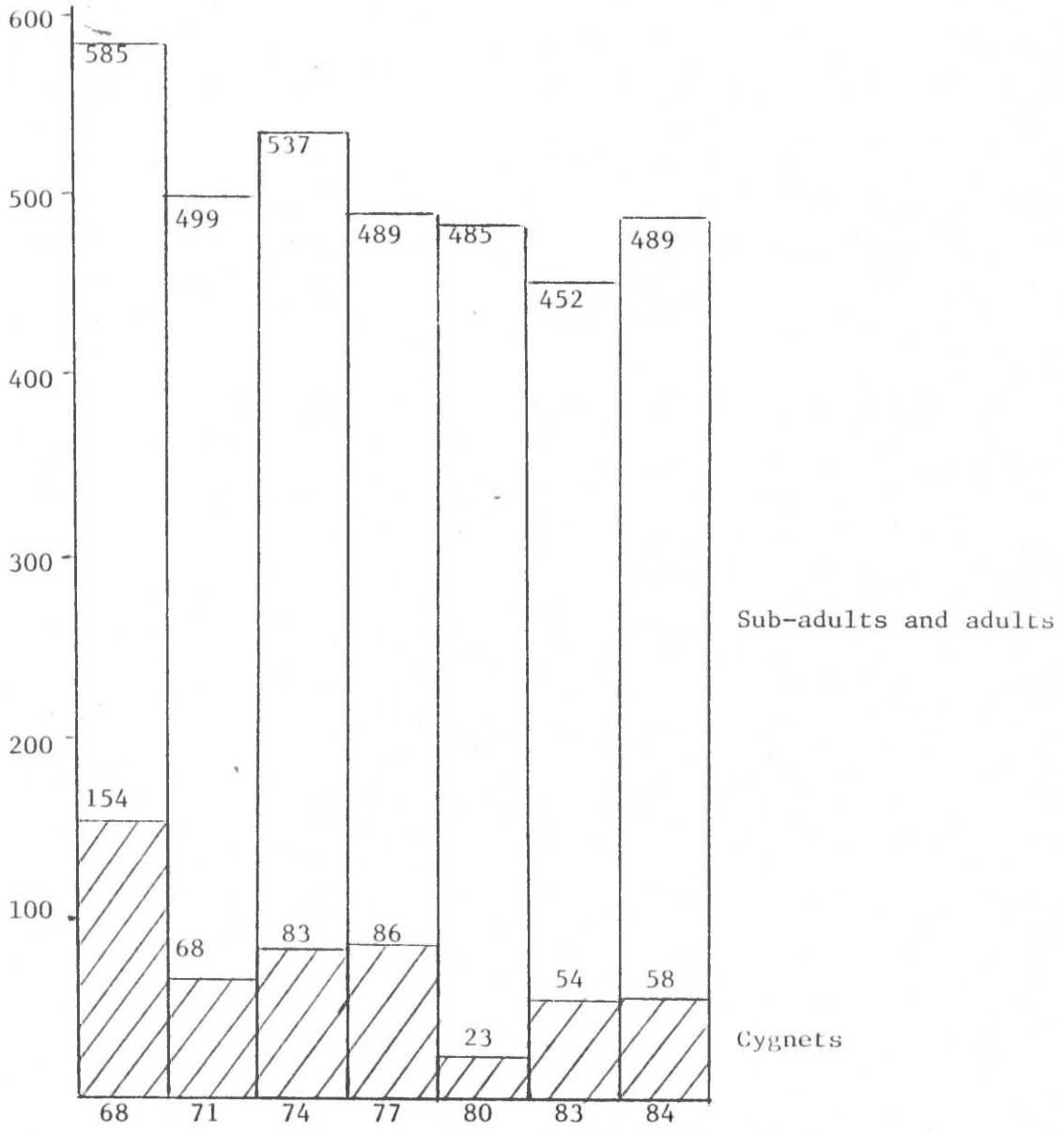
Ducks

In 1984 dabbling duck production amounted to 3108 young while divers produced 4595 young for a total of 7703 ducks produced. Mallards, cinnamon teal, gadwall, and pintail made up 77% of the dabber production while scaup, ruddy duck, and redhead comprised 84% of the diver production. Figure 8 illustrates duck and coot production for the past 5 years.

Figure 8. Five Year Summary of Duck & Coot Production

	1980	1981	1982	1983	1984
Divers	2,006	4,011	4,215	4,386	3,108
Dabblers	2,038	3,947	2,533	3,109	4,595
Total Ducks	4,044	7,958	6,748	7,495	7,703
Coots	1,890	3,880	3,383	3,306	3,100

Figure 7. Summary of Fall Tri-state Surveys.



Data Source: Refuge Files

4. Marsh and Water Birds

This year in May greater sandhill cranes were surveyed on the refuge with 85 pairs and 30 grouped cranes recorded. Because the productivity rate for cranes is quite low (usually around 12%) production was estimated at 15.

The Centennial Valley is also a staging area for sandhill cranes in early fall. A September 11th survey at the valley tallied 343 cranes.

Approximately 85 double crested cormorant pairs were observed this year. No estimate of production was made. As many as 320 white pelicans were also recorded on the marshes; no production was noted.

A great blue heron rookery exists in the tops of willow located along the north side at Upper Red Rock Lake. Approximately 50 young herons were observed in this rookery during a summer survey. Great blue herons and black craned night herons also nest on Lower Red Rock Lake, but no estimate of production was made this year.

A variety of other marsh and water birds frequent the refuge during spring, summer, and fall. This includes grebes, herons, egrets, and bitterns for which no population or production estimates were ventured.

5. Shorebirds, Gulls, Terns and Allied Species

There are approximately 30 species of birds in this category that frequent the refuge annually. About a dozen of those species nest on the refuge including long-billed curlew, common snipe, Wilson's phalarope, and black terns.

6. Raptors

The refuge attracts at least 20 different species of raptors, 18 of which nest in this locality. An observer can observe virtually all the northern raptors in North America on the refuge or within the adjacent land areas. The quality pristine environment and tremendous prey base are significant factors supporting the raptor populations.

7. Other Migratory Birds

Dozens of species of other migratory birds provide ample opportunity for birding enthusiasts.

Several species of birds can be observed near the campground as was this Western tanager. TM

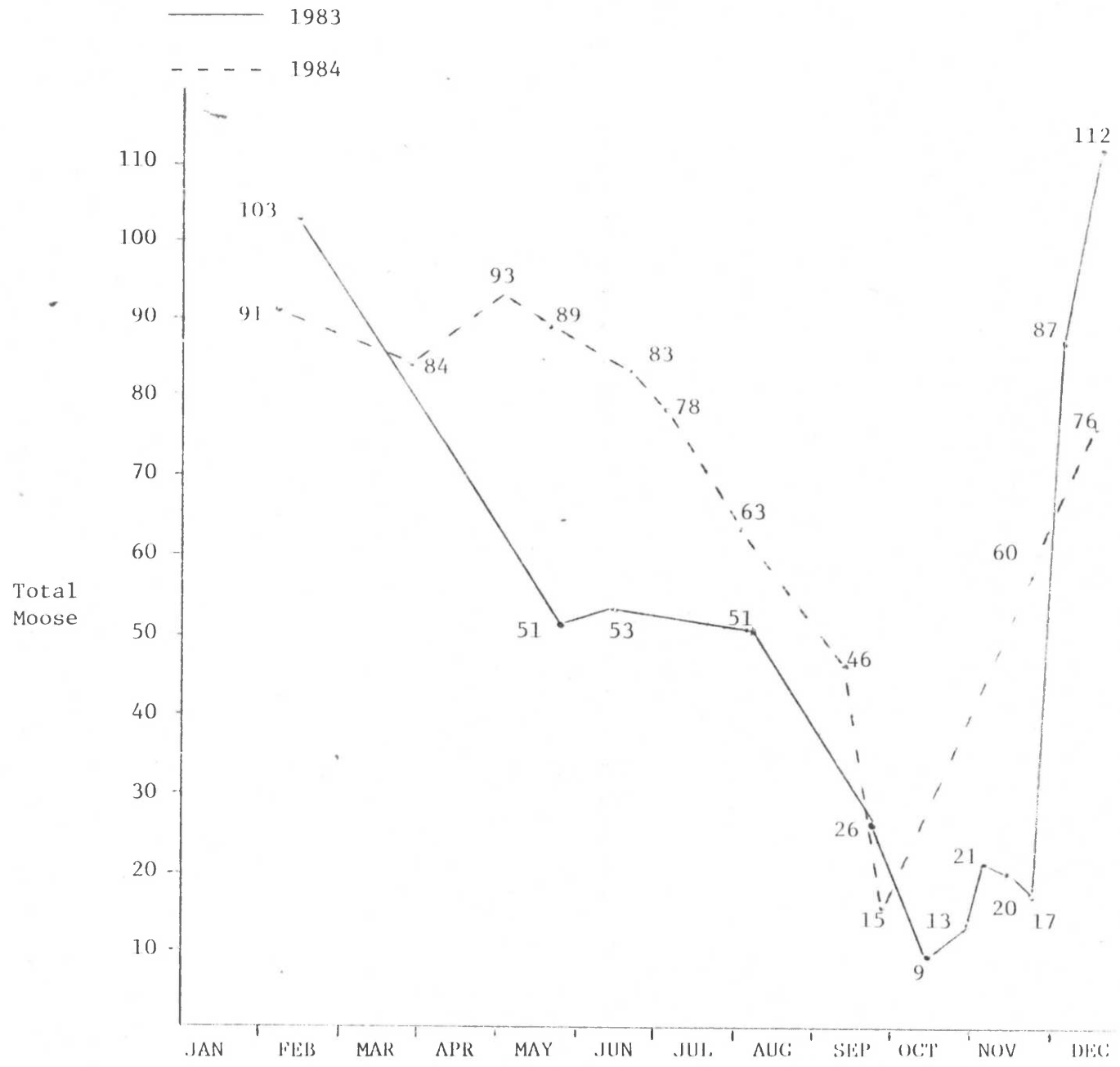
8. Game Mammals

The resident moose population seem to be fairing well. This year 25 calves were counted during a June survey which included 8 sets of twins.

Three of refuge Shiras .Moose population TM

The main concern during the past couple of years has been an increasing wintering population that migrates onto the refuge after the hunting season (See Figure 9). After considerable discussion and monitoring by the Montana Department of Fish, Wildlife and Parks personnel and refuge staff it was

Figure 9. Monthly Fluctuation in the Refuge Moose Population.



Data Sources: Montana Dept. of F.W.&P., and Red Rock Lakes NWR.

decided to (1) increase the number of refuge moose hunt permits during the regular season, and (2) hold a special late hunt in the area where the migrants originate. This late hunt would also include the wintering area on the refuge if numbers of moose indicated migrants had already arrived. Early observations (Figure 9) indicate that the plan was succesful in lowering the wintering population to a desired level of 70-80 moose. Continued moose browse transects and population surveys will indicate whether the population is within the limits of the winter range.

The pronghorn population was down considerably from the 1983 all time high of 617 animals. Summer and fall surveys showed a reduction of 32% and 58% respectively from last year. This years fall population of 259 animals is fairly close to the average population of 298 over the last 12 years (See Figure 10).

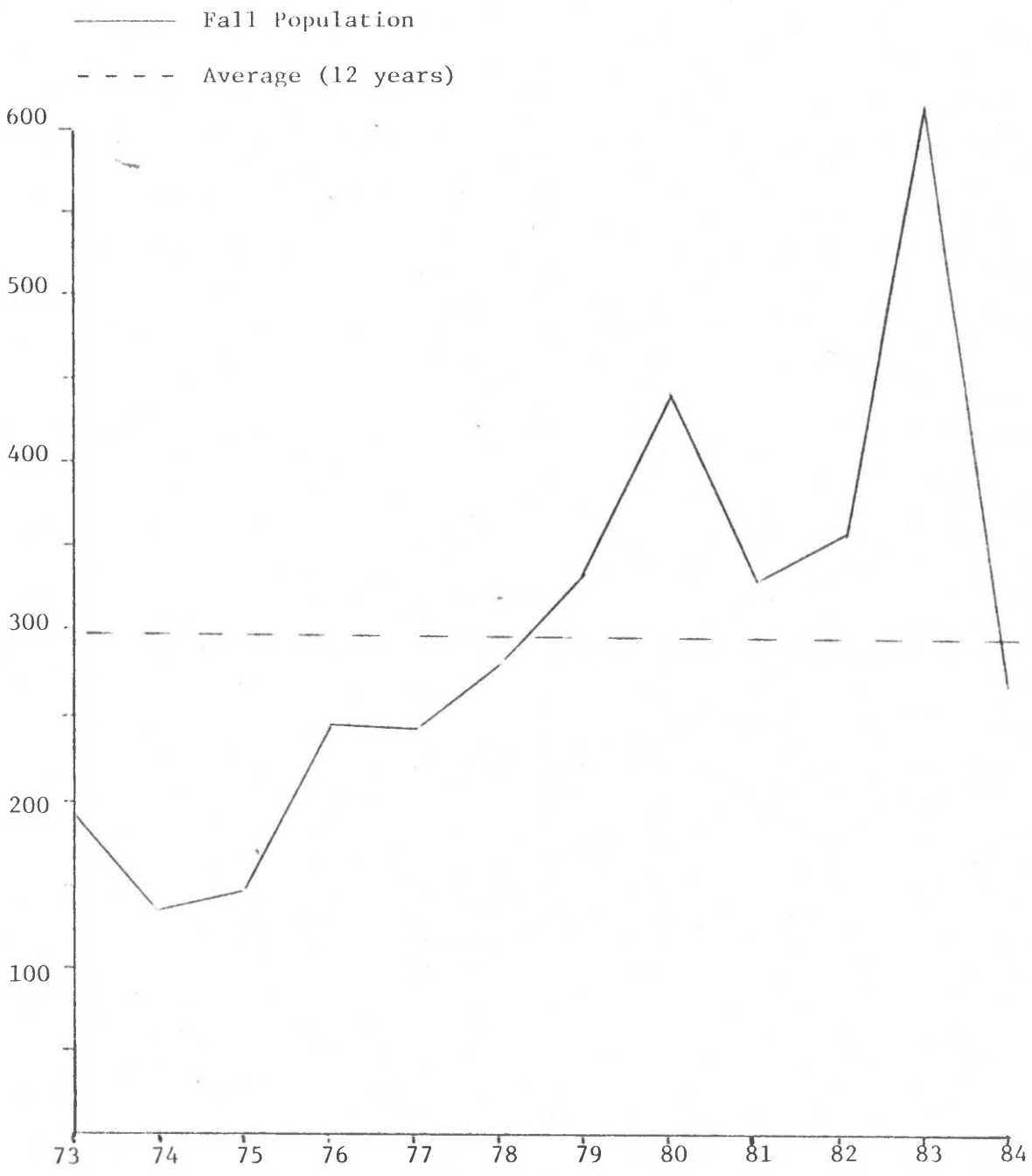
Doe and fawn mule deer and white-tailed deer are seen frequently during the summer months, however bucks are seldom observed. Elk are observed periodically throughout the year even though they spend most of the time in the high meadows and heavily timbered slopes on and off the refuge.

10. Other Resident Wildlife

Blue grouse, ruffed grouse, sage grouse, and gray partridge are all inhabitants of the refuge in very low numbers. On the other hand, red fox, striped skunk, badgers, beaver, muskrat, & mink are present in higher numbers. Coyote are observed occasionally and a family of river otter near MacDonald Pond was seen frequently this year.

"A stinky white critter" photographed near the campground.
J.C. Wildlife Ministry

Figure 10. Fall Pronghorn Antelope Population Summary.



Data Source: Refuge Files.

11. Fisheries Resources

This year in June and October Ron Skates, Fishery Biologist at Northwest Montana Fish and Wildlife Center came to Red Rock Lakes to gather basic data concerning the fishery resources now present in refuge lakes and streams. Preliminary findings indicate an overall reduction in the artic grayling spawning run since the 1960's, but has probably reached a lower but stable level now. Corresponding reductions of salmonids (brook and cuttroat trout) also seem to be occurring in the refuge lakes while the same species appear to be more stable in some streams.

Electrofishing in Odell Creek produced . . . WJK

...a nice bunch of brook and cutthroat trout. WJK

A possible cause for declines in grayling and trout populations is overgrazing of tributaries above the refuge which in turn causes more siltation and eutrophication of refuge lakes. This also creates a more favorable environment for rough fish populations such as suckers and ling.

Because the grayling is such a unique species in the lower 48 states an effort may be initiated to spread the genetic strain to other suitable habitat as a safeguard, should the Red Rock Lakes population ever be reduced to critical levels. More field work, as well as a Fisheries Management Plan are scheduled for FY 85.

16. Marking and Banding

In July molting trumpeter swans were banded again this year at various locations. At Lima Reservoir a total of 68 trumpeters were captured with 33 being recaptures (banded previous years). Two tundra swans were also captured. Prior to release all birds were marked with a temporary stain (made of beet juice) to prevent recapture of the same bird. This was very effective in eliminating additional unnecessary stress on an already stressed bird.

Bill Long, Game Warden for the State of Wyoming assisted with swan banding.
TM

Eleven swans were also banded at Upper Red Rock Lake on the refuge a few days later with 5 being recaptures. One interesting fact that was revealed from this years recapture data was that the average age of the known age swans at the different locations was quite different. The average age of the known age swans recaptured at Lima Reservoir was 3.6 years and at Upper Red Rock Lake it was 7.6 years. This might suggest that the younger non-breeders molt at Lima Reservoir while the older breeding birds molt on refuge lakes; probably to maintain their territories. However because of the small sample size on URRL this must be used with some caution.

Three swans on Lower Red Rock Lake and one swan on Pintail Ditch were also captured banded and neck collared. See D5 for details.

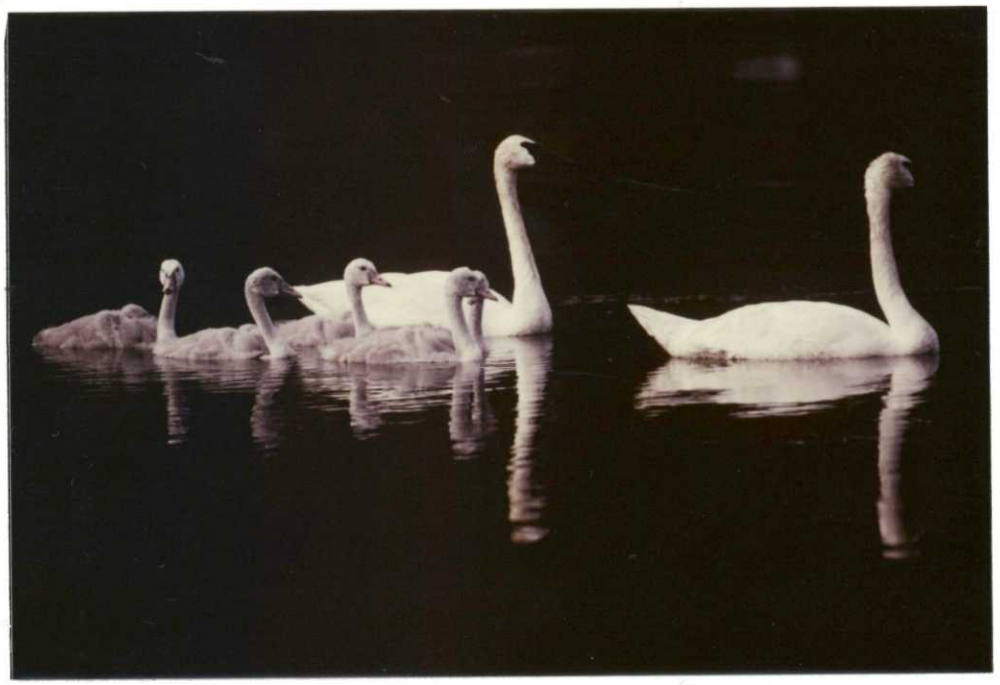
17. Disease Prevention and Control

Blood samples were taken during swan banding operations. See D5 for more detailed information.

Gizzard and liver samples were collected from 100 diving ducks this fall during waterfowl season. These samples will be analyzed by the National Wildlife Health Lab. for incidence of lead. Results are forthcoming.

H. PUBLIC USE

1. General



One of the sights that attracts the public to the refuge. Skylar Hansen

Red Rock Lakes NWR receives 6000-8000 visits annually and appears to be increasing. For that reason and due to the fact that present facilities are minimal, an effort was made this year toward improving the experience at, and the interpretation of Red Rock Lakes NWR. With the help of Interpretive Specialist Carol Lively, SCA Volunteer Barb Bell, and the refuge staff a Public Use and Interpretive Plan was developed. Implementation of this plan over the next few years should provide a more rewarding experience for refuge visitors while safeguarding wildlife values and habitat.

7. Other Interpretive Programs

A talk and tour of the refuge was given to a group of boy scouts from Butte. Later they constructed and erected blue bird nest boxes to gain the coveted wildlife badge.

A variety of media, other agencies, and special interest groups were contacted throughout the year to explain refuge missions and maintain public rapport.

The following lists the different groups and their representives.

1.	Pacific Flyway Subcommittee	Dave Lockman, Chairman
2.	National Wildlife Federation	Chuck Griffeth, Dan Hines, Tom France
3.	MontanaWilderness Association	Bill Cunningham
4.	Conservation Endowment Fund	John Taft, David Hartwell
5.	The Nature Conservancy	Bob Kiesling, Steve McCormick
6.	Greater Yellowstone Coalition	Bob Anderson
7.	Pintlar Audobon Chapter	D.R. Stoecker
8.	Defenders of Wildlife	Executive Director, Steve Allen
9.	Utah State Coop. Unit	Dr. David Anderson
10.	The Missoulian	Steve Woodruff, Carl Davas
11.	Dillon Tribune	Tom Brossart
12.	Southwest Montana Interagency Travel Plan Committee	USFWS, USFS, BLM, Montana Dept. of Fish, Wildlife & Parks
13.	Smithsonian Institute	Staff Writer
14.	Bureau of Land Mgmt.	resource personnel
15.	Montana Dept. of F.W. & P.	Many local & district personnel

8. Hunting

Approximately 30 waterfowl hunters participated in the waterfowl opener on the refuge. As in the past hunting pressure was light after the first weekend. Scaup are the primary species harvested.

Moose hunting season opened in mid September with five antlerless permits being issued by the Montana Department of Fish, Wildlife and Parks. This was a substantial increase in licenses compared to the last few years (See G-8). Hunter success was good with 5 bulls, and 5 cows harvested.

Bull moose harvested during first season. BR

For the first time a second moose season was held in early December where 15 antlerless licenses were issued. Here again success was good with 11 cows, 1 calf, and 1 antlerless bull taken.

Most antelope hunters were pleased with their hunt on the refuge. Approximately 15 antelope were harvested.

Deer and elk hunting are also allowed on the refuge. Approximately eight elk were taken by hunters but no deer.

9. Fishing

The refuge fishing season opened the third Saturday in June. Even though success was low anglers tried their luck throughout the summer.

11. Wildlife Observation

Moose cow with calf. TM

Total visits for 1984 was 6138 visits which is very comparable to 6210 visits last year. Wildlife observation comprises about 75% of refuge visits.

12. Other Wildlife Oriented Recreation

Wildlife photograghy is becoming more popular all the time. More and more professional and amateurs alike are flocking to the refuge to snap their shutters.

This fox pup made a good target for a photographer. K.C. Wildlife Ministry

Camping visits totaled 1469 this year. The campgrounds were full on holiday weekends. Almost all camping is associated with wildlife oriented activities.

17. Law Enforcement

One citation was issued this year when an individual shot an elk in a closed area of the refuge. Another individual was apprehended shortly afterward when he shot an elk from a public road. The first individual paid a $100.00 fine while the second case was turned over to the state (state violation) and was fined $25.00. Both elk were sold at the state public auction.

Two bull elk siezed by refuge personnel later sold at state auction.

BR

In June Mr. Eugene Walsh a landowner at the east end of the Centennial Valley trailed his cattle across part of the refuge to his land where the cattle would graze for the summer. When Mr. Walsh was contacted by refuge personnel and told that a Special Use Permit would be required for such activity, he refused on the grounds that the route was a traditional cattle drive trail. He then dismantled the refuge gate and pushed his cattle across the refuge to his summer pasture.

After several letters between Mr. Walsh's attorney and the refuge manager, Mr. Walsh stated it was a "misunderstanding" and requested a Special Use Permit to allow removal of his cattle in the fall.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

A total of 23 rehabilitation projects were initiated during FY 84 and one carryover project from FY 83 was completed (Figure 11). All projects were completed with the exception of one of the fencing contracts which went into default by year's end.

The tile installation job in Qtrs. #110 which started in July 1983 was finally completed in February by the third sub-contractor to work on the job. The original contractor requested additional funds to complete the project, but this request was denied.

Two fence contracts were issued during the year, one to Bruce Denny of Dillon, Montana for 6.87 miles of fence on Units G14, G-5E, G-5W, and G-3/4. The project was bid at $7,445. Mr. Denny completed 2.2 miles of fence along the east side of G-14 and started the mile long segment on the west side before defaulting. Howard Begin'of Dillon, Montana received a contract for 3.25 miles of fence at $6,480 on the south side of G-14. The project was completed on October 16 in a satisfactory manner.

A continuing problem with moose hanging up in refuge fences continued during the year with two animals being killed that we are aware of.

This cow moose was hung up and killed near Idlewild in a four wire fence during the spring. The fence surrounding the Idlewild willow and aspen was converted to three strands. BR

Four and five strand barbed-wire fences seem to be the principal culprits. Efforts were started several years ago to convert refuge fences to three strands with a smooth bottom wire. This has almost eliminated the problem in areas where the new fences have been installed although one moose calf was found hung up in a three-strander and was released unharmed this summer.

This moose calf was hung up in a three strand fence near Tom Creek. Not even the new "wildlife" fence totally eliminated the hangup problem, although it is significantly reduced. The calf was released as an angry cow looked on. TM

Efforts will continue to convert the remaining four and five strand fences, but the process will take a number of years.

Figure 11. FY 84 REHABILITATION PROJECTS

1. Install ceiling tile in bedrooms and hall, Qtrs. #1
2. Install paneling and insulation in 2nd and 3rd bedrooms, Qtrs. #1
3. Install support cables along all rafters, run lag bolts through joists to stablize wall movement, Qtrs. #1
4. Install new refrigerator, Qtrs. #1, #94, #110
5. Replaced sewer line, developed new leach field, Qtrs. #90
6. Repaint interior, install paneling in living room, Qtrs. #94
7. Install new window shades in kitchen and living room, Qtrs. #94
8. Install ceramic tile in bathroom, Qtrs. #94
9. Install new window shades in kitchen, dining room, and living room Qtrs. #110
10. Dike rebuild, structure installation on Cole Creek Slough.
11. Install culvert, draw down Sparrow Pond.
12. Rebuilt 5.25 miles of fence in G-14.
13. Bury power and phone lines to shop and office.
14. Remove 2 miles of fence in G-3/4, G-10, and G5W.
15. Replace well pump at headquarters.
16. Remove grainry foundation at MacDonald Pond.
17. Remove Stock Association house at MacDonald Pond.
18. Repair Harlequin ditch water system.
19. Eliminate outdoor toilets from MacDonald and Culver Ponds, and Lower Lake Camping Area.
20. Install wood stove in office.
21. Install ROPS on grader.
22. Rehab entrance sign.
23. Rehab military truck for cooperative fire pumper unit with Lima Rural Fire District.

Maintenance crew installing cattle guard on road to airport. One-half mile of fence was removed and the guard reset during this project. BR

Maintenance crew installing culvert in Sparrow Rond to facilitate drawdown. BR

Mechanic Young eliminating the old grainry pad at MacDonald Pond. BR

3. Major Maintenance

The following projects of note were completed during the year in addition to the multitude of standard maintenance activities.

-Paint all signs
-Stain oil house
-Stain barn
-Stain Qtrs. #90 garage
-Stain Qtrs. #1 garage
-Improve security at Monida garage
-Repair approximately 60 miles of boundary and interior fence

A GSA lot sale was conducted during the year, with many, many valuable items from the Red Rock Lakes 'bone yard going up on the block. A resident of Monida purchased most of the items for sale, and it appears that the refuge bone yard was moved to his residence near I-15 and reconstructed to appear much as it did here at Lakeview. Total earnings from the sale exceeded $2,000.00.

4. Equipment Utilization and Replacement

A Porta-Pump fire pumper unit was purchased for fire fighting in roadless areas of the refuge. The unit works extremely well and out performs most conventional pickup units in output.

A D-7 Cat crawler tractor was picked up on transfer from CMR to replace the worn-out, pile of junk TD-18 the refuge had been using. The transfer unit is in good condition and is a valuable asset to the refuge.

A TV dish system was installed at the refuge in July with hookups to each residence. It has proved to be quite popular with the staff, especially during those long, winter nights.

J. OTHER ITEMS

1. Cooperative Programs

The refuge staff maintained a weather station at the headquarters for the National Weather Service and collected snow survey information in the Centennial Mountains for the U.S. Soil Conservation Service.

Lima Rural fire District volunteers, Lakeview Fire Department volunteers, and the refuge staff participated in a demonstration fighting structural fires.

MacDonald Pond cabin just prior to burning. WJK

An old dilapidated cabin at MacDonald Pond was selected as the structure for the demonstration. The building was no longer used for anything (except predator denning) and served as an eyesore.

Portable water reservoir in use. WJK

The set-up and use of a portable water reservoir was demonstrated. After ignition when the fire was really rolling, efforts were made to control the fire. After the first few minutes of the control efforts, one pumper lost its prime, the other pumpers nozzle froze up; the majority of control came from the refuges Floto-Pump. The output from the small portable pump floating in a few inches of water in Pintail Ditch was impressive.

The fire was brought under control. WJK

Almost time for clean-up. WJK

The fire was then allowed to consume the structure. All in all it was a good training session for all participants. Once again it proved that Murphy's Law always applys to any fire related activities.

3. Items of Interest

The 9th Biennial Conference of the Trumpeter Swan Society was held this year in West Yellowstone, Montana on September 4-8th. The TSS is concerned with falling trumpeter swan production and therefore formed a special task force to come to Red Rock Lakes NWR during the summer of 1984 to summerize biological data and develop recommendations for future management of trumpeter swans. During the conference all aspects of trumpeter swan management and problems were discussed at length with dozens of papers presented. Many recommendations were presented by the TSS and will be considered in the future management at Red Rock Lakes.

The Trumpeter Swan Society toured the refuge in September. WJK

On December 14, 1984 a daughter was born to Bill and Teri Kurtenbach. This new arrival brought the winter population of Lakeview to fourteen people.

On May 27, 1984 Assistant Manager McEneaney married Karen Evangelista of Boston, Massachusettes at the campground on Upper Red Rock Lake. Approximately 75 people attended the marriage ceremony and celebrated most of the weekend.

4. Credits

Reiswig: C,D,E,F-5,F-7,I,Editing

Kurtenbach: A,B,F,G,H,J,Editing

McEneaney: G-3,Editing

Rush: Typing and assembly

K. FEEDBACK

The land acquisition of the Fish and Wildlife Service must remain active. The purchase of wetlands and refuge roundouts in Montana is almost at a standstill. While much of this is motivated by the current political situation, the pressure should always be maintained to acquire those areas that fifty and a hundred years from now will prove valuable to wildlife resources in the state.

Several inholdings at Red Rock Lakes, which until recently have been relatively "safe", that is held by working ranches, are currently for sale. While the ranching operations in the Centennial are generally compatible with the needs of the refuge, the sale of these tracts to developers and subdividers would not be.

Red Rock Lakes had always been referred to as a success story in the National Wildlife Refuge System. A recent article in Audubon touted the area as one of the best in the system in terms of what a wildlife refuge ought to be. But if our inholdings are developed into "Rio Rancho Estates" types of subdivisions with their attendant problems of access, power lines, visual disfigurement of the landscape, pets roaming loose, complaints about the "damn wildlife" getting out of the refuge and damaging their gardens, lawns etc. etc. then something vital will have been lost here. Fifty years of hard work and stewardship will have been for naught. The Fish and Wildlife Service must not let this happen.

Those in leadership positions in the agency, difficult as their jobs are these days, should never let these goals slip from the horizon.

Times are changing in the Centennial. The land developers from Texas, Utah and Idaho with their fancy suits and greased-back hair touting to the world

about getting a little piece of paradise have arrived in the Centennial. These self-styled providers of happiness (mostly to their wallets) must not be allowed to undue fifty years of conservation and stewardship that have gone in to the protection of the Red Rock Lakes.

The next five to ten years will be crucial in the continued success of the refuge and will set the stage for the management of refuge for the next fifty years. We remain firm in our resolve at all levels of the agency in protecting what has been so dearly acquired.

As another year passes, our administrative and financial system seems to be more cumbersome, complex and confused. We are required to generate all types of information such as the verification of leaky gas tanks, the amount of copy paper we use, how many miles each vehicle is driven etc. etc.

In an Administration where the emphasis is less paperwork, the message seems to have gotten lost somewhere, perhaps under a stack of reports. Do we really need to know how many sheets of copy paper each station uses, and the exact mileage of each vehicle? Where is it going to end?

I maintain again that the cost of information should be calculated and balanced against the value of that information to the taxpayers of the United States. There should be a cap on the number of pieces of information that the agency requries of a particular unit. If someone wants information on the number of oil filters (or some other vital information) that a station uses, they should be required to state on the form how much it costs the region to generate that information and the estimated value of that information to the strategic survival capabilities of the United States of America.

As our budgets shrink in the coming years, perhaps someone might look into the cost of the useless, needless, myriad of reports we are forced to generate each year, and the real value of that information.

We are each year generating less useful and meaningful output per hour or day of labor invested. One of the primary reasons is the stifling nature of our administrative and financial systems. It is becoming impossible to accomplish anything of value because we are too busy providing some nitwit information for some entity in the agency that should have been transferred to the National Zoo years ago.

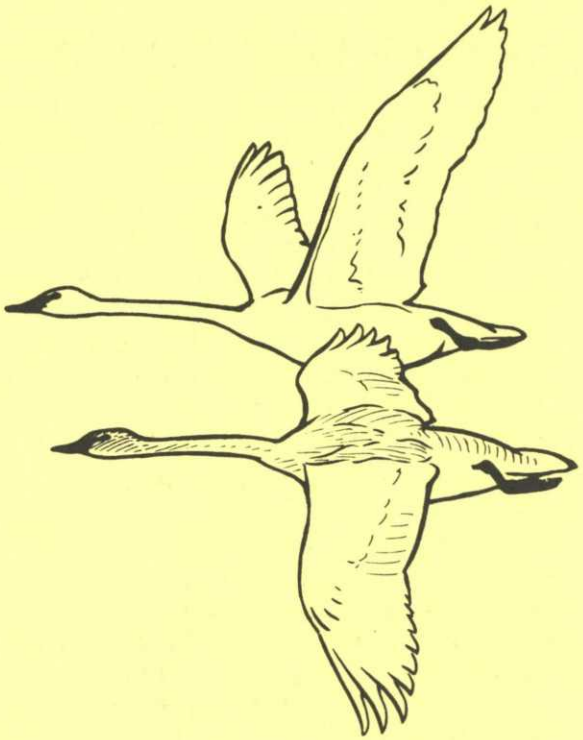
Ladies and gentlemen of the Fish and Wildlife Service, in this outfit the tail is unquestionably and irrefutably wagging the dog.

For a number of years now our piloting duties have been handled by Bob Twist of the Lee Metcalf NWR. Aerial surveys are important at Red Rock Lakes since much of the area is Wilderness and even the non-Wilderness portions of the refuge are difficult to survey from the ground for various reason.

Bob has done nothing less than an outstanding job for this station. More than being a pilot he is an able observer, and his assistance adds a great deal to the accuracy and repeatability of our surveys on a variety of species.

I think Bob should be recognized for his efforts. The staff here appreciates his contribution and is looking forward to continued work with him.

The cost of generating this report to the Taxpayers of the United States of America is $3,058.00.



BIRDS OF THE...

Red Rock Lakes

National Wildlife Refuge

Red Rock Lakes

National Wildlife Refuge

is located in the scenic and isolated Centennial Valley of southwestern Montana, about 50 miles west of Yellowstone National Park. Its 40,000 acres rise from 6,600 to nearly 10,000 feet above sea level in the lofty Centennial Mountains which each year capture winter's snowfalls that replenish the vast Red Rock Lakes marsh.

This marsh system is one of the most important trumpeter swan breeding and wintering areas in North America and for this reason the refuge was established. The 12,000-acre marsh also provides sanctuary and nesting habitat for a myriad of other birds including the greater sandhill crane, 23 different kinds of waterfowl, Virginia and sora rails, grebes, and herons. To the north, among the rolling sage-covered hills of the Gravellys, sage grouse, Brewer's sparrows, and occasionally burrowing owls may be found. To the south, the timbered slopes of the Centennials harbor an interesting community of warblers, chickadees, nuthatches, and various other montane species. In all, the rich variety of habitat has contributed to the sightings of 215 different species of birds.

In the following list those species marked with an • nest in this locality. The relative abundance of each species at each season is coded as follows:

S—March-May **F —September-November**

S—June-August **W—December-February**

a—abundant	**common species, very numerous**
c—common	**certain to be seen in suitable habitat**
u—uncommon	**present, but not certain to be seen**
o—occasional	**seen only a few times during a season**
r —rare	**seen at intervals of 2 to 5 years**

GOOD BIRDING!

	S	S	F	W
LOONS				
Common Loon	r	r		
GREBES				
Horned Grebe	o	o	o	
•Eared Grebe	c	a	u	
•Western Grebe	u	u	o	
•Pied-billed Grebe	u	u	o	
PELICANS				
White Pelican	c	c	o	
CORMORANTS				
Double-crested Cormorant	o	u	o	
HERONS and BITTERNS				
•Great Blue Heron	c	c	u	r
Common Egret		r		
•Black-crowned Night Heron	u	u	o	
•American Bittern	u	u	u	
WATERFOWL				
Whistling Swan	o	r	u	
•Trumpeter Swan	c	c	c	c
•Canada Goose	c	c	c	o
Snow Goose	r		o	
•Mallard	a	a	a	a
•Gadwall	c	c	c	r
•Pintail	c	c	c	r
•Green-winged Teal	u	u	c	r
•Blue-winged Teal	u	u	u	
•Cinnamon Teal	c	c	u	
•American Wigeon	c	c	a	o
•Northern Shoveler	o	c	c	r
•Redhead	u	c	c	o
•Ring-necked Duck	u	u	u	r
•Canvasback	c	c	c	r
•Lesser Scaup	a	a	a	o
Common Goldeneye	u	r	c	c
•Barrow's Goldeneye	u	o	c	c
•Bufflehead	u	u	c	o
•Ruddy Duck	c	c	c	
Hooded Merganser	o		o	
•Common Merganser	u	u	u	
Red-breasted Merganser	u	r	u	
VULTURES, HAWKS and FALCONS				
•Goshawk	u	u	u	u
•Sharp-shinned Hawk	u	u	u	o
•Cooper's Hawk	o	o	o	
•Red-tailed Hawk	c	c	c	o
•Swainson's Hawk	c	c	u	r
Rough-legged Hawk	o	r	c	r
•Ferruginous Hawk	r	o	r	
•Golden Eagle	u	u	u	u
Bald Eagle	o	u	c	u
•Marsh Hawk	u	o	c	o
•Osprey	r	r	r	
•Prairie Falcon	o	u	o	
•Peregrine Falcon	o	o	o	
Merlin	o	r	o	
•American Kestrel	c	c	c	
GALLINACEOUS BIRDS				
•Blue Grouse	o	o	o	o
•Ruffed Grouse	u	u	u	u
•Sage Grouse	u	u	u	r
•Gray Partridge	r	r	r	r
CRANES				
•Sandhill Crane	c	c	u	
RAILS				
•Virginia Rail	u	u	o	
•Sora	c	c	u	
•American Coot	c	a	a	
PLOVERS				
Semipalmated Plover		o		
Snowy Plover		r		
•Killdeer	c	c	u	o
Black-bellied Plover		r		
SHOREBIRDS				
•Common Snipe	u	u	u	o
•Long-billed Curlew	u	u	o	
•Upland Sandpiper	r	r		
•Spotted Sandpiper	c	c	o	
Solitary Sandpiper	r	r		
•Willet	c	c	o	
Greater Yellowlegs	o	u	r	
Lesser Yellowlegs	o	u	r	
Pectoral Sandpiper		r		
Baird's Sandpiper	r	o	o	
Least Sandpiper		u	u	
Long-billed Dowitcher		u	o	
Western Sandpiper		o	o	
Marbled Godwit		o	o	
Sanderling		r	r	
•American Avocet	c	c	u	
PHALAROPES				
•Wilson's Phalarope	c	c	u	
Northern Phalarope		o	r	
GULLS and TERNS				
California Gull	c	c	c	
Ring-billed Gull	c	c	c	
•Franklin's Gull	c	c	u	
Bonaparte's Gull		u		
•Forster's Tern	c	c	u	
•Common Tern	o	o	o	
•Black Tern	c	c	u	
DOVES				
•Mourning Dove	u	c	o	
OWLS				
•Great Horned Owl	c	c	c	c
Burrowing Owl		r	r	
•Long-eared Owl	u	u	o	
•Short-eared Owl	u	c	c	u
•Saw-whet Owl	o	o	o	o
GOATSUCKERS				
•Common Nighthawk	u	u	u	
HUMMINGBIRDS				
•Broad-tailed Hummingbird	o	o		
Rufous Hummingbird		o		
•Calliope Hummingbird	u	u	o	
KINGFISHER				
•Belted Kingfisher	c	c	c	o
WOODPECKERS				
•Common Flicker	c	c	u	
•Lewis' Woodpecker	u	u	u	
•Yellow-bellied Sapsucker	c	c	c	
•Williamson's Sapsucker	o	o	o	
•Hairy Woodpecker	u	u	u	o
•Downy Woodpecker	c	c	c	o
FLYCATCHERS				
•Eastern Kingbird	u	u		
Western Kingbird	o	o		
Say's Phoebe	o	o		
•Willow Flycatcher	u	u		
•Hammond's Flycatcher	u	u		
•Dusky Flycatcher	u	u		
Western Flycatcher	o	o		
•Western Wood Pewee	c	c	u	
•Olive-sided Flycatcher	u	u		
LARKS				
•Horned Lark	c	c	c	o
SWALLOWS				
•Violet-green Swallow	u	u	r	
•Tree Swallow	c	a	o	
•Bank Swallow	o	u	o	
•Rough-winged Swallow	o	u	o	
•Barn Swallow	o	u	o	
•Cliff Swallow	c	a	o	
CROWS and JAYS				
•Gray Jay	o	o	o	o
•Steller's Jay	u	u	u	u
•Black-billed Magpie	c	c	c	c
•Common Raven	u	u	u	c
•Common Crow	u	u	o	r
•Clark's Nutcracker	c	c	c	u
CHICKADEES				
•Black-capped Chickadee	c	c	c	c
•Mountain Chickadee	a	a	a	a
NUTHATCH				
White-breasted Nuthatch	r		r	r
•Red-breasted Nuthatch	c	c	c	o
Pigmy Nuthatch		o	o	
CREEPERS				
•Brown Creeper	u	u	u	

	S	S	F	W
DIPPERS				
•Dipper	o	o	o	o
WRENS				
•House Wren	c	c	u	
•Long-billed Marsh Wren	c	a	u	
•Rock Wren	u	u	o	
MOCKINGBIRDS				
•Catbird	o	o	o	
•Sage Thrasher	u	u	o	
THRUSHES				
•American Robin	c	c	u	
•Hermit Thrush	c	c	u	
•Swainson's Thrush	o	o	o	
•Veery	u	u	o	
•Mountain Bluebird	c	c	u	
•Townsend's Solitaire	u	u	o	
KINGLETS				
•Ruby-crowned Kinglet	c	c	u	
PIPITS and WAGTAILS				
•Water Pipit	u	u	o	
WAXWINGS				
Bohemian Waxwing			o	
Cedar Waxwing			u	
SHRIKES				
Northern Shrike	u		u	
Loggerhead Shrike		o	o	
STARLINGS				
•Starling	c	c	u	o
VIREOS				
Solitary Vireo		r		
Red-eyed Vireo		o		
•Warbling Vireo	c	c	u	
WOOD WARBLERS				
•Yellow Warbler	c	c		
•Yellow-rumped Warbler	a	a	o	
•MacGillivray's Warbler	c	c	o	
•Common Yellowthroat	c	c	o	
•Wilson's Warbler	u	u	o	
Yellow-breasted Chat		o		
•American Redstart	u	u	o	
WEAVER FINCH				
•House Sparrow	u	u	u	o
BLACKBIRDS and ORIOLES				
Bobolink		o		
•Western Meadowlark	c	c	u	r
•Yellow-headed Blackbird	c	c	u	
•Redwinged Blackbird	c	c	u	r
Northern Oriole		o		
•Brewer's Blackbird	c	c	u	
•Brown-headed Cowbird	c	c	u	
TANAGERS				
•Western Tanager	c	c	o	

	S	S	F	W
GROSBEAKS, SPARROWS and FINCHES				
•Black-headed Grosbeak	u	u	o	
•Lazuli Bunting	o	o		
•Evening Grosbeak	o	o	o	
•Cassin's Finch	c	c	o	o
•Pine Grosbeak	o	o	u	o
Gray-crowned Rosy Finch	u		c	u
•Black Rosy Finch	o	o	o	
Common Redpoll	u		u	u
•Pine Siskin	c	c	c	u
•American Goldfinch	u	u	o	
•Red Crossbill	o	o	o	o
•Green-tailed Towhee	u	u	u	
•Rufous-sided Towhee	u	u	o	
Lark Bunting		o	o	
•Savannah Sparrow	c	c	o	
•Vesper Sparrow	c	c	c	
•Lark Sparrow	o	o	o	
•Dark-eyed Junco	c	c	c	o
Tree Sparrow	o		o	r
•Chipping Sparrow	c	c	u	
•Brewer's Sparrow	c	c	u	
•White-crowned Sparrow	c	c	c	o
•Fox Sparrow	o	o	o	
•Lincoln's Sparrow	c	c	u	
•Song Sparrow	c	c	u	o
Snow Bunting	u		c	o

Date _____

Observations _____

Weather _____

Time _____

Total Species _____

For Additional Information Contact
Refuge Manager
Red Rock Lakes
National Wildlife Refuge
Monida Star Route
Box 15
Lima, Montana

Red Rock Lakes National Wildlife Refuge is one of a system of refuges administered by the U.S. Fish and Wildlife Service and dedicated to the preservation of wildlife. The financial base for this system was firmly established in 1934 through the passage of the Migratory Bird Hunting Stamp Act. This Act requires waterfowl hunters to purchase annually a migratory bird or "duck stamp." Funds collected from duck stamps sales have been used to purchase numerous refuges that provide habitats necessary to sustain a variety of wildlife for both hunters and nonhunters to enjoy.

FISH AND WILDLIFE SERVICE
UNITED STATES
DEPARTMENT OF THE INTERIOR

GPO 830-563

RF-661670-2

Reprinted April 1981

RED ROCK LAKES National Wildlife Refuge

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

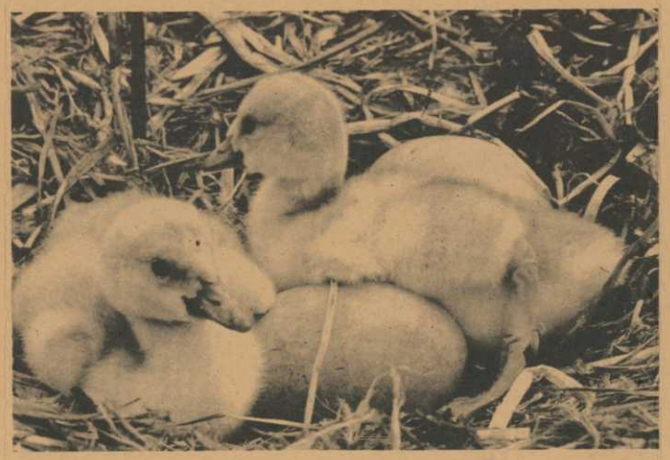
Red Rocks Lakes National Wildlife Refuge was established in 1935 to protect the rare trumpeter swan, largest of all the North American waterfowl. On this 40,000 acre refuge located in southwestern Montana, 350 trumpeter swans may be found, which is one-third of the North American swan population outside of Alaska. It is one of the most important nesting areas for these majestic birds.

The refuge lies in the eastern end of the Centennial Valley, near the headwaters of the Missouri River. The towering Centennial Mountains thrust abruptly 10,000 feet to the Continental Divide which borders the refuge on the south and east. These rugged mountains catch the heavy snows of winter providing a constant supply of water that replenishes the refuge's 14,000 acres of marsh and water. The flat and marshy lands of the valley floor merge into the rolling foothills of the Gravelly Range to the north. This is the habitat that provides the solitude and isolation so necessary to the trumpeter swan.

The trumpeter swan once ranged over much of the interior of the United States, crossing to east of the Mississippi River. Westward settlement eliminated the solitude and isolation the swans require. Their numbers decreased as their habitat became lost. By the early 1900's, only a remnant was left in the tri-state area of southwestern Montana, southeastern Idaho, and northwestern Wyoming, and in parts of Canada and Alaska. There were only 73 swans in the tri-state area in 1935 when the refuge was established. Forty-six of the swans were in the Centennial Valley.

With the refuge providing an undisturbed area, the swans increased. Their slow, steady buildup continued until about 1954, when their numbers leveled off. Today, the population south of Canada is about 1,000 birds.

When the swans reached a saturation point on the refuge, the Fish and Wildlife Service decided to use refuge birds to re-establish the species elsewhere. As a result, wild flocks of trumpeters are now restored in Oregon, Washington, Nevada, South Dakota, Nebraska, and Minnesota. Zoos and parks throughout the United States, Canada, and Europe exhibit trumpeter swans originating from Red Rock Lakes birds.

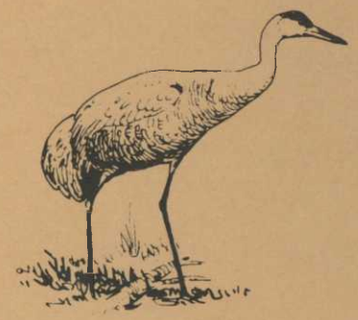


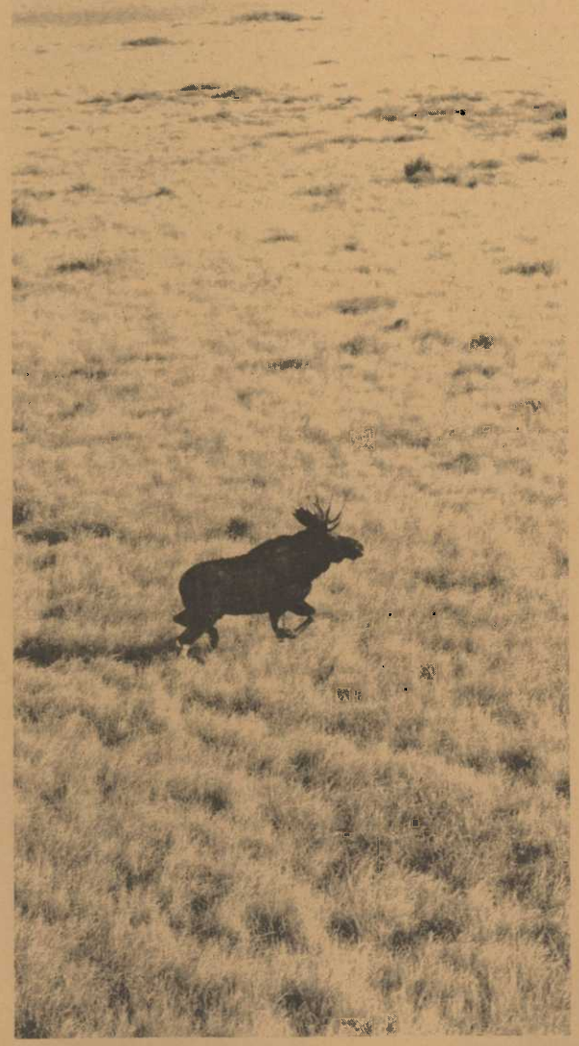
Trumpeter swans in this area do not travel south in the winter as do Alaskan trumpeters and most other waterfowl. During the winter, the birds are limited to the confines of the open water on the refuge and elsewhere within the tri-state area. As the number of swans increased, it became apparent that natural foods were insufficient to maintain the growing population. Therefore, grain is provided for the swans at Mac Donald and Culver Ponds during the oppressive winters. Concentrations of over 300 trumpeters gather at these feeding ponds during winter's most intense cold.

The refuge's lakes, marshes, and creeks also provide attractive habitat for a multitude of ducks. Eighteen different kinds of waterfowl, including the relatively uncommon Barrow's goldeneye, raise their young here each year.

In August and September, more than 50,000 ducks and geese congregate on the refuge before their southward migration. Between 1,500 and 2,000 whistling swans make their appearance on the refuge in October. They are known locally as "cowboy geese" because of the fancied resemblance of their calls to the distant yells of cowpunchers gathering cattle.

Each spring, greater sandhill cranes nest in the refuge meadows and marshes. These grand-limbed birds are most easily observed on grasslands near Upper Red Rock Lake from May through August. Their courtship display and dance takes place in April and May.





Great blue herons, willets, avocets, and long-billed curlews are other conspicuous waders and shorebirds that nest in the marshes and uplands of the refuge. The timber covered slopes and aspen stands on the south side prove attractive to blue and ruffed grouse and many interesting kinds of songbirds. Sage grouse and Brewer's sparrows are among the more common sagebrush residents north of the marshes.

Moose are year-round residents. Elk, deer, and pronghorn antelope are found on the refuge all year except during winter. Other familiar mammals encountered by refuge visitors are red fox, badgers, striped skunks, Richardson ground squirrels, and occasionally bobcats.

Beginning in May with the appearance of the first pasque flowers, a myriad of wild flowers found only at this high altitude begin to dot the landscape. By July, the refuge becomes a wildflower paradise. Shooting stars, buttercups, sticky geranium, lupine, and loco paint the grasslands in multicolor hues of reds, pinks, blues and yellows. Refuge meadows become pastel seas of beauty.

Photographers, birdwatchers, and other visitors are welcome. Travel in the lakes and marshes where waterfowl nest has to be restricted, but trumpeter swans may be seen and photographed closely from mid-July through August at Shambow Pond.

Refuge ponds and streams provide quality rainbow, brook, and cutthroat trout fishing. An added bonus for fishermen is the rare Arctic Grayling, found in few other places.

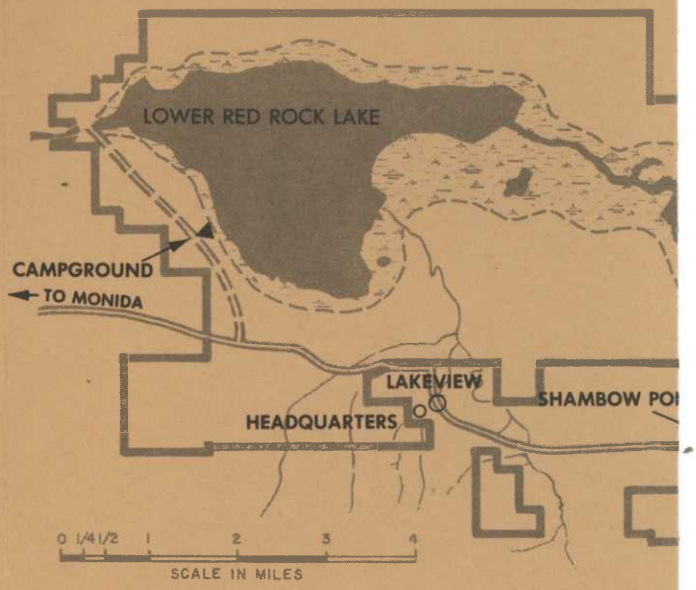
Waterfowl and big game hunting is permitted on part of the refuge. Refuge recreation maps delineating the areas open to hunting and fishing and listing special refuge regulations are available.

Picnicking and camping facilities are available at two locations. Accommodations are available at two resorts near the refuge, and at other resorts along the shores of historic Henry's Lake about 25 miles east of the refuge. Hotel and motel accommodations can be found in Lima and West Yellowstone, 50 miles from the refuge.

The best time to visit the refuge is from May through October. Headquarters can be reached by turning off Interstate Highway 15 at Monida, Montana, and driving east 28 miles over a dirt road. Or, by traveling west from Highway 191, past Henry's Lake, over 30 miles of dirt road. This road is usually not open until May 15. The road from the west, from Monida, opens sooner—about mid-April, but it can be rough going for passenger cars until mid-May. These roads are often closed again in November. Summer rains can make these routes all but impassable so local inquiry as to road conditions is advisable at any time of the year.

Additional information can be obtained from the Refuge Manager, Red Rock Lakes National Wildlife Refuge, Monida Star Route, Lima, Montana 59739.

Red Rock Lakes National Wildlife Refuge

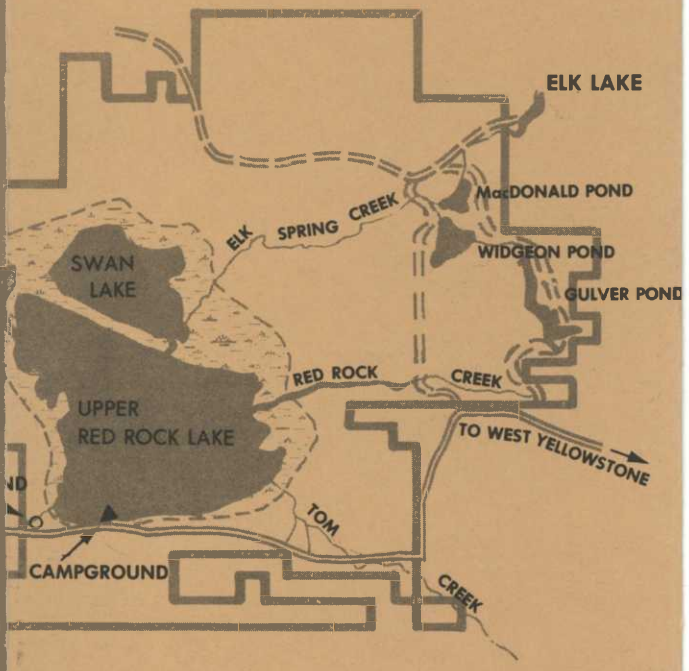


As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

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.

RF6–61570–1

Reprinted Feb. 1984



GPO 842–466

FISH OF RED ROCK LAKES NATIONAL WILDLIFE REFUGE

ARCTIC GRAYLING

YELLOWSTONE CUTTHROAT TROUT

RAINBOW TROUT

BROOK TROUT

MOUNTAIN WHITEFISH

ARCTIC GRAYLING

Distinguished by large dorsal fin, larger scales than trout and forked tail. May reach two pounds in weight. Spawns in the early spring. Historically, spawning runs of many thousands of grayling were seen in most streams of this area. Now, only a remnant population is found, mainly in Red Rock Creek. Aquatic insects and crustaceans form the bulk of the grayling's diet.

YELLOWSTONE CUTTHROAT TROUT

Distinguished by two red slash marks on underside of jaw and large, round, black spots. Found primarily in Red Rock Creek. Spawns in the spring. Hybridizes readily with rainbow trout. Weighs up to four pounds. Feeds mainly on aquatic insects and less frequently on small fishes.

RAINBOW TROUT

Distinguished by pink side streaks and lack of red cutthroat jaw slashes. Spotting smaller and more irregular shaped than cutthroat. Introduced from the Pacific Coast. Found primarily in MacDonald Pond and Elk Springs Creek. May reach six or more pounds. Spawns in the spring. Feeds mainly on aquatic insects, but large rainbows take small fish of any available species as well.

BROOK TROUT

Distinguished by numerous light colored "worm tracks" on the darker upper body and red spots with blue halos. Introduced from the eastern United States. Found throughout the refuge waters except in MacDonald Pond. Weighs two to three pounds. Spawns in the fall. Feeds mainly on aquatic invertebrates and small fishes.

MOUNTAIN WHITEFISH

A native member of the trout family that is distinguished by a slender shape, large scales, silver color devoid of spots, and a small mouth that is slightly downturned. Whitefish feed on insects, fish eggs, and small fishes. These fish are fall spawners and can be found in Red Rock Creek.

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

RF6-61570-00
☆GPO: 1982: 580-356

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